Ecosystem based Adaptation in Mountain Ecosystems in Nepal

Coordinating Entity: Ministry of Environment, Science and Technology, Government of Nepal

Federal Ministry for the Environment, Nature Conservation and Nuclear Safety

Implementing Partner: **Ministry of Forests and Soil Conservation, Government of Nepal**

Expected CP Outcome(s): Environment and, energy and climate change mainstreamed into national and local development planning with a focus on gender, social inclusion and post-conflict environmental rehabilitation.

Expected Output(s): Priority adaptation actions implemented in selected districts to build communities' resilience to climate change

Brief Description

Nepal's national economy and people's livelihoods largely depend on natural resources and ecosystems services. These are increasingly negatively influenced by climate change effects, including increased variability and extreme events. The National Adaptation Programme of Action (NAPA) and other national strategies and action plans have recognized that immediate actions are needed to minimize climate risks to society, economy and ecosystems. The Ecosystem based Adaptation Nepal (EbA-N) project aims to enhance capacity of local communities, demonstrate EbA measures for continued provision of ecosystem services, and support in strengthening the institutional capacity of key national Nepalese actors to build and better integrate ecosystem resilience options in national, sub-national and local level plans. This will promote EbA options as part of overall adaptation strategies in Nepal and reduce the vulnerability of communities, with particular emphasis on mountain ecosystems. The project also aims to develop ecosystem-focused decision-making tools, demonstrating EbA results at the local level, building the economic case for EbA and using knowledge and learning derived from the project to influence formulation of national and local policies and strategies for adaptation.

Programme Period:	4 years
Atlas ID	00062837
Project ID:	00080216
Start date:	July 2012
End Date	December 2014
L-PAC Meeting Date:	23 February 2012
Management Arrangement:	NIM

Total resources required (BMU Germany via UNDP Cost Sharing Agreement with UNEP) 1,731,733**

- Initial Project Grant 100,000
- Parallel Co-finance
  - BMU Germany (UNEP) 713,296
  - BMU Germany (IUCN) 927,608

Total allocated resources including co-finance: 3,372,637

** including the IP budget and UNDP GMS

Agreed by (Ministry of Forests and Soil Conservation): Aug 16, 2012

Agreed by (UNDP):

CONTENTS

1. SITUATION ANALYSIS 1

1.1 Location, Geographic and Climatic Context 1
1.2 Socioeconomic and Livelihood Context 3
1.3 Climate Change and its Impacts: A General Overview 4
1.3.1 Overall Trends of Increasing Ambient Temperatures 5
1.3.2 Increased Unpredictability on Water Availability – with Overall Decreased Seasonal Availability 6
1.3.3 Increased Frequency of Extreme Weather Events/Natural Disasters 6
1.3.4 Climate Change and its Impacts on Hills and Mountains 8
1.4 Policy Context 9
1.5 Institutional Context 11
1.6 Stakeholder and Baseline Analysis 11
1.7 Long-term Solution and Barriers to Achieve the Solution 14

2. PROJECT SITE 18

2.1 Site Selection Process 18
2.2 Rationales for Site Selection 18
2.3 Description of Project Site 19

3. PROJECT STRATEGY

3.1 Project Design Principles 21
3.2 Project Objectives, Outcomes and Outputs 22
3.3 Project Objective, Components and Outputs 23
3.4 Sustainability Analysis: Economic, Social and Environmental Benefits 30
3.5 Cost effectiveness of the Proposed Project 32
3.6 Replicability 33
3.7 Result Framework 37
3.8 Potential risks and assumptions 39

4. MANAGEMENT ARRANGEMENTS 40

4.1 Fund Flow Modality 40
4.2 Management and Financial Audit 41
4.3 Management Structure, Roles and Responsibilities 41
4.4 Project Coordination Mechanism 42
4.5 Field Level Project Coordination Committee 42
4.6 Project Executive Board 42
4.7 Project Management Unit 44
4.8 Field Office 45

5. MONITORING FRAMEWORK AND EVALUATION **46**

5.1 Project Start 46
5.2 Quarterly 46
5.3 Annually 46
5.4 Periodic Monitoring through Site Visit 47
5.5 Mid-term of Project Cycle 47
5.6 End of Project 47
5.7 Learning and Knowledge Sharing 48

6. LEGAL CONTEXT **50**

7. ANNEXES **51**

Annex 1: Major climate change related projects and programmes being implemented in Nepal.
Annex 2: Site Selection Processes and Steps Followed
Annex 3: Climatic and Non-climatic Threats/Pressures and Potential Adaptation Actions
Annex 4: List of major stakeholders working in the areas/issues
Annex 5 a: Proposed indicative activities with resources for the project
Annex 5 b. Activities carried out by IUCN Nepal
Annex 5 c. Budget Allocation to UNEP, UNDP and IUCN for Nepal partnership project
Annex 6: Job Descriptions of Project Staff
Annex 7 a. Tentative Annual Work Plan 2012
Annex 7 b. Tentative Annual Work Plan 2013
Annex 7 c. Tentative Annual Work Plan 2014

List of Tables

Table 1: Nepal's HDI over the years
Table 2: Impact of Climate Change on Different Ecosystems Services and People's Livelihoods
Table 3: Stakeholder and Baseline Analysis
Table 4: VDCs, Population and Households of Panchase Area
Table 5. Social, Economic and Environmental Analysis
Table 6: Result Framework
Table 6: Potential Project Risks and Assumptions
Table 7: Project Component and Lead Agencies
Table 8: Project Management Staff and Budget
Table 9: M& E work plan and budget

List of Figures and Maps

Figure 1: Map of Nepal
Figure 2: Topographical Cross-Section of Nepal
Figure 3: Map of Nepal Districts Showing Relative Overall Climate Change Vulnerability
Figure 4: Map of Project Site
Figure 5: Fund Flow Process
Figure 6: Project Organization Structure

ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
APF	Adaptation Policy Framework
APR	Annual Project Review
BMU	The Federal Ministry for Environment, Nature Conservation and Nuclear Safety
CBOs	Community Based Organizations
CBS	Central Bureau of Statistics (of Nepal)
CC	Climate Change
CDKN	Climate and Development Knowledge Network
CDRMP	Comprehensive Disaster Risk Management Project
CNA	Capacity Needs Assessment
CSOs	Civil Society Organizations
DADO	District Agriculture Development Office
DDCs	District Development Committees
DFO	District Forest Officer
DiSCO	District Soil Conservation Office
DLSO	District Livestock Services Office
EbA	Ecosystem based Adaptation
GIS	Geographic Information Systems
GIZ	Deutsche Gesellschaft Fur Internationale Zusammenarbeit
GLOF	Glacial Lake Outburst Flood
GCM	Global Circulation Model
GO	Government Organization
HDI	Human Development Index
ICIMOD	International Centre for Integrated Mountain Development
INGOs	International Non-Governmental Organisations
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature and Natural Resources
LAPA	Local Adaptation Programme of actions
LDCF	Least Developed Countries Fund
Masl	Metres Above Sea Level
MCCICC	Multi-Stakeholder Climate Change Initiatives Coordination Committee
MoAD	Ministry of Agriculture Development
MoEST	Ministry of Environment, Science and Technology
MFSC	Ministry of Forest and Soil Conservation
MoFALD	Ministry of Federal affairs and Local Development
M&E	Monitoring and Evaluation
NAPA	National Adaptation Program of Action
NARC	Nepal Agriculture Research Council
NAST	Nepal Academy of Science and Technology
NBS	Nepal Biodiversity Strategy
NBSAP	National Biodiversity Strategies and Action Plans
NBSIP	Nepal Biodiversity Strategy Implementation Plan
NCCSP	National Climate Change Support Programme
NEPAP	Nepal Environmental Policy and Action Plan
NGOs	Non-Governmental Organisations
NPC	National Planning Commission
NTFPs	Non-timber forest products
PES	Payment for Ecosystems Services
PIR	Project Implementation Reports
PMU	Project Management Unit
PPCR	Pilot Programme for Climate Resilience
REDD	Reducing Emissions from Deforestation and Forest Degradation
SC	Steering Committee
SHL	Sacred Himalayan Landscape
SPCR	Strategic Program for Climate Resilience
ToRs	Terms of Reference
ToTs	Trainers Trainings
TYIP	Three Year Interim Plans
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
VDCs	Village Development Committees
VIA	Vulnerability and Impact Assessment
WCMC	World Conservation Monitoring Center WWF World Wide Fund for Nature

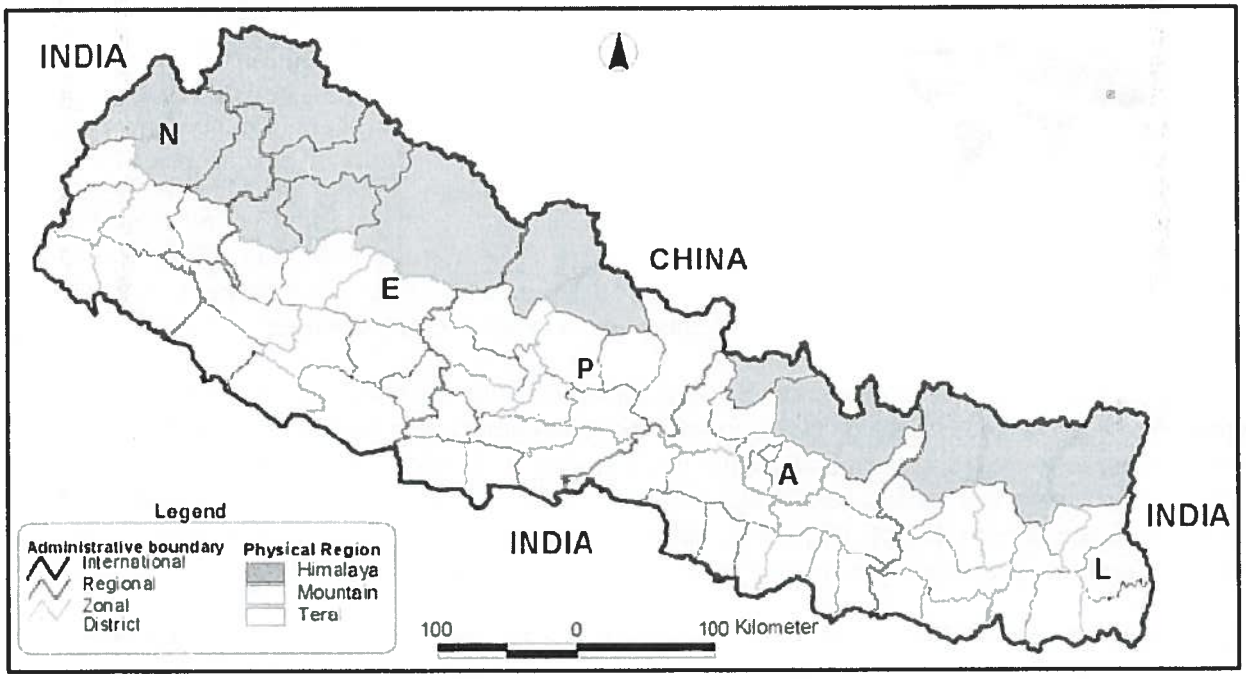
1. SITUATION ANALYSIS

1.1 Location, Geographic and Climatic Context

Nepal lies between 80°4' and 88°12' East longitude, and from 26°22' to 30°27' North latitude, covering a territory of approximately 147,181 square kilometres that extends roughly 885 kilometres from east to west. It is a landlocked country, surrounded by India to the east, west and south, and China to the north. Nepal's entire territory is considered to be within the Himalayan regions and the country includes 8 of the 10 tallest mountains in the world including the world's highest peak, Mount Everest. The country's Himalayan regions can be divided into five primary physiographic regions: the Terai, the Sub-Himalaya (Siwalik Hills), the Lesser Himalaya, the Higher/Tethyan Himalaya, and the Tibetan Plateau. These regions are spread over from east to west.

For development planning purposes, the five physiographic provinces are generally simplified into three geographic units: the Terai, the Hills (Pahad) and the Mountains (Himal) (see Figure 1). The Hills combine the Siwalik Hills and the Lesser Himalayas, and the Mountains combine the Higher/Tethyan Himalaya and the Tibetan Plateau. The Hills cover two-thirds of the country's territory. The southern Terai belt consists of plains about 20-75 kilometres in width, with the elevation varying from approximately 60 metres above the mean sea level (masl) to about 200 masl.

Figure 1: Map of Nepal

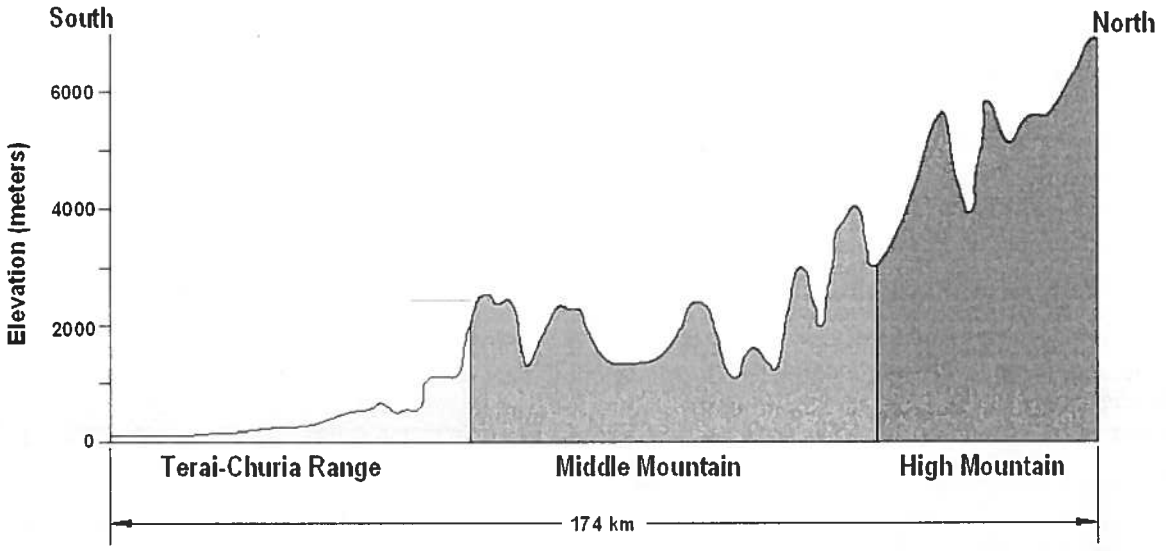


The *Terai* is the northern extension of the Indo-Gangetic Plain. The Sub-Himalaya contains numerous east-west-trending folded hills (anticlines and synclines) with uniform, long dip-slopes and abrupt gullies, produced by differential erosion of underlying folded and tilted sedimentary rocks. The Lesser Himalaya[1]

[1] Nepal Country Report, Global Assessment of Risk- UNDP: www.undp.org.np/uploads/publication/2010102909383499.pdf

has mature, dissected landscapes with deep valleys incised into earlier eroded surfaces. The Higher Himalaya includes all major peaks of the Himalayan ranges. The Hills occupy the central part of the country with elevations rising dramatically up to 4,000 metres. They have many valleys and Kathmandu, the capital, is the largest of all. Areas higher than 4,000 metres are usually devoid of vegetation.

Figure 2: Topographical Cross-Section of Nepal



These topographic extremities have given the country extreme variations in climatic conditions – from sub-tropical variation in the *Terai* to temperate in the Hills and alpine in the Mountains. Summer and late spring temperature maxima range from about 28° Celsius in the Hills to more than 40° Celsius in the *Terai*. In the winter, average maximum and minimum temperatures in the *Terai* range from a brisk 7° Celsius to a mild 23° Celsius. The higher elevations have much colder temperatures.

About 80% of the total precipitation falls in Nepal during the monsoon season, from mid-June to mid-September. There is some winter precipitation from moisture coming from the Mediterranean Sea, and its intensity reduces to the east. Most parts of the country have an average annual rainfall of 1,500 mm to 2,500 mm, the maximum being about 4,500 mm in *Pokhara*. A combination of sharp relief and fast-moving monsoon clouds brings frequent hailstorms and cloudbursts; the latter triggers numerous landslides, erosions and debris flow. In many places, rainfall intensity exceeds 100 mm during 24 hours.

Nepal is divided into three major river systems from east to west: the *Koshi* River, the *Gandaki* River and the *Karnali* River. These systems originate from across the Himalayan range, with some having their origin in Tibet. Ultimately all become major tributaries of the Ganges River in northern India. After plunging through deep gorges, these rivers deposit heavy sediments and debris on the plains, nurturing them and renewing their alluvial soil fertility. Once they reach the *Terai* region, they often overflow their banks onto the wide floodplains during the monsoon, shifting course periodically. The wide variation in geographic and climatic conditions has given rise to a rich diversity in ecosystems. Though Nepal covers not more than 0.1 percent of the earth's surface, it hosts rich biodiversity because of extreme variability in the altitude between the northern and southern areas, variability in climatic conditions between the eastern and western zones of the country, and its location at the crossroads of six Asiatic floristic provinces. Some 118 ecosystems, including 35 forest types have been identified in the country.

According to Nepal's 4th National Report to the CBD[2], Nepal's major ecosystems include 29% forest area (35 types have been identified), 10.6% shrub land and degraded forest, 12% grassland, 21% farmland, 2.6% water body, 7% uncultivated inclusions, and 17.8% others. The country is part of a biodiversity hotspot, among four hotspots occurring in the Himalayan region. There are six biomes occurring in Nepal, i.e. only two less than India. In terms of Global 200 Eco-regions, Nepal hosts nine important eco-regions among 60 eco-regions found in the Himalayan region[3].

Nepal is one of the richest countries in biodiversity due to its unique ecological position and altitudinal variation. Biodiversity Profiles of Nepal 1996 (BPN) is a landmark endeavour to document all the information available and also recorded in the field on Nepal's biodiversity. In 16 volumes of documents, the profiles recorded 181 mammal species, 844 bird species, 100 reptile species, 43 amphibian species, 185 freshwater fish species, and 635 butterfly species. In the context of flora, BPN recorded 5,160 species of flowering plants and 1,120 non-flowering plants. According to BPN, Nepal ranks 10th in terms of richest flowering plant diversity in Asia and 31st in the world[4].

1.2 Socioeconomic and Livelihood Context

The population of Nepal reached 26.6 million in the year 2011, which shows an increase of population at the rate of 1.4 percent per annum since 2001[5]. The country has 103 caste and ethnic groups, speaking 92 languages. The average life expectancy at birth is 67.5 years, and about 60% of adults over the age of 15 are literate[6]. The Census carried out in 2011 showed that about 25% of people lived below the poverty line[7]. The GDP per capita (2008 PPP U$) is U$1,189. Nepal is placed 157th in the Human Development Index global rankings. The National Human Development report outlines how the index of 0.509 for the year 2006 varies throughout the country. It is higher in urban areas compared to rural areas and is the highest in the hilly region. In general, urban dwellers have much higher human development than their rural counterparts: 0.630 vs. 0.482; those who live in the Hills enjoy the highest standards, while those of the mountains/high hill have the lowest.

Table 1: Nepal's HDI over the years

Ecological region	HDI 2001		HDI 2006		Δ (HDI 06–Region Value Rank Value Rank HDI 01)	Total area[8]	Population[9]
	Value	Rank	Value	Rank		Sq KM/ %	No/ %
Mountain	0.386	3	0.436	3	0.050	35.2% (51,818 km^2)	17,95,354 (6.7%)
Hill	0.512	1	0.543	1	0.031	41.7% (61,344 km^2)	1,14,75,001 (43.1%)
Terai	0.478	2	0.494	2	0.016	23.1% (34,019 km^2)	1,33,50,454 (50.2%)

2 http://www.cbd.int/doc/world/np/np-nr-04-en.pdf

3 Nepal Fourth National Report to CBD; *www.cbd.int/doc/world/np/np-nr-04-en.pdf*

4 Nepal Biodiversity Resource Book, *books.icimod.org/index.php/downloads/publication/183*

5 www.cbs.gov.np (Census 2011 preliminary findings)

6 http://hdrstats.undp.org/en/countries/profiles/NPL.html

7 www.cbs.gov.np/Surveys/poverty%20in%20Nepal%20210-11.pdf

8 Nepal Biodiversity Strategy, Government of Nepal (2002)

9 www.cbs.gov.np; CBS projection (from census 2011)

The Third Nepal Living Standards Survey (2010/2011) showed that the poverty gap index is 5.43 (rural area 5.96 and urban area 3.19)[10]. According to a UNEP-UNDP Poverty and Environment Initiative document, although Nepal witnessed a decrease in poverty levels, this improvement is negated by a significant increase in income inequality. There are also stark contrasts in poverty levels between lower caste and minority groups versus the upper caste groups of society[11]. Over 86% of Nepal's total population lives in rural areas (as of 2001). Land, forests, minerals and water remain the key natural resources in Nepal for human survival, livelihoods and climate change adaptation. Rural populations, especially the poor, landless, indigenous people and women, rely heavily on forests and land resources for their livelihoods. Around 86% of total energy for cooking and 40% of fodder comes from the forests. The 66% of the total employed population is engaged in the primary sector, which includes agriculture, forestry, and fishery (2001 census). The share of the primary sector in the Mountain region is 81%, as compared with 68% and 60% in the Hill and *Terai* regions, respectively. While Nepal is endowed with social, agriculture and biological diversity, it experiences chronic poverty, which is more severe in rural areas than urban areas.

Ecosystems are the major providers of livelihood services in Nepal. As a low-income country, it is highly dependent on ecosystem services and other natural capital. Natural capital is an important share of the country's total wealth in Nepal (31% of the national wealth)[12], clearly suggesting that adequate management of ecosystems and natural resources is key to sustainable economic development and poverty alleviation. It is estimated that the total contribution of environment-related income to Nepal's economy may well be over 50%, as agriculture, combined with forestry and fisheries, accounts for more than 38% of the country's GDP[13]. In addition, significant portions of the power, water, manufacturing, trade, and tourism sectors are also dependent on the environment in one form or the other. It is estimated that the forestry sector alone contributes 15% to the GDP of the country[14]. Similarly, non-timber forest products contribute about 5% of GDP[15]. Tourism, much of which is nature based, is one of the major income earners in the national economy, accounting for about 2% of the total GDP and about 25% of the total foreign exchange earnings. Foreign exchange earning in 2009 for the Government of Nepal was US$286 million (MoF, 2010)[16].

1.3 Climate Change and its Impacts: a general overview

Nepal is economically, culturally and environmentally highly vulnerable to climate stimuli including variability and extreme events. It is particularly vulnerable to the effects of climate change and associated extreme weather conditions because of its geographic location, fragile ecosystems and weak socioeconomic and institutional context. It has been noted that Nepal's development is already affected by current climate variability and extreme weather events, and this is expected to worsen with future climate change. This is particularly true for vulnerable populations of Nepal who are exposed to greater

---

[10] http://www.cbs.gov.np/Surveys/poverty%20in%20Nepal%20210-11.pdf

[11] http://www.unpei.org/component/docman/doc_download/166-pei-nepal-signed-prodoc-phase-1-2010.html

[12] World Bank, Where is the wealth of nations, 2006

[13] Nepal, Country Environmental Analysis, World Bank, 2008

[14] Asia-Pacific Forestry Sector Outlook Study II Working Paper Series Working Paper No. APFSOS II/WP/2009/05 NEPAL. *www.fao.org/docrep/014/am250e/am250e00.pdf*

[15] CECI, 2006. *Synthesis of Seminar Presentation and Discussions*, First National Trade Show and Seminar on Herbs, Herbal Products and Spices, 12-14 November 2005. Published by CECI March 2006

[16] http://www.mof.gov.np/publication/budget/2010/pdf/chapter8.pdf

climate risks[17]. A lion's share of public development activities are under climate risk – just less than 200 million USD of official development assistance – more than half of total development aid in Nepal is potentially affected by climate change. Nepal's vulnerability to climate change is compounded by other socioeconomic and environmental factors, including an increasing pressure on natural resources and land, population growth and weak governance.

1.3.1 Overall Trends of Increasing Ambient Temperatures

Observed climate data indicates consistent warming and rise in the maximum temperatures at an annual rate of 0.06 degrees Celsius. Studies also indicate that the observed warming trend is not uniform across the country. Warming is more pronounced in the high altitude regions compared to *Terai* and Siwalik regions[18].

Warming in the Himalayas has been much greater than the global average. With an average increase of 0.60 degree Celsius between 1997 and 2000[19], Nepal's Himalaya has been regarded to be highly vulnerable to climate change impacts, particularly on biodiversity (MFSC, 2009)[20]. The predictions on impacts of such warming include vegetation shift in high altitudes, loss of species (in particular endemic species), loss of agricultural productivity, adverse impact on sustainable livelihoods of people, and water resources. The impacts of climate change are already observed in Himalayan glaciers as they are retreating rapidly. Recent studies by ICIMOD show that glaciers in the *Dhud-Koshi* sub-basin of Nepal are retreating at unprecedented rates with rates of 10 to 60m per year and, in exceptional cases, as fast as 74m per year (ICIMOD, 2007)[21].

Climate variability and change have already affected Nepal. Mean annual temperature shows an increasing trend[22], and the seasonality of rainfall is changing. Trends in rainfall are difficult to assess due to large spatial variation of rainfall across Nepal and large seasonal variations. The overall trend evident is an increasing annual precipitation in the eastern, central, western and far western regions but a decreasing trend in the mid-western region. Projections of future changes include the following[23]:

- An increase of mean annual temperature across the country by an average of 1.2 degree Celsius by 2030, 1.7 degree Celsius by 2050 and 3 degree Celsius by 2100.
- A 15 to 20% increase in summer precipitation throughout the country.

The impacts of climate change on Nepal's water resources, ecosystems, and consequently on local lives and livelihoods are expected to be serious. The two biggest climate change vulnerabilities are seasonal and long term water scarcity in several parts of the country, and flooding in the mountain valleys– including the threats of glacial lake outburst flows and floods in the lowlands (*Terai*). These possible key impacts of climate change are discussed in more detail below.

---

[17] the UNEP-UNDP Poverty and Environment Project Document - http://www.unpei.org/component/docman/doc_download/166-pei-nepal-signed-prodoc-phase-1-2010.html

[18] Government of Nepal (GoN), NAPA, 2010

[19] National Adaptation Programme of Action (NAPA, 2010), Nepal

[20] NEPAL FOURTH NATIONAL REPORT TO THE CONVENTION ON BIOLOGICAL DIVERSITY, Ministry of Forest and Soil Conservation (2009), http://www.cbd.int/doc/world/np/np-nr-04-en.pdf

[21] http://books.icimod.org/uploads/tmp/icimod-impact_of_climate_change_on_himalayan_glaciers_and_glacial_lakes:_case_studies_on_glof_and_associate.pdf

[22] Practical Action. 2009. Temporal and spatial variability of climate change over Nepal (1976-2005).

[23] Government of Nepal (GoN), NAPA, 2010. Data as compared to pre-2000 baseline, based on General Circulation Models with the SRES B2 scenario.

1.3.2 Increased Unpredictability on Water Availability – with Overall Decreased Seasonal Availability

Nepal's monsoon climate means that, normally, Nepal receives almost 80% of its annual precipitation over the four summer months ranging from May to August, which is its monsoon season. The mean average annual rainfall in the country is 1,800 mm per year[24]. Communities living on mountain ridges, who depend on monsoon rain for agriculture and drinking water, face water scarcity during the rest of the year; whilst communities living in the mountain valleys that are formed by snow-fed rivers may experience drinking water scarcity for most of the year.

The current scenarios indicate that the monsoon will be affected by climate change. Current trends and predictions suggest that there will be an increase in the number of high intensity rainfall events. This will have multiple impacts for development in Nepal. For example, it is anticipated that water may not be easily absorbed into soil as it will rapidly run off – leading to low recharge of groundwater. Worse still, the rapid water runoff causes increased soil erosion and may trigger increased landslips, avalanches and floods.

In addition, since the glaciers are expected to melt with the increased temperatures, there may be an overall increase in river runoff initially but with little or no melt water during spring and autumn seasons once the glaciers are lost, as major river flows largely consist of such melt water, especially during the spring season. With increased temperatures, there will be an increased loss of water from soil and wetlands through evaporation, leading to reduced water availability for people and ecosystems. The changes in spatial and temporal precipitation patterns and ambient air temperatures and humidity, coupled with melting of glaciers and permafrost are likely to severely affect the hydrological regime leading to greater variability in river flow.

Projections of future changes include the following[25]:

- An increase in monsoon rainfall in the eastern and central Nepal.
- A general increase in monsoon and post-monsoon rainfall as well as rainfall intensity throughout the country.
- A general decrease in winter precipitation throughout the country.

1.3.3 Increased Frequency of Extreme Weather Events/Natural Disasters

Drought, floods (including GLOF), avalanches, landslides and forest fires are some climate related disasters that Nepal has been experiencing. GLOFs, for example, in Nepal have increased since the 1930s and there is a perceived increase in the number and frequency of droughts, floods, landslides and avalanches[26]. Floods and landslides are among the most recurrent climate-induced hazards in Nepal, claiming an average of 200 lives annually since 1998[27]. More than 4,000 people have allegedly died in the last decade due to the climate-induced disasters, with the damage to property estimated at over US$

[24] National Adaptation Programme of Action (2010)

[25] Government of Nepal (GoN), NAPA, 2010. Data as compared to pre-2000 baseline, based on General Circulation Models with the SRES B2 scenario

[26] Government of Nepal (GoN), NAPA, 2010. The increase in hazard events is largely based on people's perceptions and location-specific evidence, as there are no specific trends across Nepal due to the extreme variability in precipitation across the country.

[27] UNDP 2002. Strengthening disaster preparedness capacities in Kathmandu Valley.

5 billion[28]. The 1993 flood in Nepal, for example, affected more than 500,000 people. Similarly, landslides in 2002 affected some 260,000 people, causing over 470 deaths[29]. Droughts have been reported, for example, in *Nawalparasi* district (2004-2006), *Terai* region (October 2008 to April 2009) and *Doti* district (2000, 2003-2006 and 2009). The incidence of forest fires has also increased, ostensibly as a result of increased temperatures. This has resulted in the destruction of large tracts of natural forest and has degraded the ecosystem. Table 2 shows the impact of climate change on people's lives and ecosystems.

Table 2: Impact of Climate Change on Different Ecosystem Services and People's Livelihoods

SN	Event risks	Outcome risks
1	Temperature rise	**High Mountain** Rapid melting of glaciers forming new lakes; breaching of lakes resulting GLOF; rangeland degradation (due to invasive species associated with climate variability); increase in animal diseases/decline of livestock product; prevalence of insect and diseases in agriculture; habitat degradation of snow leopard and NTFP degradation; disappearing of cultural heritage (e. g. worshipped-snow peaks converting into rocky mountain). **Mid Mountain** Forest fire; prevalence of insect and diseases in agriculture and forestry/ decline in agricultural product; decline in cash crop productions; degradation of wild life habitat; increase in invasive species/agricultural weeds.
	Periodic High precipitation/ including greater rainfall (floods)	**High Mountain** Too much water – damage to infrastructure (water supply, irrigation and roads), water sources under the threat of landslides and floods resulting from too much water, variability in river water discharge, food production decline causing food insecurity and migration. **Mid Mountain** Too much water - Landslides on cultivated land and residential areas; flood cutting river banks, damaging infrastructures and cultivated land, variability in river water discharge; increase in sediment load in river water/siltation problems in reservoir; food production decline causing food scarcity and migration and spreading vector-borne and water-induced diseases.
	Periodic Low precipitation (Drought)	**High Mountain** Too little water; affecting small rural irrigation, rural drinking water supply, micro-hydro and water mills; causing water scarcity for drinking and irrigation; degradation of water quality; decrease in river water discharge; rangeland degradation; and increase of insect and diseases in agriculture **High Mountain** Too little water; affecting small rural irrigation, rural drinking water supply, micro-hydro and water mills; water scarcity for drinking and irrigation causing conflict, and migration; degradation of water quality; decrease in river water discharge; increase of insect and diseases in agriculture and forestry causing decline in respective productivity; wetland degradation.

Source: SPCR first draft report (2010)

[28] Ministry of Home Affairs, Disaster Preparedness Network, Documentation Centre, 2010, cited in NAPA

[29] http://saarc-sdmc.nic.in/nepal.asp

A global study revealed that Nepal ranks fourth globally in terms of climate change vulnerability[30]. The Ministry of Environment, Science and Technology has also carried out a study on climate change vulnerability for Nepal[31]. By using various indicators, the report comes up with vulnerability level for all districts in Nepal. This showed that that the mountain and hill districts are likely to be more vulnerable than *Terai* districts (figure 3).

1.3.4 Climate Change and its Impacts on Hills and Mountains

Mountains are the rich repositories of biodiversity and water and they are the providers of ecosystem services on which downstream rely. Climate change can impact on biodiversity and flow of ecosystems services either directly or indirectly through many different impact mechanisms. Range and abundance shifts, changes in phonology, physiology, behaviour, and evolutionary changes are the most often cited species-level responses. At the ecosystem level, changes in structure, function, patterns of disturbance, and the increased dominance of invasive species is a noted concern. Followings are major potential impacts of climate change on species, landscape, water and human wellbeing.

Climate Change and Species Responses: Species may respond to changes in climatic variables by adapting, shifting their range, changing their abundance, or disappearing altogether. Species will shift their geographic ranges at different rates, and some may be unsuccessful in reaching or colonising new habitats. As temperature decreases with altitude by 5-10°C/1000 m, species will respond to climate change by migrating upwards to find climatic conditions in the future's climate that are similar to the present's. Past tree species migration rates are believed to be in the order of 4 to 200 m per century. The expected impacts of climate change in mountains would include the loss of the coolest climatic zones at the peaks of the mountains and a linear shift in all remaining vegetation belts upslope. Because mountain tops are smaller than bases, the present belts would occupy smaller and smaller areas at higher elevations, and the population of corresponding species would decrease, becoming more vulnerable to genetic and environmental pressure.

Landscape Level Processes: Climate change has the potential to have a profound effect on landscape-level processes, altering both the frequency and extent of major disturbance events. Droughts can lead to insect epidemics and major forest fires over vast areas with significant effects, and both frequency and severity can be expected to increase significantly with climate change.

Impacts on Water, Wetlands and Consequences for Biodiversity: The mountains in Nepal play a critical role in the provision of water. The impact of climatic change on hydrology is likely to have significant repercussions, not only in the mountains themselves, but also in populated lowland areas that depend on mountain water resources for domestic, agricultural, hydropower generation, recreational and industrial purposes. Significant shifts in climatic conditions will also have an effect on social and economic systems in the region through changes in demand, supply, and water quality. Natural systems related to snow, ice, and frozen ground are being affected through the enlargement and increased number of glacial lakes, increasing ground instability in permafrost regions.

Impacts on Human Wellbeing: The livelihoods of subsistence farmers including indigenous people, who make up a large portion of the rural populations, could be negatively affected by such changes. A major area of serious impacts is in the field of agricultural production. Agriculture is the direct or indirect source

[30] http://www.spotlightnepal.com/sln/News.aspx?ArticleID=2104/

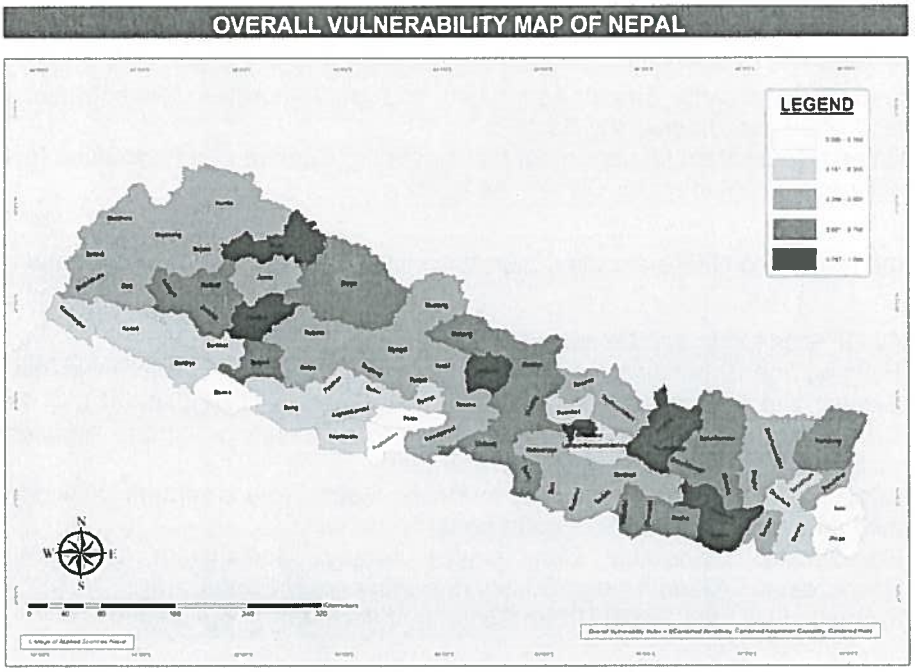
[31] http://www.napanepal.gov.np/pdf_reports/CLIMATE%20CHANGE%20VULNERABILITY%20MAPPING%20FOR%20NEPAL%20INNER.pdf

of livelihood for over 70% of the population and is a substantial contributor to national income. Management of climate hazards and climate change impacts in the agricultural sector and rural communities will be critical for success. The positive effects of climate change – such as longer growing seasons, lower natural winter mortality, and faster growth rates at higher altitudes – may be offset by negative factors such as changes in established reproductive patterns, migration routes, and ecosystem relationships. Indirect effects will include potentially detrimental changes in diseases, pests, and weeds, the effects of which have not yet been quantified.

1.4 Policy Context

The Sustainable Development Agenda of Nepal (SDAN) was one of the first policy documents, formulated in 2003, that included climate change as an issue to guide and influence national level planning and policies up to 2017. The agenda draws upon and is in conformity with the longer term goals envisaged in the Ninth and Tenth Plans, Poverty Reduction Strategy Paper, the Millennium Development Goals, and commitments made by the country in terms of various international instruments including the United Nations Framework Convention on Climate Change (UNFCCC). The SDAN has a separate heading on climate change and establishes a Future Agenda for action. The SDAN recognizes that only vigorous economic growth can provide Nepal with the means to withstand and adapt to the effects of a changing climate that Nepal did not choose and did not cause.

Figure 3: Map of Nepal districts showing relative overall climate change vulnerability (MoEST, 2010)



Nepal's Climate Change Policy[32] (January 2011) sets out the goal to improve people's livelihoods through mitigation and adaptation activities. The Policy emphasizes a climate resilient and low carbon

[32] Ministry of Environment: www.MoESTnv.gov.np/newwebsite/np/index.php

development path supported through international commitments. The Policy also calls for strengthening national capacity through the establishment of a Climate Change Centre to undertake research, to monitor climate change activities and to provide policy support to the government. Some of the targets mentioned in the policy include (i) establishment of a climate change centre (ii) implementation of community-based local adaptation actions as mentioned in National Adaptation Programme of Action (NAPA) (iii) promotion of climate adaptation and adoption of effective measures to address adverse impacts of climate change through technology development and transfer, public awareness, capacity building and access to financial resources (iv) and development of a reliable forecasting system to mitigate the adverse impacts of climate change on vulnerable areas, natural resources, and people's livelihoods. Ecosystem based Adaptation is not explicitly mentioned

Nepal's National Adaptation Programme of Action (NAPA) represents the country's most recent effort to assess and prioritize immediate and urgent needs to address climate change risks. The NAPA states, "Observations of the effects of increased climatic variability in some parts of Nepal show increasing erratic and intense rains. This climatic trend combined with fragile topography, deforestation and eroded soils are leading to landslides and flash flood hazards. It is projected that rainfall intensity will increase across many areas of Nepal with climate change. Vulnerable communities will have to increase adaptive capacity to cope with climatic hazards. These hazards also affect the availability of water resources particularly for household use. Water supplies need to be managed so they are climate proofed." The adaptation options that are priorities in the document include both urgent and long term adaptation strategies in key vulnerable sectors under nine combined profiles. Most of Nepal's NAPA priorities are linked to effective ecosystems management. Three of the directly linked project profiles include:

1. Promoting Community based Adaptation through Integrated Management of Agriculture, Water, Forest and Biodiversity Sectors;
2. Forest and Ecosystem Management for Supporting Climate Led Adaptation Innovations; and
3. Ecosystem Management for Climate Adaptation

In fact, most of the remaining NAPA priorities also have links to effective ecosystem management. They include:

1. GLOF Monitoring and Disaster Risk Reduction;
2. Building and Enhancing Adaptive Capacity of Vulnerable Communities through Improved System and Access to Service Related to Agricultural Development;
3. Community Based Disaster Management for Facilitating Climate Adaptation (e.g. flood mitigation through ecosystem management);
4. Adapting to Climate Challenges in Public Health (management of ecosystems so that they do not breed vectors or pathogens);
5. Empowering Vulnerable Communities through Sustainable Management of Water Resource and Clean Energy Supply (including groundwater); and
6. Promoting Climate Smart Urban Settlement (including groundwater).

Nepal's NAPA is embedded within the country's development objectives, which are in turn guided by an overriding peace building and poverty reduction agenda. The Government of Nepal (GoN) has recently issued the Three Year Plan (TYP) Approach Paper (2010/11-2013/14), which has the objectives of promoting green development, making development activities climate-friendly, mitigating the negative impacts of climate change and promoting adaptation. The key expected outcomes of the TYP are to prepare and implement a national framework on climate change adaptation and mitigation, disaster risk reduction, poverty reduction and to promote pro-poverty environment initiatives. With a view to implementing these strategies, the TYP identifies roles of different sectoral agencies to lead on implementation of relevant NAPA priorities with an overall coordination provided by the Ministry of Environment, Science and Technology (MoEST).

1.5 Institutional Context

Ministry of Environment, Science and Technology (MoEST), established in 2008, is the government focal agency to lead Nepal's representation in global climate change negotiations as well as to coordinate overall climate change activities in the country. As noted earlier in this document, the Three Year Interim Plan (TYIP) (2010-2012) has given the MoEST the mandate to coordinate all climate change-related activities. The Ministry is also the focal agency for many international conventions related to climate change and environment. The Climate Change Management Division in the Ministry of Environment, Science and Technology was instituted in 2009/2010, and is responsible for the coordination and management of climate change activities. The Ministry has also supported the Climate Change Knowledge Management Centre and Nepal Academy of Science and Technology (NAST) and is entrusted for this function.

A high level coordinating body, the 'Climate Change Council' has been established under the chairmanship of the Prime Minister since 23 July 2009. The Council is mandated to provide overall coordination, guidance and direction for the formulation and implementation of climate change-related policies. The council meets regularly and has been providing an oversight role on climate change issues. Members of this Council include Ministers from various sectoral ministries, the National Planning Commission and independent experts. The Secretariat for this Council is hosted within the Ministry of Environment, Science and Technology and the Council meets 2-3 times a year.

Additionally, the government established a Multi-Stakeholder Climate Change Initiatives Coordination Committee (MCCICC) in April 2010 under the chairmanship of the Secretary of MoEST. The committee aims to foster a unified and coordinated climate change response in Nepal. The MCCICC comprises a broad group of stakeholders, including line ministries, development partners, civil society, and private sector – thereby building on the broad stakeholder approach initiated under NAPA. As a coordination body at the functional level, the MCCICC reports to the Climate Change Council and contributes to mainstreaming climate change programmes into development planning and its implementation.

Some other key institutional groups important for climate change adaptation are described below:

1.6 Stakeholder and Baseline Analysis

Ecosystem based Adaptation is an emerging field of study and only a few organizations have some projects or activities that can be linked with EbA. Table 3 provides a brief account of various organizations and their work in relation to adaptation to climate change.

Table 3: Stakeholder and Baseline Analysis

Stakeholder type	Stakeholder list	Baseline work	Potential contributions and roles in the project
Government ministries	Ministry of Environment, Science and Technology; Ministry of Forest and Soil Conservation; Ministry of Agriculture Development National Planning Commission;	Hariyo Ban Programme of USAID / Pilot Project on climate Resilience components 1 and 5 support natural resource management and climate change adaptation to reduce threats to biodiversity and vulnerability to climate change. PPCR will be	Delivery of technical project components in collaboration with the PMU/project staff and consultants (where appropriate); provision of technical advice; undertaking of scientific studies in collaboration with the PMU, technical advisors and consultants (where appropriate);

		implemented in select watersheds. Hariyo Ban project will focus the majority of its efforts on a North-South Landscape connecting the Annapurna Conservation Area to the Chitwan National Park in the central region of Nepal. A second project site will be an East-West Landscape stretching across the western Terai. As this EbA project is also planned to implement in the same geographical area so there is potential to link this EbA project with Hariyo Ban project.	coordination with government authorities at a national level; mobilization of human and financial resources.
Regional and local administrations	Parliament; District Administrations e.g. District Development Committees; Village Administrations e.g. Village Development Committees; Local Authorities; Universities and schools.	Some initiatives have been taken to address negative impacts of climate change but they are site specific (do not follow systematic approach) and proper climate risk assessment is not carried out.	Beneficiaries of capacity building and training; coordination at a regional and local level; and facilitation of permits and authorizations. It is also noted that Nepal is currently undergoing a process of drafting new constitution that may include creation of highly devolved / decentralized structures with greater responsibilities for development and conservation
Community level stakeholders	Village leaders; Natural resource user groups e.g. Conservation Area Management Committees; Women's groups; CBOs.	Have participated in development work but have weak adaptive capacity to plan and manage climate change adaptation activities.	Beneficiaries of capacity building and training; community mobilization; participation in piloting; delivery of programme components in collaboration with NGOs (where appropriate); and monitoring.
NGOs	WWF; National Trust for Nature Conservation (NTNC); Practical Action; The Mountain Institute; Oxfam; Water Aid; Save the Children Li-Bird, Machhapurchhre Development Organizations Ecological Services Centre	Have projects on climate change but not in ecosystem based adaptation, more focus on livelihoods and community based adaptation	Beneficiaries of capacity building and training; delivery of training; community mobilization; and monitoring; providing technical services.

Some of the major projects include a Pilot Programme for Climate Resilience funded by the Climate Investment Fund (CIF), a DFID and EU funded National Climate Change Support Programme, the Hariyo Ban programme supported by USAID, Least Developed Countries Fund (LDCF) supported disaster risk reduction, Climate and Development Knowledge Network (CDKN) support on knowledge management and UNFCCC negotiation, REDD and a multi-sector forestry programme (Annex 1).

1.7 Long-term Solution and Barriers to Achieve the Solution

The vulnerability of Nepal's ecosystems and infrastructure to the predicted anthropogenic climate change impact calls for a comprehensive set of measures to anticipate, prevent and mitigate possible negative impacts. The long term solution that this project is going to contribute to is to build the resilience of Nepalese communities and ecosystems through the adoption of ecosystem based approaches to complement other adaptation approaches.

Ecosystem based Adaptation (EbA) is broadly defined as "a range of local and landscape scale strategies for managing ecosystems to increase resilience and maintain essential ecosystem services and reduce the vulnerability of people, their livelihoods and nature in the face of climate change" (UNFCCC, 2008[33]). According to the Convention on Biological Diversity (CBD), EbA uses biodiversity and ecosystem services in an overall adaptation strategy and includes the sustainable management, conservation and restoration of ecosystems to provide services that help people adapt to the adverse effects of climate change[34].

The existing impacts of climate change have crossed the coping range of people (IPCC, 2007)[35] which necessitates immediate and urgent responses. The existing climate scenarios show a high level of uncertainty of climate risks in the future. Current adaptation to climate change strategies has, however, not considered the uncertainty component in planning and management for such uncertainties. Although the approach to adaptation is not a panacea, it has the potential to improve the sustainability of adaptation strategies. In essence, EbA strategies consider the existing climate impacts as well as future climate uncertainty. In addition, ecosystem resources are considered cost effective infrastructure to respond to the impacts of climate change. They are easily adaptable at local level and are inherently environment friendly. Hence, this project will adopt the basic approach of EbA to increase social and ecosystem resilience to climate change resilience at project sites.

Ecosystem services from natural ecosystems – especially provisioning and regulating services – are critical to all humans under all circumstances. In Nepal, local livelihoods are significantly and directly linked to such services. Surface water and agriculture form the foundation for the Nepalese economy in rural areas[36]. About 83% of the Nepalese population dwells in rural areas and 74% of the population is directly dependent on agricultural activities, including cropping and livestock production for their primary livelihood. The industrial sector in Nepal mainly involves the processing of agricultural products such as jute, sugarcane, tobacco, and grain. The main exports are carpets, clothing, jute goods, textile, pulses,

---

[33] UNFCCC, 2008. http://unfccc.int/resource/docs/2008/smsn/igo/029.pdf

[34] SBSTTA/ Fourteenth meeting, UNEP/CBD/SBSTTA/14/INF/21 28 April 2010

[35] Adger, W. N. S. Agrwaala, m. M. Q. Mirza, C. Conde, K. O'Brien, J Pulhin, R. Pulwarty, B.Smit and K. Takahashi, 2007: Assessment of adaptation practices, options, constraints and capacity. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Forth Assessment Report of the Intergovernmental Panel on Climate Change, M.L.Parry, O. F Canziani, J. P. Palutikof, P. J van del Linden and C.E.Hanson, Eds., Cambridge University Press, Cambridge, U.K, 717-743.

[36] Climate Change Impact and Vulnerability in the EH, Synthesis report, ICIMOD, 2010

juice and *pashima*, totalling US$ 907 million a year[37]. Over 91% of electricity in Nepal is generated through hydropower[38] but 85% of the population relies on fuel wood for energy[39]. Biodiversity is also an important feature for the Nepalese economy as it provides natural resources that are foundations for many industries upon which rural folks rely on for their livelihoods. These industries include non-timber forest products, livestock products, crop agriculture and nature-based tourism. Maintenance and enhancement of such services in the context of climate change is an important aspect of enhancing resilience of communities. For instance, ecosystems are critical in regulating stream flows and enhancing quality of water through silt removal. Changes in natural ecosystems may undermine such capacities, and management actions may mitigate such unwanted changes in ecosystems and their ability to continue to provide useful services.

Some of the possible negative impacts of climate change may also be mitigated by the use of natural ecosystems. The use of natural ecosystems as "natural infrastructure" has several advantages. The forests and wetlands play important roles in regulating stream flows and water quality. Forested land binds the soil, thereby decreasing soil erosion and increasing the capacity of soils to absorb and retain water. This allows water to penetrate deeper into the soil, allowing for less runoff and slower release and the replenishment of underground aquifers. Wetlands and riparian vegetation, similarly, also reduce erosion and lead to slow discharge of water from the watershed over a longer period of time. This will have two benefits in ameliorating the effects of climate change on water supplies — providing more regular stream flow during the long dry seasons, while buffering against the flooding following an intense rainfall events. Wetlands could also have flood attenuation roles to reduce flooding risks.

Ecosystem based Adaptation is considered one of the most appropriate approaches for Nepal because it is more cost effective than alternatives in many cases. In the long term, local communities can do this themselves. This has multiple benefits – livelihoods, aesthetics/spiritual, biodiversity; and ecosystems can adapt naturally, whereas engineering constructions are more capital-intensive, require ongoing maintenance using specialized skills, may not always work properly and also can potentially lead to mal-adaptation. In some cases, a combination of engineered and natural solutions to a problem may be most appropriate.

Changes in ecosystems themselves may pose additional threats to human lives, livelihoods and assets. For example, increased invasive species in forests with increased temperatures may in some instances increase the likelihood of fire or change the intensities and duration of such fires, thereby affecting the ecosystems and posing additional threats to people and their assets. Similarly, the rapid melting of glaciers, with the subsequent formation of glacial lakes and their sudden outburst (Glacial Lake Outburst Flow - GLOF), also pose threats to mountain communities.

---

[37] World Fact Book. https://www.cia.gov/library/publications/the-world-factbook/geos/np.html

[38] Horstmann, B. 2004. Glacial Lake Outburst Floods in Nepal and Switzerland: New threats due to climate change. (www.climateresposibility.org and www.germanwatch.org).

[39] Regmi , B.R. & Adhikari, A. (2007). Climate change and human development : risk and vulnerability in a warming world, country case study-Nepal.

Barriers to achieving this long term solution include the following:

i) EbA measures poorly understood and inadequately integrated into national and ecosystem level policies and plans

Nepal is undertaking several actions to promote adaptation actions at policy and practice levels. The Climate Change Policy (2011) has recognized that it has been an urgent necessity to address the issue of climate change by formulating policy and implementing relevant programmes so as to minimize the existing effects and possible impacts in different ecological regions from *Terai* to Mountains, on people, their livelihood and ecosystems.

Although the recent TYIP (2010-2012) integrated climate change concerns, sectoral policies such as forestry, agriculture and water resources are yet to fully incorporate climate change concerns, and especially EbA into their priorities. Particularly, there is an urgent unmet need to expand the paradigm the country employs in managing ecosystems, from one focused mainly on biodiversity protection and the maintenance of scenic values for tourism, to one that caters for climate change risk management as well. There is a need to ensure that ecosystem based climate change risk management objectives are incorporated into the development agenda of the country and that their value is recognized.

The Government of Nepal has adopted many sectoral acts, regulations and policies which have some linkages with environment and climate change. For example, the Water Resources Act, which was enacted in 1992, does have provisions for the rational utilization, conservation, management and development of water resources. The Government of Nepal prepared and endorsed the Water Resources Strategy (WRS) in 2002 with the objectives of strengthening water resources development in Nepal. The Soil and Water Conservation Act was enacted in 1982 and subsequently the Soil and Water Conservation Regulations was gazetted in 1985.

The Forestry Master Plan (1989) was prepared to meet the basic needs of the people by promoting the sustainable management of forest resources of Nepal and has included a focus on people's participation in forest management. The revised Forest Sector Policy 2000 has also prioritized biodiversity conservation whilst ensuring both sustainable livelihoods for people and a landscape planning approach to manage biodiversity on an ecological basis. The Nepal Biodiversity Strategy (NBS, 2002) serves as the overall framework for the conservation and sustainable use of biodiversity and biological resources through the management of habitat, species and genetic diversity in the country. The Nepal Biodiversity Strategy Implementation Plan (NBSIP, 2006) is a framework to materialize the vision of the NBS into practical action for effective conservation of biodiversity and sustainable use of its resources. However, these documents do not effectively address the impacts of climate change on forest resources. It is expected that the current initiative of a forest policy development process will integrate some aspects of climate change such as focusing on REDD, but there is very little discussion on integrating the EbA as a strategy for sustainable forest management and developing a climate resilient society.

Although these sector plans are developed and are being implemented, climate change is new for those plans. These plans do not include climate change vulnerability and impact assessment which are the adaptation measures to address alarming impacts of climate change in those specific sectors. The Government of Nepal has recently endorsed the climate change policy for Nepal (2011) but this is yet to develop its implementation strategies and how climate issues are to be integrated into national and sectoral plan.

A gaps and needs analysis carried out by ICIMOD in relation to climate change in mountainous regions revealed three important barriers[40]. They are weak capacity of stakeholders, knowledge gaps and weak policy framework. There is weak capacity, especially in research and assessment, planning, execution and monitoring and contributing to policy formulation processes. The impact of climate change on ecosystems and society is poorly understood and knowledge on how climate change uncertainty will impact is not clear. There is no clear information on ecosystem valuation, how ecosystems function and how ecosystems can be monitored in a changing climate. Policy related to climate change is a burgeoning area. However, how this policy can be an integral part of wider strategies leading to poverty reduction, further climate resilience and be a driver for more integrated climate risk management approaches is unknown. A comprehensive approach within a programme-based framework, and not through project-based institutional structures operating outside wider national planning systems for budgets and poverty reduction strategies is needed, that is backed up by strong political will and leadership.

The Ministry of Environment, Science and Technology is relatively new and the climate change management division within the Ministry, which is responsible for managing and coordinating climate change activities, was also recently established. Hence the institutional capacity of the division has remained inadequate to address the current demand of knowledge management and systematic integration of climate change issues in those national plans. EbA is an emerging issue even in the climate change discourse so this concept has not been adequately addressed in the current climate change policy.

The current three years interim plan has given the coordinating role on climate change projects to the Ministry of Environment, Science and Technology. The Ministry is presently on course to strengthen its institution and to plan for further human resources to plan, finance, implement and monitor climate change related activities including EbA. Other ministries such as the Ministry of Forest and Soil Conservation (MFSC) and the Ministry of Agriculture Development (MoAD) are also building their institutional competencies and training more staff to address these emerging issues

So, it is clear that there is a policy and knowledge gap in relation to EbA and without this intervention this gap remains unaddressed. It is highly imperative to provide the latest and in-depth knowledge and decision making tools for policy makers which would enable comprehensive integration of Ecosystem based Adaptation into national climate change policy and forest policy.

ii) Ecosystem based Adaptation actions implemented to increase resilience of vulnerable mountain communities and ecosystems, and to learn lessons on the cost effectiveness and relevance to up-scaling the methodologies and for wider application in Nepal

Nepal has initiated some actions at community level on adaptation, which have invariably included some elements of EbA but they are mostly site specific, sporadic and stand-alone. A focused and systematic approach on promoting EbA has not been undertaken to date. One of the reasons for this is that EbA is an emerging concept, knowledge on EbA is still limited and decision making tools for EbA are lacking. The NAPA has clustered various adaptation projects into 9 profiles. The document has some activities to promote ecosystems management (profile 5 and 7) but they do not capture the basic concept of EbA. The National Climate Change Support Programme will support certain site specific adaptation initiatives but will not focus on developing decision making tools and their application and integration at national level.

[40] Climate Change Impact and Vulnerability in the EH – Synthesis Report, 2010 (ICIMOD)

The Pilot Project on Climate Resilience (PPCR)[41] will have some ecosystem focused activities. The initial project document suggests that the focus would be on creating water storage structures at watershed level. This is still to be elaborated through a detailed project document which is planned to be undertaken in 2012.

Other initiatives, such as works performed by DSCWM and Department of Agriculture are related to climate change adaption, but they have not been systematic and resulted in strong and applied lessons learned. Other projects such as Livelihoods and Forestry, Conservation of Wetland Resources and Sustainable Use, Western *Terai* Landscape Project have some elements of ecosystems management but they lacked a systematic intervention of EbA approach. So, EbA in Nepal is a new area of work and only a few EbA actions have been implemented so far, but they currently lack framing within an overall strategic intervention and approach to building policy.

[41] www.ppcrnepal.gov.np

2. PROJECT SITE

2.1 Site Selection Process

The project was selected based on the agreed criteria developed during a consultative workshop attended by key government stakeholders and implementing partners held on 12th May 2011. The agreed five criteria were: a) ecosystem services are vulnerable to climate change; b) human wellbeing is highly dependent on ecosystems services and goods; c) EbA options are available and will be acceptable by local communities in the project site for implementation; d) partners at different levels are ready to implement available EbA options and institutional capacity is available to implement options; and e) potential to scale up/ replicability.

Based on the discussions with the stakeholders, four sites were identified as a possible candidate sites for Ecosystem based Adaptation Nepal (EbA-N) and each site was visited. These include *Shivapuri* National Park area in Kathmandu district, *Mai Khola* watershed in Ilam district, *Langtang* area of Rasuwa district and *Panchase* area in Kaski, Parbat and Syangja district. Based on the discussions with local communities, stakeholders, and expert views, these sites were compared against the five above agreed criteria by using 'likert scale' method. These findings were shared with the Ministry of Environment, Science and Technology (MoEST) and the Ministry of Forest and Soil Conservation (MFSC). The final meeting held on 19th October 2011 finalized *Panchase* as the project site for EbA-N. Detail of the site selection processes and analysis is presented in Annex 2.

2.2 Rationales for Site Selection

The *Panchase* area belonging to Kaski, Parbat and Syangja districts was selected for piloting EbA project in Nepal due to its vulnerability to climate change, with negative impacts on water resources, agriculture and biodiversity. The climate change vulnerability mapping of Nepal[42] (MoEST, 2010) confirms its vulnerability to climate change[43]. The major climate risks observed in this area is from landslide hazards during the monsoon. GLOF is not a major concern within the watershed as its rivers do not originate in high mountains.

A study carried out by the Ministry of Forest and Soil Conservation (MFSC)/REDD cell also found that wetlands in the Panchase area are likely to be affected by climate change, threatening many aquatic and plant species[44] Another study undertaken by Regmi et al (2009)[45] in Kaski District showed that climatic stresses will make sectors such as biodiversity, water, tourism and agriculture sectors more vulnerable and fragile. Changes in weather patterns, perceived to be linked to longer term climate change, have caused big losses of livelihood assets of the communities, particularly of the poor and marginalized groups. The stresses and shocks are aggravating the problems and vulnerability of communities.

The field observation and discussion with communities and stakeholders revealed the fact that changed weather patterns perceived as linked to climate change are already having severe negative impacts on water resources management, agriculture and biodiversity. People have indicated continuous water scarcity for drinking and agricultural use. Infestation of insects and pests in agricultural crops has increased rapidly in the last few years, which is assumed to be triggered by climate change.
The site is also important because *Harpan khola* watershed feeds into *Phewa* lake which is being proposed as a Ramsar site[46]. Moreover, this area is considered the hotspot of orchid diversity with 113

[42] Climate Change Vulnerability Mapping for Nepal, MoEST, 2010

[43] The figure 3 shows the aggregate vulnerability of all the districts of Nepal, which also include socio-economic and demographic characteristics where as the statement in this page is related only to vulnerability created by precipitation and landslide.

[44] http://MFSC-redd.gov.np/new/wp-content/uploads/CCAP-Framework-Report.pdf

[45] *www.nepjol.info/index.php/JFL/article/view/1892*

[46] http://www.nepallake.gov.np/programs/ramsar_sites.php

species of wild orchids, including 2 endemic ones (*Panisea Panchasenensis* and *Eria Pokharensi)*[47]. Hence, the site is appropriate for piloting of this project as the site is vulnerable from climate change and has also carried national and international significance.

2.3 Description of Project Site[48]

The Panchase Lake forms the tri-junction of Kaski, Parbat and Syangja districts. It is nearly equidistance from the headquarters of three districts, located at Pokhara Municipality, Kusma and Syangja bazaar town respectively. The Panchase area consists of 17 VDCs of three districts covering an area of more than 284 square kilometres. The altitude ranges from 800m to 2589 masl. There are 14,807households with 71,634 population.

Table 4. VDCs Population and Household of Panchase Area

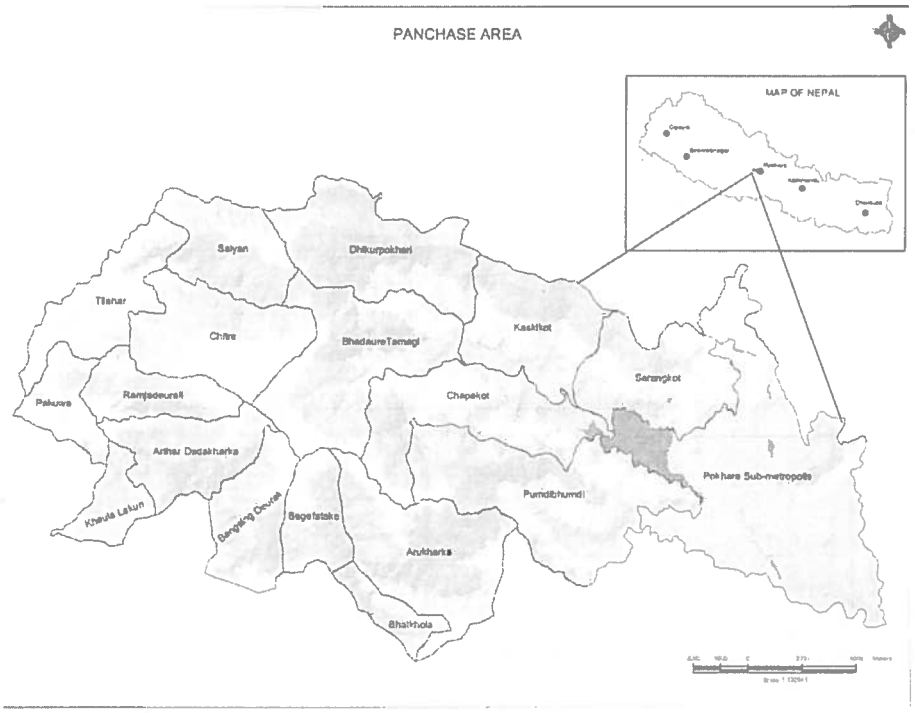
Districts:	VDCs:	Population:	HHs:
Kaski	Bhadaure Tanagi	3831	762
	Chapakot	3081	638
	Dhikurpokhari	8081	1687
	Pumdibhumdi	7947	1568
	Salyan	4121	806
	Kaskikot	7856	1459
	Sarankot	8701	1649
Syanja	Bansing Deurali	2962	584
	Arukharka	3816	882
	Bangefatke	1325	287
	Bhatkhola	2086	471
Parbat	Arthar Dandakharka	3436	751
	Chitre	2229	509
	Ramja Deurali	2395	527
	Khaula	2493	519
	Pakuwa	2448	540
	Tilahar	4826	1168
Total:	**17 VDCs:**	**71,634**	**14,807**

Forest is an important component for provisioning of ecosystem services. Kharsu (*Quereus semecarpefolia*), Phalat (*Quercus* spp.) and Lali gurans (*Rhododendron arboretum*) are major species at the top and Chilaune (*Schima walichii)*, Katus (*Castanopsis indica*), and Raktachan (*Daphniphyllum himalayense*) at the lower belt. A major portion of the forest in the *Panchase* hill is national forest and is being managed and controlled by the government directly. As the forest management mechanism is weak, the forests are being degraded due to open livestock grazing and unsustainable harvesting of forest products.

[47] Bio-diversity and Orchid Conservation Action Plan for Panchase (2010-2015), prepared by District Forest Office Kaski, Pokhara (2010)

[48]Extracted from Village profile of Bhadaure Tamagi VDC, http://www.forestrynepal.org/images/thesis/ and Tourism report of Panchase provided by Machhpuchhre Development organization, Pokhara

Figure 4: Map of Project Site



Two major types of agricultural lands are *Bari* (upland) and *Khet* (lowland). Maize is the major crop in *Bari* whereas rice production is dominant crop in the *Khet* farming systems. *Khet* includes both irrigated and rain fed land but is able to retain rainwater enough for rice farming during the Monsoon. The Panchase lake makes the upper catchment area of Harpan and Andheri Khola, the main streams feeding the Phewa Lake in the Pokhara Valley. The Harpan Khola is the largest stream and is the major source of water and contributes about 70% of total inflow into them Phewa Lake (PRTDMP, 2004). The soil in the area consists mainly of planosol, podzone and lithosol. The lithosol soil is erosion prone and infertile and unsuitable for crop production. The annual average soil erosion amount in the slopes and flood plains for the entire Phewa watershed was found to be 12.2 tons/ha/year (JICA, Nepal/Silt Consultant, 2001). The watershed area lies in the mid-hills which mainly consist of metamorphic and igneous rocks. Parent material of the watershed is quartzite and schist interbedded with grey-phyllitic schist and talc rich red phyllitic schist. Many cliffs of quartzite schist occur in this sub-watershed. Due to the talc rocks in this area, rocks are weaker than in other areas. The fans and the river plains consist of an alluvial material derived from schist or carbonaceous conglomerates. But the fans consist mainly of gravel. Dominant soil type identified in this sub-watershed are Ustifluvents, Fluvaquents, Usticrepts, Typic, Rhodic, Udic, Anthropic subgroups of Usticrepts, Dystocrepts, and Lithic sub groups of Usticrepts Dyscrepts and Haplumbcrepts and Ustorthents.

The climate of this area is subtropical to temperate. The temperature ranges from 34 degrees Celsius during summer to as low as 3 degrees Celsius in the winter. Monsoon (June, July and August) sees around 80% of the rainfall with an annual average rainfall of 3,355 mm. The watershed is not directly connected with high Himalayas and thus GLOF does not pose a threat here.

The consultations with communities during the field trip and available knowledge shows various combined climatic and non-climatic pressures and threats in the area – both on the community and ecosystems. The analysis reveals many climate risks that are evident at this stage but, at the same time, it also indicates future risks to resilience which are compounded by non-climatic factors. Major non climate pressures include over-exploitation or unsustainable use of resources, overgrazing and pest infestation, whereas climate induced pressures include habitat destruction, biodiversity loss, increase in invasive species and degrading ecosystem functioning (Annex 3).

2. PROJECT STRATEGY

2.1 Project design principles

The project has been designed to overcome the aforementioned barriers and to contribute significantly to the long term solution. The key design principles and strategic considerations of the project include the following:

i) **Strong Country Ownership and Drive**: The project will contribute to addressing NAPA priorities as already described earlier in this document. Country ownership is important not only to implement this project effectively but also to integrate lessons and share at international fora,

ii) **For the coordination of the project results and outcomes with other similar initiatives, MoEST will form EbA Coordination Committee under MCCICC**. The project will work with government ministries, primarily with MFSC and MoAD at the field level, and their participation in project planning and management will be a part of overall project management. The project will report to MoEST about its progress on quarterly basis

iii) **Action-research,** which builds on the comparative advantages of three international partners working together in Nepal and at global level, is a key objective of this project. It will be piloting new innovative techniques and tools for Ecosystem based Adaptation to climate change by managing degraded ecosystems at selected watersheds. The lessons learned from these demonstrations will be used to guide local communities as well as to showcase successes at a national scale and thereby offer the opportunity to catalyze large-scale EbA interventions across Nepal.

iv) **Multi-disciplinary**: EbA cuts across a wide range of sectors, including water, agriculture, energy and conservation. Technical experts in all these sectors will be sought to develop appropriate EbA interventions at specific sites. There will also be collaboration with a wide range of stakeholder groups, namely: government, academia, NGOs, Community-Based Organizations (CBOs), the private sector and civil society.

v) **Strong Coordination and Collaboration:** With relevant initiatives, the project will work in conjunction with relevant ongoing adaptation projects in Nepal. These include the following: i) Hariyo Ban Nepal ko Dhan (Hariyo Ban) USAID Programme ii) UNDP LDCF Disaster Risk Reduction Project[49] iii) Pilot Programme for Climate Resilience iv) Department for International Development (DFID)/EU National Climate Change Support Programme v) the Asian Development Bank Community-Based Adaptation Planning Programme and vi) DFID, SDC and Finish Embassy supported multi-stakeholder forestry programmes. This project will also work with local NGOs such as Machhapurchhre Development Organizations (MDO), and the Ecological Services Centre.

vi) **Gender and Social Equity Considerations**: The project will pursue a gender-sensitive approach whereby women's participation in training workshops, demonstration activities and management committees will be strongly promoted. Gender and other social inclusion issues will be considered in all stages of project management. The project is designed to reduce social and ecological vulnerability considering the fact that the poor people from rural Nepal are the most vulnerable to severe climate change and degradation of ecosystem services. Rural women and women-headed households are very poor and are forced to use the most marginal resources. With the increased

[49] This project is recently approved by GEF. Linkages with the project will therefore be reassessed during the inception phase

migration of men from rural areas, women and their children in the villages are facing double pressures. Hence, the project offers opportunities for these stakeholders to participate in decision-making, participate in income generating activities, and implement EbA practices to strengthen the resilience of the ecosystem services upon which they depend.

vii) **Contribution to Global Knowledge and Capacity**: EbA is an emerging field of study and there is a dearth of knowledge in this area. Recently, some tools and methods for assessing vulnerability and risk assessment are being developed but those tools/methods are not focused on ecosystem management. Due to inadequate data and knowledge, it has been difficult to plan and manage climate change adaptation options at multiple levels. This project based on experimental learning will develop decision making tools that can be applied at ecosystem and society level by using healthy ecosystems as infrastructure and managing degraded ecosystems. Based on the piloting at the field level, the project will bring instrumental knowledge verifying appropriate ecosystem based analysis tools and their application for community level climate change risk management. As these initiatives are occurring in two other countries (Uganda and Peru), learning from Nepal will be shared with these countries, but will also contribute to how Ecosystem based Adaptation can minimize climate risk in an Asian context.

viii) **Contribution to National and International Commitments**: The proposed project will contribute to the implementation and improvement of national climate change policy and will assist implementation of the NAPA. The Government of Nepal has developed climate change policy (2011) and prepared its NAPA through a broad consultative process. The NAPA includes both urgent and long term adaptation strategies in key vulnerable sectors and has clustered various projects into 9 profiles. Profile 5 (Forest and Ecosystem Management for Supporting Climate Led Adaptation Innovations) and 7 (Ecosystem Management for Climate Adaptation) are directly related to ecosystems management thereby having potential to focus on EbA. The National Planning Commission (NPC) has also developed a climate resilience framework[50].The government has developed these policies, programme of actions and framework and this project will link and support these government initiatives, focusing more on ecosystem based adaptation.

This will also help government to meet its obligations under UNFCCC. The project responds to the Adaptation Fund's objective 2 - "Increase adaptive capacity to respond to the impacts of climate change, including variability at local and national level." More specifically, it will contribute to outcome 2.3 - "Increased ecosystem resilience in response to climate change and variability-induced stress" in the strategic results framework of the Adaptation Fund.

2.2 Project Components, Outputs, Indicative Activities

This project document describes the activities that will be carried out in Nepal on the project "Ecosystem based Adaptation in Mountain Ecosystems in Nepal" by UNDP, using resources provided by the German Government's BMU via UNEP (UNDP has a Cost Sharing Agreement on this project with UNEP). These UNDP project activities in Nepal will be carried out in partnership with UNEP and IUCN, who will be carrying out complementary activities in Nepal with resources provided by the German Government's BMU, which can be seen as co-finance to the project described in this document. The sum total of all the activities carried out in Nepal by UNDP, UNEP and IUCN can be referred to as "the partnership project" in Nepal, as part of the global programme on Ecosystem based Adaptation in Mountain Ecosystems.

[50] http://www.npc.gov.np/en/publications/

This section describes all the Components, Outputs and indicative activities of the EbA Partnership to be implemented in Nepal by UNDP, UNEP and IUCN in close cooperation with the Government of Nepal. It is to be noted that by signing this document, UNDP is assuming responsibility and accountability for the activities it undertakes and the funds it administers as agreed between UNEP and UNDP under a global Cost Sharing Agreement with each other. The outputs UNDP is responsible for are clearly noted in the text below, and the budget that UNDP is administering in Nepal is described in the budget and annual work plan under Annex 6 parts a, b and c.

The project is designed on the premise that the social/human adaptation is best achieved by ensuring the continued provision of ecosystem services and enhancing human capacities to address current challenges and future uncertainties, especially in context such as the mountains of Nepal where communities are still significantly dependent on ecosystem services for their primary livelihood. The project has been designed to showcase the local landscape level strategies while achieving meaningful, replicable, and sustainable results. Project activity will focus upon the management and improvement of water-provisioning services, improvement and better management of land resources and sustainable use of biodiversity resources as the priority measures of broad EbA approach. The project will also emphasize improving adaptive capacity of local communities and national stakeholders, and generate knowledge for national policy support and for up-scaling internationally.

The project objectives, components and outputs of the partnership project in Nepal are described in the section that follows.

2.3 Project Objective, Components and Outputs

The main objective of the project is to enhance ability of decision makers in Nepal to plan and implement EbA strategies and measures at national and ecosystem level. In order to contribute to the overall goal of project, the following sections provide the project outcomes, outputs and lay out some potential EbA measures for the project identified during consultations at different levels.

Following the structure of the global project, the project will have four components, which can be equated to Outcomes for the project.

Component 1: Development of methodologies and tools for EbA decision-making in mountain ecosystems

This component of the partnership project will be led by UNEP, supported by UNEP-WCMC. The outcome will be to make available a set of tools and methodologies aimed at building national and local institutional knowledge and capacity to adapt to climate change using Ecosystem based Adaptation approaches, based on the global products produced by the global EbA partnership. The project will build on global and national best available knowledge, which will be refined based on the fieldwork under Components 2 and 3 below.

Output 1: EbA Assessment Methodology and Tools, Options and Indicators for Monitoring Available to Decision Makers in Nepal

Under this Output, country specific guidance materials will be generated through learning by doing at different levels will help to build solid institutional foundation and promote EbA in Nepal. The project will ensure the following 4 key products under this Output:

a) Ecosystem based Adaptation and Ecosystem Resilience Guidance

Resilience is a core aspect of EbA because ecosystems that are resilient to the impacts of climate change are expected to decrease the vulnerability of those that depend on services from these ecosystems. Furthermore, this is recognized by the UNFCCC Parties in Decision 1 COP16, which Invites all Parties to enhance action on adaptation taking into account their common but differentiated responsibilities and respective capabilities, and specific national and regional development priorities, objectives and circumstances, by undertaking, inter alia, building resilience of socio-economic and ecological systems, including through economic diversification and sustainable management of natural resources".

Nevertheless, ecosystem resilience is a concept that has been used in several ways by different authors and there is no common understanding of the relationship between resilience, vulnerability and adaptation. The assessment of ecosystem resilience is not currently integrated fully within mainstream Vulnerability and Impact Assessment (VIA) methodologies and ecosystem services are not always taken into account in the design of many site-based adaptation interventions. Resilience-building and adaptation can have a synergistic role in the sense that adaptation implies formulating specific strategies for responding to specific impacts of climate change, while resilience-building is a general nature based strategy for increasing the capacity to adjust to whatever the future brings. But in the context of climate uncertainty, resilience building of the society as a whole can create an enabling environment that allows for adaptation to occur as climate conditions change.

UNEP-WCMC has reviewed and synthesized the current knowledge on resilience to clarify the different concepts and provide guidance at country level work on how the ecosystem resilience concept could be most usefully applied in the implementation of EbA and produced a paper for the UNFCCC meeting in Durban at the end of 2011. This work will further be developed with the Nepal national project teams during the project to better understand the factors affecting resilience and how to manage ecosystems for EbA with this understanding.

b) Handbook of EbA Measures (EbA Menu of Services)

UNEP will prepare a handbook on EbA Measures based on desk review and compilation of good practice EbA for mountain ecosystem from available global as well as national levels literature and documents. This menu of EbA options will be shared among key stakeholders in Nepal for finalization of potential EbA options available for Nepal. This menu of options will be used for preparing EbA action plan for *Panchase* pilot site.

c) Methodologies and Tools for EbA design and implementation

The project approach is understood to be a combination of local scale (village/community) 'on-the-ground' activities for EbA with wider district, catchment or mountain scale (100 km^2 plus) EbA design and planning. The methods, lessons and results from this sub-national *(Panchase)* work will be used to support national planning and policy as part of the global programme's component.

Steps required to fully implement EbA at the district, watershed or mountain scale include a VIA, the selection and design of EbA options, and the implementation of a management and monitoring plan. For the design and implementation of EbA at the local village or community scale the use of computer-assisted VIA and mapping of options is unlikely to be appropriate or feasible. UNEP-WCMC and UNEP Regional Office in Bangkok will work together with in-country consultants to carryout review and

compilation of existing national level Ecosystem VIA Assessment methodology and climate change scenario in Nepal and arrange workshop to share findings, and carryout refinement of existing and/or development of new mapping tools, scenarios and methodologies as needed to apply methodology and tools at ecosystem level for Ecosystem VIA Assessment. UNEP-WCMC will produce guidance on integrating consideration of ecosystem functioning, services and resilience when undertaking VIA and vulnerability mapping and the design of EbA options for these identified tools and methods, or recommend such tools and methods if necessary.

Economic assessment tools and prioritized EbA options will be made available though undertaking a review exercise of existing economic assessment methodology and tools for EbA and their applicability for Nepal and developing methodology for Nepal. These tools will be used to carry out economic assessment and prioritization exercise of EbA options and organize a workshop to share assessment results.

d) Monitoring Tools for EbA

As part of UNEP global work, UNEP-WCMC will assist the country project teams to identify and address their EbA information needs in the sites of the Pilot activities. Attention will be paid to possible measures of ecosystem functioning, delivery of ecosystem services, and ecosystem resilience. In-country workshops will be organized by UNEP with key stakeholders to identify possible indicators and relevant data sets for these aspects of EbA, and identify the information management capacity and systems that would be needed at different scales. This work will be designed to respond to the adaptive management needs of the Pilots, and to generate indicators of project success and of early warning of problems regarding ecosystem resilience.

Component 2: Application of EbA methodologies and tools at the ecosystem level

This component of the partnership project will be led by UNEP, supported by UNEP-WCMC. Under this outcome, work will be undertaken at a pilot site in Nepal to develop an Ecosystem based Adaptation plan by using decision making tools considering the global methodology as well as local knowledge and demonstrate EbA options to increase resilience of vulnerable mountain communities and ecosystems. UNDP will provide input into this component to help ensure that the plan is designed to be locally owned, relevant, cost effective and sustainable. There will be one Output under this Component, as described below.

Output 2.1: EbA Strategy and Action Plans at Ecosystem Level Developed

A climate change risk assessment of the site will be undertaken by using local knowledge and climate data available for the site. The proposed EbA options are aimed to maintain and restore critical ecosystems and their services. This output will be achieved through UNEP and UNEP-WCMC conducting several activities including designing a fully costed implementation plan and monitoring guidelines for selected EbA measures at the pilot site. UNDP Nepal will assist in implementing the plan including monitoring EbA measures at the pilot site with Ministry of Forest and Soil Conservation, Ministry of Agriculture Development, MoFALD and other agencies as appropriate.

A climate change risk assessment of the site will be undertaken by using local knowledge and climate data available for the site. These will not only address the current climate risks but also endeavour to touch on climate risks that the site will potentially encounter in the current trends of climate change and prevailing uncertainty. The proposed EbA options are aimed to maintain and restore critical ecosystems

and their services. This output will be achieved through conducting several activities including a) Comprehensive ecosystem-level vulnerability assessment including ecosystem services for Panchase, b) Identification and spatial mapping of EbA options for the selected ecosystem, c) Economic valuation of EbA options and incorporation of stakeholder priorities for the establishment of comprehensive land use plan for the selected ecosystem, d) Designing a fully costed implementation plan and monitoring guidelines for selected EbA measures at the pilot site, and e) Implementation of plan by UNDP Nepal and IUCN Nepal including monitoring EbA measures at the pilot site with Ministry of Forest and Soil Conservation, Ministry of Agriculture Development, MoFALD and other agencies as appropriate.

Comprehensive vulnerability assessment for Panchase ecosystem will carried out by engaging the relevant stakeholders taking into consideration the different climate scenarios and EbA options available. Different methodology and tools developed under component one will be used for conducting comprehensive assessment. In order to carryout economic valuation of EbA options, a review of existing economic assessment methodology and tools for EbA will be carried out and will be contextualize for Nepal. It will be than used for conducting economic assessment and prioritisation exercise of EbA options and result will be shared though workshop. Similarly EbA priority areas and associated EbA options for Panchase will be finalized through incorporating stakeholder priorities, and spatial maps.

UNEP and UNEP-WCMC will utilize the capacity of suitable in-country institutions to conduct VIA and support the design of EbA options at the landscape or regional scale, including the use of GIS and maps. These in-country institutions may be national or sub-national and will be selected with the project country teams, considering their suitability to support VIA and EbA implementation and learning during and after the project. It should be recognized that a major constraint in this work is likely to be a lack of suitable and accessible data at the sub-national scale. UNEP-WCMC will provide guidance on the types of issues and questions to be addressed in designing EbA at the village level.

Component 3: Implementation of EbA pilots at ecosystem level

UNDP and IUCN will be both responsible for the achievement of this Component. Detailed roles and activities of both will be defined during project implementation and will be reflected clearly in work plans to be shared with the Project Board.

Under this component, priority actions identified in the plan developed under Component 2 will be implemented. These activities will be jointly managed by UNDP Nepal and IUCN Nepal by using their rich experience of field implementation and in depth knowledge in relation to environment and biodiversity project management. This Component will produce the following two Outputs.

Output 3.1: Capacity of Local Stakeholder Enhanced on EbA Planning, Executing and Monitoring

The project strategy is to take an "adaptive capacity enhancement approach," as outlined in UNDP's Adaptation Policy Framework (APF)[51]. Under this approach, the project will assess the mountain ecosystems in *Panchase* area with respect to their current adaptive capacity, and propose ways in which adaptive capacity can be increased so that communities are better able to plan and manage EbA measures. The main aim of this intervention is to empower local people and community groups to understand, plan and execute EbA approaches on their own land and the communal resources they share. In order to do this, the project will also strengthen capacities of relevant government agencies

[51] http://www.undp.org/climatechange/adapt/apf.html

operating at District and sub-district levels that are directly involved in supporting local households and community groups in managing their assets, and planning and implanting local development action.

Specifically, the project will work with 500 households and the existing Community Forestry Users' Groups, farmers; groups, irrigation management groups, women's group, among others, and build their capacities as well to:

- Understand the concepts of climate change and associated vulnerabilities and resilience
- Learn about EbA and how it could be relevant for them
- Develop technical capacities for planning (considering climatic and non climatic factors) including integrating climate risks
- Implement EbA measures to contribute to ecological management/restoration to bring back environmentally resilient conditions to agriculture and forest systems, and
- Support knowledge transfer and experience sharing – including learning from sites that are already apparently experiencing changes in line with predictions on future climatic conditions within the country.

Based on the brief project site visit and stakeholder consultation at district level, some EbA strategies and major activities have been proposed (see under output 2.2). In order to operationalize the strategies and accomplish activities, capacity enhancement of local community and stakeholders is very instrumental. Although the specific activities will be identified after detail ecosystem assessment and capacity need assessment, the following are some indicative areas for capacity development at local level for practical action on the ground (these will be based on needs that have been identified and the pilot activities planned, so that the training can be part of the pilots):

- Training on land rehabilitation (bio-engineering, community spur construction, gully control, water source protection, construction of community pond, irrigation management, Kharka improvement etc)
- Training on crop management (organic agriculture, compost making, integrated pest management, soil nutrient management, terrace management)
- Training on forest and NTFPs Management (support in Community forest operation plan management, plantation, NTFPs enterprising)
- Training on tourism, exposure visit, environmental education at schools and other management training.

The capacity development process would follow different processes. Once the sites have been selected based on ecosystems and EbA options analysis, potential farmers or farmers' group will be identified through local level consultations. Based on the nature of intervention, district level actors/stakeholders will be identified. A capacity need assessment (CAN) will be carried out by using IUCN[52] assessment processes and training and other capacity building activities will be carried out.

It is expected that this kind of capacity development will generate a response to EbA that integrates individual and collective concerns, values and beliefs and addresses individual and collective attitudes, behaviours and skills embedded in natural resources management. The capacity building activities will be undertaken in close collaboration with forest range posts and the agricultural services centre in the project site. NGOs, based on their expertise, will be used in the capacity building process (see annex 4).

Indicative Activities: Engaging relevant stakeholders/actors (hands on training) while conducting vulnerability assessment, trainings and workshops conducted to sensitize local stakeholders on EbA planning, execution and monitoring.

[52] http://data.iucn.org/dbtw-wpd/edocs/2009-028.pdf

Output 3.2 EbA Strategy and Action Implemented Plans at Ecosystem Level

Under this Output the project will support local communities, CSOs and other partners at the project site to implement EbA options. Some Potential EbA Measures that may be applied include the following[53]:

Integrated Water Resources Management: The project will work to better integrate the management of water resources for enhancing water protection in the project site. Water, both availability and quality, is considered vital for societies and ecosystems functioning/resilience. So, conservation and sustainable use of water for human use, agriculture and other ecosystems will be promoted. Integrated local water management plans will be developed in association with communities and those options will be integrated in existing management plans such as community forestry management plan and local development plan (through DDC and VDC). Wetland management, conservation of water springs, and creation of water storage actions will be taken into account. The project will work closely with farmers to harvest water during the rainy season, construct community managed ponds, promote options for increasing water infiltration in soil through increased vegetative cover and soil water management, and support efficient use of water in cropland (e.g. irrigation). Based on the learning from these piloting and learning from outside, EbA measures will also be used to integrate future watershed management plan of *Harpan Khola* or *Panchase*.

Community Based Forest Resources Management: Forests are credited for ensuring a reliable provision for food, medicine and clean water for societies and they are the adobe for conserving biodiversity; hence management plans and priorities may need to be modified under climate change. A VDC level land use (including biodiversity, river management, forest, agriculture) use plan options will be explored. Community Forest Users' Groups (CFUGs) will be supported to improve their operation plan to include EbA approach. Support to implementation of operational plan, reforestation activities and introduction of high value crop/NTFPs in the forest area will be supported. This project will consider landslide sites and demonstrate activities that enhance the value of ecosystem services in controlling such landslides. Appropriate plantations, water management, grazing control, creating bio-fencing and other structures constructed from bamboo and planting materials are some of the interventions that can be adopted to minimize landslides and to conserve forest ecosystems.

On-farm soil, water and vegetation management: Farming systems require ecosystems and biodiversity services to be functional, and at the same time, they regulate and produce ecosystem services. Climate change, variability and extremes are threats to agriculture production and agro-biodiversity. To respond to these, the project will explore various options including conservation of agro-biodiversity that is climate resilient (drought, flood and insect pest resistance), maintenance of soil nutrients, integrated pest management and organic farming. Community seed bank, preparation of organic composting and package of technologies (including market access) for organic farming could be supported.

Component 4: Development of Business Case for EbA at the national level

UNDP will be the lead agency for this Component. Under this Component, the project will have four Outputs. They are described below.

[53] This options are listed below based on field consultation and consultation with key partners organizations

Output 4.1: Business Case for EbA Developed

The project will define cost co-efficiency for EbA by considering economic, social and environmental aspects. The cost co-efficient definition will also include both tangible and intangible, and short term and long term implications to include the benefits of ecosystems and biodiversity services. For example, a forests sector economic assessment will be carried out and, based on the findings; policy papers will be prepared which guide forest sector strategies and allocation of resources for future project planning and management. The project will prepare a sectoral policy/strategy framework to apply an ecosystems based adaptation approach.

Output 4.2: Capacities of Government Agencies to Plan, Implement and Monitor EbA Actions

The project will focus on building capacities of key government agencies. Some of institutions/agencies may include the climate change council, committee on natural resources and means of the Parliament, Climate Change Management Division of the Ministry of Environment, Science and Technology, Multi-stakeholder Climate Change Initiatives Coordination Committee (MCCICC), Environment and Planning Division of MFSC, Planning Division and Environment/climate change unit of MoAD, and environment division/unit of National Planning Commission – to plan, implement and monitor EbA.

Besides training for capacity enhancement, other forms of institutional support such as review of existing institutional arrangements, existing barriers and challenges and potential solutions will also be explored for selected agencies. The project will support knowledge generation, knowledge sharing amongst key stakeholders; increasing the ability of stakeholders to understand and manage the climate change risks and finally the ability to address such risks through adopting ecosystems based adaptation at local level and contributing to policy improvement and strategy development. Besides, capacity building and knowledge management strategies for EbA to improve assessment and monitoring will be supported. The project will design a capacity strengthening strategy detailing precisely how best to build the capacity of national institutions to improve knowledge generation, monitoring, assessment, and utilization of EbA knowledge.

The project will undertake some specific activities including in assisting establishment of a group to promote EbA from different government agencies which links with MFSC/environment/planning division. Specific training e.g. training of government officials in regular meetings; other specific training of other stakeholders – NGOs/INGOs, civil society (training on planning, assessing vulnerability/risk, and impacts), ToTs, training package, policy level, practitioner and community level — training, planning annual meeting (bringing GO and NGOs) and exposure visit to field sites for policy makers will be included.

Output 4.3: EbA Measures Incorporated into Select Sectoral Policies and Strategies/Plans

A review will be undertaken to analyze MFSC and MoAD current works and offer precise recommendations for how best to integrate EbA principles and practices into relevant policy and/or strategy. The project will support the Climate Change Management Division within the Ministry of Environment, Science and Technology and Ministry of Forest and Soil Conservation to track, review and comment on planned proposed policy (and institutional) changes and national development plans. The project will work with the relevant teams involved in their revision, updating or formulation to provide necessary reviews, comments and advice based on available global knowledge and practices.

Output 4.4: Lesson on EbA Produced and Disseminated Nationally and Internationally

The outcomes and knowledge will be documented in different forms, such as process documentation, farmers' experiences, best practices, tools and methods, barriers to up-scaling, challenges and opportunities for application of EbA measures, and policy challenges and opportunities. The knowledge will be shared through district and national level workshops and dialogues. The proven knowledge will be shared through different informative and academic networks. Print form materials such as training guidelines, discussion papers, and policy briefs will be developed in Nepali and English languages. Research articles will also be developed and disseminated. Visual records (video and photographs) will be maintained from the very beginning (which would also act as a baseline), process documentation will be maintained and major outputs/outcomes and experiences of community members and stakeholders will be documented. The knowledge products will also be published in Nepali language so that people at district and community level will benefit.

The outcome of this project will be shared through electronic media, published papers, joint training workshops and conferences. The project will devise a systematic mechanism to document learning from the project. A team of professionals, decision makers and stakeholders will share Nepal's learning in international fora. Some proposed activities may include annual lessons sharing workshop, videos, events, publications, and dialogues

3.4 Sustainability Analysis: Economic, Social and Environmental Benefits

EbA activities through the project will be designed to have a number of co-benefits including income generation, contributing towards climate change mitigation, poverty reduction and biodiversity conservation. EbA will help local communities and families to adapt to a changing climate. Climate resilient ecosystems will more able to resist and recover from climate disturbances – thus continuing to provide ecosystem functions that will allow people to receive continued services. The following table 7 summarizes each type of benefits.

Table 5: Social, Economic and Environmental Analysis

Benefits	Project – Adaptation Benefits
Social Benefits	EbA activities are closely linked with societal adaptation as a whole. With the enhanced resilience of ecosystems, climate change induced changes and extreme events are likely to be more gradual and less severe than under a 'business as usual' scenario without any EbA measures. This would directly enhance the capacity of vulnerable, largely subsistence farming communities to be able to respond to climate change impacts. The project's EbA approach will benefit local communities vulnerable to climate change, particularly the **low-income population** engaged in farming who are totally dependent on natural resource base and ecosystem services. About **500 households** will be directly involved in project piloting and other about **10,000 people** at local level will benefit from this initiative. A **gender balanced approach** will be taken and inclusion of female-headed households will be encouraged in demonstration activities. In addition, an increase in awareness, and knowledge and experience in relation to community based integrated water management and resilience based farming will further strengthen the **adaptive capacity** of the

	communities. Furthermore, with the EbA activities, the risk of natural disasters such as drought, flash floods and wild fires will be better controlled. Well maintained ecosystems and landscape will also increase the potential for expanding **tourism opportunities**, and providing alternative livelihoods for local people with income generation and employment opportunities.
Economic Benefits	It is widely recognized that ecosystem services have extremely significant economic values and the project will bring about long-term economic and financial benefits to economic sectors that depend on water availability. There have been very few economic assessments of ecosystem services in Nepal. Economic assessment carried out by IUCN Nepal (in Shivapuri National Park, Nepal) and CoSUN (wetland project of MFSC and UNDP in Ghodaghodi lake, Nepal) have suggested that the economic benefits of conservation of the watersheds and ecosystems are substantial. In Shivapuri, a study carried out by IUCN (2005), the cost of water resources provided in Shundarijal area is about US$ 7.65 million per annum (in value addition). Similarly another study carried out by IUCN (2006) in 3 small watersheds of Churia area revealed that the economic value of water in irrigation in the foothills, Bhabar and Terai is estimated at Rs 6.72 million. Estimated values of Churia forest goods per household per year are: fodder Rs 3,480, fuel wood Rs 3,090, timber Rs 3,990, herbs and others Rs 160 and total is estimated at Rs 10,700 per household per annum. This study indicates that Churia makes a huge contribution to different local communities. The total economic value of annual flow of different resources from Churia is estimated at Rs 490.3 million. Water uses downstream and other Churia forest resources annually contribute about Rs. 212.3 million (43.3%) and Rs. 277.6 million (56.6%), respectively (1 USD = 75 NRs). Paying for ecosystems services has also started. For example, Makawanpur District Development Committee (MDDC) has been receiving USD 5, 500 per annum from Nepal Electricity Authority which is being used to conserved the upstream watershed of Kulekhani Hydropower[54]. From similar interventions, people will get **economic returns** (directly or indirectly) by having EbA. The main beneficiaries of the project will be the national and local governments as well as rural community members in the different eco-regional zones in Kaski district and *Panchase* area who will derive sustained benefits from resilient ecosystems and their services. It is expected that the project intervention will **reduce the risks** (improve water security - drinking water and irrigation, land rehabilitation and management, introduction of cash crop and their market access) which would increase direct farm income of participating farmers. Besides, they will also be capacitated to manage and plan projects and their own enterprise properly.
Environmental Benefits	The project site is in the upstream of Phewa Lake which has attracted thousands of tourists each year. But, recent studies showed that the lake has encountered major challenges of sediment and nutrient load from upstream. By improving upstream soil stability, EbA options would **reduce sediment and nutrient load** in Phewa Lake.

[54] Pandey, et al. (2010). Economic potential of forest resources of Nepal, Banko Jankari, 20 (2), 48-52. DOI: 10.3126/banko.v20i2.4803

	Panchase is also considered as the capital of Orchids in Nepal. It is estimated that 400 species of orchids are found in Nepal. Out of which 113 species are available in *Panchase* area and among them, 2 species are only available in *Panchase* area. By conserving natural habitats, EbA will contribute to **conserve** these **endangered species** along with other high value biodiversity. Without the proposed interventions, natural resource degradation will further continue to cause loss of ecosystem services, a decrease in vegetation density and available biomass, and soil erosion through surface runoff. It is also expected that proposed interventions will help to improve natural vegetation (plantation, forest management, controlling forest fire); conserve biodiversity, and improve land quality (controlling erosion, terrace maintenance, better use of compost and reduction in pesticides use). The project will increase the **resilience of ecosystems** to be able to sustain essential ecosystem provisioning and regulating services. Through the interventions proposed, various ecosystems will be rehabilitated: forest systems and agricultural systems. These systems, when healthy, provide numerous environmental services namely 1) **clean, quality water;** 2) **sequestration of carbon**; 3) **erosion prevention** 4) **flood control**.

3.5 Cost effectiveness of the proposed project

So far adaptation practices are site specific and fragmented in Nepal. These fragmented responses may address an issue or yield an impact in a given locality or sector in a specific time. However, without due consideration of ecosystem resilience to climate change, the outputs and impacts of isolated actions will be unsustainable. Moreover, isolated adaptation actions may transfer externalities or restrict options elsewhere. With this fragmented approach, opportunities for mainstreaming climate change risks into normative frameworks – a cost-effective way to achieve changes in natural resource management sectors – will be missed.

Unless ecosystems resilience and decision making tools for assessing ecosystems and their services are properly incorporated in adaptation plans, the identification of the real problems, prioritization and management of adaptation options would not be completed. Therefore in the absence of support by the project, a continuation of a range of largely short-term, fragmented responses will be continued in Nepal.

The approach proposed by this project provides an integrated package of measures that will effectively generate the necessary systemic and institutional capacities, decision making tools and actions for integrated water and land resource planning and management using EbA approaches which fully internalize climate risks. Simultaneously, the project will demonstrate a range of EbA options to address both the supply and demand sides of agriculture and water resource management.

The proposed project is cost effective for two reasons. Firstly, EbA addresses climate change impacts in participation (in identification, planning, implementation and monitoring) with community members to avoid any mis-utilization and to obtain their full support to ensure cost effectiveness. Secondly, EbA is generally considered to be a cost-effective approach compared with engineered or structural approaches given its lower input costs and its long-term impacts and environmental, social and economic co-benefits as described above. Ecological infrastructure is still considered highly cost effective compared to the resources (financial and human) that are required for engineering works.

Based on the review of other potential watersheds in *Panchase*, this watershed has been selected due to the already visible climate change impacts there on ecosystems and society. The site is also very appropriate at it represents different altitudinal variations within a short distance and population size is manageable. The site is about 15-20 kilometres from *Pokhara* city and accessible from rural roads.

The project applies existing best practices from the past and ongoing interventions that are proven to be cost effective on mainly singular resource types (water, land/pasture or biodiversity). There have been quite a few interventions of this kind in the target landscapes, though many interventions are solely for income generation or livelihood diversification for vulnerable communities. The experiences gained will be applied to optimize management of ecosystems, thus avoiding optimizing a particular resource at the cost of the others under changing climatic conditions.

Some alternative project approaches have been considered, but deemed less cost-effective than the proposed course of action. As the detailed/specific intervention will be prepared once the ecosystems analysis has been carried out of this site, a more detailed cost effectiveness analysis will be made, comparing the proposed resource allocation with measurable outcomes to other possible options, in order to validate costs, benefits and project effectiveness.

In terms of cost-effectiveness, the project also seeks to build national capacity for in-country implementation of EbA and integration of learning from the project in policy formulation. Different cost effective measures will be adopted to achieve the set output. As there are no reasonable alternatives to the approaches proposed, the project will focus on selecting appropriate stakeholders ['right people from right place at right time'] for strengthening capacity and developing the enabling environment for EbA

3.6 Replicability:

One of the important objectives of this pilot project is to develop a decision making tool kit which can be used elsewhere. So, special attention will be given to decision making tools development protocol, analysis of ecosystems, designing project interventions, execution of project activities, monitoring and evaluation of activities. The proposed tools and methods will be tested at local level. As an experimental learning process, the testing will also be undertaken in various forms within the project site for comparison, and a robust monitoring mechanism will be in place with which to assess relevancy, effectiveness, efficiency of tools and methods in the given context. With this rigour, it is expected that the findings (tools and methods) will be replicable to other similar mountain ecosystems within and outside Nepal.

3.7 Results Framework

The full Project Results Framework for the partnership presented below and UNDP involved components are highlighted (Table 5).

Table 5: Result Framework[55]

Global Component	Indicators	Baseline	Targets End of Project	Sources of verification	Risks and Assumptions
1: Development of methodologies and tools for EbA decision-making in mountain ecosystems **(UNEP)**	Number of EbA related guidance materials available on mountain ecosystems of Nepal	Specific guidance materials not available for Nepal mountains EbA	At least four guidance materials available covering: 1. Ecosystem based Adaptation and Ecosystem Resilience 2. Handbook of EbA Measures (EbA Menu of Services) 3. Methodologies and Tools for EbA design and implementation 4. Monitoring Tools for EbA	Project publication and downloadable versions on websites	Guidance based on global best practice can be adapted for Nepal in a cost-effective manner
Output	1.1: EbA Assessment Methodology and Tools, Options and Indicators for Monitoring Available to Decision Makers in Nepal				
2: Application of methodologies and tools at the ecosystem level **(UNEP and UNDP)**	Landscape level management plan with EbA options	Specific EbA plans at landscape level unavailable in Nepal	Locally endorsed landscape plan with EbA for a mountain landscape covering at least 270,000 ha in Panchase	Project report	Communication and access within the landscape is of sufficiently low cost for communities to come together to plan and share ideas
Output	2.1: EbA Strategy and Action Plans at Ecosystem Level Developed				
3. Implementation of EbA pilots at ecosystem level **(UNDP and IUCN)**	Total landscape area where EbA is being implemented through community participation	No landscape level EbA implementation	Implementation of EbA in Panchase area	Community records and assessment reports	Community people see the options provided are beneficial There is strong support from local political leaders and local government agency staff
	Number of communities and households benefiting from the adoption EbA	Limited communities receiving benefits from	At least 5000 HH in Panchase area involved and benefiting from EbA	Project assessment report	Benefits to households are considered to be equitable and does not result local conflicts

[55] Output level indicators, baseline and target, and sources of verification will be developed by the project implementation team during full project implementation

		EbA actions			
Output	3.1: Capacity of Local Stakeholder Enhanced on EbA Planning, Executing and Monitoring				
Output	3.2 EbA Strategy and Action Implemented Plans at Ecosystem Level				
4: Development of Business Case for EbA at the national level (UNDP)	Analysis on business case for EbA for mountain ecosystems	No analysis available	Analytical report available to inform decision making	Project report	Analytical framework is of sufficient scientific rigor without being too complicated for local use
	Number of government agencies promoting EbA through policy, plans and programmes	Limited number of government agencies promoting EbA	At least 4 agencies (NPC, MFSC, MoAD and MoEST) are actively involved in promoting EbA	Policy and programme documents	Policy makers see EbA as a viable and desirable for poverty reduction / national development and climate change adaptation
	EbA knowledge product and exchange	Limited knowledge and exchanges on EbA	Knowledge products based on national and local level learning and sharing	Newspaper and journal articles Project reports and publications	Demand on the EbA knowledge
Output	4.1. Business Case for EbA Developed				
Output	4.2: Capacities of Government Agencies to Plan, Implement and Monitor EbA Actions				
Output	4.3: EbA Measures Incorporated into Select Sectoral Policies and Strategies/Plans				
Output	4.4: Lesson on EbA Produced and Disseminated Nationally and Internationally				

3.8 Potential Risks and Assumptions

Project Risks and assumptions (table 6) were also analyzed during site visit and project design stage and a brief outline is presented below.

Table 7: Potential Project Risks and Assumptions

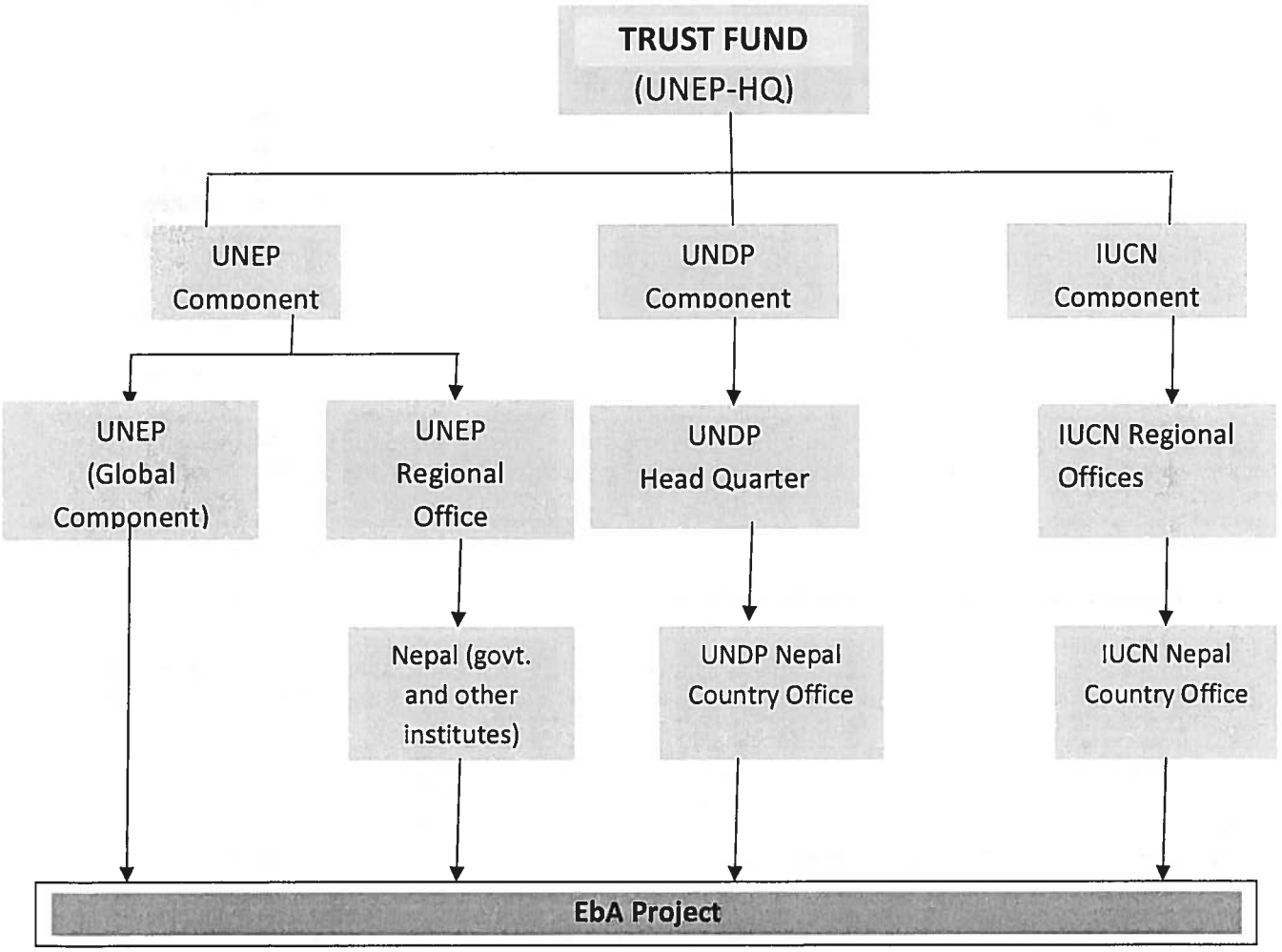
Identified Risks	Risk rating	Mitigation Measures
Current climate variability and/or hazard events result in poor adaptation management results.	Medium	• Ensure that current climatic variability and risks are taken into account in identification of EbA measures, planning and management
Disagreement amongst stakeholders with regards to pilot project site selection	Low	• Pilot ecosystem services and sites will be selected using a strict list of criteria in order to ensure the selection is transparent, based on logical criteria and equitable.
Communities may not adopt EbA (e.g. restoration and reforestation) activities during or after the project.	Medium	• The pilot programmes will be institutionalized within the MFSC and MoAD under to ensure sustainable delivery into the future. • Alternative livelihood projects that have been deemed financially, technically and socially viable/feasible, will be implemented through the project to reduce reliance on intensive land uses such as agriculture and grazing. • Capacity building and training of the communities to understand the benefits of the EbA activities they are undertaking will be implemented.
Loss of government support may result in lack of prioritization of project activities.	Low	• Ensure that government maintains its commitment and considers the project as a support to its forestry and agriculture programmes by undertaking regular stakeholder consultation and capacity building.
Capacity constraints of local institutions may limit the ability to undertake the research and demonstration activities.	Medium	• Identify and develop human resources capacity as required. • Initiate collaboration and exchange between local institutions and international research institutes. • Project coordinator to ensure timely delivery of project outputs.
Lack of commitment/buy-in from local communities may result in failure of demonstration projects.	Medium	• A stakeholder engagement plan will be drawn up. • Community stakeholders will be engaged with from the planning phase to ensure their buy-in into the project. • Actively engage local communities during implementation of interventions. • Raise awareness through campaigns via radio and television programmes. • Foster a bottom-up grassroots approach throughout the project development and implementation phases.

4 MANAGEMENT ARRANGEMENTS

4.1 Fund Flow Modality

The Government of Germany through the Federal Ministry of Environment, Nature Conservation and Nuclear Safety (BMU) has provided 10 Million Euro for 4 years for a bigger programme to pilot EbA in mountain ecosystems in 3 countries i.e. Nepal, Peru and Uganda. The figure below represents the fund flow mechanism for the programme as a whole, within which there is a partnership project in each of the three countries. Within Nepal, the funds for which UNDP has responsibility are presented as the total budget with corresponding work plans in this document. BMU will transfer the funds to the UNEP Trust Fund. From the Trust Fund, the UNDP Nepal project funds of $1,731,733 will be transferred to UNDP in terms of the Cost Sharing Agreement between UNEP and UNDP, from where the funds will be made available to the UNDP country office. UNDP will disburse the funds as per the agreed work plans to a dedicated project account managed by the PMU as per NIM modality.

Figure 6: Fund Flow Process



Out of the total 10 million Euro, US$ 3,372,637 will be allocated for Nepal for joint implementation of the partnership project by UNDP, UNEP and IUCN. Annex 5c shows the budget allocated to each agency.

4.2 Management and Financial Audit

Based on National Implementation policies, UNDP will conduct management and financial audit of the programme on an annual basis. Management structures will be set up in terms of the UNDP project but will serve the implementation of the broader partnership project as well. The audit will also look into the compliance of the programme in terms of sub-contractual agreements as well as fulfilment of the work plan. Formal financial audit will be carried out by a government-registered auditor at all levels of implementation for UNDP implemented funds. In addition, Public Audit will be mandatory at the community level. Project Audit will follow UNDP Financial Regulations and applicable audit policies.

a. Partnership and Coordination

The partnership and coordination mechanism described below will serve the joint UNDP-UNEP-IUCN partnership on Ecosystem based Adaptation Project in Mountain Ecosystems in Nepal, unless otherwise specified as being only specific to UNDP led components.

The project will work closely with key government ministries and Departments. The Ministry of Forests and Soil Conservation will take lead in implementation through its Department of Forests (DoF). The Ministry of Environment, Science and Technology will coordinate the project outcomes with other climate change adaptation results at the national level. Likewise, the MoFALD and Ministry of Agriculture Development will provide support in implementation at the field level through relevant departments and local government bodies. The National Planning Commission of Nepal is expected to provide guidance and support in formulating EbA policy and strategy based on the results of the pilot The project will closely work with the local committee of Panchase, and build on the previous and on-going work being done in the area supported by GEF-SGP and UNDP's Comprehensive Disaster Risk Management Project (CDRMP).

At the local level project activities will be implemented in partnership with the respective District Line Agencies such as DFO, DAO, NGOs and Community Groups. The selected NGOs/CBOs will be given opportunity to develop their capacity about EbA tools, methodologies and approaches. Assessments, baseline surveys, qualitative analyses, and mentorship programmes will be conducted in partnerships with national academic institutions wherever possible.

4.3 Management Structure, Roles and Responsibilities

The overall partnership project will be jointly managed by UNEP, UNDP and IUCN and each of these agencies will be responsible for managing their part of EbA funds and produce outputs as indicated below:

Components	Lead Agency
1. Development of methodologies and tools for EbA decision-making in mountain ecosystems	UNEP
2. Application of methodologies and tools at ecosystem level	UNEP/UNDP
3. Implementation of EbA pilots at ecosystem level	UNDP/IUCN
4. Development of Business Case for EbA at the national level	UNDP

As the focal ministry for climate change in Nepal, MoEST will ensure that project results are well co-ordinated at the national level together with other climate change adaptation activities implemented by other agencies. For that purpose the project will support the MoEST to conduct regular meeting of EbA Coordination Committee. At the national level, on behalf of the EbA partners in the partnership project (IUCN, UNEP and UNDP), UNDP will make necessary communication with the partners and provide facilitation in implementation of EbA process in Nepal. Following support will be provided by the government:

MFSC will:

- Provide the service of National Project Director who will lead the project and work as the Executive of the Project Board.
- Provide office space for the Project Management Unit (PMU) for the duration of the project at the centre possibly within the available government premises, where offices of UNDP supported WTLCP and CSUWN projects are established.
- Nominate a focal person to represent MFSC in Project Board.

DoF will:

- Nominate two focal persons – one at the centre to assist the NPD and another in the field to work with Field Officer.

UNDP-led outputs will be implemented under National Implementation Modality (NIM/NEX) as agreed by the GoN. UNDP will be responsible for timely disbursements of funds and providing oversight to the management to make sure that project outputs are delivered in an efficient and cost effective manner. UNDP will also co-ordinate with other EbA partners, IUCN and UNEP to secure their inputs in developing a joint work plan for the partnership project, tracking the progress and reporting. However, IUCN and UNEP will be responsible for delivery of their specific outputs of the partnership project.

4.4 Project Coordination Mechanism:

The Multi-Stakeholders Climate Change Initiatives Coordination Committee (MCCICC) established under the chairmanship of Secretary of MoEST provides an information sharing platform among all the partners at national level related to climate change activities in Nepal. The MCCICC comprises a broad group of stakeholders, including line ministries, development partners, civil society and private sector. The MoEST will form a separate co-ordination committee under MCCICC for effective co-ordination of EbA project's results and outcomes with other similar initiatives in Nepal. The ToR of the co-ordination committee and its composition will be finalized during implementation of the project, and will ensure representation from Ministry of Finance, National Planning commission as well as other relevant ministries.

4.5 Field Level Project Coordination Committee:

A Field level Project Coordination Committee (FPCC) will be established at the local level to reinforce ownership of District Line Agencies and local government. The FPCC will facilitate coordination, collaboration, knowledge sharing and networking among multiple stakeholders (community user groups, local authorities, government line agencies, NGOs, CBOs and projects). The Regional Director of Regional Directorate of Forest will chair the FPCC meeting and the District Line Agencies (District Forest Office, District Soil Conservation Office and District Agriculture Office) and District Development Committee will be the members. Field Manager will participate in the FPCC meeting as a Member Secretary of FPCC. Representatives from private sector and VDC will be invited in the FPCC meeting as per need.

The FPCC will meet at least once every quarter. The FPCC quarterly meetings will finalize quarterly work plan and review progress of project activities. The decision of FPCC will be minuted. The annual and quarterly works plans will be finally endorsed by Project Board and the project activities will be implemented based on approved annual and quarterly work plans.

4.6 Project Executive Board:

The Project Executive Board (PEB) will be the decision making body of the project and will take necessary management and policy decisions needed for the effective implementation of project activities. The Project Board will approve work plans and budget, review progress and provide support for project implementation. The Project Board will advise the project management as necessary to ensure effective and timely implementation of the project activities to achieve the envisioned results/outputs. The Project Board will also facilitate coordination among various partners and liaison with the MoEST that will provide overall co-ordination support. The Project Board will consist of representatives from the Ministry of

Forests and Soil Conservation, Ministry of Agriculture Development, UNEP, IUCN and UNDP. The Department of Forests through the MFSC will nominate Deputy Director General/ Chief of Planning and Monitoring Division of DoF as a NPD for the project, who will assume the Executive role in the Project Board.

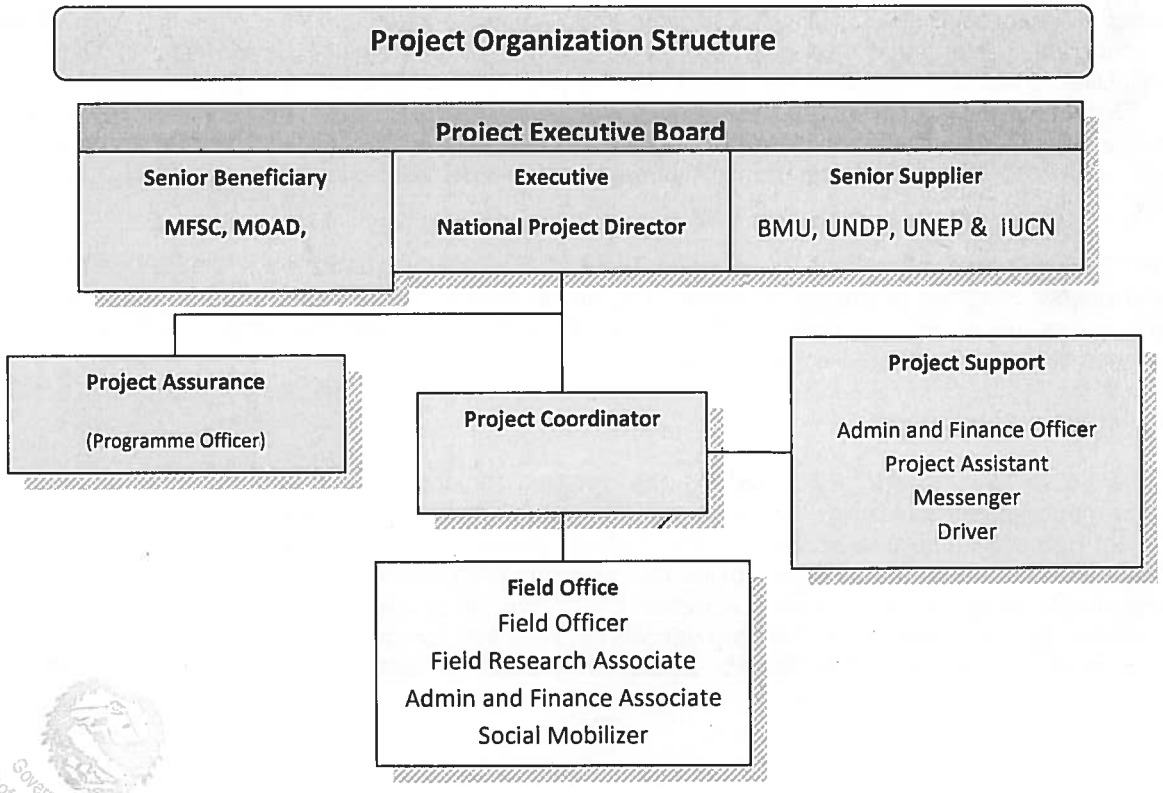
The Project Executive has the overall responsibility to implement the project activities as per the Annual Work Plans in agreement with the Senior Beneficiary and the Senior Supplier (See Project Management Structure in page 55). The Project Executive will call meetings of PEB and facilitate agreement on decisions required for smooth implementation of project activities. The Senior Beneficiary is the representative of project beneficiaries. This group will be consulted by the Project Coordinator for decisions when tolerances have been exceeded.

The Project Executive Board will have three roles, relating both to the UNDP project and to the partnership project:

- Project Executive role – will be played by the senior official of DoF nominated as the NPD of the project by the Government as the representative of Implementing Partner. S/he will also chair the Board.
- Senior Supplier role – will be played by the Assistant Country Director (ACD) of Energy, Environment and Climate Change Unit of UNDP, Country Representative of IUCN and representative from UNEP to provide guidance for technical feasibility of the project.
- Senior Beneficiary role – will be played by the representative from MFSC and MoAD; will ensure the interest of the beneficiaries.

The PEB may invite the PC and UNDP concerned Programme Officer in meeting, and request to support in project operation as necessary.

Figure 6. Project Organization Structure



Project Assurance:

The project assurance role ensures that work is done in line with the objectives and targets set for the programme and supports the Project Executive Board by carrying out objective and independent project oversight and monitoring functions. This role also ensures appropriate project management milestones which need to be managed and completed by the project team. Although the PEB has the overall quality assurance role of the project, project implementation will be supported through an additional assurance role performed by a designated UNDP Programme Officer for the UNDP led Components / Outputs.

4.7 Project Management Unit:

A Project Management Unit (PMU) will be established at the centre in Kathmandu, to oversee the UNDP-led components and outputs and to effectively coordinate actions of all other international partners in Nepal - UNEP, UNEP-WCMC and IUCN – ensuring synergies and coherence and tracking progress of the broader partnership project as a whole. The PMU will be responsible for overall management of the UNDP-managed project funds for this project, development of project plans and budgets and implementation of the project's annual work plan and quarterly work plan that will also integrate plans of other partners as appropriate. The PMU will ensure collaboration between other partners engaged in EbA initiatives during the implementation of the project. The PMU will be responsible for providing technical backstopping and oversight to field office and implementing partners and overall monitoring of the project. The PMU will make sure that project results are strongly linked to the MFSC's The Project Coordinator will be responsible for the overall implementation of the project both at the centre and in the field. The PC will be supported by a team of professional and support staff at the centre and in the field. The PMU will develop necessary operational guidelines for smooth implementation of the project and submit to PEB for approval. The ACD as the member of the Executive Board and on behalf of project partners will provide substantive oversight, guidance, and advice to the Project Coordinator to ensure that the EbA project for the UNDP–led components and outputs are on track to achieve the stated results.

Project Coordinator:

The PC will run (detail Job description is provided in Annex 7) the project on a day-to-day basis on behalf of the Project Executive Board. The prime responsibility of the PC is to ensure that the project produces the results specified for the UNDP-led project components and outputs and annual work plan, and ensure that other relevant outputs under the broader partnership are also considered as appropriate, to the required standard of quality and within the specified constraints of time and cost. The Project Coordinator will be responsible for providing quality reports and submitting to the partners. For any changes the PC will have to make a case for consideration to the PEB. Once the changes are endorsed by the PEB, this will be formalised through necessary budget and annual work plan revision.

The Project Coordinator will be responsible for the overall implementation of the project both at the centre and in the field. The PC will be supported by a team of professional and support staff at the centre and in the field. The ACD as the member of the Executive Board and on behalf of project partners will provide substantive oversight, guidance, and advice to the Project Co-ordinator to ensure that the EbA project is on track to achieve the stated results.

Project Professional and Support Team:

Under the PC and Project Executive, the project will have professional team in order to implement stipulated activities within the given time frame as mentioned in project organization structure.

The job descriptions of aforesaid positions are given in Annex 7. Based on the matching job qualification and competency required, the above positions will be filled timely.

4.8 Field Office:

A Project Field Office will be established in the field at a suitable location in consultation with project partners. Under the supervision of Project Coordinator, Field Manger will be the responsible for establishing strong coordination and linkages with the stakeholders and implementing project activities at the field based on the approved annual work plan and quarterly work plan. With the support from field office colleagues, Field Manager will develop quarterly and annual plans and budgets, progress reports, and submit to PMU. The Field office will work with the local community groups, line agencies and local bodies including VDCs and other institutions.

Table 8: Project Management Staff and Budget

Item	Per Year	No. of Years	Other Benefit	Total
Project Management Unit				
Project Coordinator	20'000	3	6000	66'000
Project Assistant	6'600	3	1650	21'450
Admin and Finance Officer	8'200	3	1800	26'400
Driver	3'600	3	900	11'700
Messenger	2'800	3	600	9'000
Sub Total	41'400	12	10350	134'550
Field Office				
Field Officer	10'800	3	2700	35'100
Field Research Associate	96'00	3	2400	31'200
Admin and Finance Associate	7'200	3	1800	23'400
Social Mobilizer	3'000	9	2250	29'250
Sub Total	30'600	18	9150	118'950
Travel				105,000
Workshops (e.g. inception)				10,000
Office facilities, equipment, vehicles, communications, data provision, utilities				108,000
Miscellaneous (petty cash, stationery, etc)				20,000
Vehicle rental/maintenance				4'000
Sub total				247'000
TOTAL				500,500

5 MONITORING FRAMEWORK AND EVALUATION

The project will be monitored through the following M& E activities. The M& E budget is provided in the table below.

1.1 Project start:

A Project Inception Workshop will be held within the first 2 months of project start with those with assigned roles in the project organization structure, UNDP country office and where appropriate/ feasible regional technical policy and programme advisors as well as other stakeholders. The Inception Workshop will discuss both the UNDP project and the broader partnership project and is crucial to building ownership for the project results and to plan the first year annual work plan.

The Inception Workshop should address a number of key issues including:

a) Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of project partners vis à vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
b) Based on the project results framework and the relevant Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
d) Discuss financial reporting procedures and obligations, and arrangements for annual audit.
e) Plan and schedule EbA Coordination Committee meetings. Roles and responsibilities of all project organization structures should be clarified and meetings planned. The first EbA Coordination Committee meeting should be held within the first 12 months following the inception workshop.

An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

1.2 Quarterly:

Progress made shall be monitored based on a results based management approach jointly agreed by implementing partners.

Based on the initial risk analysis submitted, the risk log shall be regularly updated. Risks become critical when the impact and probability are high.

Based on the information, a Project Progress Report (PPR) can be generated in the Executive Snapshot.

1.3 Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July).

  The APR/PIR includes, but is not limited to, reporting on the following:

- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators are used by most focal areas on an annual basis as well.

1.4 Periodic Monitoring through site visits:

UNEP/UNDP/IUCN (country offices and regional offices) will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report will be prepared by the Country Office and regional offices and will be circulated no less than one month after the visit to the project team and EbA coordination Committee members.

1.5 Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (during mid 2013). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the Project office in based on guidance from implementing partners.

1.6 End of Project:

An independent Final Evaluation will take place three months prior to the final Project Board meeting and will be undertaken in accordance with UNDP guidance. The final evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The final evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared jointly by implementing partners with the assistance from the project office.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to the (evaluation) knowledge management system.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

During the last three months, the project team will prepare the Project Terminal Report. This comprehensive report will summarize the results achieved (objectives, outcomes, outputs), lessons learned, problems met and areas where results may not have been achieved. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the project's results.

5.7 Learning and knowledge sharing:

Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums.

The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Table 9: M& E Work Plan and Budget

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Inception Workshop and Report	▪ Project Coordinator ▪ UNDP CO, UNEP and IUCN	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	▪ Project Coordinator will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members in collaboration with all project partners/ key stakeholders	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on *output and implementation*	▪ Oversight by Project Coordinator ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project Coordinator and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EECCU	None	Annually
Periodic status/ progress reports	▪ Project Coordinator and team	None	Quarterly
Mid-term Evaluation	▪ Project Coordinator and team ▪ UNDP CO, IUCN and UNEP	Indicative cost: 30,000	At the mid-point of project

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
			implementation.
Final Evaluation	▪ Project Coordinator and team, ▪ UNDP CO, IUCN and UNEP	Indicative cost : 30,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project Coordinator and team ▪ UNDP CO, IUCN and UNEP ▪ local consultant	0	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project Coordinator and team	Indicative cost per year: 3,000	Yearly
Visits to field sites	▪ UNDP CO , IUCN, UNEP ▪ UNDP RCU (as appropriate) ▪ Government representatives	10,000	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US$ 73,000	

2. LEGAL CONTEXT

The Government of Nepal and the United Nations entered into a basic agreement to govern UNDP's assistance to the country – the Standard Basic Assistance Agreement (SBAA), which was signed by both parties on 23 February 1984. The Agreement governs the technical assistance provided by UNDP Nepal under the UNDP Country Programme Action Plan (CPAP 2008-2012), which builds on the United Nations Development Assistance Framework (UNDAF 2008-2012) and the Approach Paper of the Government's National Three Year Plan (2010-2013).

Under the UNDP-funded programmes and projects, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner in accordance with the aforementioned Standard Basic Assistance Agreement. The implementing partner shall:

- put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the Programme is being carried;
- assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

UNDP reserves the right to verify whether such a plan is in place, and to suggest modifications to the plan when necessary. Failure to maintain and implement an appropriate security plan as required hereunder shall be deemed a breach of this agreement.

The implementing partner agrees to undertake all reasonable efforts to ensure that none of the UNDP funds received pursuant to this Project Document are used to provide support to individuals or entities associated with terrorism and that the recipients of any amounts provided by UNDP hereunder do not appear on the list maintained by the Security Council Committee established pursuant to resolution 1267 (1999). The list can be accessed via http://www.un.org/Docs/sc/committees/1267/1267ListEng.htm

This provision must be included in all sub-contracts or sub-agreements entered into under this Project Document.

3. ANNEXES

Annex 1: Major climate change related projects and programmes being implemented in Nepal

- Pilot Programme for Climate Resilience funded by Climate Investment Fund (CIF) aims to pilot climate resilient projects and to integrate climate resilience into development planning and programmes. This programme will be coordinated by the Ministry of Environment, implemented by Ministry of Forest and Soil Conservation and executed by the World Bank, Asian Development Bank and International Finance Corporation. This project preparation will be started soon and it is expected that the project will be started by early 2013. The total project is about 86 Million USD.
- A DFID and EU funded project National Climate Change Support Programme which will include Local Adaptation Plan of Actions (LAPA) will help reduce vulnerability of poor communities through adaptation measures to improve resilience in the face of climate change. This project will be implemented in the Mid Western and Far Western Region of Nepal and will work with local organizations and will feature local level adaptation planning and community based adaptation. The project is expected to start by mid or late 2012.
- Asian Development Bank has supported development of comprehensive tools for community level vulnerability assessment and local level adaptation planning which has undertaken vulnerability assessments and risk mapping exercises in the four areas of Nepal. The methodology has adopted livelihoods asset based vulnerability assessments ecosystems and bio-diversity services in vulnerability assessment and in identifying adaptation options does not feature strongly. This project was implemented by a consortium of NGOs (including IUCN Nepal) and was managed by Ministry of Environment.
- *Hariyo Ban* (Green Forest) is a five years project funded by USAID which aims to support biodiversity conservation, climate change adaptation and REDD initiatives in Gandaki water basin and Western *Terai* area to reduce threats to biodiversity and vulnerability to climate change. WWF Nepal and Care Nepal are running this project in collaboration with the Ministry of Forest and Soil Conservation. The total funding for this project is 30 million USD.
- UNDP will access the Least Developed Country Fund (managed by the GEF) to implement a project on Disaster Risk Management at a community adaptation level and on Glacier Lake Outburst Floods (GLOFs). The Ministry of Environment, Science and Technology is acting as focal coordinating ministry. The budget for this project will be 6-7 millions USD.
- Climate and Development Knowledge Network (CDKN): CDKN supports developing countries to deliver climate compatible development. It offers advice and technical assistance, cutting-edge research, strategic knowledge sharing and partnership building. The project will support capacity building for policy making, knowledge management and some applied research in the select sectors.
- The Regional Climate Change Adaptation Knowledge Platform for Asia (the Adaptation Platform): The Adaptation Platform supports research on climate change adaptation, policy making, capacity building and information sharing to help countries in Asia adapt to the challenges of climate change. The project will support Nepal until 2012.
- REDD Programme: REDD Cell under the Ministry of Forests and Soil Conservation is implementing REDD readiness activities in Nepal. With the support of World Bank, the Ministry of Forests and Soil Conservation is implementing a REDD programme. Nepal has submitted the Readiness Preparation Proposal for funding with the vision of significantly reducing Nepal's greenhouse gas emissions resulting from deforestation and forest degradation by 2013 and beyond.
- The Multi-Stakeholder Forestry Programme (MSFP): This will build on the achievement of the past 20 years of forestry work supported by the UK, Switzerland and Finland in partnership with the Government of Nepal (GoN). These have had significant impacts in reducing poverty and building governance at local levels through strengthening the capacity of community forest user groups, in order to enable them to better govern forests in a sustainable way. The MSFP will also engage strongly in harnessing the economic potential of forests whether under community, private or

government management. The role of forestry in helping Nepal adapt to climate change and mitigate its impacts will be a new area of work. The project will be around 150 million USD.

- Integrating traditional crop genetic diversity into technology: using a biodiversity portfolio approach to buffer against unpredictable environmental change in the Nepal Himalayas: objective is to mainstream use of biodiversity rich options into agricultural production systems to improve the resilience of mountain agricultural ecosystems to unpredictable environmental change. The project will contribute to conserve crop diversity in ways that improve mountain ecosystem health and increase food security. Nepal Agricultural Research Council, Hill Crop Research Programme, Nepal; Local Initiatives for Biodiversity Research and Development (LI-BIRD) Nepal; Biodiversity International, Italy will implement project under overall guidance and supervision of UNEP as a GEF Implementing Agency.

Annex 2: Site Selection Processes and Steps Followed

Date	Major Activities	Remarks
12th May 2011	Stakeholder consultation workshop and the workshop agreed 5 criteria for site selection	
27th June 2011	1st Stakeholders meeting Proposed some potential sites which included Shivapuri, Mardi and Mai khola Attended by MFSC, DNPWC, ICIMOD, NTNC, UNDP and IUCN	
30th June	Visited Shivapuri National Park	
11- 13 July, 2011	Visited Mai Khola watershed in Ilam district	
25th July 2011	2nd stakeholder consultation Discussion Shivapuri and Mai Khola watershed sites MFSC, MoEST, DNPWC, ICIMOD, NTNC, UNDP and IUCN	
8-10 Sept 2011	Langtang Visit	
20th Sept	3rd Stakeholder consultation MFSC, MoEST UNDP and IUCN	
12-15 October 2011	Panchase site visit	
19th October	Discussion on Panchase and agreement on site	

Annex 3: Climatic and Non-climatic Threats/Pressures and Potential Adaptation Actions

Pressures / threats	Key issues/possible impacts	Adaptation related actions
Non-climate induced	Over exploitation / unsustainable use of resources, over grazing, increased pest infestation Unplanned mining/extraction of stones,	• Development of sustainable resources management plans • Control grazing / start planning grazing, • Starting integrated pest management mechanisms • Supporting tourisms • Support income generation activities
Climate Change induced	Habitat destruction, pressure to biodiversity, increase invasive species (weeds in cropland and rangeland) increased pest and diseases, degrading ecosystems functioning, further pressure to biodiversity (both flora and fauna), landslides and top soil erosion, water sources depletion (drying up of water springs), increase forest fire, flash floods,	• Integrated watershed level land use and water resource plans developed, in collaboration with local government and other government agencies explicitly aiming at enhancing ecosystem resilience and functions under conditions of a changing climate, building on existing land and water use systems as appropriate. • Incentive measures developed for local governments and communities to improve water and land resource management • Protection of critical ecosystems and ecosystems services (restoration of forest ecosystems, maintain upstream and downstream corridors through managing forest, Integrated management of wildfires in forest-steppe and steppe ecosystems to reduce the impact of fire disturbance on hydrological functions, enhance soil-water infiltration through creating water storage, improve soil fertility by conserving soil nutrients, integrated landslide management through community based spur construction and plantation, conserve and promote local but climate resilient seeds / community seed back, organic agriculture, river management plan – including sand and stone mining • Enhance adaptive capacity of community members and stakeholders (capacitate to demonstrate and internalize climate change risk into community-based integrated water management, grazing land management, supporting bio-diversity /ecosystems services based enterprises, enhancing market access/ promoting organic agriculture, supporting eco-tourism efficient water use systems and others)

Annex 4: List of major stakeholders working in the areas/issues

SN	Organizations	Major strengths	Area of cooperation
1	District forest office and range post	Forest management, NTFP promotions	Training, building capacity of staff
2	District Agricultural Development Office	Agriculture extension, providing agri services to farmers	Training, capacity building of staff
3	Local Government Institutions (District Development Committee and village Development Committee)	Local level planning, development work, local development work monitoring and coordination	Training, capacity building of staff
4	Machhpuchhre Development Organization	Community development work, social mobilization,	Using technical capacity for social mobilization and field implementation
5	Ecological Services Centre	Organic/ecological agriculture – training, research, certification, adaptation to climate change, Ecosystem management	Using technical capacity in agriculture (organic), local level facilitation on technical issues
6.	LI-BiRD	Biodiversity management, local level policy advocacy	Using technical capacity in local level advocacy and PES

Annex 5a: Proposed indicative activities with resources for the project

Global Component	Corresponding Outputs	Indicative activities	Budget
1: Development of methodologies and tools for EbA decision-making in mountain ecosystems **(UNEP)**	1.1: EbA Assessment Methodology and Tools, Options and Indicators for Monitoring Available to Decision Makers in Nepal	a) Compilation and development of EbA methodology and tools b) Compilation of EbA options and its economic assessment, c) EbA indicator review and identify potential EbA indicators	UNEP: 126,860 US$
2: Application of methodologies and tools at the ecosystem level **(UNEP and UNDP)**	2.1: EbA Strategy and Action Plans at Ecosystem Level Developed	a) Conduct comprehensive ecosystem-level vulnerability assessment including ecosystem services for Panchase, b) Identification and spatial mapping of EbA options for the Panchase ecosystem c) Economic valuation of EbA options and incorporation of stakeholder priorities for the establishment of comprehensive land use plan for the Panchase ecosystem, d) Design a fully costed implementation plan and monitoring guidelines for selected EbA measures at the pilot site	UNDP: 100,104 US$ UNEP: 346,016
3. Implementation of EbA pilots at ecosystem level **(UNDP and IUCN)**	3.1: Capacity of Local Stakeholder Enhanced on EbA Planning, Executing and Monitoring	Engaging relevant stakeholders / actors (hand on training) while conducing vulnerability assessment Trainings and workshops conducted to sensitize local stakeholders on EbA planning, execution and monitoring	UNDP: 90,000 US$ UNEP: 26,666 US$ IUCN: 122,072 US$
	3.2 EbA Strategy and Action Plans Implemented at Ecosystem Level	Maintaining and enhancing ecosystems (water, forest and farming) related strategies development and actions testing (examples include: integrating with existing resources management plans, analyse and identify appropriate EbA options, prepare EbA plan (action plan) at the selected village or sub-watershed	UNDP: 246000 US$ IUCN: 580,233 US$

		level, Review of existing situation (baseline), ecosystems and Ecosystem Services analysis, identify critical Ecosystem services, vulnerable villages, implement EbA options such as enhancing water provisioning, land rehabilitation and management, agriculture management organic farming, eco-tourism and high value crop/NTFPs; Mapping, identifying and promoting market opportunities for ecosystem products; leverage resources for expanding market opportunities, enhancing access to markets and generating alternative livelihoods)	
4: Development of Business Case for EbA at the national level (UNDP)	Output 4.1. Business Case for EbA Developed	Undertake a sector economic assessment with linking EbA Policy briefs to influence policy / strategy framework	UNDP: 123,000 US$
	4.2: Capacities of Government Agencies to Plan, Implement and Monitor EbA Actions	Help to create a sub group (to promote EbA) and link with MFSC/environment division; specific training e.g. training to government officials in their regular meeting; Other training to other stakeholders – NGOs / INGOs, civil society (training on planning, assessing vulnerability/risk, and impacts), ToTs, trading package, policy level, practitioner and community level - training, plan annual meeting (bringing GO and NGOs) and exposure visit to field sites for policy makers.	UNDP: 90,000 US$ UNEP: 26,666 US$
	4.3: EbA Measures Incorporated into Select Sectoral Policies and Strategies/Plans	Produce discussion and policy briefs, organize exposure visit, conduct workshop and awareness activities, provide drafting support to strategy development process, support dialogues on EbA, review new products/guidelines on EbA produced at global level Economic assessment of forestry in relation to EbA Develop communication and policy influencing framework	UNDP:90,000 US$
	4.4: Lesson on EbA Produced and Disseminated Nationally and Internationally	Formulation of a knowledge management/communication strategy and plan to disseminate lessons to relevant stakeholders at the national and international level, Annual sharing workshop, videos, events, publications, dialogues;	UNDP: 200,000 US$ UNEP: 45,930 US$

Annex 5 b. Activities carried out by IUCN Nepal

S.N	Outcome	Output	Strategic Interventions	Indicative Budget (US$)
1	EbA measures integrated in national and ecosystem level policies and plans	1.1 EbA measures used to inform sectoral policies and strategies/plans		
			Situation Analysis	50,000
			EbA Policy Briefs and Advocacy	
		1.2 Capacities of government agencies to plan, finance, implement and monitor EbA actions enhanced		
			Capacity building program for partner and EbA project staff at national and district level	50,000
2	*Ecosystem based Adaptation to climate change demonstrated to increase resilience of vulnerable mountain communities and ecosystem*	*2.1 EbA strategy and action plans for Panchase and selected sites are developed and implemented*		
			Panchase EbA Strategic Framework	325,000
			EbA Site/Village Action Plans and Implementation	
		2.2 Capacity of local communities and other stakeholders enhanced on EbA planning, executing and m monitoring		
			Capacity building program for local partners and communities	100,000
3	National and International EbA knowledge and information generated through project implementation is disseminated widely	3.1 Lessons on EbA produced and disseminated nationally and internationally		
			Communications and Knowledge Management Strategy & Products	75,000
4	M&E of project	4.1. M&E plan for IUCN component		
			M&E Plan including Participatory Community-based Evaluations	45,000
			Half Yearly and Annual reports	
	Total Activity Budget			645,000.00
	Personnel, Administrative &Mgmt Cost			282,608.00
	Total Budget			927,608.00

Annex 5c: Budget Allocation to UNEP, UNDP and IUCN for Nepal partnership project

S.N.	Agency	Budget (US$)
1	UNEP	713,296
2	UNDP	1,731,733
3	IUCN	927,608
	TOTAL	3,372,637

In general, management of EbA funds received by each agency from the Trust Fund will be the responsibility of the individual agency. UNDP will disburse the funds as per the agreed work plans to a dedicated project account managed by the PMU as per NIM modality. UNEP and IUCN will co-finance the EbA activities under parallel financing modality. However, UNEP and IUCN are expected to channel funds through the project account for implementing field level EbA activities. The Project Coordinator will be responsible for reporting on financial progress of the project.

Annex 6: Job Descriptions of Project Staff

Post Title: **Project Coordinator (PC) – NPPP 3**

Duty Station: Kathmandu with frequent travel to the districts

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:

The Project Coordinator (PC) will work under the guidance of the Project Executive Board, and closely work with the EbA team of the partner organizations (IUCN/UNEP/UNDP) and lead the day-to-day management of the project at national level. The PC will lead a team of project staff and will report to the project executive and UNDP. The PC will represent EbA partners (IUCN/UNDP/UNEP) on the EbA Coordination Committee , and will serve as Secretariat to the Committee.
The PC will have four key responsibilities:

- Overall management of the programme implementation, including personnel, subcontracts, training, equipment, administrative support and financial reporting
- Technical advisory role
- Monitoring, evaluation and reporting
- Coordination

These are detailed below:

i. Overall management of the programme implementation

The incumbent will carry out programme activities as outlined in the project document, and as approved by the Project Executive Board under the guidance and supervision of the project executive. Specific responsibilities will be:

- Directly supervise staff hired by the project in the project management unit and at site level office
- Prepare the Individual Performance Plans and Performance Appraisal Reports of all staff in project management unit and site offices
- Prepare Annual Work Plan with budget allocation based on such Plans
- Ensure the timely mobilization and utilization of programme personnel, subcontracts, training and equipment inputs, whether these are procured by the Programme itself or by other agents
- Exercise overall technical, financial and administrative oversight of the programme, including supervision of national and international personnel assigned to the programme
- Ensure timely preparation and submission of required reports, including technical, financial, study tour/fellowship reports
- Ensure close coordination between other relevant project and programmes
- Facilitate coordination and other support for consultants hired for the project, and for any relevant BMU, UNEP, IUCN and UNDP missions directly related to the project.

ii. Technical advisory role

- Provide technical inputs to the different project components – including preparation or comments on TORs of consultants and their reports
- Lead in the design and implementation of actions to facilitate community activities on EbA
- Build capacity and awareness of the government and other relevant stakeholders on the importance of EbA approaches
- Support and promote gender equality and social inclusion in program activities as well as among the project staff
- Help develop relevant policy briefs on EbA.

iii. Monitoring, evaluation and reporting

- Carry out regular follow-up and monitoring of pilot sites

- Regular monitoring and reporting on risks and mitigation measures
- Document and disseminate the lesson learned through studies, audio-visual productions and electronic means such as CD-ROM and DVD
- Provide regular updates on the project's progress as requested by the NPD, IUCN, UNDP and UNEP
- Participate in meeting, training, workshops and events organised by project partners
- Facilitate independent evaluations as fielded by project partners.

iv. Coordination

- Coordinate among EbA implementing partners (IUCN/UNDP/UNEP) on regular basis for planning and implementing of various project deliverables and sequencing them in a context manner.
- Coordinate among various partners and agencies responsible to conduct EbA assessments and studies and ensure their quality with respect to EbA project objectives.
- Coordinate with the field and central level line agencies and other stakeholders for smooth implementation of project, identify and implement EbA options, document lesson learned and work on policy advocacy.
- Coordinate with various partners working on EbA in Nepal and learn lessons from their implementation for the benefit of the EbA project

Qualifications:

The candidate should have at least a Master's degree in a biodiversity conservation / protected area management / natural resources / climate change related field from a recognized University. The candidate should have at least 7 years' work experience in a relevant field such as community-based natural resource management or climate change adaptation. Experience in ecosystem-based adaptation would be an advantage. The candidate should have at least 3-5 years' experience in providing managerial oversight and implementation of large-scale projects. The candidate should also have relevant experience of working with government agencies, local communities and international organizations. The candidate must be computer literate. Ability to speak and write in Nepali and English is required.

Competencies

- Demonstrated knowledge and experience in working on policy development and capacity building - this includes setting technical methods to maximise performance for ecosystem-based adaptation
- Strong knowledge / experience in results-based management and results-oriented approach to project implementation
- Strong inter-personal skills, communication, networking and team-building skills; competent in leading teams and creating team spirit, management of inter-group dynamics and conflicting interests of various actors, stimulating team members to produce quality outputs in a timely and transparent fashion
- Excellent oral communication skills and excellent written communication skills, with analytic capacity and ability to synthesize project outputs and relevant findings for the preparation of quality papers and reports
- Maturity and confidence in dealing with senior and high ranking members of national and international institutions, government and non-government; ability to deal with politically sensitive issues
- Results driven, ability to work under pressure and to meet strict deadlines; remains calm and in control under pressure
- Consistently approaches work with energy and a positive, constructive attitude
- Shares knowledge and experience actively, mentors project staff
- Focuses on result for the client and responds positively to feedback
- Demonstrates commitment to UNDP's mission, vision and values
- Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability.

Required Skill and Experience

Core skills:

- Technical knowledge and understanding of climate change and ecosystem-based adaptation, as well as community-based natural resource management
- Advanced project management skills, with ability to keep large, complex projects on track, deal effectively with problems and fulfil reporting requirements timeously
- Ability to communicate effectively orally and in writing in order to communicate complex, technical information to technical and general audiences
- Skill in negotiating effectively in sensitive situations
- Skill in achieving results through persuading, influencing and working with others
- Skill in facilitating meetings effectively and efficiently and to resolve conflicts as they arise

Required experience:

- Advanced university education (at least Masters level) with expertise in the area of biodiversity conservation / protected area management / natural resources / climate change
- At least 7 years of professional experience, of which at least five are at international level.

Post Title: **Field Officer– NPPP 1**

Duty Station: Field Based

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:
Field Officer will work under the supervision and guidance of Project Coordinator. S/he will be the principal representative of executing the overall activities at field level and report to the Project Coordinator. The major role of the Field Officer will be to establish strong coordination and linkages amongst all the major stakeholders in the field and at the center level to ensure that program activities are implemented successfully. The Field Officer will each be responsible for managing the field-level program implementation and for achievement of the field level outputs. The specific responsibilities of the Field Officer will include the following:

- Set up and manage the project office at field level in accordance with the project work plan
- Implement the project activities in within his/her respective area of responsibility as per the annual work plan and budget
- Ensure that the implementation of work plan is consistent with the envisaged outputs and objectives of the project document
- Maintain close coordination with Regional Director of Directorate of Forests and District line agencies and local bodies in planning, monitoring (joint), and sharing (reports) on the project implementation issues through active information channels in order to avoid duplication and maximize synergies and complementarities.
- Ensure a coordinated and collaborative approach is undertaken among project partners at field-level /in implementing project interventions and achieving desired outcomes.
- Assist Project Coordinator in organizing various workshops, trainings and planning.
- Assist the Project Coordinator in ensuring field-based project staff receive relevant skills training and knowledge development required for effective and efficient project administration and implementation.
- Update and report the Project Coordinator on a regular basis about the progress and constraints and try to resolve implementation problems, if any, in consultation with other project staff members and with advice/guidance of the Project Coordinator.
- Act as a field level representative, as called upon by the Project Coordinator during review meetings, evaluation and discussions
- Supervise the activities of field-based staff and consultants, including administrative work and

delivery of project outputs, and as required by Project Coordinator

- Maintain close coordination/linkages with targeted District line agencies, local bodies, I/NGOs and projects within the project area and keep them fully informed of the project activities
- Prepare annual work plan, quarterly progress report, annual progress report and other plans as required, with assistance/inputs of other project staff and ensure timely submission to the Project Management Unit
- Supervise, coach and mentor Project Field staff for smooth project implementation
- Assist the Project Coordinator on recruitment and oversight of subcontracts/consultants in the field
- Provide additional support to Project Management Unit as required.

Qualifications:
The candidate should have at least a Master's degree in Natural Resource Management or relevant area with over 3 years of sound working experience in the field of conservation and development. The candidate should have a firm understanding of community development and expertise in self-reliant and participatory development process. S/he should have a successful record of working with District line agencies, local bodies and community groups in a multi-stakeholder environment. The candidate must be computer literate, with proven abilities in English and Nepali language writing and speaking skills. S/he must be willing to travel frequently and adapt to difficult working conditions. S/he should also have the ability to use tact and diplomacy, resolve conflicts and achieve results. The candidate with experience of working with UNDP, UNEP and IUCN will have an added advantage.

Post Title: **Field Research Associate– SU 7**

Duty Station: Field Based

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:
Field Research Associate will work directly under the supervision of Field Officer and overall guidance of Project Coordinator. S/he will be responsible for carrying out action research and monitoring of the project. S/he will support Field Officer to implement project activities in the field. The specific responsibilities of the Field Research Associate will include the following:

- Work in a team to identify appropriate Ecosystem based Adaptation Measures and take lead on piloting them in the field.
- Support to carry out vulnerability assessment of ecosystem and the community.
- Take lead to apply EbA tools and methodology at the local level
- Document process and lessons learned during the implementation of the project
- Assist Field Officer to implement the project activities as per the annual work plan and budget
- Monitor project activities in the field periodically and report to Field Officer and Project Coordinator and also support relevant evaluation actions, including community evaluation of project impacts
- Work in a team to develop quarterly and annual work plan and quarterly and annual progress reports
- Support to develop training materials and conduct capacity building training to local stakeholder
- Assist Field Officer to coordinate with Regional Director of Directorate of Forests and District line agencies and local bodies in planning and monitoring.
- Assist Project Coordinator and Field Officer in organizing various workshops, trainings and planning.
- Assist Field Officer to maintain close coordination/linkages with targeted District line agencies, local bodies, I/NGOs and projects within the project area
- Provide additional support to Field Office and Project Management Unit as required.

Qualifications:
The candidate should have at least Bachelor's degree in Environment science, Forestry, Natural Resource Management or relevant area with over 5 years of work experience in the field of natural resources management including at least 3 years of research experience in the field of climate change adaptation, conservation and natural resources management. S/he should have a successful record of working with District line agencies, local bodies and community groups in a multi-stakeholder environment. The candidate should have strong background on participatory planning on natural resources management and / or adaptation planning. The candidate must be computer literate, with proven abilities in English and Nepali language writing and speaking skills. S/he must be willing to travel frequently and adapt to difficult working conditions. S/he should also have the ability to use tact and diplomacy, resolve conflicts and achieve results. The candidate with experience of working with UNDP, UNEP and IUCN will have an added advantage.

Post Title: **Administrative and Finance Officer (AFO) – NPPP 1**

Duty Station: Kathmandu, with regular travel to districts.

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:
The AFO will work directly under the supervision and overall guidance of PC. The AFA will be responsible to ensure smooth administrative and financial management to the programme. Specifically, the AFA will:

- Maintain accurate financial and personnel records of the programme as required by GoN, UNDP, UNEP and IUCN.
- Prepare financial records as needed.
- Assist PC in all matters related to financial and administrative functions of the programme.
- Manage all correspondence related to administrative, financial and security related matters.
- Maintain the inventory and keep records of all office equipment, furniture, fixing, and vehicle. Undertake physical verification of all assets and update records.
- Take lead in training on administrative and financial management to train programme staffs and others stakeholders.
- Take lead to undertake all tasks related to the audit.
- Carry out additional support as requested by the PC and as required to make this programme a success.

Qualifications:
The AFO shall have a Master's degree in a relevant field with work experience of at least 3 years. The incumbent shall have experience in management of procurement, organization of training programmes and provision of secretarial and communication services. Proven abilities in English writing and computer skills are required. The candidate with experience of working with UNDP, UNEP and IUCN will have an added advantage.

Post Title: **Administrative/Finance Associate (AFA) – SU 6**

Duty Station: Field Based.

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:
The AFA will work directly under the supervision of Field Officer and overall guidance of PC. The AFA will be responsible to ensure smooth administrative and financial management to the programme. Specifically, the AFA will:

- Maintain accurate financial and personnel records of the programme as required by GoN, UNDP, UNEP and IUCN.
- Prepare financial records as needed.
- Assist Field Officer in all matters related to financial and administrative functions of the programme.
- Manage all correspondence related to administrative, financial and security related matters.
- Maintain the inventory and keep records of all office equipment, furniture, fixing, and vehicle. Undertake physical verification of all assets and update records.
- Take lead in training on administrative and financial management to train programme staffs and others stakeholders.
- Take lead to undertake all tasks related to the audit.
- Carry out additional support as requested by the Field Officer and as required to make this programme a success.

Qualifications:
The AFA shall have a Bachelor's degree in a relevant field with work experience of at least 5 years. The incumbent shall have experience in management of procurement, organization of training programmes and provision of secretarial and communication services. Proven abilities in English writing and computer skills are required. The candidate must have previous experience of working in the UNDP programmes.

Post Title: **Project Assistant (PA) – SU 5**

Duty Station: Kathmandu

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:
The PA will work directly under the supervision of AFA and overall guidance of PC. The PA will be responsible to ensure smooth administrative and secretarial functions of the programme. Specifically, the PA will:

- Maintain records of activities or works to be done by all teams and PC.
- Analyse and advice project team on travel, security or other operational and logistical issues.
- Assist PC to collect lessons and managing knowledge.
- Handle the office reception and related tasks.
- Handle and support in organising all travel related matters

- Supervise telephone system, facsimile, photo copier, Internet, e-mail, etc.
- Arrange appointments as required by programme staff
- Assist AFA in maintaining filing system, mailing, data entry, vehicle log books and inventory lists.
- Manage vehicle pool and office equipment.
- Carry out additional support as requested by the AFO and NPM and as required to make this programme a success.

Qualifications:
The PA shall have an intermediate level degree in a relevant field with working experience of at least 5 years. The candidate must be computer literate and must be fluent in writing and speaking English. Previous experience in the UNDP, UNEP and IUCN will be an added advantage.

Post Title: **Drivers** - SU 2

Duty Station: Kathmandu, with frequent travel to programme districts/ VDCs

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:
The Driver will work directly under the supervision of AFO, PA and overall guidance of PC. The driver will be responsible to ensure smooth and safe driving and maintenance of the office vehicle. Specifically, the Driver will:

- Drive the assigned office vehicle as per the rules and regulations specified.
- Ensure safe driving of the office vehicle as the schedule prepared.
- Keep daily log of vehicle movement and fuel consumption as prescribed.
- Assist PMU in collection and distribution of programme related mails and documents.
- Carry out additional support as requested by the AFO and PC and as required to make this programme a success.

Qualifications:
The Driver must hold a valid driving license for car/jeep and motorcycle with the minimum of 10 years of driving experience in both all-weather and fair weather roads. The incumbent must be able to read and write Nepali and English. Priority will be given to candidate with the working experiences in the development projects and at local levels. Previous experience in the UNDP, UNEP and IUCN will be an added advantage.

Post Title: **Messenger** - SU 1

Duty Station: Kathmandu

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:
Under direct supervision of the immediate supervisor, provides direct messenger services like ensuring cleanliness of office building and running errands during office hours. Specifically, the Messenger will have following responsibilities:

- Provides cleaning services within the office building before the arrival of staff in the morning. This includes airing all rooms, dusting, scrubbing floors, vacuuming and clearing dustbins. Basically ensure that the office is clean and tidy and well maintained at all times.
- Responsible for daily surveillance of the office premises and the properties on a regular basis. Reporting any irregularities immediately to supervisor.
- Assists the Project Assistant in correspondence management including filing and retrieving files from the cabinets.
- Responsible for all photocopy/binding requirements from staff maintaining a log of the same.
- Perform tasks such as delivering and collecting letters and parcels etc. upon direct supervision. Also regularly checks mail in the post boxes.
- Disconnect electrical appliances e.g. photocopier, printers, heater, fans, lamps etc. unless otherwise instructed to keep them on. Also ensures that the main printer and photocopiers are turned on in the mornings and also checks all printers that they are loaded with papers.
- Assists in depositing cheques and cash in the bank as per the instruction of the Accounts
- Department. Assists in withdrawing cash from the bank as and when required by staff.
- Assists in visa application of staff including collecting visa forms from concerned embassies, delivering applications and collecting passports.
- Helps in store management ensuring that all materials in the store are kept in a safe manner.
- Helps in loading/unloading goods, positioning furniture and boards etc... and general kitchen works e.g. preparing drinking water and tea/coffee, washing dishes etc. Perform any other duties as directed by the Supervisor and other staff as and when necessary in order to meet the office standards keeping in view the safety, security and public relations of the office staff.

Qualifications:
The candidate should have a minimum of School Leaving Certificate with previous working experience in similar position. S/he should be willingness to tackle a wide variety of maintenance related tasks. S/he should be helpful, respectful, honest and polite attitude and ability to work with a variety of people and their needs.

Post Title: **Social Mobilizer**

Duty Station: Field Based

Duration: Post valid for the entire duration of the programme. Service contract issued annually, if extended based on performance appraisal.

Responsibilities:
The Social Mobilizer will work under the overall supervision of Field Manager. S/he will be responsible for mobilizing local communities for the implementation of the project activities. The specific responsibilities of Community Motivators will include following:

- Be responsible for the formation of various user groups, functional organizations, regularization of their meetings to undertake collective development activities of community members
- Co-ordinate with other motivators in exchanging material and experiences for belter execution of project activities
- Assist community organizers in proper data recording and filing
- Identify and assess the various needs particularly in enhancing their capacities to make them functional and self-reliant
- Be responsible for encouraging local communities in community forest activities in the targeted landscape area to meet their basic needs for fuel wood, fodder and other alternative income generating opportunities
- Be responsible for mobilizing and effectively involving special target groups, particularly women and disadvantaged groups, in Ecosystem based Adaptation and development programmes
- Keep daily records of project activities, trails and other project activities
- Monitor and supervise the research trails and demonstration blocks
- Build strong rapport with communities for ensuring the greater viability of the programme
- Be responsible for conducting village meetings, study tours, conservation and awareness programmes, training etc
- Be responsible to perform other duty as assigned by the immediate supervisors

Qualifications:

The candidate must hold at least secondary level (SLC) with two years of experience in community works. S/he should have good command of both Nepali and native language. Previous experience in the UNDP, UNEP and IUCN will be an added advantage.

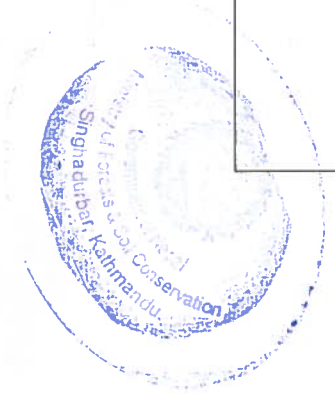
Annex 7 a. Tentative Annual Work Plan 2012

Award Title: Ecosystem based Adaptation in Mountain Ecosystems in Nepal
Duration: *July-Dec 2012*

CPAP output:	**4.1.6 Priority adaptation actions implemented in selected districts to build communities resilience to climate change**
Related CP outcome:	**4.1 Environment and energy mainstreamed into national and local development planning with focus on gender, social inclusion and post-conflict environmental rehabilitation**

ANNUAL TARGETS	PLANNED ACTIVITIES	RESPONSIBLE PARTY	PLANNED BUDGET						Remarks
(Start with CPAP Annual Targets, indicating (CPAP) in parentheses, then add additional Annual Targets)	List all activity results and associated actions (including key M&E actions)		Sources of Fund	Donor	Budget Description	Unit cost	No. of units	Amount (USD)	
Build local capacity of local people especially women and marginalized communities to enhance community adaptation to Climate Change in 10 selected communities (CPAP)	Activity Result 1: Application of methodologies and tools at the ecosystem level							47,892	
	Sub-Activity 1.1: EbA strategy and action plans at ecosystem level developed	MFSC	62040	00041 UNEP	71600-Travel	1590	5	7,950	
					72100 - Contractual service company	6204	4	24,816	
	Action: 1. Rapid appraisal on essential and desirable ecosystem services to support selected eco-region including livelihood of community				71300 - contractual services - individual consultant	2719	4	10,876	
					75700 - training, meeting & conference	1500	2	3,000	
Vulnerability assessment of ecosystem conducted and possible EbA options identified	Action: 2. Development of climate change and socio-economic scenario of selected ecosystem for VIA				74500-Miscellaneous	25	50	1,250	
	Action: 3. Conduct climate change vulnerability and impacts assessment using EbA lens for selected ecosystem								
	Action: 4. Prepare VIA report including Map								
	Action 5. Review of existing economic assessment methodology and tools for EbA and its applicability for Nepal and develop methodology for Nepal								
	Action 6. Carryout economic assessment and prioritization exercise of EbA options.								
	Action 7. Organization of a workshop to engage research institutions, local partners and key stakeholders in the production of prioritized EbA options								

	Action 8. Design a fully costed implementation plan and monitoring guidelines for selected EbA measures at the pilot sites								
	Action9. Organization of workshop to share and finalize implementation plan and establish indicators and baseline set for monitoring selected EbA measures at the pilot site								
Local level stakeholders sensitized on EbA options, tools and methodologies	Activity Result 2: Implementation of EbA pilots at ecosystem level							43,826	
	Sub-Activity 2.1: Capacity of local stakeholder enhanced on EbA planning , execution and monitoring	MFSC	62040	00041 UNEP	71600 - Travel	1590	5	7,950	
					71300- Local consultant	2719	4	10,876	
					75700 - training, meeting & conference	2500	4	10,000	
	Action: 1. Design and develop training modules to sensitize local stakeholders on EbA planning, execution and monitoring				72100 - company contract			15,000	
	Action: 2. Conduct capacity building training at local level								
	Sub-Activity 2.2: EbA Strategy and Action Plans implemented at ecosystem level								
	Action: 1. Conduct preparatory work for development of EbA action plans and their implementation such as enhancing water provisioning, land rehabilitation and management, agriculture management, organic farming, eco-tourism and high value crop/NTFPs								
	Action: 2. Mapping and identifying opportunities for promoting/ marketing ecosystem products								
Central level stakeholders sensitized on EbA tools and methodologies	Activity Result 3: Development of Business Case for EbA at the national level							40,644	
	Sub-Activity:3.1 Business case of EbA developed	MFSC	62040	00041 UNEP	71600-Travel	2000	5	10,000	
					75700 - training, meeting & conference	3461	4	13,844	
	Action: 1. Undertake a sector economic assessment with linking EbA				74500 - Misc-expense	300	6	1,800	
					74200 - printing & publication	2500	2	5,000	
	Action: 2. Conduct preparatory work for developing policy briefs to influence policy and strategy framework for specific sector				71300 - individual consultant	5000	2	10,000	



	Sub-Activity:3.2 Capacities of Government Agencies to Plan, Implement and Monitor EbA Actions								
	Action 1. Design and develop training modules for government agencies on EbA planning execution and monitoring								
	Action 2. Conduct capacity building training for planning and decision making staff								
Communication strategy developed to disseminate EbA lessons and processes	Sub-Activity:3.3 EbA measures incorporated into selected sectoral policies and strategies/Plans								
	Action: 1. Conduct preparatory work to produce discussion paper and policy briefs on EbA measures								
	Sub-Activity:3.4 Lessons on EbA produced and disseminated nationally and internationally								
	Action:1 Capture lessons from design and implementation of EbA								
Sub-Total (1-4)								**132,362**	
Programme Support Activities		**MFSC**	62040	00041 UNEP				**181,461**	
					71400 - Contractual services indiv.	8450	6	50,700	
					72200 - Equipment & Furniture	45000	1	16,600	
					73100 - Rental and mainte of other equipment	750	8	6,000	
					73400 - Rental and mainte - Premises	2083	8	16,664	
					72500-Office supplies, stationery, printer cartridge etc.	194	100	19,400	
					72800 - Communication & Audio visuals Equipment	2535	20	10,000	
					71600 - Travel - local	1590	5	7,950	
		UNDP			75100-Facilities and Administration	27073	1	27,072	
					71600 - Misc. expenses (M&E, security, communication)	27074	1	27,075	
Grand Total								**313,824**	

Particulars	Amount in US $
Funded	313,824
Total	313,824

Prepared by

Project Coordinator

Approved by

UNDP

Annex 7 b. Tentative Annual Work Plan 2013

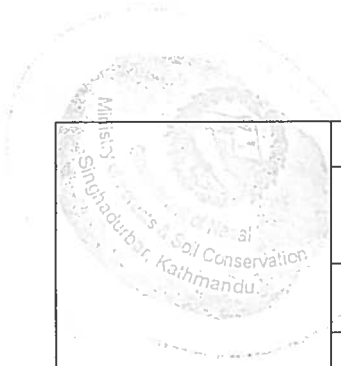
Award Title: Ecosystem based Adaptation in Mountain Ecosystems in Nepal

Duration: Jan-Dec 2013

CPAP output:	**4.1.6 Priority adaptation actions implemented in selected districts to build communities resilience to climate change**
Related CP outcome:	**4.1 Environment and energy mainstreamed into national and local development planning with focus on gender, social inclusion and post-conflict environmental rehabilitation**

ANNUAL TARGETS	PLANNED ACTIVITIES	RESPONSIBLE PARTY	PLANNED BUDGET						Remarks
(Start with CPAP Annual Targets, indicating (CPAP) in parentheses, then add additional Annual Targets)	List all activity results and associated actions (including key M&E actions)		Sources of Fund	Donor	Budget Description	Unit cost	No. of units	Amount (USD)	
Economic valuation of EbA options carried out	Activity Result 1: Application of methodologies and tools at the eco-system level							52,784	
	Sub-Activity 1.1: EbA strategy and action plans at ecosystem level developed	MFSC	62040	00041 UNEP	71600 - Travel	1590	5	7950	
					72100 - Contractual service company	8854	2	17,708	
	Action: 1. Economic valuation of EbA options and incorporation of stakeholder priorities for the establishment of comprehensive land use plan for the selected ecosystem				71300 - contractual services - individual consultant	2719	4	10,876	
					75700 - training, meeting & conference	3000	5	15,000	
	Action: 2. Designing a fully costed implementation plan and monitoring guidelines for selected EbA measures at the pilot site				74500 - Miscellaneous	25	50	1,250	
Plans of EbA options developed and implemented	Activity Result 2: Implementation of EbA pilots at ecosystem level							220,749	
	Sub-Activity 2.1: Capacity of local stakeholder enhanced on EbA planning , execution and monitoring	MFSC	62040	00041 UNEP	71600 - Travel	5200	2	10,400	
					71600 - Local consultant	2719	6	16,314	
					75700 - training, meeting & conference	10000	2	20,000	
	Action: 1. Engage relevant stakeholders/actors on development and implementation of EbA plans				72100 - Contractual service company	15000	5	75,000	
					72500 - Office supplies, stationery, printer cartridge etc.	200	10	2,000	
	Action: 2. trainings and workshops conducted to sensitize local stakeholders on EbA planning, execution and monitoring				72600 - Miro Grant	10000	6	60,000	

	Sub-Activity 2.2: EbA Strategy and Action Plans implemented at ecosystem level				72100 - Company contract	7407	5	37,035	
	Action: 1. Maintaining and enhancing ecosystems related strategies development and actions testing at the selected village or sub-watershed level								
	Action 2. Prepare EbA Plan (action plan) at the selected village								
	Action: 3. Implement EbA options such as enhancing water provisioning, land rehabilitation and management, agriculture management organic farming, eco-tourism and high value crop/NTFP								
	Action 4. Support community to establish market linkages of ecosystem products.								
Capacity of centre level stakeholders enhanced on EbA tools and methodologies	**Activity Result 3: Development of Business Case for EbA at the national level**							**191,950**	
	Sub-Activity:3.1 Business case of EbA developed	MFSC	62040	00041 UNEP	71300 - individual consultant	2500	6	15,000	
					71600 - Travel	2420	5	12,100	
	Action: 2. Policy brief developed to policy makers				72800 - Communication & Audio visuals Equipment	8000	6	48,000	
	Sub-Activity:3.2 Capacities of Government Agencies to Plan, Implement and Monitor EbA Actions				72500 - Office supplies, stationery, printer cartridge etc.	200	15	3,000	
	Action: 1. Carry out training in planning, assessing vulnerability/risk and impacts				72100 - Contractual service company	6770	5	33,850	
	Action: Conduct ToT training on EbA management to Mid-level government officials				75700 - training, meeting & conference	10000	3	30,000	
	Action:3. Exposure visit to Government officials on EbA management				71600 Travel- local & international	15000	2	30,000	
	Sub-Activity:3.3 EbA measures incorporated into selected sectoral policies and strategies/Plans				74200 - printing & publication	5000	4	20,000	
	Action: 1. Produce discussion paper and policy briefs								



	Action: 2. Conduct interaction workshop								
	Action: 3 Provide support to review guideline on EbA and draft strategy development process,								
	Action:4. Carryout economic assessment of forestry sector for EbA								
	Action: 5. Workshop on sharing findings of economic assessment of forestry sector for EbA.								
	Sub-Activity:3.4 Lessons on EbA produced and disseminated nationally and internationally								
	Action:1 organize workshop to disseminate learning at the national level								
	Action: 2. Disseminate lessons through adaptation network at national, regional and international level								
Sub-Total (1-4)								**465,483**	
Programme Support Activities		MFSC	62040	00041 UNEP				23,5810	
					71200 - international consultant	25000	1	25,000	
					71300 - national consultant	3000	2	6,000	
					71400 - Contractual services indiv.	8450	10	84,500	
					73100 - Rental and mainte of other equipment	800	10	8,000	
					73400 - Rental and mainte - Premises	1389	12	16,668	
					72500 - Office supplies, stationery, printer cartridge etc.	255	20	5,100	
					71600 - Travel - local & international	5000	4	20,000	
					75700 - training, meeting & conference	2500	2	5,000	
		UNDP			75100-Facilities and Administration	45879	1	45,879	
					71600 - Misc. expenses (M&E, security, communication)	19663	1	19,663	
Grand Total								**701,293**	

Particulars	Amount in US $
Funded	701,293.33
Total	701,293.33

Prepared by

Project Coordinator

Approved by

UNDP

Annex 7 c. Tentative Annual Work Plan 2014

Award Title: Ecosystem based Adaptation in Mountain Ecosystems in Nepal

Duration: Jan-Dec 2014

CPAP output:	**4.1.6 Priority adaptation actions implemented in selected districts to build communities resilience to climate change**
Related CP outcome:	**4.1 Environment and energy mainstreamed into national and local development planning with focus on gender, social inclusion and post-conflict environmental rehabilitation**

ANNUAL TARGETS	PLANNED ACTIVITIES	RESPONSIBLE PARTY	PLANNED BUDGET						Remarks
(Start with CPAP Annual Targets, indicating (CPAP) in parentheses, then add additional Annual Targets)	List all activity results and associated actions (including key M&E actions)		Sources of Fund	Donor	Budget Description	Unit cost	No. of units	Amount (USD)	
Monitoring guidelines of EbA measures developed	Activity Result 1: Application of methodologies and tools at the ecosystem level							43,784	
	Sub-Activity 1.1: EbA strategy and action plans at ecosystem level developed	MFSC	62040	00041 UNEP	71600-Travel	1,590	5	7,950	
	Action: 1. Designing a monitoring guidelines for new EbA measures at the pilot site				72100 - Contractual service company	8,854	2	17,708	
					71300 - contractual services - individual consultant	2,719	4	10,876	
					75700 - training, meeting & conference	3,000	2	6,000	
					74500-Miscellaneous	25	50	1,250	
EbA options implemented in the field	Activity Result 2: Implementation of EbA pilots at ecosystem level							134,780	
	Sub-Activity 2.1: Capacity of local stakeholder enhanced on EbA planning , execution and monitoring	MFSC	62040	00041 UNEP	71600 - Travel	5,200	2	10,400	
	Action: 1. Engage relevant stakeholders/actors on development and implementation of EbA plans				71300- Local consultant	2,720	4	10,880	
					75700 - training, meeting & conference	10,000	2	20,000	
					72100 - Contractual service company	12,000	5	60,000	
					72500 - Office supplies, stationery, printer cartridge etc.	200	10	2,000	
					72600 - Micro Grant	6,000	5	30,000	

	Action: 2. trainings and workshops conducted to sensitize local stakeholders on EbA planning, execution and monitoring				74500 - Misc. expenses	300	5	1,500	
	Sub-Activity 2.2: EbA Strategy and Action Plans implemented at ecosystem level								
	Action: 1. Maintaining and enhancing ecosystems related strategies development and actions testing at the selected village or sub-watershed level								
	Action: 2. Implement EbA options such as enhancing water provisioning, land rehabilitation and management, agriculture management organic farming, eco-tourism and high value crop/NTFP								
	Action 3. Support community to establish market linkages of ecosystem products.								
Capacity of centre level stakeholders enhanced on EbA tools and methodologies	Activity Result 3: Development of Business Case for EbA at the national level							177,500	
	Sub-Activity:3.1 Business case of EbA developed	MFSC	62040	'00041 UNEP	71600-Travel	2,100	5	10,500	
					72800 - Communication & Audio visuals Equipment	2,000	2	4,000	
	Action: 1. Policy brief developed to policy makers on different EbA measures				72100 - Contractual service company	10,000	5	50,000	
EbA measures incorporated in at least 3 sectoral policies, strategies and plans	Sub-Activity:3.2 Capacities of Government Agencies to Plan, Implement and Monitor EbA Actions				75700 - training, meeting & conference	10,000	5	50,000	
	Action: 1. Carry out training in planning, assessing vulnerability/risk and impacts				71600 Travel- local & international	15,000	2	30,000	
	Action: Conduct ToT training on EbA management to Mid-level government officials				72500 - Office supplies, stationery, printer cartridge etc.	200	15	3,000	
	Action:3. Exposure visit to Government officials on EbA management				74200 - printing & publication	5,000	6	30,000	
	Sub-Activity:3.3 EbA measures incorporated into selected sectoral policies and strategies/Plans								
	Action: 1. Produce discussion paper and policy briefs								

	Action: 2. Conduct interaction workshop								
	Action: 3 Provide support to review guideline on EbA and draft strategy development process,								
	Sub-Activity:3.4 Lessons on EbA produced and disseminated nationally and internationally								
	Action:1 organize workshop to disseminate learning's at the national level								
	Action: 2. Disseminate lessons through adaptation network at national, regional and international level								
Sub-Total (1-4)								**356,064**	
Programme Support Activities	MFSC	62040	'00041 UNEP					260,547	
				71200 - international consultant	30000	1		30,000	
				71300 - national consultant	5000	2		10,000	
				71400 - Contractual services indiv.	8450	10		84,500	
				72200 - Equipment & Furniture	8067	5			
				73100 - Rental and mainte of other equipment	800	10		8,000	
				73400 - Rental and mainte - Premises	1315	12		15,780	
				72500 - Office supplies, stationery, printer cartridge etc.	203.96	50		10,198	
				72800 - Communication & Audio visuals Equipment	3181	1			
				71600 - Travel - local & international	5000	4		20,000	
				75700 - training, meeting & conference	6,110	4		24,440	
	UNDP			75100-Facilities and Administration	40,339	1		40,339	
				71600 - Misc. expenses (M&E, security, communication)	17,290	1		17,290	
Grand Total								**616,611**	

Particulars	Amount in US $
Funded	616,611.04
Total	616,611.04

Prepared by

Project Coordinator

Approved by

UNDP