

Enhancing Climate Resilience of Vulnerable Communities and Ecosystems in the Gandaki River Basin

Annex 7a: Institutional and Stakeholder Analysis



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Table of Contents

Acknowledgements	ii
Abbreviations	iii
1.0 Introduction	1
1.1 Background	1
1.2 Objectives of the Study	2
1.2.2 Specific objectives.....	2
1.3 Methodology	3
2.0 Review of Relevant Policies, Strategies and Projects.....	5
2.1 Review of National and local Stakeholder Engagement Policies and Strategies	5
2.2.1 Identification of the strength and weakness of existing stakeholder engagement policies and strategies.....	5
2.2.1 Synergies, conflict and trade-offs between different initiatives and policies.....	14
2.1.3 Assessment of the policy environment in relation to Stakeholder based approach to EbA	18
2.1.4 Gaps, entry points and Potential Actions for stakeholder Engagement	19
2.2 Summary of Lessons Learned from Current and Recent Past Projects	21
3.0 Baseline	22
3.1 National and Sub-National Stakeholders Involved in EbA.....	22
Department of Water Supply and Sewerage	33
3.2 Institutional Arrangement and Governance Structures.....	34
3.2.1 Existing Institutional Arrangements (both at national and local levels)	34
3.2.2 Governance Structures.....	35
3.2.3 Collaborative Mechanisms and Cross-sectoral Coordination between Stakeholders	37
3.2.4 Linkages of Stakeholders with and between Local Communities	38
3.3 Stakeholders views of vulnerability to climate change and natural disasters.....	39
3.3.1. Ecosystem based adaptation and natural resource management (Forest and Biodiversity).....	39
3.3.2. Agriculture (Agroforestry).....	40
3.3.3 Climate change indicators.....	40
3.3.4. Economy and Market potential	40
3.3.5. Gender and Social Inclusion prospective	41
3.3.6. Watershed conditions and management possibilities	41
3.3.7. Monitoring and Evaluation and Knowledge Management (including Traditional Knowledge)	41
3.4 Assessment of Institutional Capacity to Support/Implement EbA	42
3.5 Institutional Capacity Development Needs for Effective EbA	42
3.6 Recommended Key Stakeholder-related Activities	44
4.0 Conclusion	45
References	46
Annexes.....	48
Annex 1: Checklist 1 - Criteria and Types of information	48
Annex 2: Checklist 2 - Field Consultation	52

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Nepal is rich in natural resources and proud of its people who are pursuing for the sustainable development. Despite of various development efforts in the country, there are emerging issues due to climate change. One of the areas in the country in Gandaki River Basin where both vulnerable communities and ecosystem facing unprecedented impact and urged for necessary actions to overcome the situation.

In the course of developing proposal on enhancing Climate Resilience of Vulnerable Communities and Ecosystems in the Gandaki River Basin (GRB). There are various aspects to be dealt to address the issues. One of the important aspects is Stakeholder and Institutional Analysis. This report is dealt with stakeholder analysis which will help to take decisions during the implementation of the project.

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Abbreviations

ACOFUN	Association of Collaborative Forest Users Nepal
ADB	Asian Development Bank
AE	Accredited Entity
ADS	Agriculture Development Strategy
AEPC	Alternate Energy Promotion Center
BCRWME	Building Climate Resilience of Watersheds in Mountains Eco-Region
BZCFUC	Buffer Zone Community Forest User Committee
CA	Conservation Areas
CAF	Cancun Adaptation Framework
CAMC	Conservation Area Management Committee
CBOs	Community Based Organizations
CC	Climate Change
CCC	Chitwan Annapurna Landscape Coordination Committee
CCNN	Climate Change Network Nepal
CDG	Community Development Group
CDO	Chief District Officer
CFUG	Community Forest User Group
CHAL	Chitwan Annapurna Landscape
CHALWG	Chitwan Annapurna Landscape Working Group
CoFMGs	Collaborative Forest User Groups
COFSUN	Community Forestry Supporter Networker
CSO	Civil Society Organisation
DADO	District Agriculture Development Office
DANAR	Dalit Alliance for Natural resources
DANIDA	Danish International Development Authority
DDC	District Development Committee
DEO	District Education Office
DFO	District Forest Office
DFRS	Department of Forest Research and Survey
DFSCC	District Forestry Sector Coordination Committee
DHM	Department of Hydrology and Metrology
DLSO	District Livestock Service Office
DNF	Dalit NGO Federation
DNPWC	Department of National Park and Wildlife Conservation
DoA,	Department of Agriculture
DoF	Department of Forests
DoLD	Department of Livestock Development
DoLIDAR	Department of Local Infrastructure and Agriculture Development
DPR	Department of Plant Resources
DRR	Disaster Risk Reduction
DRRMNC	Disaster Risk Reduction Management National Committee
DSCO	District Soil Conservation Office
DSCWM	Department of Soil Conservation and Watershed Management
DWIDM	Department of Waters induced Disaster Management
EbA	Ecosystem-based Approaches to Climate Change Adaptation, also referred to as Ecosystem-based Adaptation (EbA)
EELG	Environment Friendly Local Governance
EFLGFC	Environment Friendly Local Governance Framework
EFGDCC	Environment Friendly Governance District Coordination Committee
EPIC	Ecosystems Protecting Infrastructure and Communities
FECOFUN	Federation of Community Forest Users, Nepal
FeNFIT	Federation of Nepalese Forest based Industry and Trade Nepal
FINNIDA	Finish International Development Authority
FNCCI	Federation of Nepalese Chamber of Commerce and Industry

FSS	Forestry Sector Strategy
FUG	Forest User Group
GCF	Green Climate Fund
GFN	Green Foundation Nepal
GLOF	Glacier Lake Outburst Flood
GoN	Government of Nepal
GRB	Gandaki River Basin
GTZ	German development Assistance
HBP	Hariyo Ban Program
HFA	Hyogo Framework for Action
HIMAWATI	Himalayan Grassroots Women's Natural Resources Management Association
HHs	Households
NGo	Non-government Organization
I/NGOs	International /Non-Government Organizations
ICIMOD	International Centre for Integrated Mountain Development
ICD	Institutional Capacity Development
IFAD	International Fund for Agriculture Development
INDC	Intended Nationally Determined Contributions
IPFC	Integrated Plan Formulation Committee
IPPAN	Independent Power Producers' Association
IUCN	International Union for Conservation of Nature
IWM	Integrated Watershed Management
JABAN	Jadibuti Association of Nepal
JICA	Japanese International for Cooperation Agency
LAPA	National Framework on Local Adaptation Plan of Action
LFUG	Leasehold Forest User group
LiBIRD	Local Initiatives for Biodiversity, Research and Development
LLRs	Land and Land Resources
LULSEPV	Land Use Land System Erosion Potential Value
LUP	Land Use Policy
LUZs	Land Use Zones
MAP	Medicinal and Aromatic Plant
MDG	Millennium Development Goal
MEDEP	Micro Enterprise Development Program
MFSC	Ministry of Forest and Soil Conservation
MOAD	Ministry of Agricultural Development
MoE,	Ministry of Energy
MoF	Ministry of Finance
MoFALD	Ministry of Federal Affairs and Local Development
MoHA	Ministry of Home Affairs
MOI	Ministry of Irrigation
MOLD	Ministry of Livestock Development
MoLRM	Ministry of Land Reform and Management
MoPE	Ministry of Population and Environment
MuAN	Municipal Association of Nepal
NAF	Nepal Agroforestry Foundation
NAFIN	National Federation of Indigenous Nationalities
NAP	National Adaptation Plan
NAPA	National Adaptation Plan of Action
NARC	Nepal Agriculture Research Council
NAVIN	Nepal Village Development Association
NBSAP	National Biodiversity Strategy and Action Plan
NCA	Nepal Chepang Association
NCDM	National Council for Disaster Management

NCNSFSDG	National Strategic Framework for Sustainable Development Goal
NDC	Nationally Determined Contribution
NDMA	National Disaster Management Authority
NEFEJ	Nepal Forum of Environmental Journalists
NEFTA	Nepal Forest Technicians Association
NEFUG	Nepal National Forest User Group
NEHHPA	Nepal Herbs and Herbal Products Associations
NFA	Nepal Foresters Association
NGO	Non-governmental Organizations
NNDSWO	Nepal National Dalit Social Welfare Organization
NPC	National Planning Commission
NRCC	National Resource Conservation Coordination Committee
NRCT	Nepal River Conservation Trust
NRREP	National Rural and Renewable Energy Programme
NSDRM	National Strategy for Disaster Risk Management
NTNC	National Trust for Nature Conservation
NTFP	Non-Timber Forest Product
NWC	National Wetland Committee
PANI	Program for Aquatic Natural Resources Improvement
PES	Payments for Ecosystem services
POWER	Poor, Occupational caste, and Women's Empowerment for Resource Management
PRSP	Poverty Reduction Strategy Paper
PSC	Project Steering Committee
RCTMCDB	Ratrapati Chure Terai Madhesh Conservation Development Board
REDD	Reducing Emissions from Deforestation and forest Degradation
RIMS	Resource Identification and Management Society Nepal
SALT	Sloping Agriculture Land Technology
SDC	Swiss Development Cooperation
SOWCOS	Soil and Water Conservation Society
TAL	Tarai Arc Landscape
ToT	Training of Trainers
UG	User Group
UNDP	United Nations Development Program
UNFCCC	United national Framework Convention on Climate Change
USAID	United States Agency for International Development
USLE	Universal Soil Loss Equation
WDO	Women Development Office
WECS	Water and Energy Commission Secretariat
WOCAN	Women Organising for Change in Agriculture and natural Resources Management
WWF	World Wildlife Fund

1.0 Introduction

Nepal is situated in the contrast physiographic, geological, climatic condition. Despite of its efforts towards sustainable development, a number of challenges faced by Nepal have become obstacles for approaching sustainable development goals. One of the river basins affected by climate change in Nepal is the Gandaki River Basin (GRB). Key areas including food security, water availability, forests and biodiversity, health, infrastructure and tourism are not only affected by natural causes, but also by anthropogenic factors. An increasingly important emerging issue is the impact of climate change, especially on vulnerable ecosystem and communities of the GRB.

To address emerging climate changes issues, the Government of Nepal (GoN) has promulgated several policies, enacted rules and regulations and is operating programs with various institutional set ups. However, there are number of issues that are yet to be dealt with properly regarding the impact of climate changes especially the adaptive capacity of the vulnerable communities.

One of the major issues is stakeholder's role and constructive engagement with the entire spectrum of societal actors throughout any project or program. Especially, the impact of climate change can only be managed if stakeholder is timely and properly engaged in the project life cycle. In the Gandaki River Basin, the GoN is going to propose to address the impact of climate change for vulnerable communities and ecosystems. In this case, there is a need of better understanding of river basin and integrated watershed management issues by analyzing institutional and stakeholder aspect of the targeted area.

1.1 Background

The Project entitled "Enhancing Climate Resilience of Vulnerable Communities and Ecosystems in the Gandaki River Basin" is designed to build adaptive capacity of vulnerable communities and resilience of natural ecosystems. It is based on a recognized need to enhance the adaptive capacity of ecosystems and communities in the GRB. Further, the project is aiming to achieve a 'paradigm shift' to low-emission and climate-resilient pathways.

This project is jointly prepared by the International Union for Conservation of Nature (IUCN), as the Accredited Entity (AE) for the Green Climate Fund (GCF), the Department of Soil Conservation and Watershed Management (DSCWM)/Ministry of Forest and Soil Conservation, and the National Trust for Nature Conservation (NTNC). The general objective of the Project is to build the adaptive capacity of vulnerable communities and resilience of natural ecosystems in the GRB (Figure 1: Map of Gandaki River Basin)

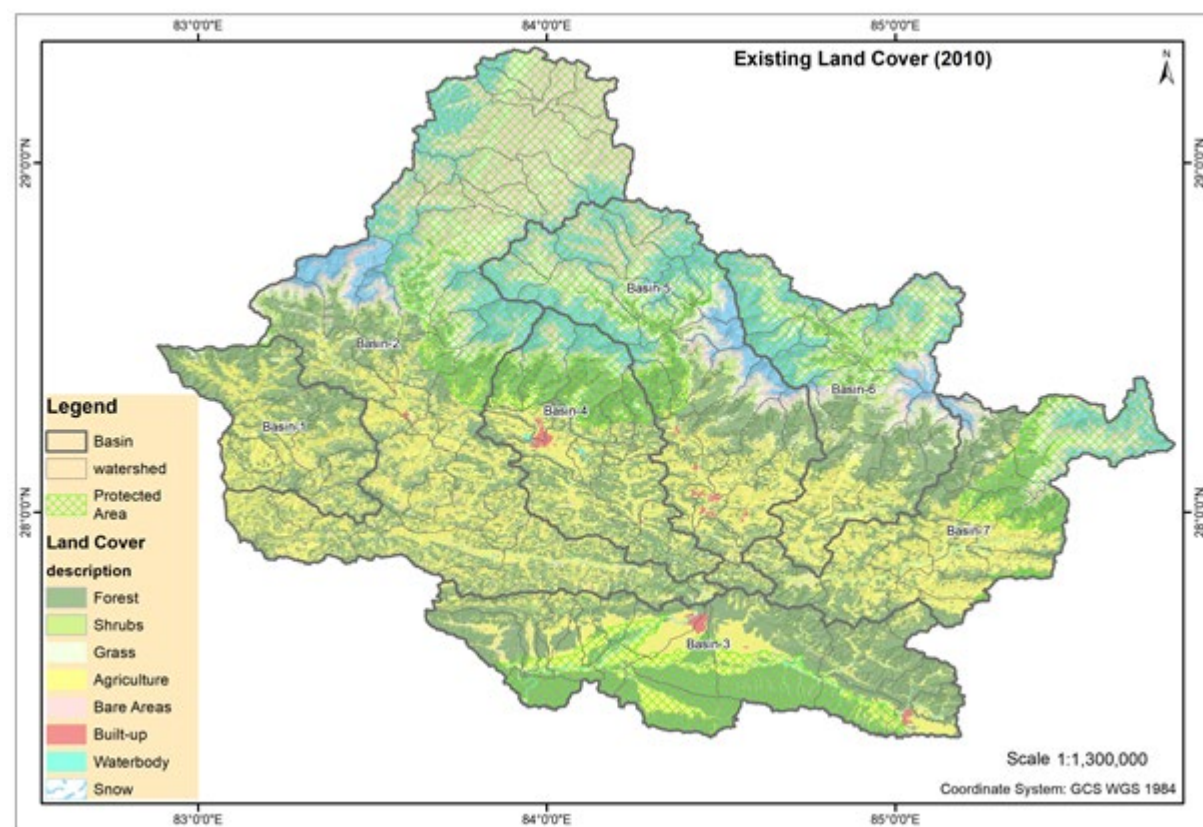


Figure 1: Map of Gandaki River Basin

The planned outcomes of the Project include:

- ☐ enhanced resilience of ecosystems
- ☐ improved livelihoods of poor, vulnerable and socially excluded groups
- ☐ reduced damage to and loss of properties and lives due to extreme events,
- ☐ Enhanced knowledge management on Ecosystem-based Approaches to Climate Change Adaptation, also referred to as Ecosystem-based Adaptation (EbA).

1.2 Objectives of the Study

1.2.1 Objectives

Develop a comprehensive stakeholder and institutional analysis for the targeted sites and the Gandaki River Basin overall for providing inputs to the project design.

1.2.2 Specific objectives

- ☐ To review of relevant stakeholder engagement policies, strategies, published materials, and reports to:
 - ☐ To identify the strengths and weaknesses of existing policies and strategies
 - ☐ To identify synergies, conflicts and trade-offs between different initiatives and policies.
 - ☐ To identify gaps, entry points, and potential actions for stakeholder engagement.
- ☐ To prepare a baseline through a desk review and field
- ☐ To identify and maps national and sub-national stakeholders involved in EbA and broadly assess their roles, responsibilities, strengths, and capacity building needs.
- ☐ To identify the governance structures and existing institutional arrangements (both at national and local levels) between the key stakeholders (including collaborative

mechanisms and cross-sectoral coordination, and linkages with and between local communities).

- ❑ To provide stakeholders' views of vulnerability to climate change and natural disasters
- ❑ To assess institutional capacity to support/implement EbA (including identification of fiscal and human resources, knowledge and expertise, as well as operational and procedural frameworks).
- ❑ To identify institutional capacity development needs for effective EbA both at national and local level, as well as capacity building needs of local communities
- ❑ To draft the stakeholder engagement sections of the project document (addressing GCF and IUCN criteria) including outputs and outcomes, key activities, indicators, means of verification and, as far as possible, costing.

1.3 Methodology

The Project aims to cover at least 195,000 households directly through project inputs. The Project will focus on 40% of households from very high, 25% from high, 15% from medium, 10% from low and 5% from very low vulnerable groups or beneficiaries as shown in the following Table 1 and Figure 2.

Table 1: Vulnerability categories and project beneficiaries

Vulnerability status	District	Total HHs	Coverage %	HH targeted
Very high	Lamjung	42,079	40	16,832
High	Chitwan, Dhading, Gorkha, Manang,	274,299	25	68,575
Medium	Mustang, Nawalparasi, Makawanpur, Tanahu, Kaski, Parbat, Baglung, Myagdi, Rasuwa	557,037	15	83,556
Low	Syangja, Gulmi, Arghakhanchi, Nuwakot	239,852	10	23,985
Very low	Palpa	59,291	5	2,965
Total		1,172,558		195,912

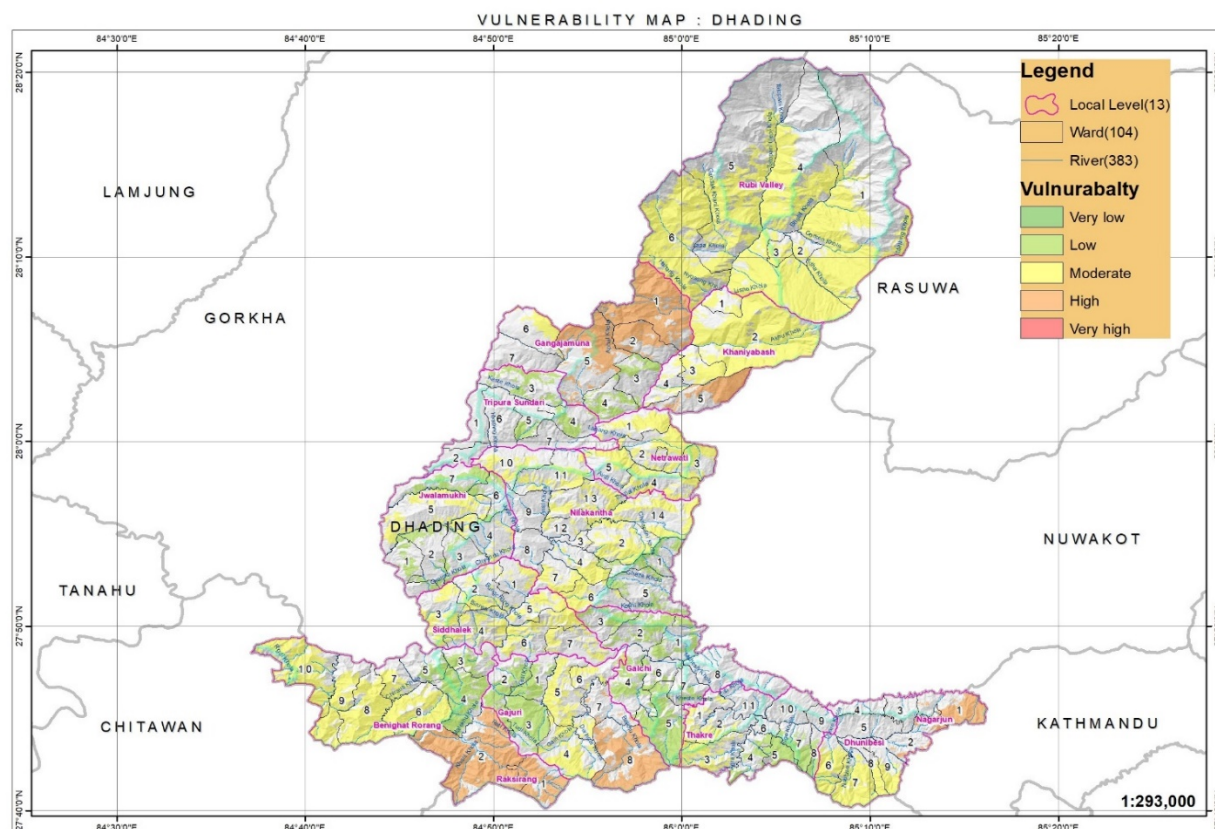


Figure 2: Map showing one of the high Vulnerability districts - Dhading district

Based on the categories (see below), data for the stakeholders and institutional analysis were collected through two methods:

- ☐ Secondary information: Review of literature, policies and research papers.
- ☐ Primary information: Wide consultation with community, local, district, federal level stakeholders from various institutions of the GRB.

A stakeholder analysis has been carried out on the following categories: civil society, government, private sector, international organizations. Using these categories, key stakeholders have been identified at national, district, local levels and community level during the feasibility study of the project. Secondary data were collected from the desk review where a number of government publication, caste studies, and reports were used.

Primary data were collected through field visited where the study team used a number of checklists (Annex 1 and Annex 2) for the stakeholder consultation. The data covers qualitative, quantitative data, mix of data from different units of analysis for triangulation of results.

The units of analysis used for the stakeholder assessment cover community level, local, district level information as well as case study –individual level. Of the total 19 districts, 8 different field teams comprising multidisciplinary teams completed surveys covering GRB, including consultations in 40 different places (Figure 3). The study focuses on meaningful engagement of stakeholders during the feasibility study which ultimately will enhance the ownership of the forthcoming project in the targeted basin.



Figure 3: Discussion with Community at Barpak of Gorkha district

2.0 Review of Relevant Policies, Strategies and Projects

2.1 Review of National and local Stakeholder Engagement Policies and Strategies

Recent policy and legal arrangements have focused towards watershed management, disaster prevention, mitigation and adaptation due to the impact of climate change. Further, there are number of institutions and stakeholders ranging from government, non-government to community based organizations to be involved in river basin management.

2.1.1 Identification of the strength and weakness of existing stakeholder engagement policies and strategies

Constitution of Nepal, 2015

The Constitution is the fundamental law of Nepal. Article 30 clearly provides for the Right to a clean environment for every citizen and a victim shall have the right to obtain compensation. The Article encourages the making of necessary legal provisions for a proper balance between the environment and development, in development works of the nation.

Similarly, Article 51. (g) makes provisions on policies relating to protection, promotion and use of natural resources including to protect, promote, and make environmental friendly and sustainable use of, natural resources available in the country maintaining ecological balance and mitigate risks from natural disasters.

Schedule 5 to 9 provide rights on Federal, Province, and Local Government as well as concurrent authority.

- Schedule-5 (Relating to clause (1) of Article 57, and Article 109) - List of Federal Power
 - ❑ National and international environment management, national parks, wildlife reserves and wetlands, national forest policies, carbon services

- Schedule-6 (Relating to clause (2) of Article 57, clause (4) of Article 162, Article 197, clause (3) of Article 231, clause (7) of Article 232, clause (4) of Article 274 and clause (4) of Article 296) -List of State Power
 - ☐ Use of forests and waters and management of environment within the State
- Schedule-7 (Relating to clause (3) of Articles 57, Article 109, clause (4) of Article 162, and Article 197) List of Concurrent Powers of Federation and State-
 - ☐ State boundary river, waterways, environment protection, biological diversity
 - ☐ Utilization of forests, mountains, forest conservation areas and waters stretching in inter-State form
- Schedule-8 (Relating to clause (4) of Article 57, clause (2) of Article 214, clause (2) of Article 221 and clause (1) of Article 226) List of Local Level Power
 - ☐ Local market management, environment protection and biodiversity
 - ☐ Protection of watersheds, wildlife, mines and minerals
 - ☐ Disaster management
- Schedule-9 (Relating to clause (5) of Article 57, Article 109, clause (4) of Article 162, Article 197, clause (2) of Article 214, clause (2) of Article 221, and clause (1) of Article 226) List of Concurrent Powers of Federation, State and Local Level
 - ☐ Forests, wildlife, birds, water uses, environment, ecology and biodiversity
 - ☐ Disaster management

National Parks and Wildlife Conservation Act, 1973

The National Parks and Wildlife Conservation Act, 1993 was promulgated to make arrangement for the management of national parks, conservation of wildlife and their habitat, regulate hunting and to conserve, promote, develop, and make appropriate arrangements for and the use of places which are of special importance from the point of view of natural beauty and to maintain good manners and welfare of the general public.

Soil and Water Conservation Act, 1983

In the preamble of the Soil and water Conservation Act, 1983, it clearly urges for legal provisions to be made for the land and watershed conservation by controlling natural calamities such as floods, landslides and soil erosion and to maintain convenience and economic interests of the general public. Similarly, there is a provision of declaring protected watershed area.

- In Clause 2, it is mentioned that 'power to declare as conserved watershed area: (1) If the Government of Nepal considers it necessary for the soil and watershed conservation, it may, by a Notification in the Nepal Gazette, declare any area of Nepal as a conserved watershed area, specifying the borders thereof. (2) Government of Nepal may, by a Notification in the Nepal Gazette, alter as required the boundaries of a conserved watershed area declared pursuant to Sub-section (1).
- In addition, in Clause 16, there is a provision of formation of District Soil and Watershed Conservation Committee in order to coordinate the implementation of activities pertaining to soil and watershed conservation in the district.

National Trust for Nature Conservation Act, 1984

The National Trust for Nature Conservation Act, 1984 provisioned to conserve and manage the nature and natural heritage. As per the Act, the Trust shall be an autonomous body corporate with perpetual succession. According to the Act, there are three Conservation Areas (CA) are being managed by the National Trust for Nature Conservation (NTNC) ad Annapurna CA, Manaslu CA and Gauri Shanker CA. All these CAs have Conservation Area Management Committees (CAMCs) to manage the designated areas.

Forest Act, 1993

The government amended the Forest Act, 1993 in 2016 and incorporated a provision of environmental services. This provision included carbon sequestration, biodiversity conservation, hydro- cycle system, ecotourism.

Water Resources Act, 1993

The Water Resources Act, 1993 defined “Water Resources” as the water that is available in Nepal in the form of surface water, underground water or in whatsoever form. Clause 20 covers Not to Cause Substantial Adverse Effect on the Environment. This means that while utilizing water resources, it shall be done in such a manner that no substantial adverse effect be made on the environment by way of soil erosion, flood, landslide or similar other cause.

Guidelines and Methodology for Sub Watershed Prioritization in Watershed Management Planning, 1997 (Revised)

The officials (Bogati, R, Kharel, B, Shrestha, BD) from the DSCWM have contributed to develop Guidelines and Methodology for Sub Watershed Prioritization in Watershed Management Planning in 1993, which was revised in 1997. The guidelines deal with the Land Use Land System Erosion Potential Value (LULSEPV) method for sub watershed prioritization. This method utilized the Universal Soil Loss Equation (USLE), developed by the US Soil Conservation Service because values for factors in the USLE have not been determined for the Nepalese Context. It also incorporates the population parameters in finalizing prioritize ranking.

The Hydropower Development Policy, 2001 (Ministry of Water Resources)

Based on the experiences gained in the course of implementing the principles followed by the Hydropower Development Policy, 1992, emerging new concepts in the international market and their impacts, technological development, possibility of export of hydropower energy, possibility of foreign investment and commitment in environmental protection with a view to make it clear, transparent, practical and investment friendly; revision and improvement of the hydropower policy has become imperative. One of the strategies is to make the river basins of specific rivers as the basis of development and management of water resources in order to achieve maximum benefits from the utilization of water resources of Nepal.

Water resources Strategy-Nepal, Water and Energy Commission Secretariat

The Water Resources Strategy-Nepal was prepared in 2002 by WECS. The national goal has been defined as "living conditions of Nepali people are significantly improved in a sustainable manner". Indicators have been identified for 5 (by 2007), 15 (by 2017) and 25 (by 2027) years commencing in 2002. There are ten outputs, including an important one - sustainable management of watershed and aquatic ecosystems achieved. This output is focused on watershed management by preparing watershed management plan. The strategy clearly mentions that DSCWM and DNPWC will be lead agencies for the design and implementation of programs for critical priority watersheds and aquatic ecosystems identified for inclusion in strategic pilot scale programs.

Water Resources Strategy, 2002

The Water Resources Strategy has provided basis for water Plan 2005 and it has guided water sector activities towards sustainable use of the resources through 5 years, 15-year and 25 year strategies under which Management of Watershed and Aquatic Ecosystem is considered as one of the key strategy outputs.

National Water Plan 2005

River Basin Management: The rationale for undertaking management of water resources on a basin scale instead of on a project to project basis is because water and land resources of a river basin are interrelated and form a unit and therefore they must be treated as a fundamental planning entity. Because there are many development options available, potential existence of water use conflicts and trade-offs, and inherent interdependence among water, soil and land use, river basin planning and management is a complex task. Therefore, it is essential to include as many stakeholders as possible in the deliberations and decision-making processes.

One of the programs is implement nationally important Watersheds and Aquatic Ecosystems Protection, Rehabilitation and Management Programs which include (a) Prepare watershed management plan of important, critical and priority watersheds. (b) Prepare management plans for important, critical and prioritized aquatic ecosystems. (c) Implement a rehabilitation programs on degraded watersheds. (d) Implement a land productivity conservation program in priority watersheds. (e) Implement a Siwaliks/Churia conservation program. (f) Promote the Special Area Land Treatment (SALT) model. (g) Implement an industrial pollution control program.

Climate Change Policy, 2011

The main goal of the Climate Change Policy is to improve livelihoods by mitigating and adapting to the adverse impacts of climate change, adopting a low-carbon emissions socio-economic development path and supporting and collaborating in the spirits of country's commitments to national and international agreements related to climate change. The Climate Change Policy adopted a two-pronged approach, both adaptation and mitigation to address adverse impacts of climate change.

Nature Conservation: National Strategic Framework for Sustainable Development". National Planning Commission.

Based on the importance of soil and water conservation in Nepal, the National Resource Conservation Commission (NRCC) provisioned in the Soil and Water Conservation Act 1982 which has yet to be formed. The National Conservation Strategy 1988 was revised and updated by the NPC in 2015 as "Nature Conservation: National strategic framework for Sustainable development". It has envisioned a council at the center under the chairmanship of Vice Chairperson of NPC as entitled as National Strategic Framework Implementation Coordination Council for Nature conservation. The council engaged more than three dozen Ministries' secretaries and representatives from concerned institutions. Similarly, under the chair of member-secretary of NPC, an implementation coordination committee is also provisioned in the document.

Fourteenth Plan, National Planning Commission.

In the plan, it is clearly mentioned that the River system approach is to be adopted while implementing the Master Plan of Chure Conservation. Further, Basin approach is adopted with priority in Federal Nepal.

Local Government Operation Act, 2017

Local Government Operation Act, 2017 Clause 11 Authority of Rural Municipality and Municipality. (P) Watershed, Wildlife, Mine and Mineral protection which includes policy, legal arrangement, standards, and plan implementation and regulate as well water source protection, community soil conservation, watershed management based adaptation, and Mines and minerals use and management.

Master Plan for Chure -Tarai Madhesh Conservation and Management, Terai Chure Madhesh Conservation Development Board.

The Master Plan for Chure -Tarai Madhesh Conservation and Management was recently approved (2017 April). The plan envisioned conserving the Chure area through river system. It engaged three categories of institutions in the program - government organizations, non-government organizations and community based organizations.

Government Institutions include:

- ☐ Ministry of Forests and Soil Conservation with its Departments and district offices of various departments
- ☐ Ministry of Federal Affairs and Local Development with local government (Rural Municipality and Municipality)
- ☐ Ministry of Land Reform with District Cadastral Survey Office
- ☐ Ministry of Agriculture, together with its department s and district offices
- ☐ Ministry of Irrigation together with Department of Water Induced Disaster Management and Its Division Offices

Community Based Organizations:

- ☐ Federation of Community Forestry Users Group Nepal (FECOFUN)
- ☐ Association of Collaborative Forest User Nepal (ACOFUN)
- ☐ National Federation of Indigenous Nationalities (NAFIN)
- ☐ Dalit NGO Federation, Dalit Alliance for Natural resources (DANAR)

Most prominent CBOs includes CFUG, Collaborative FUG, LFUG, Soil Conservation UG, Irrigation Water UG, Farmer Group, Farmer Cooperatives.

NGOs- A number of NGOs working in the region.

Forest Policy 2015, MFSC.

This the latest policy document of the government of Nepal which incorporates seven policies including Watershed Management.

Forest Sector Strategy (2016-2025), MFSC

It has provisioned to Promote safety and food security by enhancing and restoring land productivity and water quality as well as to promoting integrated watershed management by strengthening upstream and downstream linkages, integrity of wetland and rangeland resources. The key milestones are as follows:

Table 2: Milestones

2015	2025
Watershed management	
Watershed health and vitality of 50 districts is classified as: 13 very poor; 6 poor; 7 marginal; and 25 fairly good	Watershed health and vitality of at least 20 districts upgraded to a higher condition category
Three basin management plans, 405 sub watershed management plans, 1,287 community development plans prepared	At least 175 land use development and management plan and prepared and implemented at different levels
Disaster risk reduction and natural hazard management in 3,104 sites	Natural hazards risk reduced to 2,000
Classification, planning and management of prioritized wetlands initiated	Wetlands of Nepal are inventoried Prioritized wetlands, including Ramsar sites, are protected and sustainably managed
Climate Change	
Climate change resilience /adaptation development initiated	At least 200,000 ha area protected through of adaptation Community / Ecosystem based adaptation approach mainstream

Source: MFSC, 2015. Forestry Sector Strategy (2016-2025)

National Land Use Policy, 2015

The Land Use Policy (LUP) is a policy document relating to limits and protection of Land and Land Resources (LLRs), optimum use and effective management thereto. One of the policies is categorization of the land based on the uses. Policy 1: Entire lands of the country shall be basically classified into following Land Use Zones (LUZs). Those zones could be sub-classified into Land Use sub-Zones as per necessity: (a) Agricultural Zone (b) Residential Zone (c) Commercial Zone (d) Industrial Zone (e) Mines and Minerals Zone (f) Cultural and Archaeological Zone (g) River and Lake-Reservoir Zones (h) Forest Zones (i) Public Use and Open Space Zone

(j) Building Materials (Stone, Sands, Concrete) Excavation Zone (k) Other Zones as specified as per necessity.

National Wetland Policy, MFSC.

The vision of the National Wetland policy includes sustainable development and environmental balance for healthy wetlands. After detailed inventory the wetlands were categorized based on the ownership (four types- protected area wetland, Forest area wetland, outside forest area or local bodies or self-governance owns wetland and private land based wetland). Wetlands are categorized under three conditions- very risk, endangered condition and lost wetlands. There are eight categories under management perspectives in the policy- wetland in government managed forest, protected areas, community based forests, leaseholds forest, Religious forest, managed by local bodies, Agricultural land and Other areas. This policy has also provisioned to implement the watershed based plan for wetland protect requirements. A National Wetland Committee (NWC) is provisioned under the co-ordination of the Secretary, MFSC where members are from Joint Secretary from various ministries - Agriculture, Energy, Irrigation, Federal Affairs and Local Development, Industry, Tourism and Civil Aviation and Agriculture and rural development Division, DGs- Department of Forests and DNPWC, and Chief Biodiversity and Environment Division, MFSC as member secretary. District Forestry Sector Coordination Committee is formed under the Chair of District Development Committee.

National Adaptation Plan of Action (NAPA), MoPE

Nepal's NAPA is a strategic tool to assess climatic vulnerability, and systematically respond to climate change adaptation issues by developing appropriate adaptation measures. The NAPA has nine combined project profiles which are

- i) Promoting community-based adaptation through integrated management of agriculture, water, forests and biodiversity sector.
- ii) Building and enhancing adaptive capacity of vulnerable communities through improved system and access to service related to agricultural development,
- iii) Community based disaster management for facilitating climate adaptation
- iv) GLOF monitoring and disaster risk reduction
- v) Forest and Ecosystem management for supporting climate-led adaptation innovations
- vi) Adapting to climate challenges in public health
- vii) Ecosystem management for climate adaptation
- viii) Empowering vulnerable communities through sustainable management of water resource and clean energy supply
- ix) Promoting climate smart urban settlement

The total cost to implement these integrated adaptation measures is about USD 350 million.

National Framework on Local Adaptation Plan of Action (LAPA), MoPE

The Climate Change Policy and NAPA documents aim to ensure that national adaptation planning processes are informed by, and supportive of, local adaptation needs and planning processes. Both policy documents have also made mandatory provisions to disburse at least 80 percent of the available climate budget directly for local level implementation of the adaptation actions. The LAPA Framework supports the operationalization of the policy objectives outlined in the NAPA, the National Climate Change Policy and Climate Resilience Planning by facilitating the integration of climate change resilience into local-to-national development planning processes and outcomes. The LAPA Framework supports:

- ☐ The development of local adaptation plans, which reflect location or region specific climate change hazards and impacts. The plans support adaptation options that are available locally and that are accessible to the most vulnerable communities and households, including women.
- ☐ The integration of local adaptation priorities into village, municipality, district and sectoral level planning processes in accordance with the Local Self Governance Act.

- ❑ The implementation of local adaptation plans by supporting the timely and sustainable delivery of adaptation services to the most climate vulnerable including women.
- ❑ Iterative adaptation planning through constant monitoring, evaluation and feedback.

National Biodiversity Strategy and Action Plan, 2014-2020

The National Biodiversity Strategy and Action Plan has been prepared with a 35-year vision of “conservation of biodiversity for sound and resilient ecosystems and national prosperity”. The overall goal is to significantly enhance the integrity of Nepal’s ecological systems by 2020, thereby contributing to human well-being and sustainable development of the country. This is to be achieved through implementation of a number of sector specific and cross-sectoral strategies and priority actions. Eight principles underpin the strategy and 13 broad strategic approaches have been prescribed to facilitate its implementation. The NBSAP embraces the commitment to fulfill the international obligation as signatory to the Convention on Biological Diversity.

Strategies and priority actions promote environment-friendly economic development and alternative livelihood opportunities through development of local forest and agriculture based enterprises; designing and implementation of ecosystem based adaptation programme. The cross-sectoral strategies included landscape management as well as adaptation to and mitigation of the effects of climate change.

National Adaptation Plan (NAP), 2015

Nepal through MoPE, focal point of UNFCCC launched the National Adaptation Plan (NAP) process in September 2015 by understanding the urgency of enhancing initiatives to address medium- and long-term adaptation needs. In fact, NAP process was established under the Cancun Adaptation Framework (CAF). It is a continuous, progressive and iterative process which follows a country-driven, gender-sensitive, participatory and fully transparent approach.

Intended Nationally Determined Contributions (INDC), MoPE, 2016

It is document which highlights the Nepal’s vulnerability to climate change and Nepal’s Emission Scenario. Further, Nepal communicated its NDC in response to the decisions of the Conference of the Parties to the UN Framework Convention on Climate Change:

- ❑ Nepal has initiated the process for the formulation of National Adaptation Plans (NAPs). Therefore, Nepal’s adaptation needs for future, and in the context of post2020 will be envisioned through the NAPs.
- ❑ Nepal places climate change adaptation at the centre of its development plans and policies. It aims to strengthen implementation of Environment-Friendly Local Governance (EFLG) Framework in Village Development Committees and 10 municipalities to complement climate change adaptation, promote renewable energy technologies, water conservation and greenery development.
- ❑ Nepal will undertake scientific (physical and social sciences) approaches to understand and deal with the impacts of climate change in mountains, hills and lowland ecosystems and landscapes. It will develop and implement adaptation strategies for climate change affected sectors.
- ❑ Nepal will study and understand further loss and damage associated with climate change impacts with the support from scientific and academic communities.
- ❑ Nepal plans to formulate the Low Carbon Economic Development Strategy that will envision country’s future plan to promote economic development through low carbon emission with particular focus on: (i) energy; (ii) agriculture and livestock; (iii) forests; (iv) industry; (v) human settlements and wastes; (vi) transport; and vii) commercial sectors
- ❑ By 2050, Nepal will achieve 80% electrification through renewable energy sources having appropriate energy mix. Nepal will also reduce its dependency on fossil fuels by 50%.
- ❑ Nepal aims to achieve the following target under the National Rural and Renewable Energy Programme (NRREP), reducing its dependency on biomass and making it more efficient. Technologies Targets Mini and Micro Hydro Power 25 MW Solar Home System 600,000 systems Institutional solar power systems (solar PV and solar pumping systems) 1,500 systems Improved water mill 4000 number Improved Cooking Stoves 475,000

stoves Biogas 130,000 household systems, 1,000 institutional and 200 community biogas plants

- ❑ By 2020, Nepal intends to expand its energy mix focusing on renewables by 20% and diversifying its energy consumption pattern to more industrial and commercial sectors.
- ❑ By 2020, Nepal aims to increase the share of electric vehicle up to 20% from 2010 level.
- ❑ By 2050, Nepal will decrease its dependency on fossils in the transport sector by 50% through effective mass public transport means while promoting energy efficient and electrical vehicles.
- ❑ Nepal will develop its electrical (hydro-powered) rail network by 2040 to support mass transportation of goods and public commuting.
- ❑ Nepal will maintain 40% of the total area of the country under forest cover and forest productivity and products will be increased through sustainable management of forests. Emphasis will equally be given to enhance carbon sequestration and forest carbon storage and improve forest governance.
- ❑ Nepal will pilot a sub-national project on REDD+ to reduce about 14 million tons of CO₂ by 2020 by addressing the drivers of deforestation and forest degradation and strengthening governance mechanisms in all types of forests and protected areas.
- ❑ By 2025, Nepal will strive to decrease the rate of air pollution through proper monitoring of sources of air pollutants like wastes, old and unmaintained vehicles, and industries

National DRR and management Act, 2017

The Act provides necessary provision to manage the crisis due to natural and non-natural disaster which created the situation of loss of life and property. A number of provisions are incorporated in the law. Prior to Disaster, they can conduct risk analysis and mobilize people for disaster prevention or mitigation of loss and development. Disaster reconstruction and rehabilitation will be done and investigation, rescue and relief will be done. The Act also provisioned the role of security and business organization. Disaster management fund will be established at all government level. Each Chief District Officer (CDO) has authority to look after the case and can punish who acts against the Act. Disaster Crisis area can be declared. International support can be used. They can mobilize Disaster investigation and rescue group.

- ❑ Disaster Risk Reduction Management National Council formed under the Chair of Prime Minister which meets at least twice a year. The member Secretary of DRRMNC will be Executive Officer of Authority.
- ❑ National Disaster Risk Reduction Executive committee established under the Chair of Minister-MoHA where executive Officer is Member secretary. Executive Officer will be member secretary.
- ❑ National Disaster Risk Reduction Management Authority will be formed and Executive Officer will be hired from the open competition.
- ❑ Province Disaster Management Committee formed under the Chair of Chief Minister
- ❑ District Disaster Management Committee formed under the Chair of Chief District Office (CDO)
- ❑ Under the Chair of each Mayor, Local Disaster Management Committee will be formed.

National Strategy for Disaster Risk Management in Nepal (NSDRM) 2009. MoHA

It is a National Framework with commitment of the Government of Nepal with long-term vision. The vision is to establish Nepal as a Disaster-resilient community with five priorities to meet the objectives.

- ❑ Put a vibrant institutional framework in place for its implementation by prioritizing DRR at both the national and local levels.
- ❑ Strengthen assessment, identification, monitoring, and early warning system on potential disaster;
- ❑ Make use of knowledge, new ideas, and education for the development of safety and disaster resilient culture at all levels;
- ❑ Minimize existing risk factors; and
- ❑ Make Disaster Preparedness strong enough for effective response.

Regarding organization Structure for Disaster Risk Management in Nepal, there will be a National Council for Disaster Management (NCDM), Chaired by the Prime Minister, National Disaster Management Authority (NDMA)- (the Authority will also take charge of managing Response, Recovery, Reconstruction, and Rehabilitation works at times of disasters), Regional, District, and Local Level Disaster Management Committees. As such, due importance and recognition is given to UN Agencies, donor community, inter-governmental agencies, NGOs (national and international), CBOs, Civil Society, Media, Experts, and the people through appropriate representation arrangements.

Chitwan-Annapurna Landscape Strategy (CHAL), 2016-2025, MFSC

CHAL Vision incorporates Biodiversity thrives and human communities prosper in coexistence through integrated, climate-smart conservation and sustainable development in the Chitwan-Annapurna Landscape in Nepal. The CHAL Strategic Goal is managed through an integrated, river basin planning approach which is built on the foundation of climate-smart conservation and sustainable development practices to promote persistence of biodiversity, and sustainable management of natural resources for continued provision of ecosystem services that support equitable and inclusive economic prosperity.

Guiding Principles and Approach: The CHAL Strategy and Action Plan 2016-2025 are based on:

- ❑ A river basin approach, since it best captures and mostly contains the critical ecosystem services and processes of the CHAL. The Gandaki river system links people living upstream and downstream
- ❑ Accountability of people having a stake in natural resource conservation and management, who should also be accountable for actions leading to degradation
- ❑ Economic prosperity through conservation of natural resources and sustainable development in the CHAL that will improve people's livelihoods and economic status in an equitable manner, and also contribute to national development, helping people to prosper while ensuring sustainability for long term resource availability
- ❑ In-situ conservation complemented by ex-situ conservation when the latter can contribute to sustainable harvesting, or adaptation to climate change
- ❑ Integrated, participatory and adaptive management in order to integrate climate change and its inherent uncertainties, and address emerging issues
- ❑ Synergy and harmonization between development and conservation plans
- ❑ Strengthening multiple stakeholders' capacities through an iterative process of identifying capacities and weaknesses, and providing opportunities to strengthen and institutionalize them
- ❑ Respecting local decision making by recognizing and adopting appropriate local decisions that will enhance local communities' ownership of conservation and development processes.

CHAL has envisioned a number of coordination committee, such as National Biodiversity Coordination Committee, as mentioned in NBSAP, chaired by the Minister of Forests and Soil Conservation. Another is CHAL Coordination Committee, a multi-sectoral, high-level CHAL Coordination Committee (CCC) the Secretary, MoFSC, Chairs the committee. CHAL working group (CHALWG) will function as the main coordinating body. Director Generals of the relevant Departments will act as co-chairs, and the heads of programs and projects in the implementing organizations will serve as members. Local level coordination at district level, the DFSCC and Environment Friendly Governance District Coordination Committee (EFGDCC), as multi-stakeholder forums, will carry out collaborative landscape planning.

Agriculture Development Strategy (ADS)

Vision of the ADS: The ADS action plan and roadmap are formulated in order to move towards the ADS vision formulated by stakeholders as follows: "A self-reliant, sustainable, competitive, and inclusive agricultural sector that drives economic growth and contributes to improved livelihoods and food and nutrition security."

The outcomes and outputs of the ADS

- Improved governance
- Higher Productivity
- Profitable Commercialization
- Increased competitiveness

High productivity

- ☐ Improved resilience of farmers to climate change, disasters, price volatility and other shocks.
- ☐ Subsistence production based forestry is developed into competitive, agriculture friendly and inclusive forest management practice, with a holistic and community based landscape approach to natural resource management and livelihoods improvement.

National Strategic Framework for Sustainable Development Goal (NCNSFSDG), 2016-2030

The vision of document is to have a prosperous, inclusive and just Nepal that values and conserves nature for sustainable development. The goals are to contribute to achieving sustainable development by integrating nature conservation in all development efforts. The purpose of the document is to develop nature conservation and sustainable development as complementary to each other. It will be achieved through the achievement of the results of the five strategic pillars. Mainstreaming Nature Conservation into Development Efforts, Harmonization between Sectoral Strategies, Coordination between Agencies concerned, Valuing and Accounting Ecosystem Goods and Services and Accountability of sectoral agencies in conservation results.

Regarding the organizational structure to implement this framework, there are some provisions:

- Nature Conservation National Strategic Framework Implementation Coordination Council is formed under the chair of Hon. Vice Chairperson National Planning Commission (NPC), Joint Secretary National Planning Commission Secretariat Member Secretary
- Nature Conservation National Strategic Framework Implementation Coordination Committee under the chair of Member Secretary National Planning Commission where Joint Secretary Agriculture and Rural Development Division, National Planning Commission Secretariat Member Secretary
- Local-level Coordination Committee Coordination of the implementation of this Framework shall be conducted by the Environment Friendly Local Governance District Coordination Committee formed at the district level under the Environment Friendly Local Governance Framework (2070 BS).
- Environment Friendly Local Governance Metropolis/Sub metropolis Coordination Committee and Environment Friendly Municipality and Village Coordination Committee.
- Provision of a Liaison Unit and a Focal Person at sectoral Ministry.

2.2.1 Synergies, conflict and trade-offs between different initiatives and policies

It is well-known that developing countries, like in Nepal, facing increased disaster risks from a full range of known and previously unknown hazards. During the field consultation, the study team gathered such information in GRB. Thus, disaster consequences are having greater adverse effects on populations, built structures, the livelihood and environments, especially vulnerable communities and ecosystems. It is believed that, preparedness and mitigation measures reduce vulnerability to disasters and minimize the loss of lives and properties.

Mainstreaming Disaster Risk Reduction (DRR) into development planning has been initiated recently (MoHA, 2015). However, it has yet to be adequately incorporated into development plans and programs by linking DRR, poverty, migration, livelihood and internal displacement. Due to such scenario, that could have negatively affected to achieve the goals of Millennium Development Goal (MDG), poverty reduction strategy papers (PRSP) and Hyogo Framework for Action (HFA) (MoHA, 2015).

In the year 2013, according to Nepal Disaster Report 2015, a total number of 460 people were killed by various disasters and in the year 2014 a total number of 487 people were killed by different disasters in the whole country. The number of human casualty is more in 2014 (487 persons) than in 2013 (460 persons). The number of missing people is far more in 2014 (357 persons) than in 2013 (165 persons). On the contrary, the number of injured persons is more in 2013 (517 persons) than in 2014 (473 persons). The number of affected families in the year 2014 is 39,812 while in 2013 only 2,697 families were affected. Likewise, large number of animals were killed in the year 2014 (5,282 animals) than in 2013 (1,535 animals). In the same way, the economic loss also was more in the year 2014 (16,753.7 million rupees) than in the year 2013 (2,057.0 million rupees).

The government had prepared a Watershed Management Plan of Kulekhani Watershed, which envisioned for the declaration of protected watershed (N/FINNIDA, 1992). Sustainable land use management is urgent need for the conservation of nationally important reservoirs and lakes. To ensure appropriate land use practices and conservation measures, there is a requirement for the soil conservation and watershed management of the watershed areas, 'declaration of the watershed as the protected watershed under the soil and watershed conservation Act, 1982 become urgent' (N/FINNIDA, 1992). Upper Pokhara valley found being depleted at relatively high rates between 1957 and 1978 due to mainly to the government policy of agricultural lands, nationalization of forests, steadily growing population, and dwindling household economy. In many instance, this is aggravated by weak resource management institutions (Thapa, 1995).

The Bagmati watershed project is one of the co-management modal project under DSCWM which had command area in the Bagmati river basin (IDC, 1995). The objective of the project was to improve agricultural productivity and the socio-economic conditions of farmers in priority villages by promoting a diversified and sustainable production system which includes conservation activities and the sustainable use of natural resources.

Acharya, 2000 explored the experiences in watershed management in Nepal. The paradigm of integrated watershed management is firmly entrenched in Government policies. However, in terms of practice, the institutional and operational capacity in watershed management is still in an early stage of development; similar to where community forestry was 15 years ago. Because of human and financial constraints, one District Soil Conservation Office can implement soil conservation and watershed management activities in only 2-3 critical sub- watersheds. Thus, even if District Soil Conservation Offices have been established in 55 districts, the coverage of conservation activities in Nepal is quite low. Moreover, the Government's normal pattern of implementation is that most of the programs are undertaken in the last quarter of the fiscal year when there is a rush to fulfil targets. From a management perspective this is undesirable for quality output. Implementation of activities by the communities provides an opportunity to spread the work program out over a larger part of the year by better utilizing unused labour available from the agricultural cropping calendar (Acharya, 2000). Participatory and integrated watershed management appears to be a good approach for watershed management programs in Nepal. These programs have been found to be more successful if a demand-driven approach is followed. Watershed management projects implemented so far in Nepal have focused on rural development and not on the protection of watersheds for hydropower development as the primary objective. However, in Kulekhani and Phewa Lake Watersheds, watershed management activities have been linked with hydropower development.

This review found that community forestry and income generation programs are the key programs as an "entry point" whatever the primary objective of watershed management is. Lessons have been learned that the essential measures of halting deforestation and restoring the degraded natural environment are secured through community development activities for the upgrading of living standards of rural communities based upon their needs and initiative, with promoting participatory decision making processes and paying due considerations to women and the rural poor (Acharya, 2000).

Nepal realized the importance of soil and water conservation for the first time during Third Plan (1965-1970). The department of Soil and Water conservation under ministry of forest established

in 1974. Later in 1983, the name was changed to Department of Soil Conservation and Watershed Management. Shivapuri Watershed Area Development Board was created in 1976 to conserve watershed. The Shivapuri area is water source for the Kathmandu Valley. Initially, river control works were done by DSCWM and later during Sixth plan period, has been transferred to Ministry of water resources (Pandit, et al., 2007). In the Past, UNDP, USAID, ADB, German development Assistance (GTZ), SDC, FINNIDA, DANIDA, JICA were development partners of the government for soil and water conservation. Still, these institutions are very eager and some of them are involved in conserving watershed in the country (Pandit, et al., 2007).

(Khatri, 2011) examines how the scheme of Payments for Ecosystem services (PES) has been implemented in collaboration with existing local resource management institutions, particularly community forestry, to try to achieve both environmental and developmental goals (Khatri, 2011). Through a case study approach, this paper has analyzed the institutional dynamics of hydroelectricity revenue sharing mechanisms in Kulekhani watershed of Nepal. Results indicate that the performance of the Kulekhani PES scheme is limited in terms of fostering ecosystem services. The analysis shows that the performance has been determined by the deficiencies in the design of institutions and interaction of the PES with other existing local resource management institutions.

Similarly, Khatri mentions that it has also been affected by weak monitoring and enforcement. Based on this analysis, it is argued that, although the PES in Kulekhani has provided a mechanism for transferring hydroelectricity revenue to the local communities to support rural development, it has not transformed existing resource management structures and institutions to demonstrate the effectiveness of enhancing environmental outcomes. The lessons of this research are that politics are driving the design of PES mechanisms, and that its interplay with local institutions can hinder the performance. Moreover, this research suggests that PES schemes do not necessarily result in cooperation among local institutions or the achievement of both ecological and social outcomes (Khatri, 2011). Khatri mentions that, finally local community became successful to get about \$ 60,000.00 additional budget annually for the development of our community after three years of negotiation with District Development Committee, Makawanpur. With this money, local have managed to provide electricity to most of the families of the watershed area and have tried to reach the road to all hamlets. Local said 'We have also used some of our budget for other community development activities like education, health and watershed management activities' (Khatri, 2011).

The DSCWM conducted a study that identified a number of institutions to be involved in basin management (DSCWM, 2012). At central level: NPC, MFSC, MoE, MoF, MOFALD,

Department level: DSCWM, DoF, DoA, DoL, DWIDM, DHM, DDC Association, NAVIN, MUAN. Gandaki Basin level -Regional offices of the line agencies, and related projects and at Field (watershed/district). Local government, Field offices of line agencies-Government, Development partners (NGOs, Projects), CBOs, NGOs.

A review of the Master Plan for Forestry Sector (MPFS) was carried out in 2014 by Soil Conservation & Watershed Management. It is mentioned that the program aimed '*to protect the land against degradation and conserve its values through the mobilization of national and local resources*'. This program focused on land treatments to protect critical areas and to restore those areas already damaged. Alongside this was a component for conservation education and extension. Although the physical targets of MPFS were not fully achieved, the program has made some progress and has resulted in some important impacts – especially in specific localities.

Additional actions (not identified in the MPFS) including focusing on the highly vulnerable Chure watersheds, climate change related actions (including people's participation in hazard mapping, vulnerability and risk assessment and early warning systems) and training and extension activities for both government agency staff and local people have also been carried out. However, regardless of the scale of the physical achievements of this program, these are still relatively insignificant when compared with the actual requirements for soil and watershed conservation in Nepal and many areas remain untreated especially as these requirements are now exacerbated

by climate change effects, widespread rural road construction and haphazard collection of building materials from river courses (especially in the Chure and Bhabar areas).

Watershed surveys at different levels have been conducted although unfortunately monitoring has not been regular enough to assess the overall impacts of this program. Although there is a Soil and Watershed Conservation Act, 1982 and associated regulations these are not implemented nor amended to bring them up to date. In addition, a specific policy on watershed conservation that could assist in bringing together different sectoral programs is lacking. This has led to reduced opportunities for coordination and collaboration between Ministry of Forests and Soil Conservation (MFSC) departments and with local government, civil society and community groups and between MFSC and other ministries. Where local groups have been established for soil and water conservation purposes they lack the legal basis of other groups such as Community Forest User Groups (CFUGs).

The scale of actions being implemented is small compared with actual requirements. Interventions tend to be limited to relatively small areas.

- Climate change (especially the more frequent occurrence of extreme weather events) has exacerbated problems relating to soil and watershed conservation.
- New approaches – such as Payment for Ecosystem Services, have been piloted in a few locations although they are still poorly understood and their wider-scale potential has still to be fully explored.

In the proceedings of National DSCO Workshop 2016, it is mentioned that, the Department of Soil Conservation and Watershed Management has long experiences of watershed management (DSCWM, 2016). In the early life span, a number of projects were carried out based on watershed basis, for example: Phewa of Kaski, Kulekhani of Makawanpur Adhikhola of Syangja, Trishuli of Nuwakot, Bhusunde of Gorkha districts. Although, permanent District Soil Conservation Offices have been established since 1993, the essence of watershed management could not smoothly have handled through these Offices. In the National Workshop in 2016, the DSCWM presented a paper which urged for integrated watershed management through basin approach. In the federal level, there must be a Department or Commission, or Authority or Board on integrated watershed management, Basin Director (Koshi, Gandaki, Karnali and Mahakali). Similarly, at Province level there must be Seven Province Watershed Management Offices. At Local level, there must be 55 watershed management Offices (DNPWC, 2016).

A number of new initiatives were explored in the DSCO workshop. This includes establishment of landslide Centre at Department, Watershed Awareness Centre in Three Basin, program of *Sadak sangai Bhusamrachhan* (Soil conservation with Road Construction for slope stabilization and reduce soil loss and landslides), High Tech Nursery establishment, Urban Catchment (to ensure water and disaster management), Hydro catchment (to ensure combating soil erosion, minimize siltation in the water reservoir) and TV Radio Program (to aware on impact of unsustainable cultivation and haphazard infrastructure). It is also advocated in the workshop that the necessary tools are in place for the implementation of Basin approach (DSCWM, 2016).

In the meantime, necessary working procedures were promulgated to operate the soil and water conservation program smoothly by the DSCWM. Some major guidelines and working procedures are listed below.

- Guidelines for People's Participation in Soil Conservation, 2050 BS.
- Cost Estimation Guidelines for Soil Conservation Activities, 2051 BS.
- Monitoring and Evaluation System and Guidelines for Soil Conservation and Watershed Management Programs, 2052 BS.
- Basic Guidelines for Sub-Watershed Management Planning, 1994 AD.
- Guidelines and Methodology for Sub-Watershed Prioritisation in Watershed Management Planning, 1997 AD (2053 BS).
- Soil Conservation and Watershed Management Activities (Definition, Objective, Scope and Working Strategy), 2001 AD.

- Working Procedure (Karyabidhi) of Department of Soil Conservation and Watershed Management, 2061 BS.
- Log frame of Soil Conservation and Watershed Management Programme, 2007 AD (2064 BS).

On February 2, 2016, the Lake Cluster of Pokhara Valley was declared as a 10th Ramsar Site of Nepal. The Lake Cluster of the Pokhara Valley Ramsar Site comprises the nine lakes (Phewa, Bagana, Rupa, Khaste, Dipang, Maidi, Gunde, Neurani and Kamalpohari lakes. Phewa Lake is one of the lake which is also proposed for declaring protected watershed. However, there is very slow in progress.

The Nepal River Conservation Trust (NRCT) is a non-profit organization that was established by a group of concerned river guides and environmentalists who recognized the ecological and cultural damage that was taking place on Nepal's rivers at an alarming rate (<https://www.facebook.com/nepalriverconservationtrust/>).

Since its inception in 1995, the NRCT has worked towards conserving Nepal's Himalayan river system, preserving Nepal's cultural heritage and developing an environmentally responsible river tourism industry. The NRCT hosts the Annual River Festival and the Bagmati River Festival to raise awareness among all river users about the need to conserve the rivers, and develop an economical and environmentally sustainable river tourism industry. They note that Himalayan Rivers are an international attraction, however their existence is under threat from damming and other unfriendly environmental practices.

The Trust has already organized a National River Summit in 2014 and 2017 on the banks of the Sunkoshi and Trishuli rivers, respectively. The Declaration of National River Summit 2017 (16-19 March) Trishuli, Gorkha called for a high Powered National River Commission to be established for the overall development and management of water resources, and for the government to formulate and execute watershed management policies based on principles of Integrated Water Resources Management. Further, the declaration called for the Government of Nepal and all concerned agencies to adopt principles of sustainable development and that activities be carried out in ways that incurred minimum adverse effects on river systems and their surrounding systems, when carrying out construction of roads, water supply, irrigation, hydropower and other development activities shall.

2.1.3 Assessment of the policy environment in relation to Stakeholder based approached to EbA

The Soil and Water Conservation Act, 1982 envisioned protected areas would be declared for critical watershed. Until now, progress is not encouraging. No single watershed area has been declared as a Protected Watershed, although the Kulekhani and Phewa Watershed Plan was prepared in 1992 which recommended the declaration of a protected watershed. Moreover, a District Soil and Watershed Committee was formed about three years ago in Kaski district, but there has been no progress in Kulekhani watershed.

The Water Plan, 2002 and the Water Resources Strategy, 2005 clearly envision River Basin Integrated Watershed Management. Further, there is also a mandate to lead the watershed management program by the DSCWM. But in practice, this is not happening so far.

The recently established Department of Water Induced Disaster Management (DWIDM) is delivering services for river training, landslide treatment and gully control as well. In this connection, it seems there is overlapping terms of reference with the DSCWM

Soil erosion is another key area to be looked at closely. The DSCWM advocates for zero tillage and applying sloping agriculture land technology (SALT). On the other hand, in the sloping land, there are hardly any intervention for terrace improvement and changing cropping patterns by the Agriculture Department. Local people are farming potato, yam, and peanuts on the slopping land which accelerates soil erosion.

A number of hydro-electricity projects, and irrigation and drinking water projects are operating and many others are going to be established in near future in various part of Nepal. But the concerned authority such as Nepal electricity authority, Department of Irrigation and Department of Water Supply are more interested in the use of water than in the conservation of watershed and upstream areas.

Similarly, road construction is ongoing in the hills and people are supporting such development works. However, these programs are still not focusing on an eco-friendly approach. Despite the provision in the Sustainable Development Goals Framework for Nature Conservation, published by NPC in 2016, no significant progress has been made so far. Local people are suffering from the landslides and losing productivity of the lands.

It seems that there are large gaps in the working approaches and people are suffering from environmental degradation because of poor understanding among stakeholders and weak co-ordination among institutions that are focused on Nepal's need based approach of conservation and development. Further, the impact of climate change is accelerating the negative effects on vulnerable communities and critical ecosystems.

2.1.4 Gaps, entry points and Potential Actions for stakeholder Engagement

The DSCWM has prepared three strategic river basin plans in 2012- Koshi, Gandaki, and Karnali basins. The Department is programming/planning and implementing integrated watershed programs in 61 districts through sub watershed plans by establishing various community development groups. In some districts the Department has also formed Poor, Occupational caste, and Women's Empowerment for Resource (POWER) groups for watershed management. In recent years, the Department has been concentrating various programs in Chure regions through intensive river system management plans for enhancing productivity of land, protecting rice field from river bank cutting, treating landslides in Chure and reviving water tables through constructing water harvesting ponds or catchment ponds in the Bhabar region (Table 3).

Table 3: Program and working areas of the DSCWM

SN	Name of the program	Started Year	Funded by	Working area
1	District Soil Conservation Program (District)	1974	Government of Nepal	61 districts and additional 8 districts
2	District Soil Conservation Program (Department)	1974	GON	61 districts
3	Community Development and Forest /watershed Program	1997	GON	11 districts
4	Rastapati Chure Conservation Program	2012	GON	31 districts
5	Building Climate Resilience of Watershed of Mountain Eco-region	2014	GON, Nordic Development Fund (NDF)	6 district (two watershed shed)

Apart from government programs, there are some donor funded programs also under way in the districts for watershed and disaster management with close coordination with government Ministries and Departments (Table 4).

Table 4: Watershed and disaster management program

SN	Name of the program	Started Year	Funded by	Working area
1	Ecosystems Protecting Infrastructure and Communities (EPIC)	2014-2017	IUCN	3 districts (Parbart, Kaski and Syngja)
2	Landslide Prevention and Landslide Early warning system	2016-2018	FAO	Dolakha distict
3	Land slide prevention and mitigation	2017-2019	FAO	Nuwakot district
4	Sub watershed Planning	2015-2016	UNDP	Nuwakot district
5	Integrated River Basin	2017	ICIMOD	Koshi basin and Others
6	PANI project	2016-18	USAID	FW and Mid-Western DR-25 Watershed
7	Community based Glacier Lake and Flood Mitigation	2014-17	DHM and UNDP	Imja Lake

If we look at strengths and weaknesses of development in Nepal, there is a lot yet to be achieved.

- ☐ Nepal is still listed as a Least Developed Country. Further, it is a poorest country.
- ☐ Average deaths caused by water induced disasters is 300 per year (GoN, 2015). Further, thousands of hectares of land is damaged every year due to floods.
- ☐ Sedimentation is causing serious damage to freshwater systems and wetland habitats, as well as causing problems for the local communities that depend on these habitats.
- ☐ Water scarcity and drying springs and spring-sheds is an increasing problem
- ☐ Too much water and too little water dilemma or syndrome. In the period June to September about 80 per cent of annual precipitation occurs, leading to too much water in a short period causing landslides, mass wasting, slip failure, bank cutting, and floods.
- ☐ Haphazard collection of stone, sand and gravel is on-going

Nepal is ranked in 30th in flood and landslides risk, 4th in climate change impact, 11th in earthquake risk.

Some outstanding Issues in Nepal include:

- ☐ About 240 million Cu meter of soil is lost every year
- ☐ More than 0.1 million ha agriculture land is lost every year
- ☐ Floods and landslides affect Hydro-dams, large-scale irrigation channels, roads, and government buildings and put villages/settlements at risk

In the GRB there is evidence that there has been an increase in poverty and disasters and there are gaps in management of natural resources. These issues include:

- ☐ Scarcity of water for drinking and irrigation, load shedding, landslides and ever increasing water induced disaster
- ☐ Agriculture office works in an unscientific manner, Soil work in steep slope, however, the DADO more focusing to Seed and Chemical fertilizer
- ☐ Livestock husbandry office - open grazing, more pressure on land
- ☐ Irrigation office- is lacking proper attention to up-stream protection
- ☐ Drinking water office- No attention on water source restoration program
- ☐ Hydro power- Program and Budgeting should be provided to protect up-stream regions
- ☐ Forest management – water source, landslides are not well focused
- ☐ Road construction- Road side protection and poor water management

- ❑ Disaster risk management- fragmented approach among institutions

2.2 Summary of Lessons Learned from Current and Recent Past Projects

Although there are number of programs being implemented by the government and donor agencies in the Gandaki River Basin, there remains an urgent need for working on watershed management through a river basin approach. A river basin is the portion of land drained by a river and its tributaries. It encompasses the entire land surface dissected and drained by many streams and creeks that flow downhill into one another, and eventually into one river. The final destination is an estuary or an ocean. A river basin corresponds to the complex system of watersheds and sub watersheds crossed by a major river and tributaries flowing from the source to the mouth. A single stream/water source is tributary and a collective of such tributaries forms a micro-watershed. Numbers of micro-watershed area when combines together become sub-watershed which leads to watershed thereby forms a basin.

The “Basin Approach” is a coordination, planning, monitoring, research and overall management framework for natural resources, specially soil and water in line with integrated watershed management perspective that focuses government and communities' efforts to address the pertinent problems within hydrologically defined geographic areas i.e. river basins.

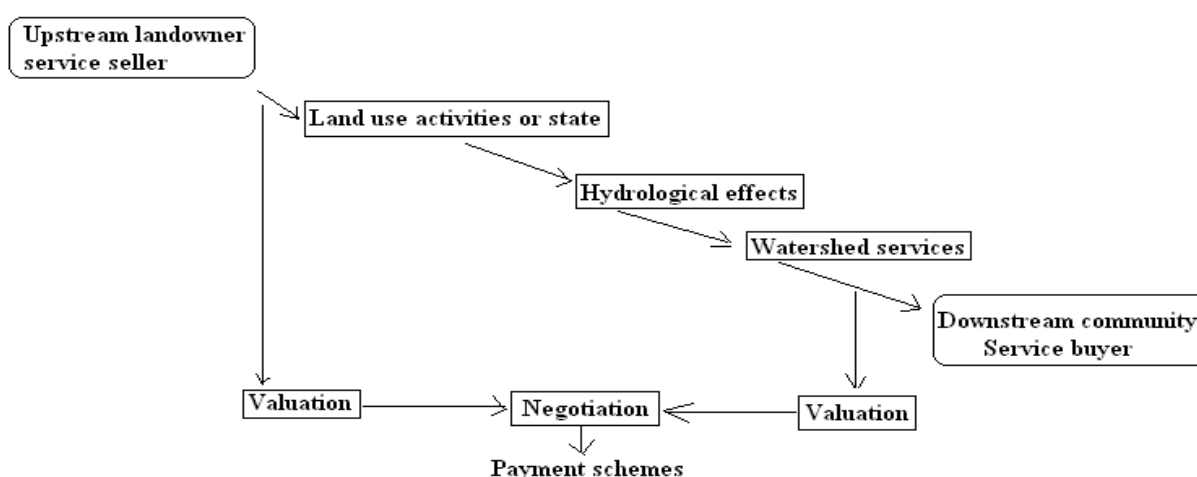
The Basin approach is adopted mainly because,

- ❑ The Basin approach adopts watershed principles and boundaries and is thus appropriate for comprehensive watershed management,
- ❑ It is easier to establish linkage between upstream and downstream in the basin approach.

The importance of Basin Management includes:

- ❑ Insufficient access to water resources and insufficient sanitation is one of the major problems of the world
- ❑ As a consequence of climate change it is expected to observe water scarcity, extreme rainfall events, resulting in more floods and drought, and other water related problems
- ❑ The household economy of most of the Nepalese people depends largely on natural resource management and its availability, especially land. In order to support the livelihood of the rural people the focus must be on land productivity, which is largely influenced by different water related events like erosion/flood disaster (means water induced effects) and climatic change events.
- ❑ The GRB is one of the basins which has also experienced the impact of climate change on especially vulnerable communities and ecosystems.
- ❑ There is a strong linkage of upstream and downstream stakeholders and materializing the payment of ecosystem system (PES) in GRB (Chart -1).

Chart 1- PES Services at Watershed/Basin Scale



There are a lots of efforts on natural resources conservation and utilization within the project area. However, the impact of climate change is ever increasing in the basin. Hence, the lesson learnt from the existing programs and projects are explored which could be useful for achieving objectives of the proposed project.

- ❑ Ownership of the plan- Whether Basin level strategic plan or micro-watershed level functional or operational plan, there must be one institution who should take lead and ownership to implement the plan in full fledge.
- ❑ Legal mandate- The plan should be approved and implement as per the new constitution and legal arrangement.
- ❑ Sustainability – climate change issues need continuous support to implement the plan which requires a strong institution in each basin, watershed, micro-watershed.
- ❑ Coordination mechanism- Watershed management is a multidisciplinary subject which requires the establishment of various level of coordination mechanisms.
- ❑ Integrated Planning approach- Mitigation and adaptation programs must be implemented by all sectors in integrated way based on one plan.
- ❑ Joint Monitoring- Stakeholders who are directly related to the program must be involved in joint monitoring of the programs.

3.0 Baseline

3.1 National and Sub-National Stakeholders Involved in EbA

Watershed Management is a multidisciplinary mission. There are number of national and sub-national stakeholders (disaggregated into civil society, government, private sector, international organizations) involved in EbA. They are broadly assessed on the basis of their roles, responsibilities, strengths, and capacity building needs.

In the proposal preparation phase, a stakeholder analysis was conducted based on the following categories: civil society, government, private sector, international organizations. Key stakeholders were identified and interviewed at national, provincial and local levels during the design phase of the Project.

Civil society stakeholders: Rural communities and their networks in the river basin are interested in secure supplies of ecosystem services, particularly forest and grassland products (e.g. fuel wood, timber), disaster mitigation, and improved local microclimate and water supply. The project design team considered the state of relationships between local communities and relevant government staff. The project design team examined the changing nature of rural society resulting from outmigration and the implications this has for project design and implementation.

There are a range of national NGOs relevant to the project. Such as climate change, watershed management, Gender equality and NRM, Specific NGOs, alliances and researchers

Private sector stakeholders: The proposed project for the GRB should build capacity of the private sector and engage with local financial institutions and cooperatives on both farm and non-farm enterprises and the market value chain through a 5Ps (pro-poor public private partnership) approach. In the GRB, resilient livelihoods should be promoted through a range of economic activities based on ecosystem services including cultural services (eco-tourism), and provisioning services (dairy, vegetables/agriculture, and NTFPs and forestry). Through improving the enabling environment and incentive structures to engage with the private sector, the project should pave the way for scale up and replication in the future. Further, the project should collaborate with private firms and institutions to encourage the adoption of climate smart technologies in farm and non-farm enterprises. The intervention options should be prioritized based on cost benefit analyses.

Government stakeholders: A wide range of individuals were consulted from the government agencies. Consultations have already been undertaken at national level and there is strong engagement of the specially the Department of Soil Conservation and watershed Management.

International Organization: Consultations with international organizations were carried out for better designing the project and stakeholders' engagement.

List of stakeholders, their roles, strength and capacity building needs are list below in Table 5.

A. Civil Society: Rural communities (disaggregated by ethnicity, gender, age, wealth, occupation); CSO; NGO; academic & research organizations.

Table 5: Stakeholders with their roles, strength and capacity building needs

Civil Society	Role of stakeholders	Strength	Capacity building needs
Community Forest User Groups (CFUGs)	Established for development, conservation and utilization for the collective interests of community forests-handed over according to Forest Act, 1993.	Strong and legally organized for protecting and managing forests. Very much interested to manage local forest for fulfilling local requirements	Soil conservation on farmland, landslides treatment, water source protection, river training and working in watershed concept Local resource person training
Collaborative Forest User groups(CoFMGs)	Established for the management of government forests by collaborating among users, District Forest office and local level government. It aims to support local and national economy through forest development and sustainable management, supply of forest products to distant user by involving in forest protection, increase productivity of forests, protection and promotion of biodiversity and watershed area, and improve livelihoods of local people.	Local and distance users are legally organized for protecting and managing production forests Harmony between people to people in low land	River bank protection, Catchment pond, Conservation pond River system based management Agro-forestry based land management
Leasehold Forest User Group (LFGs)	Established groups to alleviate poverty through forest protection and development as well as income generation programs as provisioned in Forest Act, 1993 Clause 31 (F)	Legally strong organization Contribution to greening hills	Integrating Sub watershed based planning and monitoring cycle

Buffer Zone - Community Forest User Committee (BZ-CFUC)	Established to management forests in around protected areas (PA) aiming: <ul style="list-style-type: none"> • to address the local communities needs and demands of forest resources (e.g. firewood and fodder) and generate income from tourism, • to reduce the dependency of local population on PA resources and thereby mitigate the pressures on PA forest resources and eventually improve biodiversity and wildlife habitat restoration, • to conserve forest as extended habitat for the wildlife, • to motivate local communities for PA management, biodiversity conservation, forest management, and • to eventually resolve park-people conflicts over resource use and thereby harmonize park-park relations. 	New model to reduce conflict – park people Greening buffer areas to mitigate and adaptation	Link up-stream down-stream planning process, Water harvesting and River bank protection
Poor, Occupational caste, and Women's Empowerment for Resource Management (POWER) Group	Formed groups involving Poor, Occupational caste, and Women's Empowerment for Resource management with the concept of participatory integrated watershed management mission.	Locally strong group and empowered Model work for replication	Mainstreaming the model work in the watershed level Use of local saving fund into long term business
Conservation Area Management Committee (CAMC)	Established in each Village Development Committee within the Conservation Area for the effective implementation of the construction works related to the community development activities in the Conservation Area, protection of the natural environment of that area and management program related to the balanced utilization of natural heritage.	Protection and wise use of natural resources Devoted to nature conservation	Innovative business plan for land rehabilitation through cooperative Linking upstream down stream in management planning and monitoring
Community Development Groups (CDGs)	Established formally or informally to implementing various soil and water conservation activities to address the sediment yield, natural hazard, issues of protection of infrastructures as well as adaptation from climate change impacts by linking up-stream down- stream linkage.	Committed to perform specific target	Sustainability of group Linking overall watershed planning
Federation of Community Forestry Users Nepal (FECOFUN)	An umbrella organization of community forest user groups registered in government institution, aiming to campaigning, advocacy and empowerment of CFUGs to encourage for proper utilization and equitable sharing of benefits from community forests.	Appropriate platform to discuss policy formulation and evaluation	Basin approach and organization restructuring PES establishment for sustainable financing

Association of Collaborative Forest Users Nepal (ACOFUN)	Network of collaborative forest users groups registered in government organization, which advocates for entire users of collaborative forests- productive and biodiversity rich forests of Nepal	Lead organization to advocate collaborative approach	Linking protection, management and market of high value forest products Revolving fund mobilization for mitigation and adaptation
Nepal Federation of Indigenous Nationalities (NEFIN)	An umbrella organization of indigenous peoples/nationalities which is registered in government institution and widely distributed across Nepal and member of the United Nation's working Group on Indigenous populations.	A good initiation for advocacy on forests conservation and climate change impact	Focus watershed management planning and monitoring PES establishment for sustainable financing for mitigation and adaptation
Nepal National Forest User Group (NEFUG)	Established to conduct advocacy on behalf of forest user of all types of community based forestry.	Making aware on importance of forests	Linking watershed management in the advocacy
Nepal Chepang Association(NCA)	Registered national association of Chepang Indigenous communities, involved in advocacy for rights and livelihood	Made efforts to mitigate and adaptation through indigenous knowledge	Importance of Watershed management plan Networking with related CBOs
Himalayan Grassroots Women's Natural Resources Management Association (HIMAWANTI)	A NGO dedicated to strengthen the grassroots level women in sustainable natural resources management in Nepal, focusing gender equality, sustainable livelihood, social inclusion and justice.	Empowered women in natural resource conservation Leadership development	Basin and watershed level organization Farmland improvement and water conservation
Dalit NGO Federation (DNF), Nepal	An umbrella organisation of all Dalit NGOs in the country. The main aim of DNF is fighting together against caste-based discrimination. It is a common forum for raising collective voices of Dalit community for claiming rights.	Raising voice in the society against discrimination	Business plan Advocacy on River Basin Approach
Nepal National Dalit Social Welfare Organization (NNDSWO)	To promote and protect economic, social, political and development rights of Dalit and vulnerable groups.	Raising voice in the society against discrimination	Business plan Advocacy on River Basin Approach
Dalit Alliance for Natural Resources (DANAR)	A NGO dedicated to ensure the rights of Dalit community in natural resources such as land, water and forest and to assist for building the vision of inclusive, equitable and prosperous society.	Strong advocacy on natural resource management and <i>Dalits</i>	Business plan Advocacy on River Basin Approach
Community Forestry Supporter Networker (COFSUN)	An independent, non-governmental, non-political, non-municipal and non-profitable organization that is committed to Right Based Approach (RBA). Its fundamental notion is to enhance community based forestry programs by exchanging experience of facilitators and by developing their capacity for integrated resource management	Linking community with technicians' in the forest management and leadership development	River Basin approach PES

	through Community Forestry User Groups (CFUGs). COFSUN, Nepal is indeed a common forum for facilitators		
Nepal Foresters Association (NFA)	A not-for-profit professional organization, has a mission to see sustainable natural resources conservation and management through scientific approach	Advocacy for sustainable forest management and welfare of foresters	Basin approach and legal arrangement PES
Nepal Forest Technicians Association (NEFTA)	A professional organization has mission to conduct advocacy for forestry sector management and ensure rights of field forest technicians.	Raising voices on sustainable forest management and welfare of members	Basin approach and legal arrangement PES
Nepal Village Development Association (NAVIN)	Established to advocate and lobby for legal and policy framework towards local self-governance, to coordinate and share knowledge among Village Development Committees in improving service delivery & resource optimization and to build stronger civil society networking for good governance & local democracy.	Self-governance Good governance	Integrated Conservation and development plan based on land capability Sub watershed plan based ICDP Disaster Risk Reduction program
Nepal Agriculture Research Council (NARC)	Aiming to conduct qualitative studies and researches on different aspects of agriculture, to identify the existing problems in agriculture and find out the solution and to assist government in formulation of agricultural policies and strategies.	New variety for food security	
TU- Institute of Forestry	Established to prepare capable human resources required for the forestry sector, to impart standard higher education and to involve in extensive, empirical and timely creation of knowledge and research in the fields of forestry sector.	Qualified human resource development	Need expertise on emerging issues of climate change and River basin management
Municipal Association of Nepal (MuAN)	Established to lobby and advocate for guaranteeing autonomous local government in the new constitution, to develop MuAN as a pioneer institution for the promotion of urban governance by coordinating municipal governments and relevant stakeholders, to develop municipal governments as capable and strong institutions to provide urban services effectively, to make municipal government transparent, responsive, accountable and inclusive for ensuring urban good governance and to develop MuAN as a common platform for enhancing the expertise of urban professionals.	A proper forum on conservation and development	Integrated watershed management and land use planning based on land capability and implementation properly
Local Initiatives for Biodiversity, Research and	A NGO based in Pokhara committed to capitalizing on local initiatives for sustainable	Good start for conducting research for	Integrating research output into policy formulation

Development (LIBIRD)	management of renewable natural resources in order to improve the livelihoods of rural poor and marginalized farmers, especially women.	Conservation and economic development	
Climate Change Network Nepal (CCNN)	A network established to facilitate the process of informing empowering and influencing the Nepalese people and government to take effective actions towards addressing climate and its impacts	Better forum for developing common understanding of Policy and action pan on CC mitigation and adaptation	Integration of learning into national sectoral plan and coordination mechanism
Nepal Forum of Environmental Journalists (NEFEJ)	A lead media, non-governmental organization working to raise public awareness on the environment, forest, sustainable development, and social issues.	An effective role to aware environmental issues and concerns	Ever increasing issues should be continuously raised
Resource Identification and Management Society Nepal (RIMS)	A NGO, committed to transfer lives and living of poor and vulnerable people by managing resources, building capacity, promoting social justice and widen collaboration	Service delivery and facilitation of development and conservation programs	Mainstreaming program in Integrated Watershed Management Plan
Nepal Agroforestry Foundation (NAF)	A NGO, providing innovative agriculture techniques and agro-forestry community forestry support to CBO's, NGOs, CFUGs, and Saving and Credit Co-operatives(SCC)	Positive initiative from committed group	Integrating quality service in the government program
Green Foundation Nepal (GFN)	A NGO to promote sustainable management of natural resources by rights holders for economic growth of nation	Added effort to policy advocacy	Systematic and sequential program
Soil and Water Conservation Society (SOWCOS)	A forum for the resource conservation professionals to bring together their expertise and efforts in order to promote the welfare of Nepalese people through sustainable management of watershed resources.	Exploring the role of soil and water conservation in the farming system and impact of climate change	Need more active role in policy level
Alternate Energy Promotion Center (AEPC)	A government institution established under the Ministry of Population and Environment with the objective of developing and promoting renewable/alternative energy technologies in Nepal.	Contributing towards sustainable development goal	Target group and investment modal explore
Livestock husbandry group	The major objective are increase livestock production and productivity and eliminate the problem of malnutrition and to improve the economic and social condition of the poor, socially disadvantaged people and women through improved livestock farming.	Approaching towards self-sustaining on livestock product and improvement livelihoods of the farmers.	Integrating Livestock Development plan into IWMP
Water User Association	Irrigation Regulation 1989 opened the door for collaboration with water users in irrigation projects. It helped to increase the rate of irrigation development and develop maximum farmers/waters users.	Managing irrigation system through farmers seen as sustainable system	Water source and watershed protection and management and PES development

B. Private sector: Small & Medium Enterprises; Community Enterprises; Media & Journalists; Hydro Power developers

Table 6: Stakeholders with their roles, strength and capacity building needs (Private Sector)

Private Sector	Role	Strength	Capacity building needs
Nepal herbs and herbal products Associations (NEHHPA)	An umbrella organization of Nepalese herbal producers, manufacturers and traders in the sector of Non-Timber Forest Products (NTFPs), particularly Medicinal and Aromatic Plants (MAPs) aiming to promoting Nepal's unique herbs and herbal products at the national and international levels and to strengthening responsible business through producing and marketing quality products.	Helped local people by providing proper values of NTFPs and encouraged them to be involved in enterprises	Business plan, Public private partnership model
Federation of Nepalese Forest based Industry and Trade (FeNFIT)	Aimed to take necessary steps towards stabilizing the industry by contributing to the conservation and development of Nepali forests and at the same time strengthening the national economy as well as making use of the forest in a scientific and legal way.	Awareness has been increased on timber business and focusing towards Sustainable forest management principles	Investment model development
Independent Power Producers' Association (IPPAN)	A vibrant organization that aims to produce electricity in Nepal. It is being supportive to the government to achieve the goal of National Energy Crisis Prevention and Electricity Development Decade (2016-2026) document.	Apart from Nepal Electricity Authority, IPAAN is also developing projects and added power to national grid as projection made in the document.	PES and Watershed area conservation
Federation of Nepalese Chamber of Commerce and Industry (FNCCI)	FNCCI a leading institution of Nepal on commerce and industry and has a wing to look after the private sector investment in forestry.	Established a unit for the development and promotion of forest enterprises	Enabling environment for investment in sustainable forest watershed management
Jadibuti Association of Nepal (JABAN)	Aim to make sustainable use of the country natural resources and provide necessary support to rural communities for producing and marketing quality products	Focusing on the use of Nepalese NTFPs and MAPs in Nepal and value addition	Business plan
Micro Enterprise Development Program (MEDEP)	MEDEP is a poverty reduction program. Its first three phases, which ran from 1998 to 2013, developed and delivered an integrated micro enterprise development program, targeting women and the socially excluded in Nepal. The main intent of Phase IV of MEDEP is to support institutionalization while gradually handing over its activities by its completion date (August 2018).	Positive impact on rural areas for generating income from the natural resources	Integrating MEDEP into watershed management in GRB

C. Government: Legislature; Judiciary, Executive State/ Provincial, Local government and line agencies; Government- Local government, Province government

Table 7: Stakeholders with their roles, strength and capacity building needs (Government)

Institutions	Role	Strength	Capacity building needs
Legislative assembly Federal-Parliament members Province-parliament member Local government Rural municipality Municipality	Local Government Operation Act 2017, Clause 11 (2) provisioned the rights of Municipal and Rural municipal included -local road, rural road, agriculture road and irrigation -Agriculture and livestock development, agriculture production management, veterinary, cooperation -Drinking water, micro-hydro, alternative energy -watershed, wildlife, mine and mineral protection -Disaster management	Constitutional provision for environment management at Federal level, Disaster management at Province, and watershed conservation at Local level	Basin level planning and international coordination at Federal level, Watershed Level planning and PES development province level and sub watershed level planning at local level
Judiciary Appeal court District Court Supreme court	Importance on nature and natural resources	Justice for nature	Policy dialogue on water and river rights
Executive bodies State government Province government Local level government	Planning and budgeting at concerned level	Provision on nature and natural resources	Basin approach, IWS management, PES
Ministry of Forests and soil Conservation (MFSC)	A governmental body of Nepal responsible for the conservation of forests and soil in the country.[1] Its main purposes are to enhance sustainable growth of the forest and water sectors and to manage the biodiversity, flora and fauna and also to increase the development of forest related enterprises in order to combat poverty throughout the rural areas of Nepal.	Policy and legal commitments on watershed management climate change mitigation and adaptation program	Organization establishment based on watershed and basin level, PES establishment
Department of Soil Conservation and Watershed Management (DSCWM)	DSCWM has been planning, implementing and monitoring soil conservation and watershed management programs/activities based on the principles of integrated watershed management. To reflect the multi-dimensional needs of SCWM measures, DSCWM is staffed with multi-disciplinary personnel- Foresters, agriculturist, civil engineers, chemist and geologist.	Successfully launched Micro level soil and water conservation	Organization at Basin, watershed and Sub watershed area Basin Master Plan and linking like-minded institutional
Department of National Parks and Wildlife Conservation (DNPWC)	Includes the conservation of endangered and other wildlife species, the scientific management of habitat for wildlife species, the creation of buffer	Conservation of wildlife special big wildlife encouraging	Watershed areas management based on the status

	zones in and around parks and reserves for the sustainable management of forest resources, the organisation of eco-tourism to improve socio-economic conditions of local communities, and awareness-raising of the importance of wildlife conservation through conservation education.		
Department of Forests (DoF)	DoF is the only government agency for the sustainable management, utilization, protection and development of forest resources outside the protected areas.	CBFM is encouraging	PES establishment based on watershed level planning and program implementation
Department of Plant Resources (DPR)	Conducting and providing services in the field of research and development of plant resources in Nepal. It is a multidisciplinary organization comprising mainly of botanists, chemists, pharmacists and veterinary practitioners.	Conservation and research on MAPS and NTFPs	Linking ecosystem and hydrological system
Department of Forest Research and Survey (DFRS)	Mandated to conduct forestry research and survey to produce knowledge and information for sustainable management and utilization of forest resources of Nepal.	State of Nepal's forests published	Publishing an Atlas on Micro watershed, Sub watershed, Watershed and Basin
National Trust for Nature Conservation (NTNC)	Established by a Legislative Act as an autonomous and not-for-profit organization, mandated to work in the field of nature conservation in Nepal. The goal of The National Trust for Nature Conservation is to preserve the natural heritage and in so doing, to achieve a high quality of human life.	Conservation and Development approach	Basin and Watershed level plan preparation and implement
Ministry of Population and Environment (MoPE)	Aiming to promote sustainable development of the country through environmental protection; to conserve the natural environment and cultural heritage; to create a clean and healthy environment; to move towards poverty alleviation through environment related research activities; to encourage the involvement of academics, scientists and intellectuals in environmental decision-making; and to coordinate adaptation and mitigation programs in order to minimize the negative impacts of climate change.	National report on climate change through nationally determined commitments, and Desertification	Mainstreaming program on mitigation and adaptation with DSCWM and DoF
Ratrapati Chure Terai Madhesh Conservation	Aimed to coordinate and make enabling environment to conserve the Chure area for the betterment of ecosystem and	Master Plan for Rastrapati Chure Terai Madhesh Conservation and	Mainstreaming all sectors activities in the Chure area and investment

development Board (RCTMCDB)	livelihoods of the people by implementing the Master Plan.	Management approach and being implemented	
Department of Local Infrastructure and Agriculture Development (DoLIDAR)	To undertake infrastructure development program in accordance with decentralization policies for attaining the goals set forth by the GON's National Strategy for Rural Infrastructure Development by making the local authorities technically capable and competent and ensuring their accountable participation. For this various infrastructure development activities funded through government and donor agencies are to be undertaken, in co-ordination with other concerned agencies, in professional and sustainable manner so as to ensure desired quality.	Access to rural areas and marketing enhanced	Environmental impact assessment and Master Plan of Rural road Protection of road and Agriculture field, water sources and other infrastructure
Ministry of Federal Affairs and Local Development(MoFALD)	MoFALD is the only ministry with direct linkage with the country's local government, namely Municipal and Rural municipal and their wards. One of the objectives is to contribute in the poverty reduction by mobilizing local means and resources, utilizing skill and technology to the optimum level and creating employment opportunity.	Development focused for poverty reduction	Sub watershed level planning approach for local level government, Watershed level for Province and basin level plan for Federal government
Department of Livestock Development (DoLD)	One of the objectives is to develop and improve existing livestock farming as the main income source of the farm family and help in maintaining environmental balance and conservation	Towards Self-sustaining on various products	Integrating program with watershed management concept.
Ministry of Agriculture development (MoAD)	The vision of the Ministry is to "improve the standard of living of the people through sustainable agricultural growth by transforming the subsistence farming system to a competitive and commercialized one.	Approaching towards Food security and sustainable farming system	Sloppy land use modality development, maintaining River side greenbelt
National Planning Commission (NPC)	Important aims include to formulate basic development policies and prepare periodic development plans accordingly within the framework of a long-term development perspective, to explore internal and external resources along as well as indigenous and foreign technology and to recommend suggestions to GoN to accelerate the pace of development as well as to explore innovative	Periodic plan prepared for forest and soil Conservation including climate change mitigation and adaptation	Program and budgeting based on the periodic plan Legitimize the working policy into practice such as Basin Level planning

	approaches for sustainable development based on the economic situation of the country.		
Ministry of Finance (MoF)	To help maintain macro-economic stability, through effective and efficient utilization of available financial resources and enhance domestic revenue base. National Designated Authority (NDA) for Green Climate Fund	Fund flow for forest and environment	Basin level budget flow for natural resource conservation and for infrastructure development having pre-requisite of integrating conservation works
Ministry of Land Reform and Management (MoLRM)	Working to scientific land reform for equitable access to land, optimal use of land for sustainable development, protection of state and <i>Guthi</i> (trust) land for the benefit of the people at large, good land administration system for public satisfaction, efficient and effective organization to serve the people better, modernized mapping services for modern Nepal, land Information System for e-Governance and National Spatial Data Infrastructure for optimal utilization of public fund. Qualified human resources and adequate infrastructure for delivering quality services.	Developing proper system of land use	One door system is urged and providing legal document of Protected Area and Forest area to DNPWC and DoF, respectively.
Ministry of Home Affairs (MoHA)	A governmental body of Nepal mainly responsible for delivering critical services- including disaster related rescue -to the citizens and maintain security in the nation	Disaster Risk Management initiatives through recently approved law- Disaster Risk Mitigation and management Act 2017	Cause of Disaster and IWMP of Basin
Ministry of Irrigation (Mol)	Has responsibility of utilization and management of water resource lies in the Ministry of Irrigation. Preparation plan and policies and their implementation regarding development of irrigation for the efforts to achieve agricultural development targets are the objectives of this ministry.	Increased irrigation facilities for the production of agriculture crops	Mainstreaming the program with watershed management and PES
Water and Energy Commission Secretariat (WECS)	Aims to assist GoN, different ministries relating to Water Resources and other related agencies in the formulation of policies and planning of projects in the water and energy resources sector.	Provides information on energy which helps to make decision of use of water resources.	Water resources policy and watershed management policy should be integrated in Nepal's case.
Department of Hydrology and Metrology (DHM)	Has a mandate from GoN to monitor all the hydrological and meteorological activities in Nepal? The scope of work includes the monitoring of river	Provides information for daily and long term decision on	Mainstreaming climate information, early warning of floods into watershed

	hydrology, climate, agro-meteorology, sediment, air quality, water quality, limnology, snow hydrology, glaciology, and wind and solar energy. General and aviation weather forecasts are the regular services provided by DHM.	weather and climate.	management planning.
Department of Water Supply and Sewerage	It is working towards achieving the sector objective of Government of Nepal which is to achieve 'sustained improvement in health status and productivity for Nepalese people as a whole with particular emphasis on lower income group through the provision of adequate, locally sustainable water supply and sanitation facilities in association with improved personal, household and community hygiene behavior'.	Encouraging work in rural areas.	Linking water source protection and PES

D. Internationals: Donor projects, international organization

Table 8: Stakeholders with their roles, strength and capacity building needs (Internationals agencies)

Institutions	Role of stakeholders	Strength	Capacity building needs
International Centre for Integrated Mountain Development (ICIMOD)	A regional intergovernmental learning and knowledge sharing centre serving the eight regional member countries of the Hindu Kush Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. It aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues.	PES case studies are produced.	Action research should be translated into full fledged program through appropriate institutions
Hariyo Ban Program	The Hariyo Ban Program is named after the famous Nepali saying 'Hariyo Ban Nepal ko Dhan' (Healthy green forests are the wealth of Nepal). The first phase of the Hariyo Ban Program ended on 31 December 2016 and the second phase will run for another five years. Aims to reduce the adverse impacts of climate change and threats to biodiversity in Nepal. In particular, the Hariyo Ban Program works to empower Nepal's local communities in safeguarding the country's living heritage and adapting to climate	Positive efforts made towards watershed conservation	Long term plan for the piloting area and PES establishment.

	change through sound conservation and livelihood approaches.		
Japanese International for Cooperation Agency (JICA)	The Japan International Cooperation Agency (JICA) is advancing its activities around the pillars of a field-oriented approach, human security, and enhanced effectiveness, efficiency, and speed.	Very good approach on watershed management	Needed Continuation in the degraded landscape of the country.
Women Organising for Change in Agriculture and natural Resources Management (WOCAN)	Working to policies regarding gender in agriculture and natural resources management sector.	Encouraged women to take leadership and decision making roles for natural resources management	Integrating success cases into integrated watershed management
International Union for Nature Conservation (IUCN) Nepal	Created in 1948 in World and in 1995 in Nepal has been developing partnership s to carryout activities to conserve Nepal's biodiversity for improved and secure livelihoods.	Successful EbA model developed	Knowledge should be replicated in River Basin

3.2 Institutional Arrangement and Governance Structures

In recent years, there has been an Increasing number of stakeholders in multiple sectors. However, there is no satisfactory coordination among stakeholders. There is an increasing duplication, lacking packaged and integrated programs which are related to each other, neither at watershed or local government level or sector-wise.

3.2.1 Existing Institutional Arrangements (both at national and local levels)

There various roles to be performed by different groups as anticipated to play in the context of the project. These entail in terms of time commitment and need for mobility by all section of the society. There are three major roles

- ☐ Proportionate committee to be formed for participation in the project at all levels
- ☐ Capacity based leadership must be there in all institutions
- ☐ Local Level government must follow the basin approach, prepare watershed management plans and implement and monitor as per the plan whilst ensuring the local ownership and sustainability of the project.

In the field consultation, the team gathered very important information of strength and capacity needs of stakeholders on the various thematic areas related to climate change (see Table 9).

Table 9: Institutions involved in Climate Change activities at community level: A case of Cluster 4

Institutions involved at the local level in CC activities	List of stakeholders	Strength	Capacity needs
Forest conservation and ecosystem services	DFO	Regulators role	Service delivery at all forest user groups
	FECOFUN	Advocacy	CFUG Information system
	Local NGOs	Facilitation	Mainstreaming Planning and Monitoring
	DSCO	Soil Conservation	Service delivery through micro-watershed planning

	WWF Nepal	Financial Support	Watershed based planning and financial support
	Hariyo Ban Program	Forest management	Watershed based planning and financial support
Agriculture management	DADO	Capacity building	Local variety and irrigation facilities focused program
	DLSO	Breeding support	Business plan based activities
	Local NGos	Facilitation	Mainstreaming micro-watershed plan
	Care Nepal	Financial support	Mainstreaming watershed plan
Climate change	DSCO	Adaption activities	Scale up
	DFO	Mitigation	Follow watershed management
	Drinking water and Sanitation Association	Advocacy	Focus on eco-friendly infrastructure development and water source protection
	Hariyo Ban Program	Program	Develop model micro watershed
Gender/ women empowerment	DWDO	Capacity building	Scale up through mainstreaming program
	FECOFUN	Advocacy	Research and Extension
	NGOs	Facilitation	Focus on remote, poor, Dalits, women
	Women group and local NGOs	Awareness	Balancing coverage among NGOs
DRR (climate induced)	DSCO	Demonstration	Scale up capacity building program
	DFO	Greening hills	Land use plan and Watershed plan focus program
	FECOFUN	Advocacy	Clustering CFUGs in watershed boundary
	NGOs	Facilitation, relief and alert	Linking Watershed based Programs
Water resource management	Water Supply program	Water tank construction and supply	Watershed and Spring restoration program
	DSCO	Water source Protection	Spring restoration program
	DFO	Plantation	Incorporate water source protection in CFUG plan
	Drinking Water and Sanitation Association	Advocacy	Mainstreaming water resource and watershed Planning approach

3.2.2 Governance Structures

There are number of projects and programs that are exercising decision making structures. In Nepal, the governance structure varies between government and project run programs. For formal government programs, coordination committees are usually established at district level, for example the District Forestry Sector Coordination Committee. Programs are formulated, implemented and monitored by the district authority, for example, the District Soil Conservation Program in Gorkha district.

On the other hand, there are a number of committees that operate and manage projects. For example, Building the Climate Resilience of Watersheds in Mountains Eco-Region (BCRWME) project is implemented under the Department of Soil Conservation and Watershed Management (DSCWM) in the Far Western Region. There is Project Steering Committee (PSC) under the Chair of Secretary, MFSC, Technical Working Group (TWG) under the Chair of Director General (DG) of DSCWM, District Forestry Sector Coordination Committee (DFSCC) under DCC,

Integrated Plan Formulation Committee (IPFC) under Project Management Committee and Feasibility Approval Committee (FAC) under the chair of DSCO.

In another case, WWF Nepal has been implementing various projects works with an array of partner organizations in conservation to further its mission of building a future in which humans live in harmony with nature. The coordination mechanism is as follow. At policy level, a steering committee is formed under the Chair of Secretary, MFSC. Similarly, DGs of concerned Department chair the project execution committee and Deputy Director General of Department (DDG) and Technical directors of WWF are in program coordination committee. Regarding implementation, project will maintain the coordination part. District level and grassroots level coordination mechanisms are also established for the effective implementation of the program.

The Hariyo Ban Program aims to reduce adverse impacts of climate change and threats to biodiversity in Nepal. The first phase of the program ended on 31 December 2016 and the second phase is for five years until 2021. The program's objectives are to improve the conservation and management of GON-identified biodiversity landscapes, Chitwan Annapurna Landscape (CHAL) and Tarai Arc Landscape (TAL) and to reduce climate change vulnerability in CHAL and TAL. CHAL itself is bounded by the Gandaki river basin.

Despite various coordination mechanisms, the concept of watershed management and required legal arrangement, organization, Integrated Watershed Management Plan planning, implementation and monitoring and evaluation system are most. Decision making should be based on the concept and plan to achieve the results.

Leaders of the MFSC and MoF and NPC, Ministry of General Administration and Ministry of Law and Justices should translate the concepts of the River Basin approach and integrated watershed management planning into practice (see the 14th plan and various documents - Water Resources Strategy, 2002, Water Plan, 2005, Forest Policy 2015). This is necessary because leadership culture is defined by the rules and lessons deemed valuable enough to be passed down from generation to generation. Such an approach will create an environment where people feel good about reality into day to day life.

Basin level planning is the proper process where stakeholders participate and contribute in developing adaptive capacity to manage vulnerable communities and ecosystems. There are two types of institutions – those that are focused on conservation of soil and water; and those focused on the use of natural resources. If both parties do not participate in the program planning and monitoring process, then the concept of an integrated watershed approach will not succeed.

If anyone would like to reform his /he institution, it would be painful. At the same time there is an alternative of reform is more reform. Therefore, any project with defined start/end dates commissioned to deliver a specific product requires a minimal set of processes, such as:

- ☐ Have a plan to achieve results (plan management).
- ☐ Work with other teams (interdependency management).
- ☐ Remove obstacles that impede progress to the plan (issue management).
- ☐ Avoid risks (risk management).
- ☐ Manage scope boundaries (scope management).
- ☐ Communicate to stakeholders (communication management).

Having reliable and timely data can play a very significant role in collaborative decision making. It is important that stakeholders provide information on what is going on in the watershed and the basin in real time and include insights and observations of affected people. The watershed is the most appropriate working place / unit where the ideas about the pressures on and state of resources can be observed.

3.2.3 Collaborative Mechanisms and Cross-sectoral Coordination between Stakeholders

Successful watershed management programs emphasize active stakeholder engagement, employ integrated solutions, recognize the authority of multiple agencies and jurisdictions, and build on expertise and resources across sectors.

At the central level, there are number of institutions that are engaged in water resources and watershed management, as well as disaster management. Similarly, a number of departments are responsible for the execution of the programs. However, there is a very poor network of institutions at the basin level, although there are district level offices established for the water resource and watershed management. The major key stakeholders whose roles and explained for the management of natural resources and environment protection are given below:

A. Central level

- Legislative Assembly
Act Approval
- Council of Ministers and Office of PM
Rules and Regulation
- Policy and Finance:
The guiding policy is being prepared by NPC whereas the Ministry of Finance is very important agency for translating vision into practice by allocating budget for the implementation of the program and activities.
- Forest and Ecosystem Conservation:
The Ministry of Forest and Soil Conservation, Department of Forests, Department of Plan Resources, Department of National parks and Wildlife Conservation,
- Watershed Management and River Training
Department of Soil Conservation and Watershed Management, Water Induced Disaster Management
- Climate, Weather, Hydrological facts, Forest information and figures:
Department of Metrology and Hydrology, Water and Energy Commission, Ministry of Population and Environment, Department of Forest research and Survey, Central Bureau of Statics (CBS)
- Water resources users
Ministry of irrigation, Department of Drinking Water and Sanitation, Ministry of Energy
- Infrastructure development, Use of Mines Soil work and vegetation:
The Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR), under the Ministry of Federal Affairs and Local Development of Nepal, Department of Mines and Mineral Resources, Department of Agriculture Development and Department of Livestock Development

B. Regional Level institutions- Regional Directorates (Forest, Drinking water, Health, Agriculture, Livestock serves)

C. Local level

There are number of civil society groups, government and non- government stakeholders at district level that are relevant to climate change adaptation.

Table 10: List of Local Stakeholders

Saving and Credits Cooperatives	Health voluntaries
Child groups, eco clubs	Dalits, Indigenous peoples and Local communities
Progressive Women Cooperatives	Care Nepal, Hariyo Ban Program filed offices
CFUGs, LHFGs, RFUGs	DWIDM- Division Office
CDGs	Mother groups
FECOFUN, ACOFUN	DFO /DSCO/DADO/DLSO

3.2.4 Linkages of Stakeholders with and between Local Communities

In the field, local communities are supported by various government, non-government and private sector institutions as well as international organizations. Support is mostly based on a single sector. For example:

- District Agriculture Offices provide support to farmers by providing chemical fertilizers and seeds.
- District Livestock Service Offices support milk, poultry or meat production.
- District Forest Offices provide seedlings to private land holders for planting purposes. Further, DFOs facilitate the forest management activities of various types: Community Forestry, Leasehold Forestry, Religious Forestry, and Collaborative Forests.
- District Soil Conservation Offices help farmers control soil erosion from the farmland as well as public areas as well.
- DoLIDAR is constructing roads in rural areas to support the agriculture sector.
- District Irrigation Offices support farmers who have land for agriculture production.
- The Drinking water supply Office supports supply of drinking water in the settlements.

To increase the production and productivity of the land, protect infrastructure from being damaged by landslides, and make available water for drinking and irrigation purposes, the present working modality and linkages must be revised and strong and bold decisions for managing natural resources need to be taken.

Local communities have relationships with members of parliament members and they can influence these people to pass the watershed management Act which will help bring all stakeholders into one forum and conduct planning based on a basin approach. Similarly, the Council of Ministers and the Office of Prime Minister can help formulate regulations that are suitable for integrated watershed management where all the concerned major stakeholders – Forestry, Soil conservation and Watershed management, Agriculture, Livestock, Irrigation, Drinking-water, Road, Hydropower and electricity – work together in planning, implementation and monitoring for the betterment of soil and water conservation in the basin.

The National Planning commission (NPC) has very good linkage with communities because they are implementing the working policy as envisioned in the plan. In addition, the Ministry of Finance can review budgets and expenditure and assess whether they are based on the plan or not.

Information on weather and climate is provided by the Department of Metrology and Hydrology which is very useful for watershed planning and early warning during disaster management.

The impact of climate change can be reduced if the concerned government line agencies work together on the basin approach. the approach will help irrigation, drinking water and hydro power stakeholders to come together for the wise use of water resources and to promote well planned for upstream landscape and water management so that there will be less siltation and less risk of damage to infrastructure.

Similarly, Agriculture offices can help reduce tillage on sloping land and support farmers to adopt conservation farming. Livestock service offices can promote zero grazing and support arrangements for stall feeding.

There is an important role of road networks in the hilly areas, but the working approach has been creating problems: road accidents, damaged houses and property, loss of agriculture fields, and drying up of water sources.

Linkages in society should be strengthened through watershed management planning where stakeholders jointly prepare, implement and monitor a plan that keeps local communities at the centre.

3.3 Stakeholders views of vulnerability to climate change and natural disasters

The study team organized field consultation meetings with local communities, local government representatives, and district level stakeholders (Figure 4 District level consultation at Gorkha District). The following section summarizes stakeholders' views of vulnerability to climate change and natural disasters.



Figure 4: District level consultation at Gorkha District

3.3.1. Ecosystem based adaptation and natural resource management (Forest and Biodiversity)

Important and vulnerable species

- List important wildlife fauna: Wild Cat, Wolf, Titra, Monkey, Common leopard, Ratuwa, Salak, Red panda, Deer, Kalij, Dhukur, Dumsi, Huchil, Saras, Jharal
- List vulnerable wildlife fauna: Titra, Ratuwa, Salak, Red panda, Dhukur
- List most important flora: Sal, Guras, Bayer, Chilaune, Champ, Saaj, Katus, RaktaChandan, Simal, Utis, Harro, Kafal, Kholesall, Barro, PaniAmala, Nirmasi, Kyamuno, Chiraito, Sun Kauli, Lokta, Khayer, YarsaGumba, Panchaule, Kadam, Thulookhati, Lauth and Gobresall.
- List most vulnerable flora: Bayer, Champ, Saaj, RaktaChandan, Simal, Harro, Kafal, Barro, PaniAmala, Nirmasi, Kyamuno, Chiraito, Sun Kauli, Lokta, Yarsa Gumba, Panchaule, Kadam, Thulookhati.

Experienced loss of important species

- Forest- Flora-Ban Lasun, Amala, Guyelo, Khamari, Gurjo, Pangre, Peepal, Harro, Barro, Kaliz, Kuril, Chalnesisnu

-Fauna- Owl, Theuwa, Kakarngkurung, Vulture, Peacock, Luiche

- Farmland- Dumrilo, Mas, Soyabean, Gahat
- Wetlands- Bamboo, Ghortapre
- Grassland-NA

Regarding mitigation, locals are limited to forest conservation rather than exploring new initiatives which are hindered by external support and poverty. Although communities are very successful in forest protection in many areas, they still require plantations of fast growing species, and entire watershed conservation programs, including water source protection and restoration.

3.3.2. Agriculture (Agroforestry)

Almost all participants mentioned that farmers are compelled to introduce hybrid species and are losing local species in the agricultural sector. There is no option for them to take alternatives than another hybrid variety. Farming system have become increasing vulnerable, with decreasing productivity leading to food scarcity. Locals are searching for adaptation / improved seeds to make sustainable farming systems and they are also shifting cropping patterns.

Another issue is the labor problem in the rural area.

3.3.3 Climate change indicators

In Laprak, people are facing problems from mosquitos due to climate change. Villages in Baudhha Himal and Ganesh Himal are experiencing increased dryness and losing snowy caps. In the middle mountains, locals are facing water shortages due to drying up of water sources. Further, new invasive species are emerging in both low land and uplands.

- Mosquito prevalence and Udus and Upiya disappeared at Barpkar, Gorkha
- Increasing invasive species and monkey in all study area
- Loss of birds like Sparrows, Vultures, Parrots and Bats, Gauthali in the study area
- Reduced number of deer and leopards
- Increased flood and landslide events
- Increasing dryness and scarcity of water
- Water ponds are drying

3.3.4. Economy and Market potential

Agricultural production is decreasing, there are less employment opportunities, and increasing out migration, these are major issues in the study sites. People are frustrated with government support systems and the facilitation of NGOs. Local people have few choices and they mentioned that there is a decreasing availability of new products and markets.

In the study sites, stakeholders urged the project to provide large-scale plantations because there is potential for large scale agriculture/MAPs production, and vegetables. In Salyantar there is a huge possibility of upscaling black-gram farming if irrigation is available and new markets can be developed.

Regarding the main value chain actors, major commercial producers of forestry are

- ❖ government agencies,
- ❖ forest producer groups,
- ❖ private companies and
- ❖ individuals.

Local people are aware of the factors that influence private sector decisions about forest-related investments include the following:

- ❖ Returns. Sufficient returns are a prerequisite; therefore, any factors that reduce the returns or profits from the investment can act as a deterrent (disincentive).
- ❖ Risks. Weighing returns against risks, private investors generally demand much higher returns (typically 15 percent to 30 percent) where risks are (or can be perceived as being) high.
- ❖ Transaction costs. High transaction costs can make investments less attractive. For example, evidence indicates that small investors in particular find it difficult to meet the additional costs associated with SFM-topography, various fees.

Therefore, there is an urgent need of new business model packages and various programs (such as A, B and C below) for investment in forestry and agriculture sectors.

A. Resource production (Creating resources) - Nursery and Plantation, Agro forestry, Protection and rehabilitation

B. Silviculture / Farm management- Sustainable management

C. Enterprise development and Marketing

3.3.5. Gender and Social Inclusion prospective

Not only in Gorkha and Dhading district headquarter, but also in remote areas like Barpak and Phulkharka, there is an increasing awareness of gender equality and social inclusion. This is mostly due to continuous efforts of government and NGOs. However, there is a great demand for mainstreaming of programs run by various institutions in the study areas. Further, gender roles still need intervention to make them more productive and improve livelihoods of the communities. Males and females of each household and village should be aware on gender roles together.

3.3.6. Watershed conditions and management possibilities

The three watersheds are very fragile and in degraded condition. Such areas are not only in High altitude, Ri, Lapa, Jharlang of Dhading district and Barpak and Laprak areas of Gorkha districts, but also in low land like Salyantar, Arupokhari area. Sirdi micro-watershed is one of the successful watershed conservation efforts but there are large number of micro-watersheds which urgently require interventions.

There is a need for policy makers to prepare legal guidelines for making watershed plans and allocate budget for the recommended program based on the basin approach. The growing possibility of Payments for Ecosystem Services (PES) is an important issue because there are large numbers of hydro-electricity projects that are going to be established in the study area. Key barriers that must be resolved include:

- Institutional barriers- Lack of watershed management offices at watershed, sub watershed and micro-watershed level
- Legal barriers- The Soil and Water Conservation Act at local level, Province level and Federal level should be promulgated, enacted and implemented.
- Economic barriers- Financial or budgetary support at watershed basis.
- Natural barriers- Steep topography, fragile hills, climate, geographic constraints.
- Social barriers- Passive watershed management groups formed by DSCOs due to poor budget, legal provisions.

3.3.7. Monitoring and Evaluation and Knowledge Management (including Traditional Knowledge)

Locals are engaged at the local level in self-supervision of programs and activities for getting proper benefits for society. However, they lack business plan based monitoring of the programs

from the government institutions. Further, the programs are not integrated with local needs and there is hardly any example of project / program evaluation in the study area.

3.4 Assessment of Institutional Capacity to Support/Implement EbA

Due to climate change, vulnerable people and ecosystems are affected in Nepal. To address the issue, Nepal has already piloted Ecosystem based Adaptation (EbA) which involves coping strategies to deal with climate variability along with new adaptation approaches. While conducting adaptation program in the proposed project, some of the approaches will be incorporated to reduce vulnerability to climate change: integrated water resource management, sustainable agriculture, and sustainable forest management.

Table 11: Capacity of various stakeholders

Capacity Areas/Stakeholders	Civil society	Government	Private sector	International organizations
Fiscal and human resources	Inadequate funds possible to facilitate the process	Responsible for funding	Interested to invest on green sector	Few organizations have developed capacity and can facilitate the financial support
Knowledge and expertise	Indigenous knowledge and advocacy role is powerful	Training facilities and in-service training	Inadequate and poor policy to involvement	Global knowledge sharing platform
Operational and procedural frameworks	Based on government policy and procedures	Project experience and needs to mainstream	Depend upon government procedures	Need to prepare country specific procedural frameworks

3.5 Institutional Capacity Development Needs for Effective EbA

Institutional Capacity Development (ICD) occurs by acquiring resources (human, financial, networks, knowledge, systems and culture) and integrating them in a way that leads to change in individual behaviour and ultimately to more efficient and effective operations of institutions and organizations. However, ICD also has to do with two types of that are emphasized; tangibles and non-tangibles.

The tangibles include physical assets such as infrastructure, machinery, natural resources, health of the population and education. Organizational structure and systems, legal frameworks and policies are also included in this category. The tangibles can be referred to as hard capabilities.

The intangibles on the other hand, have to do with social skills, experience, creativity, social cohesion, social capital, values, motivation, habits, traditions, institutional culture etc., and hence can be referred to as soft capabilities. These are normally difficult to quantify. Others may term these capabilities as core capabilities as they refer to the creativity, resourcefulness and capacity to learn and adapt of individuals and social entities.

ICD encompasses three main activities: (i) skill upgrading, (ii) procedural improvements, and organizational strengthening. In the context of institutional capacity development needs for effective EbA both at national and local level, as well as capacity building needs of local communities. Each level has its own importance and typical roles for making effective EbA.

Therefore, as given in Table 8, there are a number of areas to be addressed for making meaningful implementation of EbA in the Gandaki River Basin in Nepal.

Table 12: Capacity building areas at community, Local and province and Federal level

SN	Areas of capacity development	Level		
		Federal and Province Level	Local Level	Community Level
1	National EbA Policy orientation			
2	Basin Strategic Master Plan			
3	EbA area Study tour. experience sharing			
4	Integrated Watershed Management			
5	Climate change, mitigation and adaptation			
6	SALT training			
7	River training			
8	Land Slide inventory and hazard mapping			
9	Reviving and restoration Spring			
10	Project proposal writing and report writing			
11	Livestock in Integrated Watershed Management (IWM)			
12	Agriculture in IWM			
13	Participatory Monitoring and Evaluation			
14	Role of NGO, CBOs and Private Sector			
15	Gender Equality and Social Inclusion			
16	Sub-watershed management plan preparation			
17	Sub-watershed prioritizing and Planning			
18	Role of Environmental inspector in IWM			
19	Urbanization and water source and watershed management			

20	Road and Landslide treatment			
21	Co-ordination and collaboration			
22	Drafting IWM legal instruments			
23	Audio-visual production for IWM			
24	PES implementation			
25	Policy monitoring and evaluation			

3.6 Recommended Key Stakeholder-related Activities

Stakeholder engagement is a key to make a successful project. Based on the Basin approach, stakeholders are needed to be clustered not only for the preparation of watershed plans of vulnerable communities and ecosystems, but also for the implementation and monitoring of activities. Further, coordination among the stakeholders is needed for effective implementation of the programs. Prior to implementing programs, key principles need to be developed to engage the stakeholders effectively in the project.

- ☐ One Basin level strategic plan
- ☐ Province level watershed plan
- ☐ Local level sub watershed level plan
- ☐ One door entry principle
- ☐ All plans are prepared based on land use in the watershed area
- ☐ Infrastructure development must be there ahead
- ☐ Coordination and networking system must be established among
 - River Basin Related Institutions- Government Institution and conservation partners
 - RB CBOs, NGOs, civil society network, academicians, Journalists
 - Government Infrastructure development institutions and development partners
- ☐ Private sector involvement with business plan relating to RB plan

Based on the secondary information and primary information collected during the field visit by the study team, and the principles mentioned above, the following are the key activities that will enable stakeholder engagement and effective institutional arrangements for EbA..

Table 13: Key activities and Targets

SN	Stakeholder related key Activities	Stakeholder
1	National EbA Policy orientation	All level
2	Basin Strategic Master Plan	Federal
3	EbA area Study tour. experience sharing	Local
4	Integrated Watershed Management	Province
5	ToT on Climate change, mitigation and adaptation Training	Province
6	ToT SALT training	Local
7	River training ToT-training	Local and Province
8	Land Slide inventory and hazard mapping training	Federal and Province
9	ToT Training Reviving and restoration Spring	Local

10	Project proposal writing and report writing training	Province and Local
11	Livestock in IWM orientation	Local
12	Agriculture in IWM orientation	Local
13	Participatory Monitoring and Evaluation	Local
14	Orientation on Role of NGO, CBOs and Private Sector	Local
15	Orientation on Gender Equality and Social Inclusion	Local
16	Sub-watershed management plan preparation training	Local
17	Sub-watershed prioritizing training	Local
18	Role of Environmental inspector in IWM sharing	Province and Local
19	Urbanization and water source and watershed management orientation	Local
20	Road and Landslide treatment orientation	Local
21	Co-ordination and collaboration (steering committee, Technical committee) orientation	All level
22	Drafting IWM legal instruments orientation	All level
23	Audio-visual production for IWM orientation	Local
24	PES orientation	All level
25	Policy monitoring and evaluation training	Federal and Province

4.0 Conclusion

This report focuses on stakeholder and institutional aspect of the proposed project. For a long time, a large number of stakeholders have been engaged in the Gandaki River Basin to uplift the livelihoods of the people. However, the negative impact of climate change has not been properly dealt and this is hindering livelihoods of the vulnerable communities and the wellbeing of ecosystems in the Gandaki River Basin. The study team analyzed the context and recommended key activities with associated budget to implement the proposed project.

Institutional arrangements are a very important aspect to achieve the goal of the project. Basically, the philosophy of the integrated watershed management is to integrate all activities carried out by various sectors and implement in coordinated ways within watershed boundary so that the vulnerable communities will be benefit more by enhancing their capacity to adapt to the impact of climate change. Hence, engagement of stakeholders in each and every step of program planning, implementation and monitoring and evaluation focusing basin approach should be the first prerequisite for successful project.

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Annexes

Annex 1: Checklist 1 - Criteria and Types of information

Criteria	Type of information/data
Impact Potential	Provide data on the population and demographics, immigration and emigration trends of the target villages (disaggregated by gender, cast and economic status)
	Information's (by area and type) on National forest, community forest, leasehold forest, religious forest, private forest, grassland, wetland, and important fauna and flora associates on it.
	Information on Forest, grassland and wetland management practices and opportunities
	Information on important agriculture products e.g.: cereal crops, oil, spices, fruits, potato, and livestock By area, productivity, and season.
	Is there any issues of food security and food security months in community
	List of forest, agriculture and livestock programs and their strengths and weaknesses and their linkage in relation to livelihood of local communities
	.
	Provide data (if not experienced by locals) on trend of following? Population, Out migration, in migration, Forest Area, Forest condition, Grassland, Wetland condition, Water Quality, Water flow, Invasive Species, Human Wildlife Conflict, Agricultural area, Productivity, herbicide use. Economic gain and loss, Flood, Landslides, Fire, Drought, Temperature, Precipitation. Time recall at interval of 5 years (25/20/15/10/5 years)
	What could be the cause of above changes e.g. Population, immigration, emigration, deforestation, Invasive Species, HWC, Flood, Landslides, Fire, Drought, Temperature, Precipitation, Governance, Inadequate knowledge, Lack of Development
	What is the state and trend of pressures on the environment (e.g. overharvesting of forests and water, hunting, fire, changes in invasive species, pollution from herbicides)? Pressures are the factors that directly affect natural resources
	What ecosystem services do stakeholders most need (disaggregated by gender, wealth, and location)? E.g. provincial level may need catchment protection, climate regulation, livelihood opportunity; local people may need fuelwood, pollination, water, protection from landslides etc.
	Who is more benefited from the forest/Agricultural products distribution system followed? Rich, Middle, Poor, disadvantaged people, or the women or Dalit, IPs or others?
	How communities perceive about climate change (raising temperature, rainfall, GLOF etc.), ecosystem services (forest, soil, water, food and agriculture etc.), climate related natural hazards (floods, landslides, droughts, forest fire etc.) and their impacts in human life (poverty, migration/displacement, human and animal health, diseases, loss of human life and damage of properties and infrastructures etc.?

Criteria	Type of information/data
	Any effects of climate change is seen or noticed in areas/community? If yes in which site and for what (food, fibre, fuel, genetic resources, bio-chemicals, natural medicines, pharmaceuticals, ornamental resources, fresh water, landslides, drought, fire, human and animal health etc.)
	Is there any loss of biodiversity and the reason for the loss (at ecosystems/landscape, species and genetic level) in your forest, grasslands, farms and wetlands?
	How changing climate and climate related natural disasters are impacting on livelihoods (Male and female) (Poor and rich) between different ethnic group
	What types of adaptive interventions (EbA/Eco DRR Intervention or activities do local people practicing and think would reduce exposure to climate risks (e.g. re-forestation, new crop varieties, soil conservation, use alternatives for energy eg: solar, Improved Cook Stoves, Biogas etc.
	What are the impact on local people commercialization of livestock farming on forest conservation, increase in industries and demand of forest-based fuel/energy on forest, large scale infrastructure development on forest, deforestation, loss of biodiversity and extent of illegal harvest by individuals or group of individuals and its relation with deforestation, degradation and leakages (greed based)
	Any local institutions (NGOs, Govt. agencies) that has been applying and working with respect to risk management & adaptation relate to biodiversity conservation, forest Management Agriculture, ecosystem services and climate change in the Municipalities/Rural Municipalities. (List)
	What are the good activities/components and weak part from gender equality, women's empowerment point of view in existing /ongoing and proposed climate change projects?
Paradigm shift potential	Are there existing innovative solutions, technologies, business models, or local ideas for innovation for climate change adaptation?
	Any difficulties for women and men on adapting to agriculture/animal husbandry practices due to changing climate patterns? What are they? (Diversify land use & livelihood options (including crop diversification) to reduce risk & enhance climate resilience & so take into account climate change e.g. agriculture or forestry that can cope with changing temperatures or rainfall patterns)
	Are there existing approaches to monitoring and evaluation for climate change that may be relevant to the project (e.g. government reporting systems, project M&E systems, research being undertaken)?
	Are there existing approaches to financing climate adaptation or mitigation (or approaches that could be modified to support climate adaptation or mitigation) in the target sites?
	What does stakeholder think of the potential to create new markets and business activities at the local, district and provincial levels that will support Ecosystem based Adaptation (EbA)?

Criteria	Type of information/data
	<p>Opportunities for integration of women's issues and needs and empower women for meaningful participation in watershed management & increase resilience to CC and Disaster Risk Reduction and management</p> <p>What do people think are the barriers to climate-resilient solutions, or the need for improving national/local regulatory or legal frameworks to promote investment climate-resilient development?</p>
Needs of the recipient	<p>What are the major sources of livelihoods and employment opportunity For women, poor, ethnic groups, Dalits other socially excluded in this area/community?</p> <p>What is the participation between different Social Groups in the formal/informal economy in the project footprint area?</p> <p>What is the extent and intensity of exposure of target communities, the districts and the province, to climate risks and the degree of vulnerability, including exposure to slow onset events?</p> <p>What is the level of social and economic development (including income levels) of the province, districts and target population (e.g. minorities, disabled, elderly, children, female heads of households, indigenous peoples, etc.)?</p> <p>What social and economic assets are exposed to climate change risks and impacts? (e.g livelihoods, roads, crops, buildings, cultural heritage)</p> <p>Who benefits or loses from changes in the flow of ecosystem services men/women, poor/rich, ethnic group/other caste groups, rural/urban /local/provincial?</p> <p>What are the barriers (social including gender, cast, income), institutional, Industrial, regulatory, political, economic and natural factors for reducing climate risks)?</p> <p>What capacities and strategies/interventions are needed to enhance adaptive capacity of vulnerable communities and building resilience of natural ecosystems in the G R Basin?</p> <p>What are the current need of local people (timber, fuelwood, fodder, NTFPs, water, climate regulation, natural hazard regulation, landslide protection, tourism opportunities etc . disintegrate by Gender/cast and economic status)</p>
Local ownership	<p>How interested are key stakeholder groups in being engaged in the climate change adaptation?</p> <p>Are there civil society groups and other relevant stakeholders that may be relevant to climate change adaptation?</p> <p>Who are the champions/ holders of such knowledge in the society and In what form the knowledge on EbA/CBA/DR is captured and preserved (written forms, stories, folklore, songs, code words, etc)?</p>
	<p>What roles different groups are anticipated to play in the context of the project? What will these entail in terms of time commitment and need for mobility?</p>
Others	<p>How is the traditional knowledge communicated among and between the generations including individuals, families, communities, and village or at regional and national level)? (Orally, networks, meeting, folk lore, stories, publications, telephone, radio, TV, etc.).</p>
	<p>Are there any existing approaches/practices in monitoring and evaluation of the effectiveness on the use of traditional knowledge or recent</p>

Criteria	Type of information/data
	interventions/programs that may be relevant to the project (e.g. government reporting systems, project M&E systems, research being undertaken etc.)?
	How you think the knowledge and science about climate change adaptation and ecosystem resilience should be communicated to people (any approaches, teaching, training, demonstration, audio visual, mobile apps, social media etc.
	What are the key indicators of climate change and vulnerability of ecosystem and communities (e.g. birds, wildlife, plants, bats, floods, landslides, crop cycle, soil and water etc.) that could be monitored over time for relevant, accurate and timely information?
	Are there any barriers /limitations for the effective monitoring and evaluation systems? Any advice to improve the monitoring and evaluation systems for the successful implementation of the programs in the GRB?
	Satisfaction and dissatisfaction with specific forest development/management activities carried out so far
	List Major forest species (flora and fauna) found in the area.
	What systems exist for M&E of the existing CCA in the institutions working in climate change adaptation?
	Existing production services e.g. industries and micro-enterprises related to agriculture, forestry and tourism in this community
	Are there existing gender and social inequalities that may be exacerbated by climate change impacts in the proposed project footprint area? Do vulnerable groups' i.e. women, poor, ethnic groups, Dalits have equal access to information and opportunities necessary to participate and benefit fully from the anticipated activities of the project?
	What is the major health hazard faced by women or men due to CC?
	On an average what percentage of cereal output is marketed? % Are Cereals/livestock/vegetable products of this community exported to other parts of the country, number of poultry projects in this community Where are the markets for these products? What are the price differences between suppliers/collectors/farmers and sellers of the products?
	Is the local governing bodies such as the Rural/Municipalities impose taxes in the local market? If yes what are those taxes?
	Current price of Agricultural Products in the Selected Community/Market Production of Cereals, Paddy, Maize, Wheat, Millet, Other cereals, Cow milk, Buffalo milk, Buffalo meat, Goat meat, Sheep, Mountain goat, egg, chicken meat, orange, apple, banana, other fruits, Green leafy vegetables, Potato, beans other vegetable
	Will the increasing economic activities in this community increases the participation of women and socially excluded group of the community?

Proposal Preparation for Green Climate Fund

Annex 2: Checklist 2 - Field Consultation

1. Impact potential

1.1	Exiting demographic data of target village disintegrated by Gender, social, economic group (to be obtained from the secondary sources)
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1.2 Condition of Forest and other habitat in your area

Forest type	% degradation since 10 years	% degradation since 20 years	Remarks
National Forest			
Community forest			
Grassland			
Wetland			

1.3 Important flora and fauna

List five important wildlife fauna and flora in your area	Fauna	1	2	3	4	5
	Flora	1	2	3	4	5
List five most vulnerable wildlife fauna and flora in your area	Fauna	1	2	3	4	5
	Flora	1	2	3	4	5

1.4 Climate change impact experience

What impact have people experienced In following agricultural crops due to Climate change	Change in productivity	Shift into new variety/species	Any others	Remarks if any
Cereal crops				
Oilseed crops				
Fruits				
Spices				
Vegetables				
Livestock				

1.5 Climate change impact on food security

Due to impact of climate change on crops and livestock, have there been any issues of self-sufficiency on food and food security in the community?

Yes	No
-----	----

If yes, tell us your perception	In the last 10 years	In the last 20 years
How It can be addressed in the future	1 2 3	

1.6 Climate change impact on various demographic features

Provide the condition of following due to climate change impact?	In the last 10 yrs	In the last 20 yrs	Impact of these changes in Society
Population	Increasing	Decreasing	
Out migration	Increasing	Decreasing	
In migration	Increasing	Decreasing	
Poverty	Increasing	Decreasing	

1.7 Experience of impact of climate change on physical features

Did you experience changes in the following due to climate change	Condition		Impact on human health	Impact on Agriculture	Impact on Social system
Change in water quality	Improved	Deteriorated			
Change in water quantity	Improved	Deteriorated			
Invasive species	Increased	Deteriorated			
Landslides	Increased	Deteriorated			
Forest fire	Increased	Deteriorated			
Drought	Increased	Deteriorated			
Temperature	Increased	Deteriorated			
Precipitation	Increased	Deteriorated			
Agriculture productivity	Increased	Deteriorated			
Pesticide use	Increased	Deteriorated			

1.8 Nee of Ecosystem services

What ecosystem services do community most need	Male	Female	Rich	Poor	Ethnic group	Marginalized	Dalits
Forest product	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Pollination	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Water supply	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Landslides control	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Others	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Note: H=high; M=medium; L=low							

1.9 Exposure of target communities to climate change risks

What is the extent and intensity of exposure of target communities to climate risks?

Risk on	Extent	Name the specific area the risk occurs (if possible)	Nature of risk	Remarks
Food	H M L			
Fiber	H M L			
Bio chemicals	H M L			
Natural medicines	H M L			
Genetic resources	H M L			
Fresh water	H M L			
Landslides	H M L			
Drought	H M L			
Forest fire	H M L			
Human health	H M L			
Animal health	H M L			

1.10 Loss of important species

Experienced loss of important species	List species	Climate change factor for the loss	Other reason for the loss
In forest			
In grassland			
In farms			
In wetlands			

1.11 Climate change impact on livelihoods

Experienced impact on Livelihoods due to CC	Male	Female	Rich	Poor	Ethnic group	Marginalized	Dalit
Health	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Poverty	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Income	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Livestock	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Water source	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Access to Market	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Farming practices	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Others	H M L	H M L	H M L	H M L	H M L	H M L	H M L

1.12 Local practices to exposure climate risks

What types of adaptive interventions (EbA) or activities that local people are practicing are effective to reduce exposure to climate risks	Male	Female	Rich	Poor	Ethnic group	Marginalized	Dalit
Wetland/water conservation	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Forest management	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Agriculture production	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Soil conservation	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Alternative energy supply	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Any others	H M L	H M L	H M L	H M L	H M L	H M L	H M L

1.13 Institutions involved in Climate Change activities at community level

Institutions involved at the local level in CC activities	List	Strength	Weakness	Other Remarks
Forest conservation and ecosystem services	1			
	2			
	3			
	4			
	5			
	6			
Agriculture management	1			
	2			
	3			
	4			
Climate change	1			
	2			
	3			
	4			
Gender/ women empowerment	1			
	2			
	3			
	4			
DRR (climate induced)	1			
	2			
	3			

	4			
Water resource management	1			
	2			
	3			
	4			
Others (specify)	1			
	2			
	3			
	4			

2. Paradigm Shift Potential

2.1 Existing local innovative solutions for Climate Change

Are there existing local innovative solutions for CC Impact	Type of impact brought by the innovative solution	Cost and benefit of the innovation per hectare of intervention with the new innovation (see example in Annex 1 and put here only total reduced benefits and costs and total added benefits and costs - a very rough estimate)			
		Reduced		Added	
		Benefit	Cost	Benefit	Cost
List of technologies:					
1					
2					
3					
4					
5					
Business model					
1					
2					
3					
4					
5					
Climate change adaptation (Resilient)					
1					
2					
3					
4					
5					
Mitigation					
1					
2					
3					
4					
5					

2.2 Constraints in replicating the existing adaptation initiative

Any difficulties on adapting existing CC adaptation Initiatives	Male	Female	Poor	Rich	Marginalised	Ethnic group	Dalit
Agriculture and animal husbandry	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Land use change	H M L	H M L	H M L	H M L	H M L	H M L	H M L

Livelihood	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Any others (specify)	H M L	H M L	H M L	H M L	H M L	H M L	H M L

2.3 Existing approaches in monitoring and evaluation of climate change impacts and possibility to establish a new one at local level

Are there existing approaches for monitoring and evaluation for climate change	Yes	No	If yes Its strength	Weakness
Government reporting systems				
Project M&E systems				
Research				
Local Monitoring System				
Any others (specify)				

2.4 Possibility to establish a new monitoring and evaluation at the local level with the new local government

Is there a possibility to establish a new monitoring and evaluation mechanism at Local Level?	Yes	No
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If yes,

What could be the key monitoring indicators	What is the current baseline status of such indicators
How can this mechanism be made sustainable after the project?	

2.5 Climate change financing

Are there existing approaches to financing climate adaptation or mitigation (or approaches that could be modified to support climate adaptation or mitigation) in the target sites?	Yes	No
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If yes, Specify the approach	How effective is it?

2.6 When EbA options are adopted, there will be some new products coming to the market. What do stakeholders think of the potential to create new markets and business activities that will support marketing of such products and promote Ecosystem based Adaptation (EbA)?

Existing market	New markets

3. Gender and social inclusion

3.1 Women and other disadvantage groups have specific needs and issues as discussed earlier. How can they be integrated in the project

Group	Recommended measure for integration
Men	
Women	
Poor	
Rich	
Marginalised groups	
Ethnic groups	
Dalits	

3.2 Integration need in the project activities

Activities	Male	Female	Poor	Rich	Marginalized	Ethnic group	Dalit
Watershed management	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Increase resilience to CC	H M L	H M L	H M L	H M L	H M L	H M L	H M L
EbA	H M L	H M L	H M L	H M L	H M L	H M L	H M L
DRR management (ecosystem-based)	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Others (specify)	H M L	H M L	H M L	H M L	H M L	H M L	H M L

3.3 Social and cultural barriers and limitation to adapt climate-resilient solutions/measures

List the social and cultural barriers and limitation to adapt climate-resilient solutions/measures.	Idea of improvement

3.4 Need of recipient (this table can be filled from secondary information. What should be done here is just to jot down some site specific information)

What is the level of social and economic development (including income levels) of the target population	Male	Female	Disable	Poor	Marginal group	Dalit
Education	H M L	H M L	H M L	H M L	H M L	H M L
Health	H M L	H M L	H M L	H M L	H M L	H M L
Income	H M L	H M L	H M L	H M L	H M L	H M L
Participation	H M L	H M L	H M L	H M L	H M L	H M L

3.5 Participation between different Social Groups in the formal/informal economy

Participation between different Social Groups in the formal/informal economy in the project footprint area?	Woman	Man	Poor	Rich	Ethnic group	Marginal group	Dalit
	H M L	H M L	H M L	H M L	H M L	H M L	H M L

3.6 Social and economic assets are exposed to climate change risks and impacts

What social and economic assets are exposed to climate change risks and impacts?	Level of exposure of						
	Woman	Man	Poor	Rich	Ethnic group	Marginal group	Dalit
Livelihood	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Road	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Crops	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Building	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Cultural heritage	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Any others	H M L	H M L	H M L	H M L	H M L	H M L	H M L

3.7 Who benefits or loses from changes in the flow of ecosystem services?

Who benefits or loses from changes in the flow of ecosystem services?	Men	Women	Poor	Rich	Marginal group	Rural	Urban
	H M L	H M L	H M L	H M L	H M L	H M L	H M L

3.8 Will the increasing economic activities in this community increase the participation of women and socially excluded group of the community?**3.9 Are there existing gender and social inequalities that may be exacerbated by climate change impacts in the proposed project footprint area?****3.10 Barriers to adopt adaptive measure**

What are the barriers/ factors for adopting adaptive measures to reduce climate risks?	Male	Female	Poor	Rich	Marginalized	Ethnic group	Dalit
Institutional	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Industrial	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Regulatory	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Political	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Economic	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Natural	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Social	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Cultural	H M L	H M L	H M L	H M L	H M L	H M L	H M L

3.11 What are the existing capacities and community need to enhance adaptive capacity building resilience of natural ecosystems

What are the current need of local people	Male	Female	Poor	Rich	Marginalised	Ethnic group	Dalit
Timber	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Fuelwood	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Fodder	H M L	H M L	H M L	H M L	H M L	H M L	H M L
NTFPs	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Water	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Climate regulation	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Natural hazard regulation	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Landslide	H M L	H M L	H M L	H M L	H M L	H M L	H M L
Tourism	H M L	H M L	H M L	H M L	H M L	H M L	H M L

4. Local Ownership

4.1 Expected roles of different groups

What roles different groups are anticipated to play in the context of the project? What will these entail in terms of time commitment and need for mobility?	Men	Women	Poor	Rich	Marginal group	Ethnic group	Dalit

4.2 Civil society groups and other relevant stakeholders relevant to climate change adaptation

Are there civil society groups and other relevant stakeholders that may be relevant to climate change adaptation?

1	6
2	7
3	8
4	9
5	10

4.3 Who are the champions/ holders of such knowledge in the society and In what form the knowledge on EbA/CBA/DRR is captured and preserved

Form the knowledge on EbA/CBA/DRR is captured and preserved	Men	Women	Poor	Rich	Marginal group	Ethnic group	Remarks
Written forms							
Stories							
Folklore							
Song							
Others							

4.4 How is the traditional knowledge communicated among and between the generations including individuals, families, communities, and village or at regional and national level)?

Description	Remarks
Orally	
Networks	
Meetings	
Folklore	
Stories	
Publications	
Telephone	
Radio	
TV	

5. Others

5.1 Existing approaches/practices in monitoring and evaluation of the effectiveness on the use of traditional knowledge

Are there any existing approaches/practices in monitoring and evaluation of the effectiveness on the use of traditional knowledge or recent interventions/programs that may be relevant to the project (e.g. government reporting systems, project M&E systems, research being undertaken etc.)?	Yes	No
If yes, how effective are they? = 1. Very effective 2. Effective 3. Not effective		
If are not effective, how can they be made effective?		

5.2 How you think the knowledge and science about climate change adaptation and ecosystem resilience should be communicated to people (any approaches, teaching, training, demonstration, audio visual, mobile apps, social media etc.

5.3 What are the key indicators of climate change and vulnerability of ecosystem and communities (e.g. birds, wildlife, plants, bats, floods, landslides, crop cycle, soil and water etc.) that could be monitored over time for relevant, accurate and timely information?

5.4 Are there any barriers /limitations for the effective monitoring and evaluation systems? Any advice to improve the monitoring and evaluation systems for the successful implementation of the programs in the GRB?

5.5 Existing and future production services e.g. industries and micro-enterprises related to agriculture, forestry and tourism in this community

5.6 Where are the markets for these products? What are the price differences between suppliers/collectors/farmers and sellers of the products?
(This info should be obtained from the secondary source, what should be jotted down here is the difference between the farm gate price and the consumer's price to the extent possible)

5.7 Is the local governing bodies such as the Rural/Municipalities impose taxes in the local market? 1. Yes 2. No
If yes what are those taxes? % value commodity wise (get these rates from FNCCI/FNCSI District Chapter)

Annex 2.1: Example of Foregone and added benefits and costs

Reduced and added Benefits and Costs due to introduction of innovative solution					
Innovative change: Add 50 cows and convert 100 acres to forage production					
Additional costs			Additional income		
Fixed costs					
	Investment on cow herd	1,800		Culled cows	2,100
	Depreciation on herd	300		Calves	6,728
	Taxes	100		Heifer calves	4,782
Variable costs					
	Veterinary services	200			
	Supplemental feed	750			
	Hay	1,200			
	Housing	200			
	Miscellaneous	100			
	Pasture, fertiliser	1,500			
Reduced income			Reduced costs		
	Grain production	9,600		Fertiliser seed	2,200
				Machinery expense	700
Total annual additional costs and reduced income (A)		15,750	Total annual additional income and reduced costs (B)		16,510
Net change in profit = B-A		760			

Annex 3: Photos

1. Scarcity of water in saliyyantar, Dhading



2. Landslides in Barpak area



3. Landslide at Reep village at Gorkha Municipality



4. Risk of Flood at Soti Bazar of Arughat, Gorkha

