ADAPTATION FUND

DATE OF RECEIPT:
ADAPTATION FUND PROJECT/PROGRAM ID:

(For Adaptation Fund Board Secretariat Use Only)

PROJECT/PROGRAMME PROPOSAL

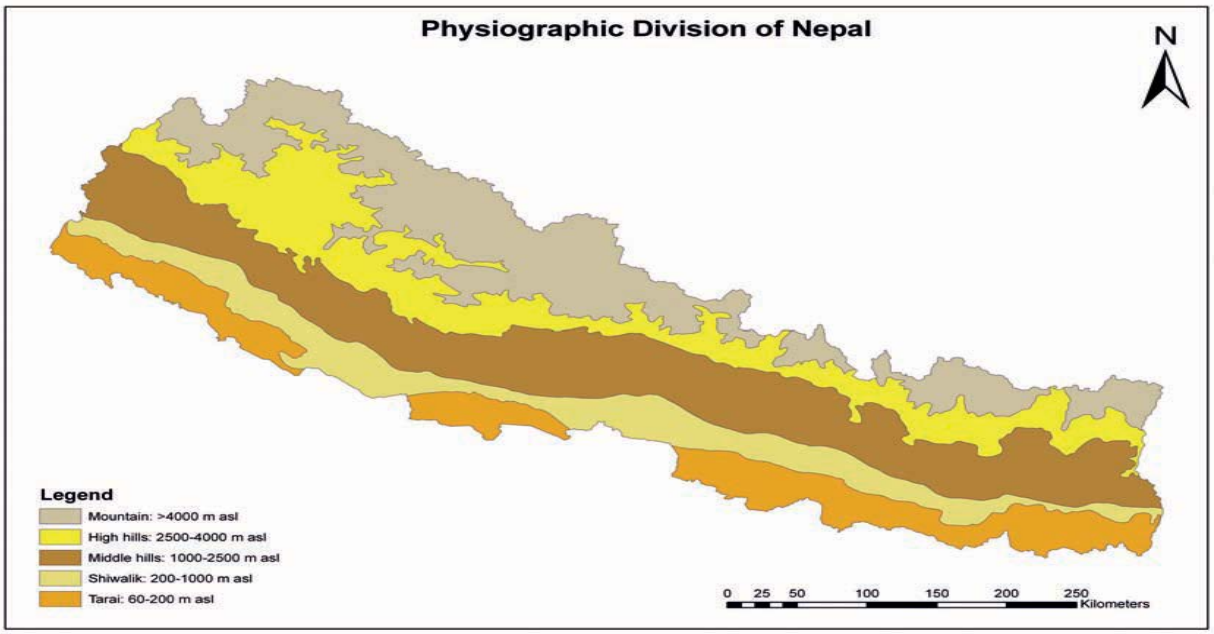
PART I: PROJECT/PROGRAMME INFORMATION

PROJECT/PROGRAM CATEGORY:	PROJECT
COUNTRY/IES:	**NEPAL**
SECTOR/S:	**FOOD SECURITY AND AGRICULTURE**
TITLE OF PROJECT/PROGRAM:	**ADAPTING TO CLIMATE INDUCED THREATS TO FOOD PRODUCTION AND FOOD SECURITY IN THE KARNALI REGION OF NEPAL**
TYPE OF IMPLEMENTING ENTITY:	MULTILATERAL IMPLEMENTING ENTITY
IMPLEMENTING ENTITY:	WORLD FOOD PROGRAM
EXECUTING ENTITY/IES:	MINISTRY OF ENVIRONMENT, SCIENCE AND TECHNOLOGY MINISTRY OF FEDERAL AFFAIRS AND LOCAL DEVELOPMENT WORLD FOOD PROGRAMME
AMOUNT OF FINANCING REQUESTED:	**USD $ 8, 964, 925 (over 4 years)**

PROJECT BACKGROUND AND CONTEXT:

Nepal is a landlocked country straddling the Himalayas and Tibetan plateau to the north and the dry Indian plains to the South. Its 147,181 square kilometers of land contain immense geophysical and ethnic diversity.

Based on elevation, geology and terrain the country is divided in to five physiographic regions (figure below). On average it extends 885 kilometers east-west and 193 south-north direction. Altitudinal variation across this 193km is vast; from an average of 80m in the southern plains or Tarai to 8,848 in the northern High Himalayas. The Tarai plains occupy around 17% of the land, the hills around 68% and the high mountains around 15%.[1]



Administratively Nepal is divided into five development regions, 14 zones and 75 districts. In these 75 districts, there are 58 Municipalities and 3,915 Village Development Committees.

Nepal's population of 27 million is ethnically diverse. The major ethnic groups are mosaics of people originating from Indo-Aryan and Tibeto-Burmese races. Two major religions, Hinduism and Buddhism have molded the country's cultural landscape. The population growth rate is over 2.2%, while life expectancy is about 63 years and literacy is around 65%.

Nepal's economy is largely agricultural. Over 80% of the population is engaged in agriculture[2]. However, farming practice is largely at subsistence-level, without advanced technology or markets. Agriculture (33%) and services (39%) are the largest contributors to GDP.

Nepal has made considerable progress towards eradicating poverty in the last 15 years. The poverty rate was 25.2% percent in 2010-11 compared with 41.2%.[3] However, while Nepal is

[1] Marasini Prasad, Sambhu. Country Paper on Disaster Risk Reduction in Nepal, Asian Disaster Reduction Centre, 2008

[2] National Adaptation Program of Action to Climate Change. Ministry of Environment, Science and Technology, Government of Nepal 2010

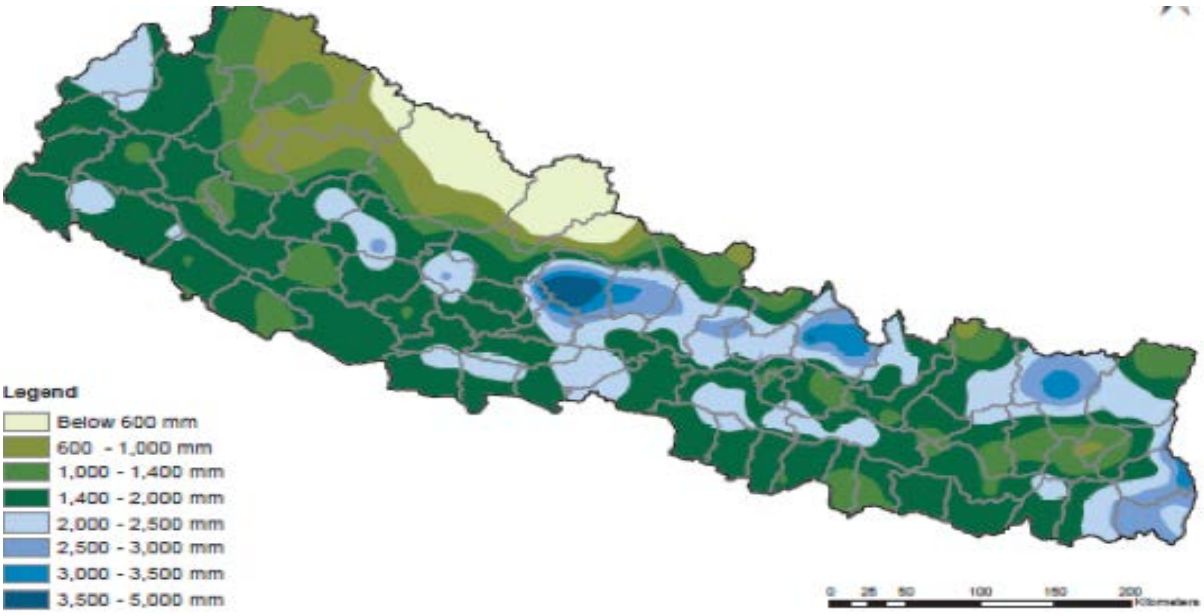
[3] Nepal Living Standard Survey NLSS-111 2010-2011

on track to achieve many of its Millennium Development Goals targets by 2015, it remains one of the poorest countries in the world. The country is categorized as 'least developed' ranking at 157 out of 187 countries in UNDP's human development index. Per capita income is less than US$ 650.[4] A combination of several shocks and crises, including political instability, limited economic growth, high prices and frequent natural disasters combine to keep a quarter of Nepal's population under the poverty line.

Nepal's fragile geology and steep topography makes it one of the most disaster prone countries in world. Flood, landslide, earthquake, GLOF (glacial lake outburst floods) and drought are the most common natural hazards; while regular epidemics, fire, accidents also contribute to its disaster-proneness.

Climate and Climate Change in Nepal

Nepal's climate is influenced by the South Asian monsoon and the country has four distinct seasons: pre-monsoon (March-May) monsoon (June to September) post monsoon (October-November) and winter (December to February). Average rainfall is 1,856 mm, however there is considerable variation across the country. Monsoon rainfall is highest in the eastern flank and gradually declines westwards of the country. Winter rainfall on the other hand is higher on the north western side and declines eastwards. Annually, the heaviest rainfall is received in the mid hills around Pokhara and northeast and east of Kathmandu Valley[5].



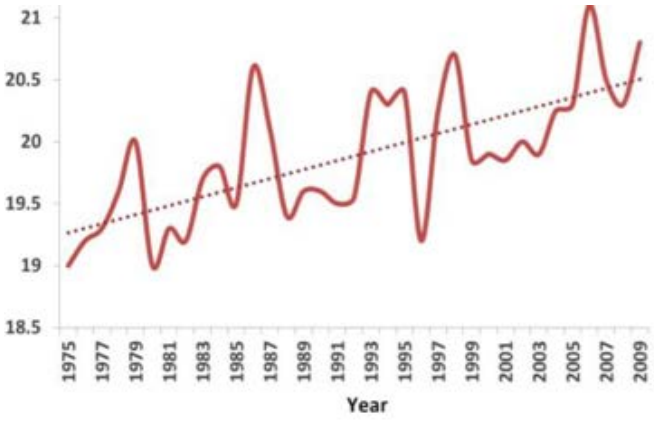
Mean Annual Precipitation

Temperature varies with altitude and season. In the Tarai plains, a sub-tropical and sub-humid climate is found, with summer temperature's climbing to highs of 45 °C. In the middle hills, warm temperatures are prevalent for most parts of the year, but reaching 0°C in winter. In the mountains it is chilly all the year round with below freezing temperatures in winter.

[4] World Bank Country Overview 2012
[5] Practical Action 2009

General circulation models (GCM) and regional circulation models (RCM) both point to a warming trend across Nepal. One study[6] based on the analysis of temperature trends from 1977 to 1994 in 49 meteorological stations indicates a warming trend of 0.06°C per year. A more recent study by Practical Action in Nepal (2009), using data from 45 weather stations for 1996-2005, shows a consistent and continuous rise in maximum temperature. Studies indicate that the warming trend is spatially variable and temperature rise is more evident in the higher altitudes.

According to global models, temperature in Nepal is expected to increase by 1.2°C by 2030 compared to the 2000 baseline, while regional models project a temperature increase of around 1.4°C in the same period. In general, it is agreed that higher temperatures are expected during the winter season, especially in the far western region.



*Overall temperatures have increased by around **0.04** degrees Celsius in Nepal over the period **1975-2009**. This trend is not uniform across the year or across the country. The majority of this increase has taken place during the dry season (December through March), especially in the **Himalayan regions**, where average annual temperature has increased by **0.06 °C** since **1970**.*

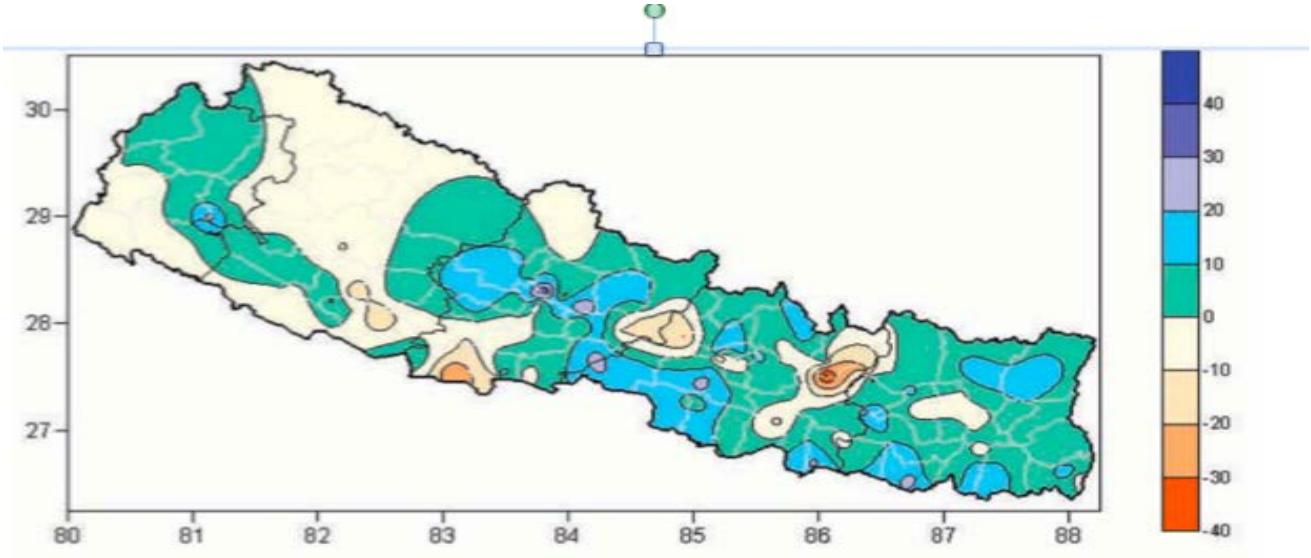
Source: McSweeney et al., 2010; DHM, 2010

Mean Temperature Trends 1975-2009

Himalayan glacial melt and retreat have been well documented. 15 GLOF (Glacial Lake Outburst Flood) events are recorded, the most recent being in 1985 in Dig Tsho lake in the headwaters of Koshi River. The potential damage caused by such disasters to human lives, homes, and infrastructure can be immense.[7]

The inter-annual variation of rainfall, especially the monsoon rains, is large, and this makes it difficult to draw conclusions about long-term changes of rainfall in the country. At the same time, pre-monsoon rains (March-April) show a generally increasing trend across the country except for some pockets in the western, central and eastern regions. Monsoon precipitation (June to August) shows a general decreasing trend in the mid-western and southern part of western region. Post monsoon (October-November) rainfall show a generally increasing trend in these regions and also in southern parts of eastern and central Nepal. Winter precipitation shows a generally increasing trend, except for northern mountainous areas of mid-western, western and eastern Nepal.

[6] Shrestha et al 1999
[7] Ives 2009



Annual Rainfall Trends

Source: Temporal and Spatial Variability of Climate Change Over Nepal (1975-2005) Practical Action Nepal 2009

There have been a number of studies and surveys on local perceptions and observations of climate change. In an annex to the NAPA describing the Transect Appraisal on location specific perceived changes in climate change or variability, local communities speak of increased day and night-time temperature, an upward shift of agro-climatic zones, and changes in precipitation in terms of timing, duration, intensity and form.

Projected Climate Change for Nepal

Temperature: The results of an OECD study[8] using General Circulation Models (GCM) run with the SRES B2 scenario show a mean annual temperature increase of an average 1.2°C by 2030, 1.7°C by 2050 and 3°C by 2100 compared to the pre-2000 baseline. A similar study by NCVST in 2009 using GCM and regional circulation models (RCM) projects a higher annual temperature rise - 1.4°C by 2030, 2.8°C by 2060 and 4.7°C by 2090. Both projections show a higher temperature increase during winter compared to the monsoon months. In terms of spatial distribution, the NCVST study shows a higher increase in temperature over western and central Nepal, with the highest over western Nepal.

Precipitation: OECD projections for precipitation are similar to those presented by the IPCC (2007) and predict a general increase. In winter, the models predict less precipitation for western Nepal and 5-10% increase for eastern Nepal. Over the summer or monsoon months however, the models project an increase in precipitation for the entire country in the range of 15-20%, though much less for Western Nepal. The NCVST study finds an increase in the monsoon and post monsoon rainfall for most parts of the country and a decrease in winter rainfall. Spatially, eastern and central Nepal are projected to experience greater precipitation than western Nepal. Nepal is increasingly experiencing changes in precipitation in terms of intensity, timing and form. The monsoon is often delayed; intensity of rainfall has increased while duration is shorter; and the form of precipitation (rain, snow, sleet, etc.) is changing. Therefore, evidence of climate change is not only manifested as ***increased variability*** but also increased ***uncertainty*** and reduced reliability. As a result, livelihood systems of this largely agricultural country are adversely impacted by crop damage, infrastructure damage and outbreak and infestation of pests and diseases in both animals and plants.

[8] OECD 2003

Poverty, Food Security and the Particular Vulnerability of Women in the Western Hill Area of Nepal (the Proposed Project Area)

Nepal's population is predominantly rural with over 80% engaged in agriculture. Larger numbers of the rural, agricultural population are poorer than their urban counterparts. The poverty level is much higher in rural areas than in urban areas (27.4% compared to 11%).[9] And in rural areas there is a high spatial variation. ***Poverty is highest in the mountains (42%) and the rural hills of the far and mid-western region (36.8%). These areas are developmentally challenged because of their remoteness and difficulties in access.*** Poverty is also correlated with household size and number of young children. Poverty is high among dalits[10] (who have larger families and are caste-discriminated) than non dalits. Most tellingly, poverty rates fall drastically for households with over one hectare of agricultural land. Poverty is also strongly linked to access to public services such as schools, hospitals and health posts, paved roads, bazaars and markets and banks.

Foreign remittances have become a main source of income for rural families, especially in the mid- and high hills. Migration for labor (mostly unskilled) is seasonal, covering the lean rainfall months, as well as semi-permanent. The largest destination for migration is India, however some poor people travel to the Middle East or Southeast Asia.[11]

WFP estimates that 15 per cent of the population is food-insecure. Malnutrition rates in Nepal are very high: the prevalence of stunting is 41 per cent amongst children below five years of age, 29 per cent are underweight, and 11 per cent of children are wasted, a figure that has remained the same since 1996.

Until 1990, Nepal produced sufficient food for its population. Since then, however, population growth has outpaced food production. Adverse weather conditions and natural disasters undermined advances in production, especially in the late 1990s[12]. In recent years, natural disasters, high food prices and stagnant economic growth have resulted in increased food insecurity of the country's most vulnerable groups. ***The worst impacts are felt in the far and mid-western hills and mountains.***

Nepal's three ecological regions have differing levels of food availability and utilization. In the hills and mountains, lack of arable land, roads and markets restrict food availability causing widespread food deficits. ***Food deficits are especially pronounced in the remote western and far-western regions where there is the highest prevalence of hunger (and where the hunger index points to an 'extremely alarming' situation). Indeed, the mid-western mountains of Nepal ranked last in a comparative assessment of hunger (Global Hunger Index) in 88 countries in 2008 (with Nepal as a whole ranking 57 from the top)***

Non-climatic Aspects of Food Insecurity in Nepal: 1. **Food Access**: ability of a household to acquire enough food to meet minimum consumption needs is compromised by low production, disasters, and purchasing power and food stocks. To cope, families generally barter, borrow, out-migrate for employment or look to external food assistance 2. **Food Utilization**: Selection, preparation and food distribution in households is affected by socio-cultural factors such as gender biases even in food supply such as discriminatory feeding favoring male over the women. 3. **Hunge**r: is most directly caused by inadequate food intake manifest in under nourishment and low birth weight and stunting in children.

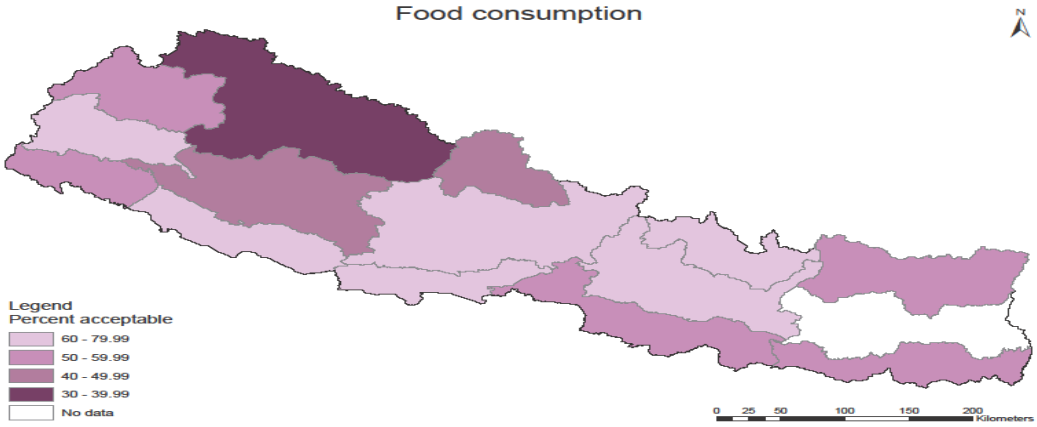
[9] Nepal Living Standard Survey NLSS-111 2010-2011

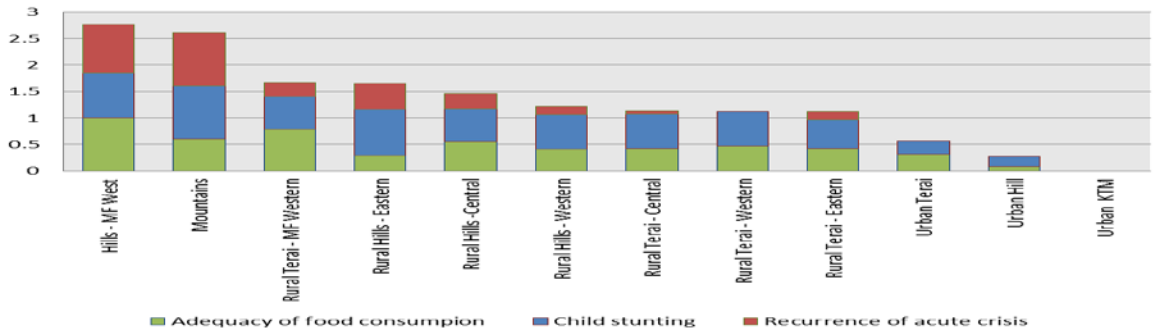
[10] A scheduled caste

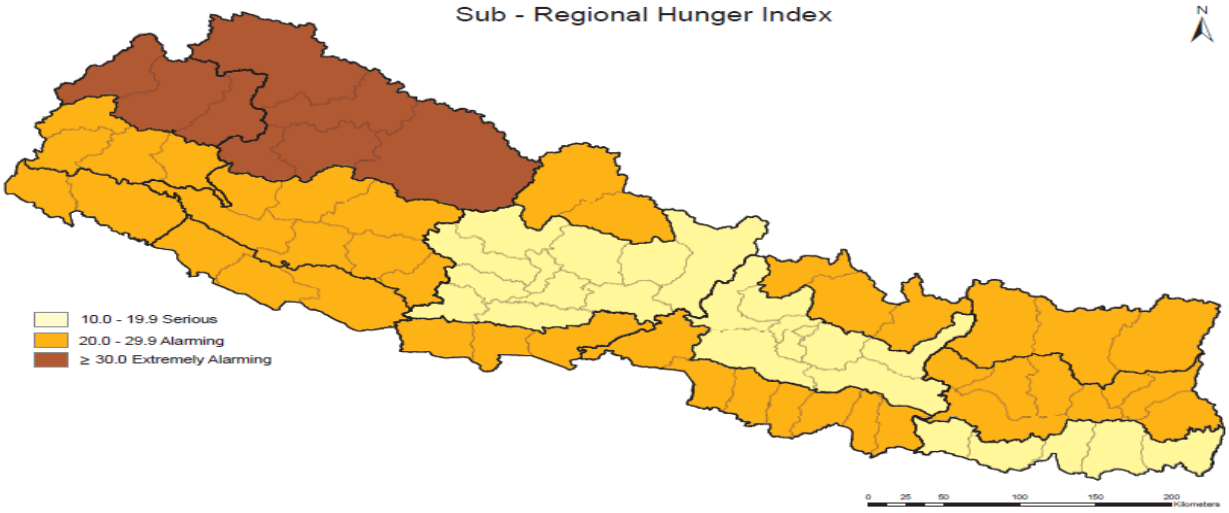
[11] Passage to India: Migration as a coping strategy in times of crisis in Nepal. World Food Program 2008

[12] WFP Food Security Atlas

Index of Food Consumption, Under-nutrition and Recurrence of Acute Crisis



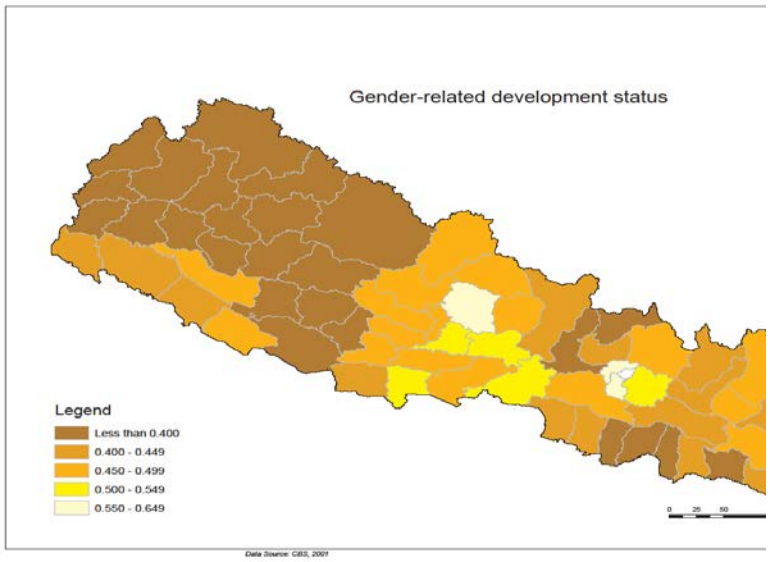




The map above shows the hunger rates in the different regions of Nepal using IFPRI's global hunger index. The results show that the most vulnerable and food insecure communities live in the Western Himalayan region of Nepal. The Global Hunger Index is calculated by combining three factors: (i) proportion of population undernourished, (ii) prevalence of underweight in children under the age of 5, and (iii) mortality rate in children under 5. A higher index score indicates higher hunger risk (IFPRI, 2008). Sources: IFPRI, 2008; WFP and NDRI, 2010

Nepal's Gender Development Index is 0.545, and it places 119 from the top of 155 countries in a global ranking. The gender disparity is more pronounced in rural than urban areas and is manifested in poor access to education, health care and income earning opportunities. ***Districts in the far and mid-west rank the lowest in GDI values.***

Due to cultural and other ingrained practices, women have limited control over household decision-making, but primary responsibility for childcare, agricultural activities and domestic chores such as fetching water. Employment opportunities for women are limited outside of subsistence agriculture. In the country as a whole, 71% of economically active females engage in unpaid agricultural labor and only 6% of them work in non-agricultural sector compared to 21% of men. [13] Women are also discriminated in labor wages, with men earning substantially more for both skilled and unskilled labor.[14] There is general under-valuing of their education and access to health care. As a result, women are more vulnerable during periods of food. Their most common coping is to reduce food intake, -and this in an environment in which women already eat last in a household and generally suffer from low body mass, and often anemia.



The status of women with regard to employment, health, life expectancy and education is the lowest in the hills and mountains of the far and mid-west (see figure above using the GDI, where the average for the country is 0.545). ***The highest prevalence of female-headed households is found in far and mid-western Nepal, caused by out-migration of male members in search of employment.***

Climate Related Impacts on Food Production, Food Security and Livelihoods in Nepal and the Project Area (the Western Karnali Zone)

Nepal's food security is highly sensitive to climate change and climatic shocks.[15] Data from the Central Bureau of Statistics (CBS) show that over the last decade around 31,000 ha of land owned by some 5% of all households, have become uncultivable due to climate related

[13] Ten years and above
[14] Food Security Atlas of Nepal. WFP and GoN 2010
[15] Krishna Krishnamurthy et al: Climate Risk and Food Security in Nepal: Analysis of Climate Risk on Food Security Components 2012. WFP and CGIAR

hazards, mostly drought, landslide and flood. In the eastern Tarai unusually low rains in 2005-2006 associated with early monsoon resulted in crop losses of almost 30%.[16] The cold wave of 1997/1998 also had negative impacts on agricultural productivity resulting in losses of up to 38% in chickpeas and lentils and 28% in potato.[17]

A decline in rainfall from November to April has affected winter and spring crops. Wheat and barley are particularly susceptible to winter precipitation. Consultations done in the field clearly show that sowing and harvesting times have already shifted due to climate change. ***Under a lower winter rainfall regime the western parts of Nepal are experiencing declines in wheat and barley yields, and this is exacerbating food insecurity and poverty.***

Climatic trends are expected to have an impact on all aspects of production and food security in Nepal. This includes crop production, seasonal variability of production, food availability, and food prices (especially of staples and livestock) .[18] In terms of food security-aspects such diet quality, calorific intake, seasonality of food consumption could all be impacted by climate-related food prices and production related availability.

According to a recent CGIAR study (see below), rural livelihoods as a whole are particularly vulnerable to climatic changes and shocks. This includes farming, cash cropping, herding and farm laboring. Family income has a strong co-relation to food security and food consumption. The combination of low productivity in agriculture and higher food prices due to climate related stresses could undermine gains in poverty reduction and nutrition.

Income source	Climate sensitivity
Cash crops/livestock	Changes in rainfall patterns are expected to decrease both the quantity and quality of water available for crop and livestock production, resulting in lower quality crop yields, as well as lower livestock, meat and milk quality.
Own farm/forest	Agriculture in Nepal might be affected by erratic rainfall patterns, which could reduce growing season and yields.
Agriculture labourer	Agricultural labour is likely to be affected by seasonal and long-term changes in rainfall patterns. Labour availability under climate change is likely to become unpredictable, potentially lowering income for agricultural labourers.

Source: Climate Risk and Food Security in Nepal 2012, WFP and CGIAR

Nepal's mid-western mountainous sub-region, the Karnali, is expected to experience the worst poverty and food security impacts of climate change. At one time the area's location on the trade route between Nepal and Tibet ensured prosperity, when salt from the high Tibetan lakes was traded for grain from Nepal. However, this trade collapsed in the 1970s and low productivity due to climatic factors (mostly drought) and conflict have left the region in poverty.

The region is comprised of five districts- Humla, Jumla, Dolpa, Mugu and Kalikot. Named after the Karnali river, which originates from the Himalayan districts of Mugu and Humla and

[16] Krishna Krishnamurthy et al: Climate Risk and Food Security in Nepal: Analysis of Climate Risk on Food Security Components 2012. WFP and CGIAR

[17] Krishna Krishnamurthy et al: Climate Risk and Food Security in Nepal: Analysis of Climate Risk on Food Security Components 2012. WFP and CGIAR quoting NARC statistics

[18] Krishna Krishnamurthy et al: Climate Risk and Food Security in Nepal: Analysis of Climate Risk on Food Security Components 2012. WFP and CGIAR

eventually flows into the Indian Ganges River, it is bordered by Tibet (China), and defined by its mountainous terrain, highly variable precipitation, and high prevalence of natural disasters. Karnali rates 48.1 on the Human Poverty Index (HPI-1)[19] and as such is the most impoverished region in Nepal.

The terrain in Karnali varies from high Himalaya to river valleys dissecting lower hills. Due to steep terrain, there is very little cultivable land, soil are poor and eroded. Food production, as estimated by WFP in 2010, is sufficient for only 3-6 months of the year. At higher altitudes only one crop is possible for the year. Except in Jumla (a relatively better connected district) irrigation is non-existent.[20] The majority of households rely on subsistence farming as their primary source of livelihood.

Farmers in Karnali commonly sow rice, maize and millet as summer crops, and wheat and barley as popular winter crops. Traditional crops such as native barley and oats are still important. Karnali households depend on a mix of their own subsistence agriculture, harvesting of timber and non-timber forest products (NTFPs), daily wage labor, seasonal migration to Tarai districts or India, and government and international food aid.

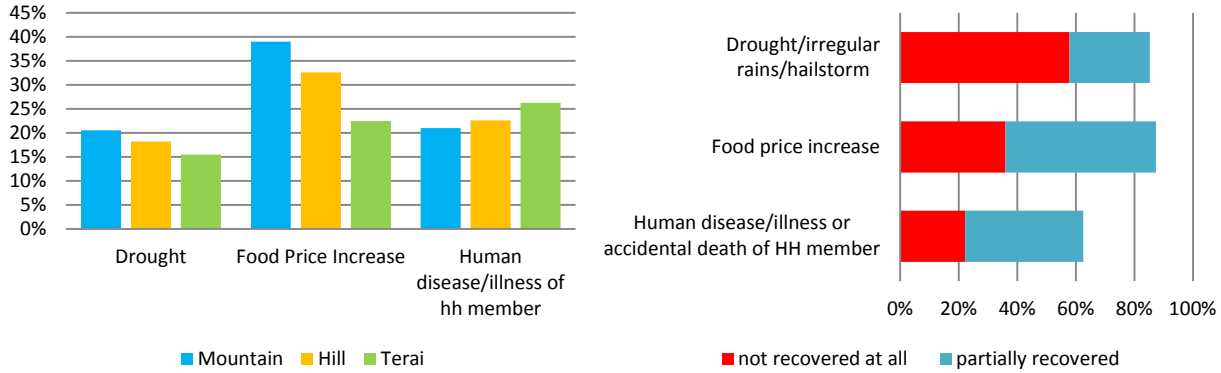
Karnali districts have low population density and are remote and unconnected by infrastructure (roads and bridges). Some higher elevations are habitable only during the summer months. A vulnerability analysis conducted as part of the NAPA (National Adaptation Program of Action) formulation in 2010 shows that the region is highly exposed to changing temperature and precipitation and all districts face the risk of drought. Some are highly exposed to landslides.

All districts show very low adaptive capacity in terms of the robustness of markets and connectivity. Despite low population density, one district (Mugu) ranks “very high” in overall vulnerability to climate change[21], while two districts (Kalikot and Dolpa) rank high and others (Jumla and Humla) rank moderate. However the moderate districts are still vulnerable to changes in precipitation and temperature, and they are considered to be at risk of severe drought. A full analysis of district vulnerability and risks to different climatic hazards is presented in Annex 11.

The Karnali region suffers chronic food deficits and exhibits alarming rates of hunger.[22] The Government began supplying food to Karnali in 1972 to ease famine, and this temporary measure soon became a long term practice.[23]. The food security situation in the region deteriorated as a result of civil conflict and has been difficult to address because of weather and economic shocks.[24] An assessment of data generated by NekSAP Food Security Monitoring System[25] shows that Karnali communities are more susceptible to drought and food price increases, and that it takes longer for these households to recover from shocks (see below).

[19] The United Nations Development Program’s Human Poverty Index (HPI-1) is measured on the scale of 0-100 where 0 is least impoverished.
[20] National Planning Commission – National Food Security Monitoring Task Force Food Security Atlas of Nepal (NeKSAP)
[21] National Adaptation Programme of Action, Nepal, Ministry of Science, Technology and Environment (MoSTE)
[22] National Planning Commission – National Food Security Monitoring Task Force Food Security Atlas of Nepal (NeKSAP)
[23] Adhikari. Jagannath. Food Crisis in Karnali: A historical and politico-economic perspective (2008)
[24] Adhikari. Jagannath Food Crisis in Karnali: A historical and politico-economic perspective (2008)
[25] NeKSAP *Nepal Khadya Surakchha Anugaman Pranali* in Nepali

Shock Reported by Eco-Belt , and Recovery Rate



Source: Geographical Targeting. Synthesis document for Nepal Country Program 2013-2017[26]

These issues are exacerbated by inaccessibility and low-development. Connectivity to and within the area improved with the opening of the Karnali Highway in 2007 linking the region with the Tarai. However, part of the road is still a dirt track that is impassable during the monsoon and winter. Humla, Mugu and Dolpa are still not connected by road. Food is carried on donkey or sheep caravans to these districts.

The table below presents a summary of climate change observations, current coping methods, and expected future risks to livelihoods in Karnali, based on reports of The Mountain Institute (TMI) [27] and ICIMOD, [28] and field consultations carried out for the preparation of the proposed project.

Communities Perception of Change	Experienced Impacts on livelihood Systems	Coping and Adaptation	Potential Future Risks
Decrease in rainfall and unpredictable onset of monsoon	Overall decline in agricultural productivity	Replacement of rice with finger millet; purchasing rice, barter, improvising with new)cash) crops; delayed sowing	Increased food and livelihood insecurity
Longer dry spells, in some places drought like conditions	Drying up of springs; less flow in springs and streams	Rotational use of irrigation systems; traditional water sharing systems	Scarcity of water for drinking and agriculture; increase in health problems; increased workload for women and children; children staying away from school

[26] National Planning Commission – National Food Security Monitoring Task Force Food Security Atlas of Nepal (NeKSAP) and WFP VAM Unit

[27] The Mountain Institute (TMI) conducted an unstructured community perception assessment to climate change in Humla and Jumla in early 2012

[28] Responding to Challenges of Global Change- enhancing Resilience and supporting adaptation of mountain communities. ICIMOD Project Brief 2009

		Delayed sowing in irrigated fields at far end of channel	Crop failure
Higher temperature linked with decreased water availability	Lack of fodder; in some places lack of water for animals Land becoming less productive	Sell off dairy animals, shift to smaller livestock particularly goats, barter fodder for manure Less land under cultivation, buying food	Risk of malnutrition; increased drudgery Dependence on cash income; food insecurity
Warmer winters and significantly less snowfall	Increased incidence of pests and diseases Changes in flowering times	Increased use of pesticides and insecticides; use of ash and salt No coping mechanism	Increase food and livelihood insecurity Degradation of Orchards, income insecurity

PROJECT OBJECTIVES:

Goal: Increasing adaptive capacity of climate vulnerable and food insecure poor by improved management of livelihood assets in the Karnali mountain districts of Nepal

Objectives

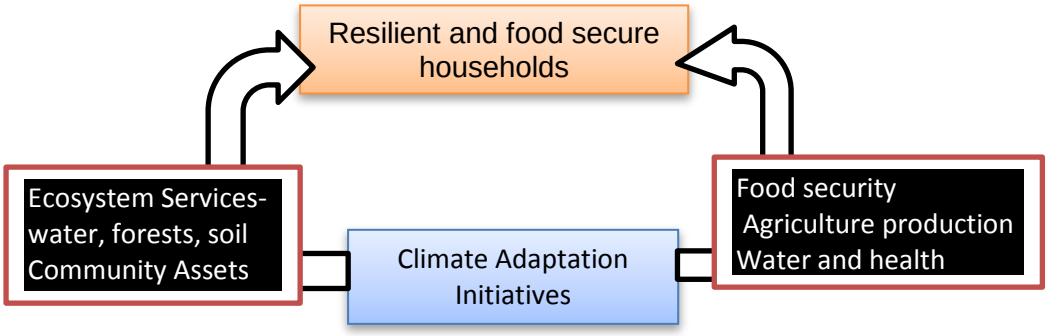
1. Strengthened local capacity to identify climate risks and design adaptive strategies
2. Diversified livelihood and strengthened food security for climate vulnerable poor in target areas
3. Increased resilience of natural systems that support livelihoods to climate change induced stresses

Strategy

Food insecurity negatively correlates to adaptive capacity. Rural agricultural livelihoods in the project area depend on the health of forest, land and water resources. It is therefore vital, in such climate vulnerable communities, to enhance agro-ecosystem services that increase production, reduce food insecurity and also directly generate income and energy for rural people.

The project strategy is to improve household adaptive capacity (including food security) to current and future climate risks through;

1) Building natural resources and community assets
2) Developing climate resiliency in livelihoods and social sectors



The project will target climate vulnerable poor as defined by 1) low income and consumption; 2) reliance on subsistence agriculture 3) social discrimination and 4) low access to technology and assets - and the capacity of state and non-state service providers supporting these populations. The targeting will be done through the planning process described in Component 1 below. This planning process is sanctioned by the Ministry of Environment, Science and Technology through the published manual for Local Adaptation Plans of Action (LAPA). It has already been field tested through a concurrent climate change project- the National Climate Change Support Project (NCCSP).

The project will bring together best practices derived from a number of past and on-going initiatives (described below in F, H and I) to deliver concrete adaptation actions. The delivery mechanism will be an adaptation of the World Food Program's asset creation program which is implemented in 10 districts in the mid-and far western regions. Through this mechanism communities will be compensated for their engagement in asset creation and improvement through food or cash, increasing both household food security and income opportunity during the lean agricultural season.

Particular **activities will focus on easing the burden of rural women** and improving their living and health standards, ultimately contributing ultimately to household adaptive capacity.

Service delivery organizations at the local level - especially extension services related to agriculture, irrigation, livestock and forestry - will be the primary executing agents in implementation and monitoring, thereby developing their capacity to respond to shocks and design long-term adaptive strategies.

An important part of the project strategy will be to **mainstream project learning and outcomes** into regular development processes at VDC, District and Regional levels.

Target Districts and Village Development Committees (VDCs) and Communities

A recent analysis of climate change vulnerability of Karnali VDCs[29] demonstrates a strong relationship c between food insecurity, access infrastructure, irrigation and vulnerability to climate change. In brief, in areas that have better irrigation and access infrastructure, climate change vulnerability is lower; and in areas that are food insecure (which are also the more remote and under-developed regions) vulnerability is higher. The VDC level vulnerability ranking also demonstrates that even in districts which ranked low in the NAPA, there are VDCs that score very high in terms of food insecurity due to their relative remoteness and under-development.

The project will target 22 VDCs in three Karnali districts –Mugu, Kalikot and Jumla.

In Mugu the project will target 12 VDCs with 4,050 households; in Kalikot, 5 VDCs with 4,140 households. In Jumla the project targets 5 VDCs with 2,660 households.

The district of Mugu ranks very high (5 of 75) for overall vulnerability to climate change in the assessment conducted by MoSTE as part of the NAPA.[30] Mugu has very low development (especially with regard to women) and food security rankings, and is a district that features high malnutrition.

[29] Through the district-level vulnerability ranking exercise of the Ministry of Environment's NCCSP (National Climate Change Support Project)

[30] National Adaptation Plan of Action for Climate Change of Government of Nepal

The district of Kalikot is ranked No 21 in overall climate change vulnerability. However along with Mugu, it is ranked highest in vulnerability to drought.

The district of Jumla (ranked at 31) is relatively better off in terms of production and services, however it has geographical pockets that exhibit deep vulnerability and marginalization. Jumla is the zonal headquarters for Karnali, and more developed markets and research/technology infrastructure available at Jumla's headquarters (Chandannath VDC) will support project interventions knowledge and market access (the idea, articulated further on, is to establish a zonal service center associated with the Nepal Agricultural Research Council (NARC) and the Karnali Technical School to demonstrate and disseminate adaptive practices in agriculture, water, and forestry and linked to the entire Karnali zone).

All three districts display high levels of exposure to climatic risks, especially drought. Mugu ranks very high and Jumla ranks high on the drought index, and both districts rank very low on the adaptive capacity and combined sensitivity indices[31] The degree of vulnerability within targeted sub-populations and geographical pockets in the low-ranked districts are often very high due to disparities. With regard to targeting of ecosystems, Jumla and Kalikot are in river basins[32]; while Mugu is a lake watershed[33]. The project's livelihood strategies, assets and type of intervention will vary depending on the particular ecosystem.

The selected districts will also be among those prioritized in the World Food Program's forthcoming Country Program (2013-2017). Mugu, Kalikot and Jumla are among the ten districts ranked according to a combined vulnerability index for food security developed by WFP Vulnerability Analysis and Mapping (VAM) unit. Sensitivity and adaptive capacity for food security were determined using development data from the NAPA and associated studies. (e.g. WFP food security and production deficit from NeKSAP[34], Nepal Living Standard Survey NLSS-111 2010-2011). Sensitivity was determined by exposure to natural hazards, prevalence of disadvantaged groups, frequency of disease outbreaks, recurrence of acute crisis and the market price of essential commodities. Adaptive capacity in this context measures agriculture productivity, infrastructure availability, education, water and sanitation, gender status and poverty (wealth).

District Targeting

Vulnerability Ranking for WFP Country program	Country Program Districts	Food Security Sensitivity Ranking	Food Security Adaptive Capacity Ranking	Climate Change vulnerability Ranking (NAPA)	Climate Change Adaptation Capability Index
1	Humla	1 very high	71 low	45 moderate	73 very low
2	Mugu	2 very high	72 low	5 very high	75 very low
3	Dolpa	4 very high	67 low	20 high	74 very low
4	Kalikot	3 very high	57 low	21 high	70 very low
5	Bajura	6 very high	68 low	46 moderate	72 very low
6	Bajhang	9 very high	69 low	34 moderate	67 very low
7	Jumla	5 very high	56 low	31 moderate	64 very low

[31] Combined sensitivity index measures human sensitivity and ecological sensitivity together

[32] Tila Glacial River Watershed in Jumla and Karnali River in Kalikot

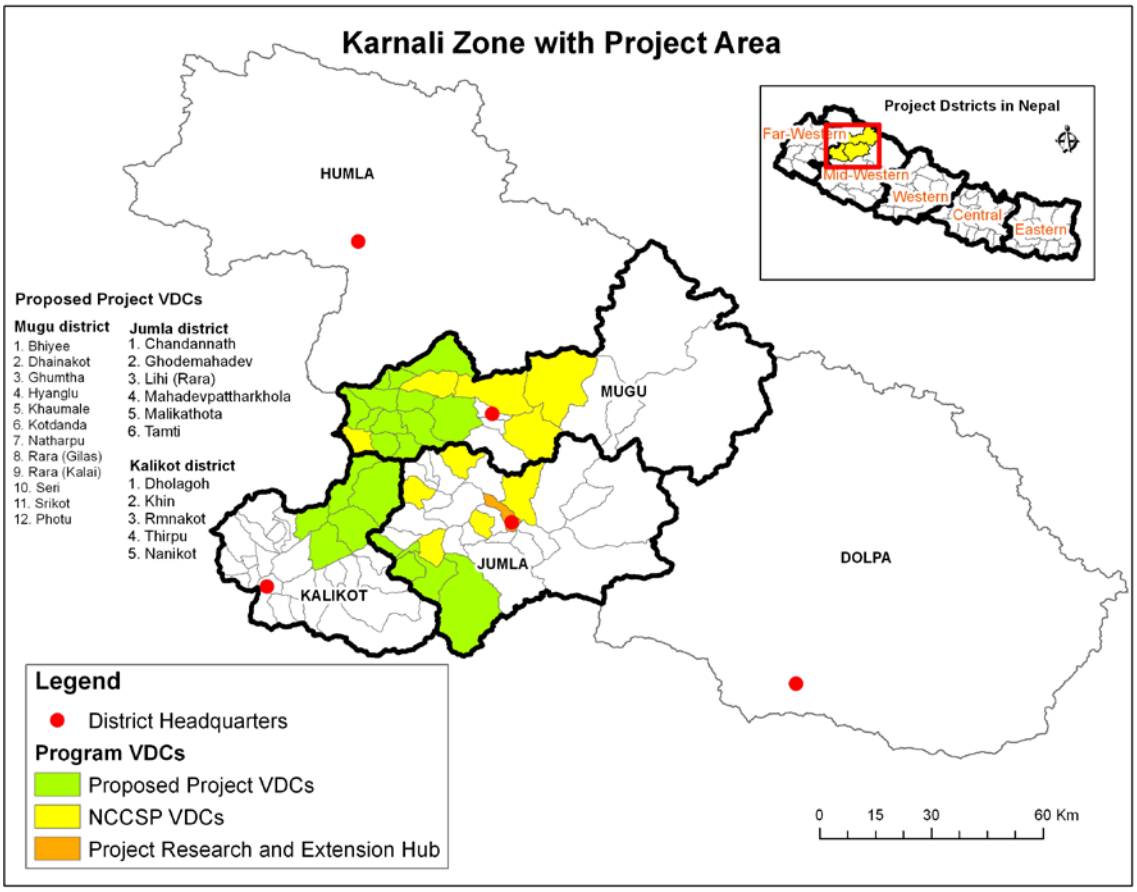
[33] Rara Lake watershed

[34] NeKSAP Nepal is an information system that provides quarterly forecasts of food availability and possible production deficits for early action and response. It is jointly administered by Ministry of Agriculture Development and WFP, through the National Planning Commission.

8	Achcham	8 very high	64 low	18 high	68 very low
10	Dialekh	12 very high	63 low	24 high	63 low
12	Doti	16 very high	61 low	41 moderate	62 low

The selection of VDCs involved extensive consultation at district and national level in order to target the most food insecure and climate vulnerable VDCs with production potential. To avoid overlapping with other on-going or planned initiatives, consultations were undertaken with the MoSTE-led National Climate Change Support Program (NCCSP), which is already developing local adaptation plans for 14 districts in the far and mid-western region. District stakeholders recommended focusing the proposed project in a ***cluster of VDCs*** with geographic proximity, with communities that exhibit similar economic and social characteristics and are vulnerable to similar climatic hazards. This will encourage an adaptive planning approach at landscape level and enhanced delivery of services in a logistically challenging mountainous environment.

Karnali Zone and Project Area



Target VDCs – Gender disaggregated Population and Households

Proposed VDCs of AFB-Proposal, Total number of household (HH) and Population						
SN	Name of Districts	Proposed VDCs for AFB	Total Household	Population		
				Male	Female	Total
1	**Mugu**	Photu	247	694	677	1,371
2		Rara (gilash)	245	874	651	1,525
3		Rara Kalai	226	788	775	1,563
4		Kotdanda	301	919	958	1,877
5		Hyanglu	339	1,041	1,028	2,069
6		Dhainakot	427	1,228	1,194	2,422
7		Bhiyee	226	497	514	1,011
8		Natharpu	278	877	836	1,713
9		Shrikot	649	1,869	1,823	3,692
10		Seri	384	1,212	1,142	2,354
11		Gumtha	433	1,311	1,287	2,598
12		Khaumale	295	951	870	1,821
	Total		**4,050**	**12,261**	**11,755**	**24,016**
1	**Kalikot**	Dholagoa	1,108	**3,692**	**3,605**	**7,297**
2		Khin	531	1,572	1,538	3,110
3		Thirpu	796	2,348	2,270	4,618
4		Nanikot	1,006	3,390	3,247	6,637
5		Ramnakot	699	1,946	1,937	3,883
	Total		**4,140**	**12,948**	**12,597**	**25,545**
1	**Jumla**	Malikathota	535	1,761	1,728	3,489
2		Tamti	750	2,319	2,175	4,494
3		Lihi (Rara)	506	1,365	1,379	2,744
4		Mahadevpattharkhola	498	1,552	1,522	3,074
5		Ghodemahadev	371	1,252	1,185	2,437
6		Chandannath**	-	-	-	-
	Total		**2,660**	**8,249**	**7,989**	**16,238**

PROJECT / PROGRAMME COMPONENTS AND FINANCING:

PROJECT COMPONENTS	EXPECTED CONCRETE OUTPUTS	EXPECTED OUTCOMES	AMOUNT (US$)
1. Develop capacity to plan, implement and monitor adaptation and food security actions at community, VDC, district and national levels	1.1.1 Trained and mobilized community representatives, field coordinators and technicians at village, ilaka[1] and district to design, implement and monitor local adaptation strategies	*1.1 Climate vulnerable and food insecure poor actively participate developing local climate risk reduction strategies and actions*	$ 660,960
	1.1.2 Local climate adaptation and food security plans developed with prioritized actions		$ 181,000
	1.1.3 Gender and social inclusion are well integrated in to the adaptation planning processes		$45,000
	1.2.1 Local adaptation plans integrated in to sector-wise, local and district planning processes	*1.2 Strengthened ownership and management of climate risk reduction activities and replication of lessons at district/national levels*	$ 83,640
	1.2.2 Integrated climate resilience to planning processes and development projects of key national ministries		$110,240
	1.2.3 Conducted periodic assessment and document project lessons for dissemination at community, district and regional levels		$ 194,528
2. Build household and community resilience and increase adaptive capacity of climate vulnerable poor in 21 VDCs in Jumla, Kalikot and Mugu Districts	2.1.1 Increased income opportunity for vulnerable households, especially during off-season, provided through building physical and natural livelihood assets	*2.1 Diversified and strengthened livelihoods, livelihood assets and improved access to food for climate vulnerable households*	$ 3,009,360
	2.1.2 Increased local availability of and access to food and nutrition through better storage and value-addition in all target VDCs		$ 965,296
	2.1.3 Improved and adapted current crop and livestock management practices to climate risks		$258,120
	2.1.4 Increased income through livelihood and agricultural diversification using local resources		$959,660

[1] This is a service delivery (Government extension) unit which is an aggregation of a number of VDCs with geographic proximity within a district.

	2.1.5 Introduced renewable energy based systems to support women-led enterprises		$ 1,272,800
Project/Program Execution Cost			**$ 122,000**
Total Project/Program Cost			**$8,140,604**
Project/program Cycle Management Fee 8.5%			**$702,321**
Amount of Financing Requested			**$ 8, 964, 925**

PROJECTED CALENDAR:
Indicate the dates of the following milestones for the proposed project/program

MILESTONES	EXPECTED DATES
Start of Project/Program Implementation	September 2013
Mid-term Review (if planned)	September 2015
Project/Program Closing	August 2017
Terminal Evaluation	December 2017

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Describe the project components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience.

Component 1: Develop local, district and national capacity to plan, implement and monitor adaptation and risk reduction actions

This component lays the foundation on which project interventions will be designed and implemented. Field surveys and stakeholder consultations conducted during project planning pointed to gaps in awareness of climate risk and capacity to plan for adaptation at local, district and national levels. The gaps are especially pronounced at the DDC (District Development Committee) and VDC (Village Development Committee) and below.

Outcome 1.1 will support project implementation in target VDCs through improved local planning. The three outputs under Outcome 1.1 are designed to increase capacity of local actors (Partner NGOs, Government Extension Services, and Local Resource Persons) at VDC (and district) level. The outputs will follow the overall guidance for Local Adaptation Plans for Action (LAPA) set out by the Ministry of Environment, Science and Technology (summarized in Annex 7) with additional focus on food security, gender and inclusion of disadvantaged groups within VDCs. In this process, a localized risk assessment would be conducted for the VDC area, vulnerable areas and households would be identified, key risks and adaption needs listed and prioritized. The local plans would be multi-year plans with a lifespan of around 5 years. It is envisaged that the prioritized actions would be funded through government, NGO and project funds.

In the LAPA process, wards and households displaying high levels of vulnerability are identified. This is done through one or more methods prescribed in the LAPA manual. The

idea is to obtain a complete view of climate risk and vulnerability for each VDC, including geophysical, environmental and social aspects. This will help target VDC-level interventions to those most in need of support. Therefore planning at sub-VDC level or ward level is achieved through the same LAPA process, although the project does not envisage separate plans for Wards.

Output 1.1 focuses on training of local actors to evaluate specific vulnerabilities at VDC and ward levels, use participatory methods to design adaptive actions that will lead to increased community resilience, and implement prioritized actions through local and district level partnerships.

Outputs 1.2 and 1.3 will focus on preparing plans for each VDC, identifying target households and wards most in need of intervention. To identify vulnerable areas and households, the project will follow and improve on guidelines on LAPA preparation already field tested by NCCSP in Karnali districts. Initially households will be ranked according to their level of vulnerability as done for the NCCSP. This will be undertaken in a participatory manner with key informants. Criteria for vulnerability ranking include:

1) income level and wealth ranking
2) landholding and type of agriculture
3) exposure of homestead to climate-related disasters
4) no of income sources per household
5) female headed households and ethnic/caste minorities
6) health of head-of-household
7) no of minor members per household

At VDC level, the expert / project team will carry out an assessment based on relative and current vulnerability against agreed criteria- mainly livelihood choice and disaster exposure. This two tier vulnerability and adaptation assessment will help identify the most vulnerable wards or communities within the VDC and households that are most vulnerable within the VDC.

The outputs under Outcome 1.2 support mainstreaming adaptation actions designed in the 21 target VDCs. Throughout the project duration, adaptation planning and implementation in these VDCs will be integrated into the normal development agenda of the VDC and district. This follows the guidance set out by the LAPA manual and field experience of the NCCSP[35] project. At DDC level this would mean lobbying for budgets to implement locally prioritized adaptation actions, and for specific interventions to reduce vulnerability among at-risk communities. At national level, three key Ministries are targeted- Agriculture, Local Development and Environment. The project aims to build capacity in these national entities for research and implementation of climate change adaptation, based on the field experience of this project and the NCCSP. A knowledge management output is included in this component to facilitate lessons and best practices sharing at local, district and regional level as appropriate in order to generate more interest in replicable adaptation solutions.

Outcome 1.1: ***Climate vulnerable and food insecure poor actively participate in developing climate risk reduction strategies and actions***

Output 1.1.1 **Trained and mobilized** community representatives, field coordinators and technicians at village, ilaka and district **to design, implement and monitor local adaptation strategies.**

[35] EU-funded and UNDP supported National Climate Change Support Project Implemented through the Ministry of Environment

The training component primarily targets local (VDC and ward) representatives and user groups in order to support effective delivery of project activities on ground. Local resource persons from different fields and expertise will be trained to plan, implement and monitor adaptation programs. This includes per VDC;

Representative sector	Number of Persons per VDC (estimated)
Technical (agriculture, livestock, construction, roads, forestry)	05-06
Managerial	02
Social Mobilization	05
Monitoring and Evaluation	02
VDC Facilitators[36]	01
Enterprise development	05
Total per VDC	**20-21**

Training will also be provided to some sub-district and district level officials to provide comprehensive understanding of climate risks in their respective sectors, LAPA tools (a full description of the LAPA process and tools included in annex 7) which includes PRA-type of community assessment and cost-benefit analysis to prioritize local needs, and climate risk assessments. The training will also include a gender sensitivity analysis and a food security analysis at local level; so that decisions are also influenced by the urgent need to address gaps in these areas. The output aims to increase adaptation planning capacity of government officials at Ilaka and district level to directly support the project activities described in components 1 and 2.

Sub District Level Officials	**District Level Officials**
Junior technicians	Agronomist
Junior Technical Assistants	Forest Officer
Forest Rangers	Livestock Officer/ Veterinarian
	Irrigation Officer
	Energy Unit Officers
	District Technical Officer/ Engineers
	Women Development Officers
	Cottage Industry Development Officers

In addition, a training module will be developed on adapting to drought in Karnali with the NARC Research Centre in Jumla and agriculture extension office. A total of 3 TOT (Transfer of Technology) for government and NGO representatives on managing drought in agriculture practice will also be conducted. This would benefit extension officers (junior technicians) of non-target districts as well. The project would use training manuals produced by MoSTE for district and national thematic experts and local trainers.

Output 1.1.2: Local **food security and climate adaptation planning** supported

This output will support detailed analysis of food security and production in relation to climate change risks in each target VDC (and the 9 wards under that VDC); detail the context specific vulnerabilities related to climatic uncertainty and variability; and provide the communities with planning tools to design and prioritize adaptation actions. It is expected that trained social mobilisers and VDC-level facilitators will support the planning processes;

[36] These are paid staff of the project at VDC level

which will include several seminars and village level consultative workshops and meetings. A participatory approach will ensure plans reflect the urgent and immediate needs of the most vulnerable and food insecure households.

The project will also produce aggregated adaptation plans on a watershed scale covering one or more VDCs. This takes in to consideration that certain livelihood assets (forests and water primarily) do not confine to village or settlement boundaries; and that their conservation has to be considered through a broader lens. In this regard, spatial analysis of land (forests, agricultural land, homesteads etc.) and water resources will be conducted to complement the social analysis of vulnerability and the economic analysis of prioritized adaptive actions.

As evident from field consultations conducted for project development, VDCs do not have medium or long term development plans. An annual development plan is generated on the basis of urgent needs identified on ad-hoc basis, by only a segment of community. Adaptation planning, on the other hand will differ from this conventional practice and use LAPA framework and tools to identify and prioritize short, medium and long term development priorities. The framework envisions that local adaptation plans are well mainstreamed into local planning processes such that the whole planning process becomes a bottom-up, inclusive, responsive and flexible.

Proposed activities under this outcome include:

- Build awareness and sensitize local stakeholders on environment, climate change and energy related issues and encourage community feedback
- Assess community vulnerability and adaptation options using LAPA framework, LAPA manual and tools[37]
- Identify the most vulnerable wards, communities and households in target VDCs; and agree on priority actions and target groups
- Conduct participatory watershed mapping in selected micro watersheds with VDC, Ilaka or district technical officials
- Develop adaptation plans for 21 VDCs and prioritize actions for most vulnerable wards, settlements and households
- Develop master plans for development, integrating climate change risks on livelihood, infrastructure etc. in each target VDC

Output 1.1.3: **Gender and social inclusion** are well integrated in to the adaptation planning processes

As described in the baseline above, gender and social disparity is high, especially in rural areas such as Karnali regions. There are a number of ingrained social and cultural practices that discriminate against women, ethnic minorities and Dalits. This brings down their capacity to cope with; and adapt to impacts of current and future climate change. Therefore, a separate output is introduced to ensure that specific concerns and vulnerabilities of these groups emanating from their exclusion of; or inequality in economic opportunity and decision-making will not be reflected in the adaptation plans prepared in Output 1.1. This output will have specific activities to ensure that women and disadvantaged groups participate fully in adaptation planning and implementation in any given VDC; and that in keeping with WFP work norms they will have equal access to resources, training and income opportunity provided through the project. This output will deliver these set of key activities:

- Mobilize mothers' group/ women's group in 21 VDCs to participate fully in adaption planning and prioritizing actions

[37] A description of LAPA tools, process and implementation could be found in Annex 07

- Introduce a special segment (to the local adaptation/food security plan) for women-headed households and minorities as they are considered the most vulnerable within a ward or VDC
- Strengthen local women's savings groups and cooperatives with knowledge and information on adaptation and food security actions
- Avail women of equal opportunity to engage in income generating asset-building activities and build in 'equal pay for equal work' principle in to local adaptation actions

Outcome 1.2: ***Strengthened ownership and management of climate risk reduction activities and replication of lessons in key livelihood sectors***

Output 1.2.1: Local adaptation plans **integrated in to sector-wise, local and district planning** processes

This output will firstly develop the project implementation and monitoring systems in each district and each target VDC. This includes the establishment of a district technical advisory group and under the DDCs District Energy and Environment Coordination Committee (DEECC). This group will provide technical support and solutions to project implementing partners and ensure there is no duplication of interventions at VDC level. The group would also provide monitoring support to the project.

Each Village Development Committee (VDC) prepares annual plans through Citizens Forums for general development activity and submits to the District Development Committee (DDC) for financing through decentralized budgets. Line agencies such as Forestry, Irrigation, Agriculture and Livestock have their own extension in target areas, especially at Ilaka level. This output essentially ensures that the local adaptation plans are not separate from the regular development process at local level, and that technical support and institutional ownership are assured for the sustainability of interventions implemented through the project. Specifically, the output targets inclusion and discussion of local plans at development plan formulation committees. It aims to:

- Develop district and VDC level implementing and monitoring mechanisms for climate adaptation. A VDC-level facilitator will be appointed for each target VDC to ensure smooth delivery of interventions and regular monitoring of impacts
- Merge local plans through VDC level sectoral and integrated plan formulation committees through social mobilisers
- Develop combined watershed level plans to be presented to District Plan Formulation Committee

Output 1.2.2 Integrate **climate resilience to planning processes and development projects** of key national ministries

This is one of the key outputs of the project which aims to support climate-proof development initiatives of project-associated Ministries. The output specifically targets national-level processes relevant to the project- such as the asset building program of the MoFALD and climate (drought and flood) resilient agriculture training for extension officials of the MOAD. The output will aim to:

- Improve technical standards of the local asset building program of MoFALD to ensure climate resilience
- Integrate climate risk reduction practices in to national agriculture training program at NARC
- Support the Climate Change Unit at MoSTE to measure progress against NAPA long and short term goals

Output 1.2.3 Conduct periodic assessment and **document project lessons for dissemination** at community, district and national levels

The knowledge management component is an important part of the project. Lessons that emanate both from the adaptation planning process and its actual field implementation would be evaluated, discussed, shared and scaled-up in the output. The interest in evaluating impact- in physical changes, production improvement, social and economic improvement of the target community is obvious; however of equal importance is the process and system through which planning, implementation and monitoring is achieved- as this would be the model that is replicated in other districts. Constant knowledge sharing between the center, the district and the community would ensure feedback to policy and technical information flow to the community. For MoSTE and MoFALD, the project would provide a necessary test of the advocated development and adaptation planning process. (Additional information on this Output is provided below in Section G)

At VDC level the output will:

- Train 42 key informants (2 per VDC including in Jumla HQ) in gathering and disseminating climate risk and agriculture technology related information.
- Establish 21 VDC level agricultural information centers linked to Jumla zonal NARC and Agro-met stations to deliver climate and technology-related information to farmers. These centers will have audio-visual aides and graphic material to disseminate information from research and extension services down to the VDCs.

At district Level the output will support community information exchange through:

- 20 Exchange visits from other VDCs
- 10 community field workshops
- Local/ community FM radio used for dissemination of best practices in 03 districts

At National Level the output will support the Climate Change unit at MoSTE to measure progress against NAPA long/short term goals though production of case studies based on:

- Implementation modality, lessons and successes in adaptation practices
- Linkage between food security and improved water, land and forestry management

Box 1: User Groups for VDC level adaptation planning and implementation

Nepal's rural development programs deliver at village level through 'user groups' or 'user committees'. This is a term used to define COs or community organizations at grassroots level which has a structure, specific mandate and able to handle project finances.

The best known example of user groups in Nepal comes from the country's well-developed Community Forestry Program. The government-driven program to broaden ownership of forest resources has resulted in improved forest condition, better regeneration and income for forest-dependent communities[38]. Practically every village in the mid-hills and terai regions has a FUG (forest user group.

User groups or committees have also been used in other rural development projects, such as WUPAP (Western Uplands Poverty Alleviation Project). This IFAD funded project looked at developing rural livelihoods for the most vulnerable groups. Due to its similarity in approach and target group, the project proposed to use WUPAP's social mobilization processes set out in the Project Implementation Guidelines. Where project VDCs overlap, the project will use existing WUPAP user committees.

[38] Springate-Baginski, O et al. Institutional Development of Forest User Groups in Nepal-Processes and Indicators. Journal of Forest and Livelihood UK. July 2003

World Food Programme also has prior experience with user committees for the maintenance of community infrastructure created through food-for-assets programs. Rural roads, irrigation systems and rural buildings created through this program will each have its own user group consisting of community members directly benefiting from this infrastructure. WFP guidelines prescribe User Groups collect a regular maintenance fee from community members and establish a maintenance fund to upkeep the asset. Funds could also be drawn from decentralized development budgets through the DDC or Line Agencies such as Department of Irrigation.

The common indicators for strong user groups[39] is the legitimate users of the asset, common purpose and trust, and sense of ownership of the asset or process.

Post-projects reviews have demonstrated that user groups continue long after the project period if the above factors hold them together.

In terms of marginalized groups, in all three projects user groups or committees have been formed with the most poor and disadvantaged communities. In the climate change project existing user groups will be mobilized; and new ones formed where necessary in accordance to the proposed guideline in Annex 15.

Component 2: Build household and community resilience and increase adaptive capacity of climate vulnerable poor in 21 VDCs in Mugu, Kalikot and Jumla districts

Component 2 will deliver concrete adaptation benefits to the most vulnerable communities. Five outputs have been organized to address specific vulnerabilities that were identified during community consultations. These relate to low agricultural productivity, low incomes, and unavailability of irrigation, food insecurity for 3-4 months of the year, low living and health standards for women.

In the problem analysis, it was noted that the biggest challenge for target VDCs was ensuring adequate food and nutrition throughout the year. This historical problem is compounded by changing climate and irregularity of rain and snow. Agriculture is hampered by lack of irrigation and timely precipitation. Productivity is low due to technology and information gaps. Technologies for food storage and value addition are scarce and not widely adopted. Women, especially, suffer from lack of basic facilities such as privacy for bathing, water for washing and clean cooking energy. This affects household coping strategies and hence, adaptive capacity of a family and the community. The project defines adaptive capacity in terms of a family's access to better living standards, water, food (in sufficient quantity and quality), and increased productivity of current livelihood and diversified income sources. Building such resilience would provide these households with the means to face and adjust to climate-induced shocks.

The outputs in Component 2, and activities within, them have been designed through extensive consultation at national, district and local (VDC and ward) level and include recommendations of sector experts, district representatives of agriculture, irrigation, forestry and livestock, community groups, especially farmers, forest users, mothers groups, and DDC officials, including Local Development Officers. The outputs also consider the lessons and practices acquired by other implementing agencies - IFAD, UNDP, DFID - for more cost-effective delivery. (See section F).

Initial identification took place through consultations at various levels and were based on LAPAs developed through the NCCSP project's work in Karnali. Therefore the activities are

[39] Springate-Baginski, O et al. Institutional Development of Forest User Groups in Nepal-Processes and Indicators. Journal of Forest and Livelihood UK. July 2003

representative of community needs and aspirations in similar social/geographical context in the Karnali region. While the outputs and activities have been 'pre-identified', they will be implemented in target VDCs in accordance to the plans developed in Output 1.1.2. Adaptation actions identified and prioritized through this planning process will be implemented in each target VDC through Food/Cash for Assets (F/CFA) programs. As such, there will be a high level of 'tailoring' of adaptation actions listed in outputs below to local conditions through the adaptation planning processes described in Component 1.

NCCSP's experience in the five Karnali districts in terms of planning, prioritizing and executing local adaptation plans. Looking at the District Summary Report on LAPA 2012, MOSTE it is clear that the types of adaptation actions that are prioritized by vulnerable communities are largely related to food security, livelihood, energy and infrastructure. This information and field experience has been used to plan adaptation actions in component 2 of the project.

Summary of Adaptation Action Plans developed for NCCSP high hill districts

S.No	Eco-zones	Districts	Agriculture, Food Security, livelihoods, forest, biodiversity	Capacity development: skill development and income generation, planning, monitoring	Climate induced Hazards, disasters	Water resource, alternative energy	Infrastructure development	Total
1	High Hill	Bajura	82	46	0	19		147
2	High Hill	Dolpa	655	115	44	26	16	856
3	High Hill	Humla	71	82	46	43	19	261
4	High Hill	Kalikot	40	126	18	50	40	274
5	High Hill	Jumla	36	100	51	42	7	236
6	High Hill	Mugu	33	92	47	28	16	216
	High hill-total		**917**	**561**	**206**	**208**	**98**	**1990**

Source - MOSTE, 2012

The five outputs provide broad areas of intervention in response to the vulnerability analysis: developing livelihood related infrastructure, food processing and storage to overcome lean season shortages, agricultural productivity, alternate income and women's welfare. Within these areas of intervention, the F/CFA mechanism would be employed to realize community priorities that have emerged through consultative planning.

Output 2.1.1: Provide increased income opportunities for vulnerable households, especially during off-season, through building physical and natural livelihood assets

Small-scale farmers eking out a subsistence livelihood are most at risk from climate -induced hazards. In the target districts, vulnerability of farmers to climate induced dry spells is pronounced[40] and evident in annual periods of food deficits within districts. Typically, these districts produce only enough food for 3-6 months consumption[41]. Climate change has stacked the odds against food self-sufficiency.

[40] Krishna Krishnamurthy et al: Climate Risk and Food Security in Nepal: Analysis of Climate Risk on Food Security Components 2012. WFP and CGIAR

[41] More than Roads- Using Markets to Feed the Hungry in Nepal World Food. Programme 2009

This output will deliver income opportunity for both men and women during November to June through an asset building program at each VDC. Assets will be identified at household, ward, VDC and VDC cluster level. These could be focused on physical assets such rural roads or markets, or on production enhancing natural resource conservation such as land terracing, slope stabilization, irrigation canals, water harvesting ponds or tree plantations in catchments.

Lack of off-farm income opportunity during low rainfall seasons and winter has meant that many of the men migrate out of villages looking for work in urban areas, or India. This practice is sometimes interpreted as a coping strategy adopted by households in times of food insecurity. [42] The absence of one or more household members is meant to save grains even if they do not send income back home. However, the practice of leaving women and children back home with limited food and savings during the most climatically-stressed period of the year is likely to exacerbate their vulnerability. During these months income is limited and food is increasingly hard to access. Women in rural villages, especially in mountainous areas such as Karnali, resort to extremely hard manual work to eke out a subsistence living.

The output is aimed at increased adaptive capacity at household level primarily through by increasing income opportunity for vulnerable people during off-season months. The absence of off-season employment opportunity and lack of food and income during these crucial months affect longer-term adaptive capacity. Family assets deplete, land is neglected and livestock is often sold off at low prices. If men are retained in the community with cash/food incentive to develop productive infrastructure that can improve agriculture and livestock yields, there will be long-term positive impacts for that community. Around 60 days of work per family ensures food security for 3-4 months during the lean period where drought is common and agricultural activity low. The assets that will be developed through the F/CFA modality will need to be prioritized through community plans and approved by the district-level government technical officer. Every asset created through this intervention is expected to contribute to increased local agricultural production and consumption. The suggested interventions listed below have existing technical standards and are easily monitored for quality. [43]

- Increase availability of water through construction of an improvement to ridge ponds, community ponds, irrigation channels, check dams, etc.
- Improve connectivity of VDC to markets and emergency supplies during disaster and health facilities through strengthened feeder roads, bridges and culverts.
- Protect catchments of drinking and irrigation water sources through community-based forest plantation activities
- Improved structures (houses, community buildings) at local-level for storage, health posts and markets

Output 2.1.2: Increased local availability of and access to food and nutrition through better storage and value-addition at local level in all target VDCs

Most local and nutritious food crops traditionally cultivated for generations such as buck wheat, maize, millet and potato are least preferred by community over rice as a staple

[42] Passage to India- Migration as a coping strategy in Times of Crisis in Nepal. Nepal Development Research Institute and WFP 2008

[43] Technical Guidelines for Project Implementation and Design for Small Rural Infrastructures. WFP 2011

crop[44]. Problems of processing and using these traditional foods, lack of proper cooking methods and taste or value addition has gradually eroded their popularity. Rice comes at a high price and can cost twice as much in the mountains (due to transport and logistical issues) than in the plains of Nepal[45]. While farmers in the mountains cultivate rice[46] harvests are weak and high water requirements make it a highly risky crop in areas with increasing periods of drought.

The aim in this output is to introduce food value-addition and preservation methods and new recipes for traditionally grown crops, and improve household food storage. The output has a number of activities targeting women who would benefit from convenient cooking methods, information on low-cost and nutritious foods, and growing kitchen garden produce that can be stored for lean periods.

The adaptation benefit derives from improved seed and food storage at village level, and communities adding value to locally available and more climate resilient food, especially grains (in lieu of the expensive and rain-sensitive rice). The output aims to develop community seed banks to preserve indigenous/introduced so that seed material (more resistant to climatic stresses) will be readily available to local communities. This is expected to reverse the trend of diminishing genetic diversity in the mountains, in favor of climate sensitive and low-maintenance rice and wheat. Community-run rustic stores for potatoes are meant to store food buffer stocks and support resilience during periods of climatic stress and short supply. Specific activities in the 21 VDCs include:

- Introduce simple technologies (e.g. milling) for value addition of locally cultivated grain, vegetable and pulses
- Develop and promote easy recipes based on nutritious locally cultivated produce through Mothers' Groups
- Improve local, knowledge, skills and practices related to food preparation and storage
- Build and improve community seed banks to preserve and improve access to crop seeds of local origin and develop kitchen gardens for household needs
- Build community-managed grain/potato stores as food buffer stocks to develop an improved local food markets and food distribution system in each target VDC

Output 2.1.3: Improved and adapted current crop and livestock management practices to climate risks

Target VDCs are highly drought-affected. However, the communities still rely on outdated farming methods; lacking both knowledge and technology to improve yields. The problem analysis showed that drought is becoming increasingly common and a serious threat to livelihood.

In target VDCs agriculture (crop and livestock rearing) remains under-developed and under-serviced by government extension services. Extension services pertaining resilient alternative crop types, fertilizer/manure production, pest control, low-tillage farming methods

[44] Rijal, DK; RB Rana, PR Tiwari, LP Pant and D. Jarvis (2001). Promoting Local Food Culture as a Method to Conserve Buckwheat Diversity in Agro-ecosystem of Nepal. In. Research & Development on Buckwheat: AN important yet a neglected crop in Nepal. Proceedings of National Workshop, 2001, Kathmandu

[45] More than Roads- Using Markets to Feed the Hungry in Nepal World Food. Program 2009

[46] Jumla grows red rice at an altitude of 2500 meters, reportedly the highest rice growing location in South Asia

and improved livestock management techniques such as corralling and stall-feeding of livestock rarely penetrate in to remote VDCs.

While livestock is an important component of household food and income security, free grazing livestock pose a real threat to community forests and crop fields.[47] Drought also affects the availability of fodder for livestock. The adaptation benefit of this output is to prepare farmers for more frequent and prolonged drought periods. Improved methods and simple technologies can increase yields (and income) of crop and animal farming in which they are currently engaged.

The activities of this output have been developed with extensive consultations with experts in the Ministry of Agriculture Development (MoAD), District Livestock Development Officers (DLDO) and District Agriculture Development Officers (DADO). Using Food and Cash for Training (F/CFT) and farmer field schools the project will work with all target households to:

- Introduce water efficient technologies such as micro irrigation
- Introduce soil conservation methods such as terracing, low-tillage agriculture and SALT (sloping agriculture land technology).
- Introduce agriculture best practices already developed and field tested such as IPM, organic farming, and drought resistant crop species
- Introduce stall feeding, corralling to prevent free-grazing livestock from degrading forests and crops; Introduce improved fodder management techniques for drought periods
- With NARC[48] in Jumla establish 10 farmer field schools with the support of District Agriculture Development Officers to carry out climate resilient cropping practices such as low tillage, water use efficiency, protecting soil moisture, intercropping systems, varietal selection for resilient alternate crops, etc.

Output 2.1.4: Increased income through livelihood diversification using local resources

During field consultations, a number of income diversification options for women were identified. It was observed that the cottage industry is virtually non-existent in target VDCs due to lack of quality products and markets. Women, especially, were keen to have more skills development and technologies to engage in home-based industries that could have local market potential (candles, pickles, drying herbs etc.). Lease-hold and community forestry were other activities that communities identified for development to supplement rural incomes. Forest based enterprises such as medicinal, aromatic herbs are not well developed in the target areas. These could form a substantial portion of family income if markets are available.

Developing such non-timber forest products (NTFP) and their value addition could support women to engage in livelihoods that are less exposed to climatic variability. The outcome aims to reduce vulnerability to climatic stresses by broadening family and community sources of income. The idea is to use locally available resources and WFP's Food/ Cash and for Training modality to improve local skills and cottage industry as a viable alternate means of employment for women. The selected cottage industries will suffer relatively little impact from changing weather patterns and longer drought conditions.

The project's target areas also contain large areas of degraded lands which are privately and communally owned. Developing agro-forestry for food, fuel, fodder and timber is necessary in rural mountains due the large-scale degradation of forested lands to meet these basic

[47] Community and stakeholder consultations in Jumla

[48] Nepal Agriculture Research Council Zonal office in Jumla

requirements. The outcome will support communities to improve agro-forestry in lease-hold lands in identified degraded lands supporting increased tree cover and household needs.

This outcome will use and material support to establish:

- User/market groups for alternate income sources such as candle-making, pickle-making, growing herbs and mushrooms
- Training and tools for selected user groups within each target VDC to develop market-based produce
- Forest based enterprises including medicinal and aromatic herbs
- Local seed production as a community enterprise
- Leasehold and community forestry for better income and food availability

Output 2.1.5: Renewable energy based systems introduced to support women-led enterprises

As described above, the comparative social and economic vulnerability of women in the project districts is high. The project will discriminate positively towards women and disadvantaged groups in the adaptation planning process at VDC-level so that their context-specific issues are identified and prioritized within the plan, as described in Output 1.2.

Women spend much of their time sourcing basic resources for the household, such as firewood, water and fodder for animals. Their technical capacity and skill levels remain low. Within homes they also have to work in unventilated, smoke filled rooms. The lack of water within easy reach (10-15 minutes' walk from the home) and indoor smoke pollution increases drudgery and lessons quality of life. Sanitation remains poor due to lack of adequate water supply and facilities for bathing and washing.

This output will introduce renewable energy systems to ease the burden on women and improve their socio-economic status. This includes providing tried and tested models of smoke-free stoves, efficient water mills for grinding, milling, solar for lighting, cooking and water heating and Multiple-Use Systems (MUS) for water to increase water use efficiency. The output also plans to establish novel 'service centers' for women in each VDC specifically targeting women with clean, solar heated water for washing and sanitation, clean cooking stoves powered by solar, and facilities for child care.

The centers would be established in state-owned or community owned land. They would be managed by women's groups in the village. Capacity of women's groups will be developed in Output 1.1.3 and further women-led activities (including income-generating activities) Outputs 2.1.2 and 2.1.4. The service center will provide local employment to one or two women. The center would also demonstrate multiple-use systems for water to inform and educate rural women on domestic best practices. [49] This component will be executed by the District Environment and Energy and Committees and NGOs.

The adaptation benefit is derived from improvement of the quality of life of women in vulnerable households, and within the community. Social dimensions of adaptive capacity include the status, health and mobility of women in a community.[50] Increased incomes, better health and clean energy will lead to increased resilience at household and community level. Higher resilience improves the ability to face climatic stresses and weather-related disasters. The Service Centers are designed so that women will save both time and effort in

[49] A plan and drawing for the proposed service center and cost estimate included in annex 13

[50] Burton et al. Adaptation to Climate Change in the Context of Sustainable Development and Equity (2009)

bathing, washing and cooking, allowing them more time to engage in productive income generation.

For 21 VDCs the project will support households to establish:

- Improved water mills for food processing
- Solar dryers for food processing and drying
- Improved cooking stoves and ovens to reduce indoor smoke pollution
- 21 solar-powered service centers to provide essential water-energy related services to local communities, with a focus on women. These centers will provide bathing, washing, toilets, safe cooking and child care facilities. They would be maintained as income generating ventures managed by VDC Women's Groups.

B. Describe how the project / program provides economic, social and environmental benefits, with particular reference to the most vulnerable communities, and groups within communities, including gender considerations.

The project will target some of the most climatically vulnerable and at-risk VDCs in three Karnali districts- Mugu, Kalikot and Jumla. The target VDCs have already been ranked by the NCCSP[51] project as being highly vulnerable to climate induced hazards, especially rainfall variability and drought, and they demonstrate low adaptive capacity.

The project will deliver both 'soft' support in terms of awareness, planning capacity and technology transfer and 'hard' or concrete adaptation actions that are expected to transform lives of communities at risk. As described in the strategy, the project will use Cash and Food for Work (C/FFA) to deliver income to communities to implement project activities. Throughout the implementation period, every target household will receive food and/or cash ensuring food security for a family of five for 3-4 months of each year. Activities implemented through such community participation will support increased availability of livelihood resources and increase production, ensuring income and food security in the longer term.

In terms of **economic benefits**, the target VDCs will see an increased investment in agricultural production and diversification. The largest share of investment will be in water management. Water tanks[52] will be constructed on hilltops, in farms and at homes to improve water storage and maximize utilization in a variable rainfall regime. Improved irrigation will ensure that farmers have adequate water for cultivation of two cropping season a year. Crop diversification will support high-value vegetables such as local beans, carrot, cauliflower, capsicum, potato and saplings of temperate fruit species, spices and medicinal herbs. Regular extension service delivery will help farmers adjust to adverse impacts of uncertain weather conditions during planting or harvesting. Investment in post-harvest technologies and storage (buffer stock) of potatoes and grain storage will provide village families with income and food during lean agricultural seasons.

Households would, as mentioned earlier, have food and cash- earning opportunity through local infrastructure work related to adaptation (such as irrigation channel construction, water tank construction, soil management, tree planting) during dry season when agricultural activity is low. Women in villages will be given extra opportunity to earn income through this food-cash for assets schemes. This will be the main mechanism through which project funds will flow directly to target households. The outcome will be

[51] National Climate Change Support Project

[52] Of different technical specifications and different capacity

that both men and women would be engaged in productive, adaptation-enhancing activity during dry months. This is expected to reduce negative coping strategies such as migration and selling off livelihood assets (land, seed stocks).

CR1. Indeed, creation of additional assets and jobs locally, particularly during the lean agriculture season, will engage people who would otherwise out-migrate because they are under employed or unemployed. See the link for available evidence: (http://www.wfp.org/content/passage-india-migration-coping-strategy-times-crisis-nepal-2008)

Socially, the project will demonstrate 'positive discrimination' that supports women and other disadvantaged groups to participate in income opportunity and increased production. Generally the social impacts of marginalization will be ameliorated through better extension services, capacity building measures and project investment in the target VDCs. Village level information centers will connect villagers with technical data on core systems including water, forestry, crops and livestock, and weather related information. Planning and training will combine to increase community capacity to face future adverse conditions and mobilize local and district resources for their welfare and development.

CR2. The reduction in out migration can be expected to increase the sharing of work among men and women and reduce the workload of women. For women the project will deliver some specific, gender-sensitive adaptation options, including livelihood based skills development and access to new technology. This will improve home-based income opportunity and lessened physical labor for women who spend much of their time and energy gathering firewood, water and minding livestock. Special service centers introduced through output 2.5 will cater to women-centric needs, especially energy related technologies, water for sanitation, and strengthen women's groups and mother's groups to engage in planning, implementation and monitoring of adaptation actions.

CR6. Since the target beneficiaries are poor and disadvantaged (including Dalits and other minorities) the project's focal user groups would consist of largely of women and disadvantaged families. Although activities under Output 1.1.3 specifically mention ensuring women's participation in decision-making and implementation; the output pertains to women and disadvantaged groups. The Ministry of Environment, Science and Technology also recognized the need to have special interventions that overcomes the current marginalisation and its impact on their social/economic status. In ownership and management of assets created WFP already has established field best-practices that positively discriminates in favor of women and the disadvantaged in selecting cash/food for assets beneficiaries, building their capacity to own and manage assets created, and strengthening their positions within VDCs to ensure their voice is heard in local governance**.**

Environmentally, project interventions will contribute to increased water availability and irrigation potential through ground water recharge and water harvesting; improved forest and tree cover through community forestry and agro-forestry; improved soil and slope stability through conservation techniques such as bunds, drains, live fences and improved biodiversity in terms of plant, animal and microbial life in both home gardens and community forests. These environmental benefits will ensure integrity of ecosystem services that support community livelihoods. The combination of outputs 2.1 and 2.4 is expected to demonstrate:

- Increased vegetative cover in degraded areas with focus on catchments of local streams and water sources

- Increased assets for landless and disadvantaged communities and therefore building their adaptive capacity
- Managing forest fires and resultant degradation of land and water sources.

C. Describe or provide an analysis of the cost-effectiveness of the proposed project

The project's target districts remain some of the most inaccessible and remote regions of Nepal. Due to the logistical challenges of delivering development support in these areas, these areas are often deprived in consideration of investment effectiveness and efficiency. Physical assets such rainwater harvesting ponds and tanks, irrigation systems; markets, roads, bridges and service centers are essential to push these households out of their subsistence-level farm practice; and ensure water security in the face of increasingly erratic rainfall. By conserving the natural resources that support farm livelihoods, such soil, water, and forests the project hopes to buffer community against current and future climatic threats, especially rainfall variability and temperature rise all of which will impact water availability and soil quality.

The project will invest heavily in building physical and natural assets that promote farm productivity and therefore contribute to food and income security for target households. Field consultations reveal that the region has huge potential for a variety of high value commodities including high-priced herbs, vegetables, fruits and non-timber forest products and agro-eco-tourism. With improving communication system and road transport a variety of gateways are opening for community to market these high value commodities. In view of this, the project invests in developing appropriate skills and local value-added industry, so that there will be positive synergistic effects of infrastructure development and climate adaptation. In the selection of VDCs the factor of market access was considered, so that investments would lead to longer term change in income and livelihood.

Community asset creation in exchange for cash or food is an already tested system of ensuring household food security in lean periods without scope of agricultural activity; or during a post-disaster recovery.[53] Participating households build critical infrastructure in exchange for food or cash. It is already proven[54] that community asset building has a host of positive impacts upon the receiving community. Infrastructure so built, could link farmers to markets, households to services and provide necessary socials security nets in times of stress. The Government and World Food Program's food or cash for assets (F/ CFA) amounts to 4kg of rice per day per participant. Each household is guaranteed 60 days of work (per year) through one member (male or female). The food is programmed to meet the cereal requirement of a household (approximately 5.6 people) for at least four months of the year. Cash transfers (CFA) are determined based on the area-specific market rate for the equivalent of rice and pulses.

However, current food and cash for assets (F/CFA) interventions are 'stand-alone' projects designed to bring in cash or food to the community. They are not part of a larger development plan of the VDC or based on the district development planning process. Often they are not integrated in to sectoral plans managed by technical agencies in charge of irrigation, agriculture, livestock or forestry. As such, the usage and maintenance of such community assets and their contribution to agricultural production and long term food security is not monitored as part of an overall plan.

[53] More than Roads- Using Markets to Feed the Hungry in Nepal World Food. Program 2009
[54] More than Roads- Using Markets to Feed the Hungry in Nepal World Food. Program 2009

The effectiveness of F/CFA programs to deliver community benefits, especially food-assistance during the lean, dry months, is recognized by national and district authorities, and WFP's partners.[55] Food or cash assistance delivered through such programs are an important source of income and food security during the lean season in remote Karnali villages.[56] It is clear that F/CFW can deliver both short and long term adaptation support. In the short term, it helps communities to overcome food deficits caused by climatic stress. An in the longer term it supports communities to develop productive assets that can improve agriculture-based livelihoods. The value addition of the proposed adaptation project is to improve on the existing asset-building model, and introduce a host of complementary activities that will ensure that the assets actually contribute to a reduction of household and community vulnerability to environmental and financial shocks.

An alternative implementation approach would be to use a contractual modality to build the productive assets for each VDC. This is the modality being followed by the NCCSP project. Priorities identified by communities though the LAPA process are financed through the project and implemented through local contracts. Contractors are from the private sector and are not sensitive to participatory development models. Therefore community participation in such a modality would be restricted.

Another alternative approach would be to implement the project entirely through government channels. This would mean that District Development Committees and their government extension services play a central role in implementing the actions, rather than the planning and monitoring roles envisaged by the project. While this may be more cost effective, the capacity of present government structures to deliver in the field, especially in logistically challenging regions such as Karnali, is restricted. The World Food Program, on the other hand has trained and maintained a network of field-based staff as well as NGOs that have greater reach in to the VDCs and are able to immediately implement project outputs. (Of course, government will send a formal letter to the Adaptation Fund formally requesting an exception for those outputs which WFP and its partners are asked to execute)

In order to analyze cost effectiveness, a brief discussion on alternate macro-level adaptation options is presented below. These options were presented by district and national stakeholders consulted during project formulation.

Shift to non-farm livelihoods – Analysis of non-farm income opportunity reveals that migration is a commonly adopted coping strategy. Migration takes many forms- some leave for a few months of the dry season, others stay out for most of the year and yet others return home once every few years. India is the most common destination. Commonly, it is the men who migrate for work, leaving behind families of young and elderly to be looked after by women. Seasonal migrants remit between USD 70-340 annually, depending on the location (India or Nepali cities) and the caste, level of skill of the migrant.[57] However seasonal migration is not a preferred livelihood option, with most villagers preferring to remain home if productive employment is available.[58] In the Karnali region industry or tourism is not well developed. Hence other off-farm income opportunities are non-existent except in some district headquarters. The project offers

[55] Consultations with Ministry of Federal Affairs and Local Development; Chairmen and Secretaries of District Development Councils and WFP's partner NGOs

[56] Oxfam International. Climate Change, Poverty and Adaptation in Nepal 2009

[57] Passage to India- Migration as a coping strategy in times of crisis in Nepal. Implications for WFP Responses. 2008

[58] Passage to India- Migration as a coping strategy in times of crisis in Nepal. Implications for WFP Responses. 2008

off-farm employment during the dry season, and between planting and harvesting when household food stocks are leanest.

In highly food insecure areas, the current F/CFW approach demonstrably reduced negative coping strategies and allowed beneficiaries not only to pay-off high interest local loans but also reduced to need for seasonal out-migration.[59]

Large-scale irrigation or change in crop type- The mountains in the project area are the catchment areas of the Karnali and its tributaries which irrigate large areas of the downstream Tarai and Indian plains. However, due to the undulating terrain, large-scale river based irrigation is not feasible in these locations. Feasible irrigation systems are small-scale stream diversions or water ponds on hill tops. Both these options will be pursued by the project.

The Ministry of Agriculture Development through its district offices has been attempting to divert farmers from grain (rice and wheat) cultivation in the dry season; encouraging instead high value vegetables or fruits. The subsistence nature of rural agriculture in Nepal has resulted in households depending on domestic production for household consumption. It is difficult to wean farmers away from grains, especially rice, despite the larger risk of crop failure. The project aims to improve agricultural productivity by introducing drought-tolerant cultivars, and diversified crop and livestock options so that households are able to better manage climatic uncertainty. Technical services and access to markets will increase interest in farmers to cultivate high value vegetables, herbs and fruits.

Permanent migration from high-risk locations: Migration is a culturally and politically sensitive issue and the government does not endorse involuntary migration from high-risk areas. It is expected however, that some areas could become so inhospitable due to climatic factors; and comparatively far behind in development, that villagers will have to move to urban centers where infrastructure facilities are adequately available to manage risk of climate change. However, the project will focus on improving production, livelihood options and adaptive capacity *in situ* so that communities are able to face and better manage climatic hazards in current locations.

The project will generate co-benefits through linking with other climate adaptation and development programs being implemented in the region and districts. Some of the projects implemented there include the DFID support NCCSP, World Bank supported Himali Project, Poverty Alleviation Funds of the World Bank and block grants channeled through Karnali Development Fund (a more detailed review of these projects is presented below). Linking and coordination with other projects also delivering hardware deliverables such as Rural Access Program supported by DFID, Ministry of Federal Affairs and Local Development (MoFALD) and WFP's country program will generate significant aggregated impact to reduce vulnerability in target VDCs.

In terms of the cost-effectiveness of proposed adaptation interventions listed in Component 2 the project will only invest in activities prioritized through participatory planning and economic/technical assessment of the relevant government agency.

In terms of improving community livelihoods and household incomes in Karnali, community forestry and improved markets remain high on the development agenda. Realizing the importance of forestry programs and markets for the sustenance and

[59] Household and traders CFA survey in 2009 quoted in More than Roads- Using Markets to Feed the Hungry in Nepal World Food. Program 2009

diversity of livelihoods; the project, however, does not prioritize these actions for two reasons: 1) Forestry programs will take a longer period to provide results than the project's duration. Under Outcome 2.4 dealing with alternate livelihoods, leasehold forestry models for agro-forestry will be explored as per community requirement; and 2) Markets could be funded through community infrastructure needs in Component2; but the focus is on alleviating drought through water management structures. Market buildings and improved access could be financed through regular district development budgets.

To improve cost effectiveness of interventions, the project proposes build on research and practices of key Ministries, the World Food Program, other UN agencies and NGO counterparts. Some of these practices are:

1. Community Asset Building: the Government and WFP have implemented a cash/food for assets program to develop community assets for the past five years. The Country Program 2013-2017 will prioritize asset building as a means of bringing communities out of relief and in to sustainable production. Lessons from these programs incorporated in to project design include:

- Technical standards related to small rural infrastructures
- Delivery mechanism and payment modality for families to engage in cash for assets
- Equal pay for equal work to ensure sufficient access for women to earn food and cash through the program
- Experience in working with non-governmental partners in delivering in some of the most remote locations in Karnali region.

2. Water harvesting structures (hill-top and domestic):
Extensions services of agriculture and irrigation in Mugu, Kalikot and Jumla as well as a number of local and international NGOs have piloted ridge ponds, field ponds, domestic water harvesting tanks, micro irrigation and practices to retain and improve soil moisture. These will be incorporated in to the adaptation plans with the support of technical line agencies at district level, to ensure that the best structural and community-accepted models are used in the project. Water harvesting ponds and irrigation a channels are also part of the asset creation work at community level.

3. Improved management of forests and biodiversity for poverty alleviation: Ithe FAD funded WUPAP (Western Uplands Poverty Alleviation Project) implemented in the far and mid-western region in the last three years have set the ground work for lease-hold forestry as a means of improving income through sustainable agro-forestry. The lessons and practices of this project that will be adopted by the project are:

- Beneficiary targeting for more representation of marginalized households in a VDC
- Species mix and selection to improve year-long income opportunity
- Monitoring mechanism involving District Forest Officers

4. Slope stabilization and soil conservation: The Department of Soil Conservation has a set of practices for effective land reclamation and management in the mountains to ensure soil quality and land productivity. The project will borrow from already field tested practices including SALT (Sloping Land Agricultural Technology) of the Department's district level extension offices. A combined program for crop and land management will be implemented through NARC research center in Jumla to support Output 2.4.

5. Drought resistant crops: The NARC (Nepal Agricultural Research Council) is developing and field testing a number of resistant and high yielding/short field duration varieties in Jumla zonal research station. Seeds and information on such recommended varieties will form the agricultural support package envisioned in Output 2.4.

6. Adaptation planning through LAPA: The National Climate Change Support Project (NCCSP) of the Ministry of Environment, Science and Technology[60] has operationalized LAPAs in selected VDCs of 14 districts in mid and far-west including Karnali Zone. The process, the lessons and the trained facilitators and trainers will be used by the project to generate local plans with validity among both community and local government.

D. Describe how the project / program is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, sector strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

Nepal developed and submitted its NAPA to UNFCCC in 2010. The NAPA is set within the country's development objectives. These objectives have been articulated in the national planning strategies and are aimed at addressing the specific economic and socio-political conditions prevailing in the country. Nepal's development goals, and the NAPA framework, have the overriding objective of reducing rural poverty.[61]

Reflecting this, the Tenth Plan/ Poverty Reduction Strategy Paper (2002-2007) and Three Year Plans (2007-2010 and 2010-2013) are aimed to bring about a sustained reduction in poverty level in Nepal. These plans identify four broad development priorities: broad-based sustained growth; improvement in access and quality of infrastructure; social and economic services in rural areas, including targeted programs for social and economic inclusion of poor and marginalized communities; and good governance to improve service delivery, efficiency, transparency and accountability.

The current Three Year Plan follows the rationale of improving the living standard of people and sustainable economic growth as a means to poverty reduction.

<u>Project Alignment with NAPA Outcomes and Outputs</u>

The project is aligned with the priority profiles (see annex 5 for a full list of NAPA Profiles) 1 and 2.

Profile 1: Promoting Community Based Adaptation through Integrated Management of Agriculture, Water, Forests and Biodiversity

Profile 2: Building and Enhancing Adaptive Capacity for Vulnerable Communities through Improved Systems and Access to Services related to Agricultural Development

Project Objective(s)	**NAPA Long Term Outcomes**
1. Strengthened capacity to identify climate risks and design adaptive strategies	Profile 1 iii. Climate adaptation modality involving public and private sector developed vi. Climate adaptation in development plans and

[60] Funded by DFID and UNDP

[61] National Adaptation Program of Action to Climate Change. Ministry of Environment, Government of Nepal 2010

	programs integrated and mainstreamed
2. Diversified livelihoods and strengthened food security for climate vulnerable poor in target areas	Profile 1: i. Food sufficiency for poor marginalized, and disadvantaged farmers in water stressed areas attained iv. Livelihoods of the Climate vulnerable including local poor and indigenous communities improved by increasing income from natural resource based employment Profile 2 i. Changes in agricultural production in response to observed climate change ii. Agriculture based rural livelihoods in climate vulnerable areas sustained
3. Increased resilience of natural systems supporting community livelihoods to climate change induced stresses	Profile 1: ii. Climate resilient communities created within the project area and impacts demonstrated to other areas
Project Outcome(s)	**NAPA Outputs**
1.1 Climate vulnerable and food insecure poor actively participate developing climate risk reduction strategies and actions ***1.2 Ownership and management of climate risk reduction activities and replication of lessons are strengthened in key livelihood sectors***	Profile 1 iv. Community adaptive capacity and decision making power enhanced xi. Community-driven adaptation projects implemented in demonstration sites Profile 2 i. Action (LAPA) increased Profile 1 xi. National and local capacity strengthened to develop climate resilient communities x. Climate friendly infrastructure developed Profile 2 i. Climate smart agricultural extension and advisory related services strengthened
2.1 ***Livelihoods are diversified and strengthened, and livelihood assets and access to food for climate vulnerable households are improved***	Profile1 i. Food security for climate vulnerable enhanced ii. Option for on-and-off farm income generation widely adopted v. Sustainable resource management with focus on watershed and water conservation vii. Climate resilient soil and water conservation measures availed for wider adoption Profile 2 i. Climate smart agricultural extension and advisory

	related services strengthened v. Use of climate adaptive crop varieties and livestock breeds increased

In addition project outputs impact on Priority Profiles 3, 5 and 8 of the National Adaptation Program of Action. NAPA profiles are summarized in annex 5. Apart from its clear linkage to the priorities identified in the NAPA, project activities also have strong synergy with policy elements set out in the government's 10th Year Plan and development policies of National Line Ministries such Agriculture, Forestry and Irrigation.

Project Elements	Consistency with National Policies and Plans
Food Security and Agriculture	**Nepal's Tenth Plan placed high priority on this sector and this trend is continued in the current Three Year Plan. The Tenth Plan envisaged agricultural growth increased by 4.1% per annum and livestock by 4.9% per annum. Reduction of food insecurity and malnutrition were high priorities as well. In terms of Strategy; the Plan identifies –diversification and commercialization, enhanced irrigation, and improved markets.** **The Agriculture Perspective Plan (1995) recommended stronger role for private sector and communities, farmer groups and cooperatives iin the management of infrastructure and assets**
Irrigation and water resources management	**The Tenth Plan emphasized on increased irrigation through rehabilitation and creation of public and community-based irrigation systems. The use and scaling up of best-practices related to non-conventional micro-irrigation schemes and new technologies were also recommended. The Plan also attached high priority to drinking water supply and rural sanitation. Strategies aimed to mainstream community based approaches in decision-making, benefit sharing and cost recovery**
Community /Leasehold Forestry	**Forest management was also prioritized in the Tenth Plan due to its role in promoting rural livelihoods and providing environmental services. It was recognized that the community and lease-hold forestry systems contribute to the rural economy and agriculture systems and made forest products available to the local and regional markets. Similarly forestry sector was prioritized for the contribution to ecosystem services and its livelihood benefits for the poor and marginalized rural people.**

E. Describe how the project / program meets relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc.

The major portion of the project's investment will be directed to building and rehabilitating community assets. These are generally small-scale structures that do not require detailed approvals such as Environmental Impact Assessments. However, as structures such as irrigation channels, ponds and rural roads could have some impacts on downstream communities and on the local geology, especially in fragile mountainous terrain, VDC level asset building projects will produce an 'environmental assessment' as part of the feasibility assessment elaborating possible impacts and some mitigation measures.

All local NGOs implementing Government supported- asset building projects in districts have to conform to certain minimum technical standards set out by the agency.[62] In this guidance technical standards are set out for all types of commonly built community assets such as water harvesting ponds, small surface irrigation channels, foot rails and foot bridges, rural roads, school and market buildings, vegetable collection centers and land improvement/slope stabilization.

The guidance further provides minimum standards for project management, planning, feasibility, surveys, design and a good review of all alternative options including quality assurance, social mobilization to involve and engage women and disadvantaged groups and future maintenance of structures.

In addition to these guidelines, the project will conform to government standards set out by different Ministries as described in the table below.

[62] Technical Guidelines for Project Management and Design for Small Rural Infrastructures. World Food Program 2011

Technical Standards Applicable to the Project

Activity	Applicable Standards	Application to Project	Monitoring
1. Local/small infrastructure • improved irrigation systems; - **ridge ponds,** - **community ponds,** - **check dams** etc. • land and soil management techniques; - **contour drains,** - **bunds,** - **terracing** • Construction; - **rural roads,** - **bridges and** - **culverts** • Community- - **plantation/forestation** - **nursery management and seedling production** • Infrastructure works; - **market and collection center at local-level for storage,** - **health posts** - **community center**	Technical specifications of the Department for Local Infrastructure Development and Agricultural Roads (DoLIDAR)/ Ministry for Federal Affairs and Local Development Technical Norms of DoLIDAR. Guidelines and Action Plans by the Ministry of Environment for enhanced climate resiliency of these infrastructures. Bioengineering Manual and Handbook, Department of Roads, Ministry of Physical Planning and Public Works, Nepal Geotechnical Guidelines and Manuals, Department of Roads, Nepal. Guidelines and Manuals of the Department of Water Induced Disaster Prevention (DWIDP), Nepal	District Technical Officers of the District Development Committees Project Management Offices of the respective Infrastructure Projects. Through implementing NGOs in VDCs	National Project Manager and WFP Project Coordinator External/Third Party Monitors assigned by the Implementing Agencies.
Agriculture and Food Consumption • Simple technologies for value addition of locally cultivated grain, vegetable and pulses • Recipes for nutritious locally cultivated produce through mothers groups • Local, knowledge, skills and practices related	Guidelines and Manuals as set by Department of Agriculture Cash for Work norms and standards applied by WFP	Project Management Unit and DSD Extension Officers	Natural Resources Management Division of the Department of Agriculture

to food preparation and storage • Food buffer stocks to increase community resilience to climate-related shocks • Community seed banks to preserve local genetic diversity • Community managed grain stores and rustic potato stores to develop local food markets during off-season		Project Management Unit	National Project Manager and WFP Project Coordinator
• Improved agronomic practices including; - **organic farming,** - **low-tillage agriculture,** - **integrated pest management (IPM)** • Introduce protected agriculture; - **poly-tunnels/house** - **and water efficient technologies (drip irrigation, MUS)** • Introduce stall feeding, corralling to prevent free-grazing livestock from degrading forests and crops • Introduce improved fodder management techniques for drought periods • With NARC in Jumla establish field trials for water use efficiency, soil moisture, varietal selection of drought resistant crops in project areas	Guidelines and Manuals as set by Department of Agriculture and Livestock	Project Management Unit Project Management Unit	Irrigation Department and Forest Department through Divisional Project Monitoring Unit
• Participatory Adaptation Planning in VDCs	Framework for Local Adaptation Plans of Action (LAPA) of the Government of Nepal	Local NGOs, community mobilisers and technical assistance by DDC/VDC officials	National Project Manager, District Coordinators and WFP Project Coordinator
• Develop user/market groups for alternate income sources such as candle-making,	Local enterprise Development Guidelines	Implementing NGOs, Local	

pickle-making, growing herbs and mushrooms • Training and tools for selected user groups within each target VDC to develop market-based produce • Develop forest based enterprises including medicinal and aromatic herbs • Develop local seed production as a community enterprise • Agroforestry systems introduced in abandoned arable lands for diversified production • Develop leasehold and community forestry for better income and food availability	FECOFUN guidelines on Forest Based Enterprises Forest Department Guidelines and technical recommendations on leasehold and community forestry	Resource Persons,	

F. Describe if there is duplication of the project / program with other funding sources, if any.

There are several donor-funded projects that also focus on Karnali due to its low development status. In designing this project care has been taken to avoid duplication of geographical targeting. In all cases, discussions were held with project implementing agencies and donor agencies on complementarities, lessons learnt from existing projects and means of harmonizing interventions.

The Nepal Climate Change Support Project (NCCSP), funded by DFID and the EU, project supports the Ministry of Environment, Science and Technology to operationalize the LAPA (Local Adaptation Plan of Action) on the ground. 14 districts of the far and mid-western development regions have been selected for the first phase (2012-2015). The district vulnerability profiles and VDC-level vulnerability rankling developed by NCCSP for Karnali districts supported the selection of target districts and VDCs. In each district, NCCSP will conduct and implement LAPA in five VDCs. The proposed adaptation project will not target these five VDCs in the three target districts.[63]

However, the project will build on, and benefit from the experience of NCCSP. NCCSP project planning experience and the resource persons trained through the NSSCP initial phase will be extensively used. NCCSP has by end of 2012 developed LAPAs for 25 VDCs in the 5 Karnali Districts. NCCSP will support the most immediate and urgent needs in these plans that target most vulnerable wards, communities and households. As both projects will be managed through the Ministry of Environment, and the District Energy, Environment and Climate Change Units (DEECUs) there will be national and district level coordination in implementation and monitoring of outputs and activities. The project will benefit from the district level training imparted through the NCCSP. At district level, the process of VDC-level LAPAs would not be an alien or new concept, allowing this project to improve on the model already field-tested by NCCSP. NGO-representatives and community mobilizers already experienced in conducting the LAPA process would be used as trainers and guides in the proposed project.

The existing LAPA manual, framework and process which was applied during the NCCSP project implementation will be updated through project implementation process. The NCCSP has produced a large amount of literature on the process and method of adaptation planning at local level, including training manuals for mobilizers. This will be used by the proposed project to inform outputs of Component 1, especially LAPA preparation and prioritizing of adaptation actions. Both projects are institutionalized in district-level DEECC's, and the projects will likely share office space and some government personnel as well. There will be a great deal of information and knowledge sharing between these projects.

In terms of PPCR, the DEECC will have close links with the district officer of hydrology and soil conservation, the implementing arm of the PPCR project. The project has already used the vulnerability analysis on river basins conducted by PPCR to inform district and VDC selection.

This officer will be part of the DEECC committee and therefore lessons and best practices of PPCR ground level implementation will be shared with the project team. The project

[63] See Map above depicting NCCSP VDCs separately to the VDC clusters targeted by the project

proposes (in Output 1.2.1) o coordinate with the Department of Hydrology and Soil Conservation to upscale the VDC-level LAPAs in to watershed management plan

CR3. The PPCR planning process in Nepal began at the same time as the development of the NAPA. The PPCR aims to support higher level climate change mainstreaming at the sectoral and national level. The PPCR process is mandated to "build on" the NAPA, which is also the agreed framework for the proposed project. The institutional architecture devised for this project, aligning with the GON climate change structure, ensures complementarities, builds synergies among programs, avoids duplication, and increases efficiency. The Govenment demands that different programs closely share information and lessons learned, and *it disallows implementation of similar activities in the same VDC*.

The institutional mechanisms developed for the PPCR at central, regional and at district level will be supported by the AEPC's DEES operating in the districts. These are the same institutions through which the proposed project will be implemented and coordinated.

Three other projects focus on livelihood development in Nepal in the same Karnali districts as the proposed project. There are clear areas of complementarity where these projects, and the market linkages, private sector enterprises and supply chains developed will complement and support the household level production-related activities envisaged through the proposed project. The three other projects are implemented or coordinated through district development committees (DDCs). In this regard, to avoid duplication on the ground, the project envisages that the district coordinating mechanism for climate change and environment (District Energy, Environment and Climate Change units or DEECCs) will draw in sector-wide representatives from all relevant agencies and their district implementing structures. The project provides a budget to coordinate meetings of the DEECC through output 1.1, which is expected to streamline the activities of different projects for synergistic delivery at VDC level.

In addition to the livelihoods based projects, the ADB-funded PPCR (Pilot Project for Climate Resilience) takes an ecosystem -based view of climate change and adaptation taking watershed as planning units. Implemented through the Ministry of Forests and Soil Conservation, the PPCR has conducted a vulnerability assessment of 136 watershed areas in Nepal and mapped the entire river basins of three important cross-border rivers- Koshi, Gandaki and Karnali with technical support from IWMI (International Water Management Institute). This study also showed that the Karnali river basin is the worst affected by current and predicted climate change. PPCR will fund some environmental restoration-type activity in selected mini-watersheds of threatened river basins. The program will establish a technical consortium at district level to advise the DDC on watershed management for climate change adaptation and the key officials in the proposed program will be a part of that team.

CR4. The GEF-UNEP and proposed AF project will overlap in one district. The latter proposes to develop and upscale local adaptation options based on research on local crop diversity. The GEF project works with the Nepalese Agricultural Research Centre (NARC) to develop climate resistant crop varieties for agro climatic regions, preserving local on-farm diversity, improved technology and processing relating to traditional cultivars and developing and testing some of these models in selected locations. The UNEP-GEF project works largely upstream with some piloting work with farmers in different agro-ecological regions. NARC is already implementing this project, and through Outputs 2.2 and 2.3 the project will broadcast the successful practices piloted through this GEF project. The AFB project

envisages strong linkages with NARC at regional level (Jumla Regional Research Centre) and the project will benefit strongly from the research and development conducted by NARC and its extension officers, and use this knowledge to strengthen mountain farming systems against uncertain weather.

A summary of some projects in the same districts, from which the proposed project will derive lessons and best practices:

High Mountain Agribusiness and Livelihood Improvement (HIMALI) Project : Nepal Funded by ADB	Economic growth Environmental Sustainability Private Sector Development	Humla, Mugu, Jumla, Dolpa, Mustang, Manang, Rasuwa, Dolakha, Solukhumbu and Shankhuwashava Districts
High Value Agriculture Project IFAD and Ministry of Agriculture Development (MoAD)	• Renewable Energy Water, Sanitation and Hygiene • Agricultural and Forest Products • Pro-poor Sustainable Tourism	The project will be implemented in nine Mid-Western districts namely Surkhet, Salyan, Jajarkot, Dailekh, Jumla, Kalikot, Dolpa, Humla, Mugu, and Achham of Far-Western region.
Western Uplands Poverty Alleviation Project (WUPAP) Government of Nepal (GoN) and IFAD	• Small Infrastructure Development – District Development Committee (DDC) • Leasehold Forestry and NTFP – District Forest Office with support from NGO, Dabur Nepal, HPPCL and ICIMOD • Agriculture and Livestock – District Agriculture and District Livestock Services Office with support from NARC • Micro-Finance and Marketing – Local Development Fund Board (LDF) • Institutional Development – Local Development Fund Board (LDF)	Humla, Jumla, Bajhang and Bajura Mugu, Dolpa, Jajrkot and Kalikot, Dailekh, Rukum and Rolpa
Pilot Project for Climate Resilience (PPCR) funded by ADB through Ministry of Forests and Soil Conservation	Environmental restoration and land, forest management activities carried out by communities, NGOs and National Agencies	Not yet finalized

G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

The project targets selected VDCs in three districts of the most climatically vulnerable and food insecure region of Nepal. It is assumed therefore that project learning will be of interest and relevance to other regions and districts. The knowledge management elements in

Component 1 are dedicated to analyzing project impact through social and economic lenses and disseminating this information to other areas of the same districts; and other mountain districts.

The list of activities includes case studies on:

1. Analysis of adaptation planning process at local level and institutional capacities to support such actions
2. Evaluation of the implementing process from center (national ministries) to district DDC (LDO and DEEU) to VDCs and wards; and documentation of the roles and responsibilities of each actor involved
3. Impacts and results of adaptation activities on food security and income for target households
4. Feedback from field implementation to policy; testing out the strategies and actions listed out in the NAPA

These lessons and case studies will be disseminated through district workshops, one national workshop, policy briefs, media exposure visits, publications and community exchange visits.

For the Ministry of Environment, Science and Technology the project's knowledge management component is of special importance as it will enable them to track progress against Profile 1 of the National Adaptation Program of Action which is on 'Promoting Community Based Adaptation through Integrated Management of Agriculture, Water, Forests and Biodiversity'.

For the Ministry of Federal Affairs and Local Development the knowledge management component would support the integration of local adaptation priorities and local development planning processes in other VDCs and other districts in the country.

For World Food Program the project would provide invaluable information on best practices in a project approach that combines the short term approach of food supply and longer term objective of increased production and food availability in vulnerable local areas.

For other technical agencies, the project would generate information on best practices in agriculture, water resources including irrigation, community development and lease-hold forestry.

Above all, for communities in similarly vulnerable locations, the lessons of this project would pave the way for similar interventions in their localities. Exchange visits and community radio programs generated through knowledge management activities will ensure that lessons, personal stories and case studies are disseminated widely in local languages. For some of these visiting communities it may be their first time out of their own settlement or ward. Financing adaptation through normal development budgets will be another aspect of lessons learnt through the project.

H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations.

Project development involved a high level of consultation at national, district and local level. This included key government ministries, agencies, technical and scientific organizations, non-governmental organizations, international organizations implementing development projects in Karnali and elsewhere in the mid-and far western hills and mountains regions, research institutes, district agencies and community groups, especially farmer, forest-user and mothers' groups.

Consultations for project design were conducted between February and December 2012. This included one-on-one meetings with government officials from MoSTE and Ministry of Finance and Planning; UN agencies involved in climate change related programmes, donor agencies and international non-governmental agencies; discussion with district administration and technical officials. A list of officials consulted in included in Section H of the proposal

In July the Secretary of Environment, Mr. Krishna Gyawali called a meeting of key national partners to review the project framework and provide comments on the project target areas and activities. The comments were incorporated in the document, and several key outputs were revised accordingly.

National Stakeholders

Organization	Persons consulted	Outcome
Ministry of Environment, Science and Technology (MoSTE)	Prakash Mathema Joint Secretary (Climate Change) Mr. Batu Uprety Joint Secretary (former) Mr. Lava KC Project Manager NCCSP Mr. Naresh Sharma Agri Economist	Agreement on proposal framework, alignment with government NAPA program profiles and recommended actions, implementation arrangements that can deliver the fastest results on the ground, priority regions/districts for project intervention
Ministry of Agriculture Development (MoAD)	Deepak Mani Pokhrel, Ph.D Senior Horticulturist	Agriculture related vulnerabilities and suitable interventions in mid hills and mountains, agriculture extension services that could support project implementation, agriculture research and on-going developments that could be field tested in farmer fields schools in selected districts
Ministry of Federal Affairs and Local Development (MoFALD)	Reshmi Raj Pandey Joint Secretary	MoFALD is the implementing arm for Local Adaptation Plans and well as WFP's focal ministry for its community asset creation program. The discussions focused on integrating these programs through the ministry's district and local level development planning process.

National Planning Commission (NPC)	Purushottam Ghimire Joint Secretary	Discussions on national planning priorities that could be addressed through project interventions; especially the reduction of food insecurity in target districts which receive annual food aid
Department of Soil Conservation and Watershed Management	Bharat Prasad Pudasaini Director General	Integrating the project's interventions on soil conservation with on-going programs of the Department and the District Soil Conservation Offices. Discussions on avoiding duplication with the ADB-funded project on watershed management in the western mountain and mid-hill regions
Institute for Social and Environmental Transition - Nepal (ISET-Nepal)	Ajaya Dixit Executive Director Tyler McMahon Representative ISET International Jayendra Rimal COO	ISET has produced a number of knowledge products on climate vulnerability and is a leading researcher in the area. Discussions focused on the lessons and findings of concluded research and ability to carry out identified risk reduction activities in the field through project
The Mountain Institute (TMI)	Brian J. Peniston Director, Himalayan Programs	The Mountain Institute is an international NGO working with mountainous communities with special focus on gender and poverty. TMI is an implementing partner working with WFP Nepal and have conducted a number of field surveys on climate-related emerging local issues with communities. Discussions focused on building on existing consultations and project implementation support, especially in gender related activities
Scott Wilson Nepal Pvt. Ltd.	Shuva Kantha Sharma CEO	Scott Wilson is an engineering consultancy firm that developed the extensive guidelines for community asset creation used by WFP Nepal and MoLD to design and carry out these projects in VDCs. Discussions focused on integrating disaster and climate resilience to the

		guideline and conducting related capacity building through the project
National Trust for Nature Conservation (NTNC)	Siddhartha Bajra Bajracharya, Ph.D Program Director, Mountain Environment	Integrating lessons of on-going research programs related to biodiversity and natural resource management in the high Himalaya to project outputs.

International and Multilateral Organizations

Organization	**Persons consulted**	**Outcome**
ICIMOD International Organization for Mountain Development	David James Molden, Ph.D Director General Ouyang Huwa, Ph.D Program Manager Water and Hazards Neera Shrestha Pradhan Hazards and Community Adaptation Specialist Water and Hazards	Climate modeling for Eastern Himalaya; lessons and strategies adopted by on-going community projects; lessons of assessing carbon stocks in community forests and developing a sustainable financing mechanism for forestry programs
DFID	Ms.Sabita Thapa, Ph.D Climate Change and Natural Resource Adviser	Coordinating with and learning from the NCCSP project which is currently putting to test the LAPA framework in 14 districts of mid and far western Nepal. The selection of project target VDCs was based on the vulnerability assessment done at district level; and some activities are based on developed Local Adaptation Plans (LAPAs) in adjacent VDCs
IFAD	Bashu Aryal Country Program Manager	Discussion on IFAD's experience in community and lease hold forestry models and a poverty reduction strategy. Improved agro-forestry model emerges from the lessons of their implemented projects in the mountain districts of Karnali and Far-west.
UNDP	Mr. Vijay Singh Team Leader, Energy Environment and	UNDP is supporting the delivery of the NCCSP project through a technical assistance package

	Climate Change UNDP Nepal Mr. Man Thapa Program Manager Disaster Risk Reduction	for capacity building. UNDP's Disaster Risk Management Program is rolling out a comprehensive risk reduction program for 5 years. Through this they would be mainstreaming CBDRM approach including community early warning systems in all districts through district committees. The project's district level implementation unit will have linkage with these district committees

District Consultations		
Agency	**Officials**	**Outcome**
DDC Chairman, Local Development Officer of Jumla, Humla	Shalik Ram Sharma Chief District Officer, Jumla. Arjun Thapa, Local Development Officer, DDC, Jumla Naresh Kumar Dhakal Local Development Officer, DDC, Humla	Some key area for improving economic status of the rural poor are; Linking with RCIW (Ministry of Local Development) road corridor with effective collaborative work, Potential of commercial agriculture, NTFPs and addressing drought and hazards affected VDCs. District Development Committee (DDC) will coordinate all stakeholders to develop effective implementation mechanism in the district. Some key area to be focused are; weak public resource, possibility of lift irrigation, pond irrigation (plastic pond, rain water harvest tank), promotion in energy sector and development of interconnection road in the district, infrastructure development (school / health post)
DADO (District Agriculture Development Officer)	Aita Singh Gurung, District Agriculture Development Officer, Jumla Bauwa Lal Chaudhary Sr. Agriculture Development Officer, Humla	District Agriculture Development Office in the district is one of the key sectors for the promotion of livelihoods of the poor people. Some of the key area for the program intervention are; rain water harvesting/pond irrigation, plastic pond for the vulnerable group of farmers, sprinkle irrigation, drip irrigation, introduction of drought resistant varieties (red bean of local variety is drought resistant), promotion of cellar store for apple grower farm families, rustic store for potato, possibilities for the intercropping (bean some year) with apple and walnut, plantation and domestication of some key NTFPs in the lease- hold forest, livestock improvement (small ruminants), poultry farming, bee keeping, vegetable seed production (Carrot, Rayo, Corriander, Pea, Radish and local Bean) and linkage and coordination with local resource person (LRP).
DFO	Bharat Babu Shrestha District Forest Officer, Jumla	Total community forest user group in the Jumla district are 152 (19786.36 ha) and total lease hold

	Shyam Prasad Neupane District Forest Officer, Humla	forest 127 (1916.30 ha). There are 2500 to 3000 leasehold forestry in Humla. The major area for the improvement of the forest sectors are; plantation, control of forest fire and open grazing, fencing in the lease hold forestry, promotion of NTFPS and aromatic medicinal herb, agroforestry management, forest seedling production, promotion of forage and fodder crop species, watershed management, construction of green house for medicinal high value species, rain water harvest in water scare area.
District Statistic Office ,Jumla	Om Paudyal	Statistical information available from the district statistic office.

Local NGOs/ Community Organizations

Location	Name of Organization/ Group	Outcome
Nepal Red Cross Society Local Initiative for Biodiversity Research and Development (LiBIRD)_both in Jumla and Humla	Lok Darshan Shrestha, Chairperson from Nepal Red Cross Society, Jumla Jagadish Chaulagain, Nepal Red Cross society, Jumla. Sandesh Neupane (LiBIRD) District Coordinator (Jumla) Aasha Ram Gurung (LiBIRD) District Coordinator (Humla)	Karnali is one of the most vulnerable zone in the far and mid-western region therefore focus will be on existing programs such as; developing livelihood options, water availability, fruit farming and seed production Awareness and skill development programs are important at all levels. Small-scale enterprise development, management of drinking water supply system, irrigation and intervention of hydropower, complementary of software and hardware are recommended. Development of VDC level adaptation plan through LRPs, and in coordination with the multiyear and annual plan of DDC. Coordinating committee with private sector, regional, district (LDO) and VDC level (secretary) and village level is necessary for smooth implementation.

Local Communities VDC Name	No of Community and Gender	Outcome
Talium VDC_Jumla Community already involved in the LAPA process through NCCSP.	24 people (W=9, M=15)	Interaction with community at Talium VDC they are already involved in the LAPA preparation process, some of important points are; to promote and protect environment, make natural balance, natural resource management, use and distribution of resource, create awareness for the people. Some of potential areas for development are; apple orchards, off- season commercial vegetable farming and fruit farming. Reducing emphasis on cereal crops and promotion of fruit farming with intercrops, promotion of NTFPs and aromatic medicinal plants and herbs are identified as important livelihood avenues. LAPA process: Every three wards within a VDC are one group led by VDC secretary. Identified hazards drought, torrential rainfall, flooding, landslide, delay and infrequent snowfall, disappear of water source, hail storm, conflict among group of people (resource sharing),
Haku VDC _Jumla	25 W=11, M=14)	HAKU is a very vulnerable VDC in Jumla, with a number of issues such as crop production decrease, crop diseases, hail storm, untimely and inadequate rainfall, deforestation and lack of farm yard manure are major problems. Some others are; soil moisture in the farm, insect/pest and disease infestation, out of 150 household 100 are food insecure, poor, with inadequate supply of drinking water, dried water source, poor infrastructure (school), lack of awareness and poor adaptation capacity, production of NTFPs and medicinal plants have decreased.
Dandafaya VDC of Humla	People 15 (W=5, M10)	Community perception of climate change and its impacts are; delay and reduced frequency of snowfall, untimely and erratic rainfall, prolonged dry spells that affects winter

		crop, water stress (irrigation and drinking water), scarcity of drinking water sources, increased pest and disease incident both crop as well as livestock, early maturity of crops, decrease in crop production, limited seed availability, local crop varieties (low production), lack of fodder and forage crop species, low production, short duration of sun/day light, Change pattern in the qualitative and quantitative yield of vegetation types in community forests.
Ramnakot VDC of Kalikot	63 people (W=12, M=51)	Community perception of climate change and its impacts are; delay and reduced frequency of snowfall, uncertainty of rain (monsoon) even during the rainy season, prolonged dry spells that affects winter crop, water stress (irrigation and drinking water), decrease forest resources, inadequate production of cereal crops, decreased animal population both of small ruminant and cattle, decreased the number of wild animals but increase the population of jackal (it is due to reduce the number of tiger), scarcity of drinking water sources, increased pest and disease incident both crop as well as livestock, limited improve seed availability, local crop varieties (low production), lack of fodder and forage crop species, short duration of sun/day light, Change pattern in the qualitative and quantitative yield of vegetation types in community forests. Decrease the valuable non-timber forest product (NTFPs), red beans, mustard, black gram and some variety of local cowpea are in danger condition. Poor infrastructure of school building, health service centre, road etc. Fragile ecosystem and difficult to increase the production and income.

I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

Component 1: Baseline without AF support

In the baseline scenario village development planning would follow the traditional route, excluding women, lower castes and other disadvantaged groups. Climate risks would not be taken in to consideration in the planning process and financing would be allocated for projects with elite bias.

Households are represented in the VDCs through 'ward' level nominees. Social stratification does not allow disadvantaged groups to bring their livelihood concerns to the table. Women in general and households belonging to minor ethnic groups and socially excluded castes wield very little power to influence policy decisions at village level

In villages where WFP implements its current asset building program, needs are identified through focus group discussions. There is no climate risk assessment conducted to inform the decision. This approach compromises the sustainability of village infrastructure such as rural roads, foot/suspension bridges, irrigation canals, water ponds and even community buildings. Further, there are the 'creeping and slow' disasters such as dry spells and drought, shifting of timing of precipitation, and food security situation are not captured in the current local development planning process. A case study on an irrigation canal built through F/CFA in Jumla district clearly demonstrates this. While the asset created has transformed production and the life of women in the village[64] it is susceptible to flash floods or prolonged drought. As the irrigation system does not include water storage or damming, a long drought (common in this region) could seriously undermine sustainability of benefits.

Due to the lack of risk assessment and vulnerability analysis in the baseline without AF support; adaptation priorities would not be identified or prioritized in VDC development planning process. Adaptation needs, as those identified during community consultations in target districts will not be financed through normal village development planning. Technical agencies delivering support in districts and Ilaka, although aware of the larger climate-related problem, would not be sensitive to the specific climate risks faced by VDCs in their area, nor of the adaptation-based development priorities of these communities. These agencies would conduct standard programs for the area without tailoring technical information, seed supply, or marketing programs to the specific climate risks and adaptation needs. In turn, the viability of these programs and their long-term sustainability would be compromised.

Local level officers and NGOs working for development programs in districts have very little awareness on climate change issues and even less training on how to deal with grassroots problems stemming from climatic changes. There is no methodology to assess the comparative risks faced by VDCs and initiate mitigation actions in order to protect livelihoods. District development plans and budgets do not integrate climate change risks to production and food access. At national level, Ministries such as MoFALD, MoAD and MoFSC (Ministry of Forests and Soil Conservation) manage sector-specific research and development program with minimal integration of climatic foresights; which could cause serious setbacks to their own development outcomes.

[64] Case Study on Jumla Talium Irrgation Canal. WFP 2012

In the baseline scenario, there is no mechanism to generate and share information on risks, best practices and implementation modality.

Adaptation alternative: Adaptation planning is the first and most important step of the project. While the planning process will follow broad guidelines set out by the LAPA Manual[65] there will be specific activities that will address the discrimination towards women and disadvantaged groups that prevent them from actively participating in village decision-making. Each target VDC will have a local plan for adaptation, which can be easily integrated into village development plans. This local adaptation plan will identify vulnerable households and groups (women-headed households and very poor) within a VDC and specify adaptive actions for core systems such as water, agriculture, livestock, and forestry, infrastructure. Therefore, each VDC will have its own plan for adaptation ***and*** development which could be updated locally as necessary. Importantly, the planning process will increase community capacity to identify climatic hazards, analyze trends and anticipated impacts. Even more, the community would be able to plan adaptation actions that combine science and technical know-how of the supporting agencies. This would enable the community to take proactive decisions to increase their collective and individual capacities to face climate risks; and facilitate a number of autonomous adaptation measures beyond the project scope. Through Output 1.1.1 the project seeks to develop the capacities across all local, Ilaka and district levels to plan and deliver adaptation benefits. These training programs would incorporate climate risk assessments, incorporating gender and food security concerns, participatory approach to planning and tools recommended by LAPA for prioritizing adaptation needs.

This component also addresses issues of mainstreaming and coordination with the normal development processes at local and national levels, information sharing and training.

The adaptation alternative in this component also seeks to address the knowledge and training gaps that exist in the district and local planning sphere. The component seeks to support replication of the adaptive practices in other VDCs and districts, and integrate adaptation needs and climate change risks in to plans and programs of VDCs, DDCs, line agencies and ministries etc.

Through Output 1.2.1, the project seeks to elevate the local adaptation plan to the development process and incorporate adaptation priorities in the funded development projects of the VDC. In addition to the local plans, the projects seeks to develop adaptation plans for a 'cluster' of VDCs at a watershed level so that eco-system based priorities (water, forestry) could be implemented through technical line agencies. These plans and specific projects would then be discussed at stakeholder meetings at Ilaka level and at the DDC, enabling coordination with other initiatives and government programs with similar focus.

Through Output 1.2.2 the project seeks to generate and share information on adaptation practices and delivery mechanism with communities at risk, policy makers and district planners. This knowledge management component is described in more detail above, and is

65 National Framework on Local Adaptation Plans for Action (LAPA). Government of Nepal, Ministry of Environment Climate Management Division 2011

targeted to generate interest and awareness on cost-effective adaptation practices in the area and nationally.

Output 1.2.3 is specifically designed to work with national Ministries to mainstream climate change risks and adaptive practices into areas that have direct impact on rural livelihoods, including rural infrastructure development programs (design and guidelines); and research on climate resilient crops and cropping systems (including agro-forestry, protected agriculture and high value crops).

Component 2: Baseline without AF Support

In the baseline scenario, activities such as community asset building and community lease hold forestry would be carried out in these VDCs without alignment to the general village development plan or being designed to manage climate risks. Agriculture production and water resources would continue to be impacted by climate variability and uncertainty, resulting in lower yields and water scarcity for crops, animals and people. Lower yields means less food availability, and less income for the most vulnerable households. As a result people tend to shift towards negative coping strategies such as consuming less food, buying more on debt, selling off livestock and other assets, migrating out for labor, and consuming seed stocks preserved for the next season. Vulnerability would be highest among women and communities minor ethnic groups and socially excluded castes along with decreased income earning opportunity, access to technology and level of skill.

Mountainous regions have fragile ecosystems and food insecurity at household level is further exacerbated by environmental change and stresses.[66] The livelihoods of mountain communities are more strongly linked to the availability and management of natural resources such as water, soil and forests. While people realize the intrinsic linkage between forests as watersheds and the availability of water, there is little incentive to protect and preserve watersheds against the more urgent needs for timber or firewood. Gradual depletion of the natural resource base combined with rainfall variability will impact on productivity and availability of water. There will also be adverse impact on the environmental services rendered by the mountain eco-systems contributing to downstream impacts in valleys and the Tarai.

Ad hoc development actions that are not designed on a platform of scientific risk assessment do not contribute to long term change in these societies.[67] They could, instead, exacerbate vulnerability and reduce coping capacities further. It has been noted that despite interventions in irrigation and land management, many remote VDC do not produce sufficient crops for half the year[68].

[66] Responding to Challenges of Global Change- enhancing Resilience and supporting adaptation of mountain communities. ICIMOD Project Brief 2009

[67] Food for Assets Programme Monitoring Report, WFP Nepal 2011; Case Study on Jumla Talium Irrgation Canal. WFP 2012

[68] Food for Assets Programme Monitoring Report, WFP Nepal 2011; Case Study on Jumla Talium Irrgation Canal. WFP 2012

Adaptation alternative: The five outputs of component 2 are designed to deliver concrete adaptation actions that can transform the current practices related to production and natural resources management in mountainous villages. The aim is to implement an asset building program on a scientific risk analysis, participatory vulnerability mapping and community-oriented development planning. In this respect, activities outlined in Component 2, will directly relate to individual VDC plans within the broad framework of livelihood and life quality improvement. The selected adaptation actions relate to the problem analysis (see table below) and solutions proposed by farmers, local NGOs and extension services, and officials of the DDCs during field consultations in Mugu, Jumla and Kalikot[69].

Outputs in Component 2 relate to the strategy of providing two-pronged support: 1) income and infrastructure improvement for higher adaptive capacity at community and household level; and 2) better management of soil, water and forests for ecosystem integrity.

Every vulnerable household (in the case of these VDCs that would be around >70% of population) will benefit from F/CFA interventions. Identified assets[70] are water retention ponds, small irrigation channels, suspension bridges and roads connecting to markets and towns and community buildings. Community infrastructure needs will be prioritized during the adaptation planning exercise for its effectiveness in delivering adaptation benefits versus the costs. In each Output of the project, community assets will be developed or rehabilitated. These include grain and seed storage, soil stabilization through terracing and live fencing, pens and fences for livestock, tree planting for leasehold forestry, and construction of women service centers.

Agro-forestry introduced through the project will support landless families to own and improve degraded forests for their income. This model is already tested out by IFAD in their WUPAP (Western Uplands Poverty Alleviation Project) and will contribute to added tree cover (through fruit, timber and other perennials) in the VDC. Soil management, slope stabilization and improved production methods (such as drought tolerant varieties, short duration grain types, high yield vegetables etc), and livestock keeping will increase farm incomes.

The Food/cash for Training approach targets men and women, to develop their skill level and initiate small-scale cottage industries that are climate proof and have market potential. The selected cottage industries would not be immediately and highly impacted by weather anomalies. In support of increased adaptive capacity at household level, families would have an income source that is not impacted by climate shocks and variability. This will increase their ability to withstand climate-related crop losses and reduced harvests.

Women will also have equal access to cash-for-asset programs and other agricultural training programs that will be initiated through the project. Disadvantaged groups would have equal access to income and training opportunity and access to communal land.

[69] Please see ADAPTING TO CLIMATE INDUCED THREATS TO FOOD PRODUCTION AND FOOD SECURITY IN THE KARNALI REGION OF NEPAL. Field Consultation Report 2013

[70] Through community consultation. See ADAPTING TO CLIMATE INDUCED THREATS TO FOOD PRODUCTION AND FOOD SECURITY IN THE KARNALI REGION OF NEPAL. Field Consultation Report 2013

Overall, the project outputs relate directly to problems identified through stakeholder consultation and secondary data analysis (see the table below). The outputs are designed to provide income and short term food security (during project duration), medium term production benefits and long term capacity improvement (planning, skills and social organization) for at-risk communities by following the LAPA framework and using district and VDC coordinating structures for project support.

Problem Analysis	Solutions Proposed by stakeholders National, district, community	Related Project Outputs
1. Low yield due to lack of timely rain and irrigation for crops	- Improved irrigation - Improved water storage - Better local water source protection - Drought/ disease resistant crops - Shift to perennials - Forest production increased - High value crops and medicinal crops - Soil conservation/ terrace improvement - Promote IPM, low input, organic agriculture - Strengthen farmer-farmer seed system - Promote agro-forestry to enhance ecosystem services important to agriculture - Promote multiple use of water	-improved water management including irrigation channels, ponds and other. -improved soil management -Local farmer seed banks -Increased agro-forestry produce -increased income from NTFP especially herbs and mushrooms -farmer field trials for drought resistant crops and high yielding intercropping systems -Farmer field school for production related training and tools including MUS, IPM .
2. High level of seasonal food insecurity	- income opportunity increased - access infrastructure improves - markets and market networks improved - production increased - food buffer stock storage increased - more local varieties, drought resistant crops promoted - agro-forestry and intercropping promoted	Increased income – cash or food for assets Food storage, value addition, utilization, local markets Increased agricultural production
3. Lack of community access to information on new livelihood technology	- Improve extension services with information and training	Key informants in VDCs and wards connected to regional agriculture resource people, and district extensions services VDC-level information center

		established
4. Lack of community access to quality services	- Increase diversity of livelihood - introduce cottage industry, high value vegetables and NTFP - Create local markets	Training for TA staff and local NGOs
5. Access to income, financial services and marketing	- Improved local markets - Greater access to regular, sustainable income sources - Access to credit and technology	Cash and food for assets Creating local food markets NTFP promotion Livelihood diversification for women
6. Lack of access to climatic information & knowledge	- Regular awareness programs - Participatory planning and prioritizing	Adaptation planning and prioritizing according to LAPA

J. Describe how the sustainability of the project/program outcomes has been taken into account when designing the project.

Component 1 of the project seeks to train community-level representatives and then develop local adaptation plans, which incorporate needs of the most vulnerable people with a VDC. By 'local resource persons' the project aims to build village level capacity to identify climate related problems and incorporate solutions to these problems in to regular development planning process. The local resource persons will represent community interest/ user groups and will have a role to play in the VDC. Government extension services targeted by the project are grassroots officers who are the interface between technical agencies of the state (Agriculture, Livestock, Forests and Irrigation) and the community. These officers also play a role in identifying development gaps and issues in their particular sectors. Government service delivery is critical for both planning and implementing adaptation actions, and their subsequent mainstreaming in to regular district development budgets.

One of the key outcomes of the project will be increased access of households, communities and local institutions to information and service delivery mechanisms locally - and through demand for their services to build the capacity of service providers to continue to provide services when the project closes.

In Component 2, the project will deliver both short-term income opportunity and longer-term production-related impacts for target communities. Sustainability of these interventions is assured through a tried and tested delivery mechanism (food and cash for assets F/CFA) through existing NGO and government partners of the World Food Programme. The approach will strengthen community management of assets. Implementation/ monitoring support by government extension services will ensure greater ownership and maintenance support. For example, where the project constructs a ridge pond or re-plants degraded lands with food and fuel species, these interventions will be implemented and managed through relevant user groups. When technical support in species selection for agro-forestry or upkeep of the ridge pond is required, extension services will be consulted.

The sustainability of specific outputs is described below.

Output 1.1.1: The output will develop local capacity to identify and plan climate change adaptation as part of the VDC development planning process. The local resource persons trained through this output will represent community interest groups (such as Mother's group, farmers group, forest user's group) and vulnerable wards. Training will extend to district extension officers of sectors that are related to rural livelihood (and represented in DEECC). This training and the subsequent support they will extend to the planning process will enable government service delivery at lower levels to conduct risk assessment and recommend adaptive actions.

Output 1.1.2: The exercise of community adaptation planning will provide a number of capacity building opportunities for local communities. Firstly, the meetings and workshops associated with the process will increase community understanding of climate change, its local impacts on life and livelihood and future challenges.[71] Secondly, the process will influence decisions that households make on crop types, livelihood choices, water usage, livestock rearing etc. It will trigger autonomous or spontaneous adaptive practices outside of those that will be promoted and funded through the project. The process will develop planning and envisioning capability among community, especially local user groups, and networks.

Output 1.1.3: Mothers groups and local women's cooperatives will be developed and strengthened through this output leading to increased participation in development decision making and productive activity

Output 1.2.1: By mainstreaming adaptation plans, the project ensures longer term sustainable financing for identified priorities through decentralized budgets

Output 1.2.2: Dissemination of lessons will support replication at ward, VDC, district and national levels. The agriculture technology information center will be developed in to small-scale local business by the third year, where the center would be providing information, seeds and equipment for a nominal profit to farmers. Such agribusiness centers have been trialed in previous projects in the Terai region of Nepal[72]. As information and technology, good seeds and planting material were found to be key gaps in these VDCs[73] these centers are expected to well utilized by farmers. Communities are hard-pressed to locate desirable inputs and information even if they are ready to pay. The households which are capable to invest to produce commercial scale production are not well supported through existing service delivery. It is also observed that some of the private business hubs have been making good profit and customers are happy with the services they are offering. Saplings of high value apples, seeds of staple potatoes, seeds of valuable beans, goat, chicken, and piglets are in growing demand. Government agencies are not well equipped to offer services as demanded locally. Government agencies can work in partnership with the private sector which can provide services in a more effective and efficient manner. Government can provide technical back up to private hubs which can provide services widely. The area Farmer Group will run the information Center with input and support from the local agriculture extension officer.

[71] Lessons from LAPA exercise conducted by NCCSP project in 14 districts of mid and far-west. March to July 2012
[72] Discussions with the District Agriculture Development Officer of Jumla
[73] ADAPTING TO CLIMATE INDUCED THREATS TO FOOD PRODUCTION AND FOOD SECURITY IN THE KARNALI REGION OF NEPAL. Field Consultation Report 2013

Output 1.2.3: Climate adaptation will be reflected in key national plans and standards relating to livelihood sectors especially those adopted by MOFALD, MoAD, MoFSC. These will be owned and updated by the technical line ministries

In Component 2, there is evidence to show that community upkeep of natural assets is assured where it contributes positively to productivity. This is especially true in irrigation-related infrastructure, access roads and bridges, soil management, forestry and buildings such as schools, markets etc[74].

Output 2.1.1: Community physical and natural assets built through this output will be managed by the community user group (farmer, irrigation) and technical divisions of the VDC/ District authorities. The NGO/ CBO contracted to design and build these assets will be working with technical agencies at Ilaka or district level, and with WFP's support teams in country or regional sub-offices. The community asset score tool will be employed to monitor the functionality and usage of these structures and natural resources.

CR5. The assets are planned using the LAPA process at the VDC where key schemes will be selected. At the LAPA stage, the management and maintenance aspects of the assets are agreed between the users and the local authorities. Part of the central government grant (NPR 3 million) received by the VDC annually will also be prioritized for the maintenance of the developed assets. In the case of women facility center assets, the women's group will collect operation and maintenance fees from users for running costs and maintenance. WFP's asset building program is implemented with strong Local Authority engagement (DDC and VDC) in identifying and/ or endorsing the choice of asset to be created. The final ownership and maintenance duties rests with the local authorities, where user groups are too poor to collect a maintenance fee. At the same time there are many instances when farmer and women's groups have been resourceful enough to maintain assets with minimum funds by putting in labor time.

Output 2.1.2: Community food stores, seed banks and local value addition will be sustainably managed by local user groups, especially women focused user groups mobilized in Output 1.1.3. It is expected that these ventures would create local employment and income for women-led cooperatives in addition to creating food availability and access.

Output 2.1.3: All interventions leading to increased and cost-effective agricultural production will be sustainable because a high anticipated rate of adoption by farmer groups the ensuring economic rewards Agriculture and livestock extension officers trained and mobilized through Output 3.2 would support NGO, CBO activities in the field increasing local government/ technical agency ownership of the initiatives.

Output 2.1.4: Income diversification for women and disadvantaged households will be sustainable provided markets and credit facilities are available to develop their full potential. Alternate income generation will be supported by local level market development through Women's Service Centers and local cooperatives envisioned in output 2.5 and 2.2 respectively.

Output 2.1.5: The project will deliver skills and information enabling women to adopt renewable energy that directly support livelihoods and household needs. The direct adoption of these will

[74] Food for Assets Programme Monitoring Report, WFP Nepal 2011; Case Study on Jumla Talium Irrgation Canal. WFP 2012

be complemented through material provision. The maintenance and up-keep will be handled by user/ community groups and local technical resource people trained in 3.2. The women's service center will be run as a small business venture by local women's cooperatives, providing employment to one or two women in the VDC. The aim is to charge a very nominal fee for water-related services in order to maintain sanitary levels.

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PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project implementation.

CR8. The major portion of the project will be executed by WFP principally because of its experience of successfully carrying out program activities in the remote areas of Karnali region involving food and cash. Although the government supplies subsidized food to the Karnali districts through the Nepal Food Corporation, the quantity is not sufficient and the distribution is limited to a few people around district headquarters. The government does not have its own targeted food for asset program in the region, and lacks the capacity and resources to establish one (which would in any case not be efficient given its reliance on WFP). Furthermore, the Government acknowledges that the cash distribution program under the Karnali Employment Project financed implemented through MOFALD, has poor targeting, weak monitoring and poor operating procedures. It proposes to utilize WFP in the current project in order to deliver quick results and, in the longer-term, strengthen government's capacity to eventually undertake such work.

Specific Arrangements:

CR7. The Ministry of Environment, Science and Technology (MoSTE), will establish a Project Steering Committee under the Chairmanship Joint Secretary. The Joint Secretary will be the National Project Director.

The Project Steering Committee will consist of members representing key Ministries; especially Ministry of Federal Affairs and Local Development (MoFALD), the key national executing agency. The UN World Food Program, as the multilateral implementing agency, as well as principal executing agency, will be invited as a member of the Committee.

Joint Secretary, Environment and Municipal Management Division of the MoFALD will be a member of the Steering Committee and head the Project Coordinating Committee (PCC). The PCC is established at MoFALD to coordinate all climate change related activities implemented through MoFALD in DDCs. Project management and administration support will be provided to Environment Management Division of the MoFALD through which project activities would be coordinated.

MOEST will appoint a climate change officer (CCO) at national level who will liaise with district level climate change officers and coordinators, and the district administration. This CCO will be mainly tasked with coordination, monitoring and reporting at national level. WFP will hire a full time Project Coordinator who will not only provide TA but also supervise project execution through district coordinators.

At District level, the project will support a coordinator based in the DEECC Section (District Energy, Environment and Climate Change Section) to support execution through national and non-government partners. Mechanisms already established for the NSCCSP project would be utilized to avoid duplication and improve synergies between the projects in the target districts.

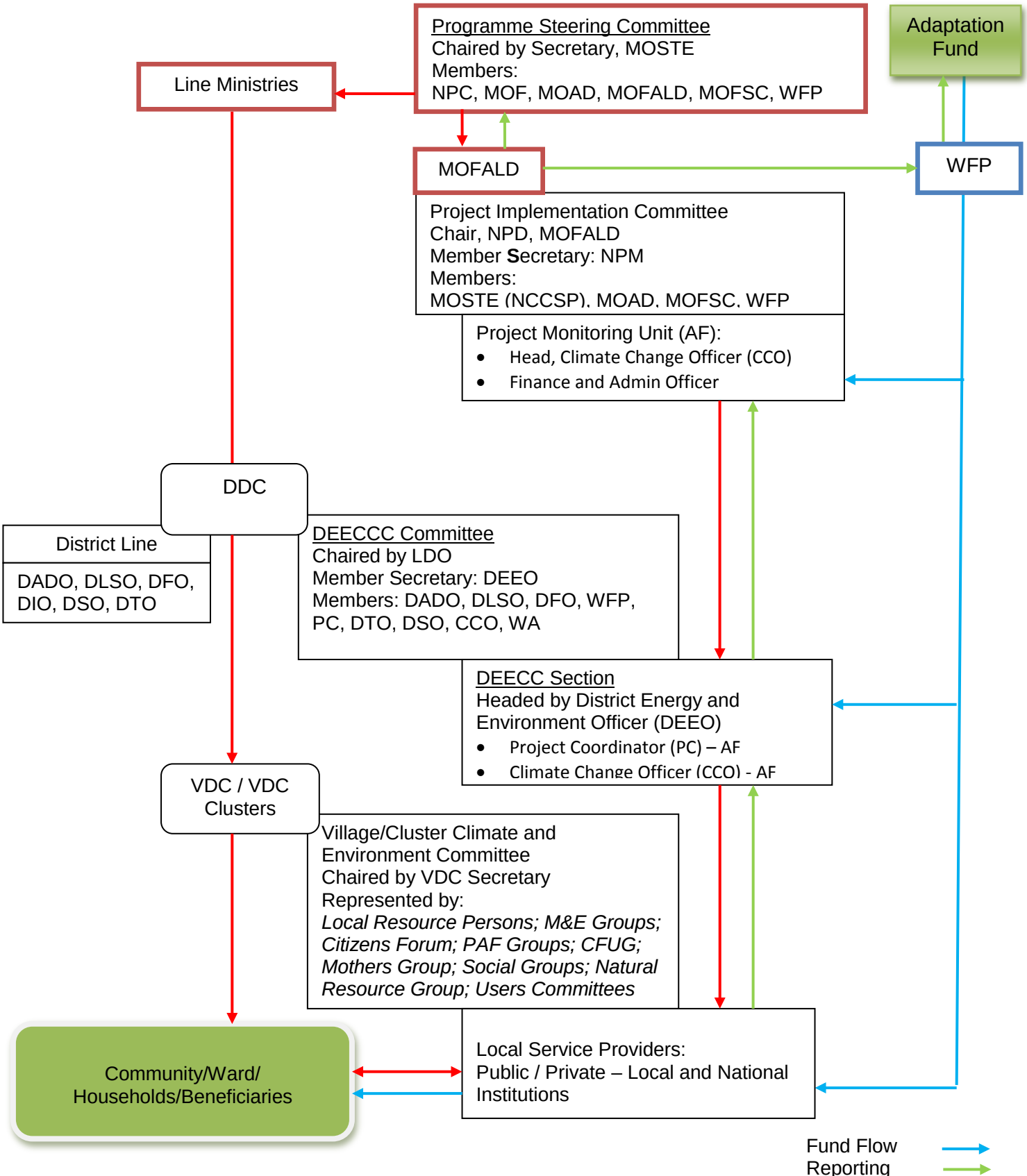
At village level it is envisioned that there would be a separate mini-VEECC (Village Energy, Environment and Climate Change) Committee in the VDC to coordinate activities of climate change projects including AFB, NCCSP and other. This village committee would be

represented through citizens groups, local technical extension officers, village leaders, local experts, VDC Secretary etc.

The WFP Coordinator would be supported through the project execution budget to liaise between the Project Coordination Committee and the Project Support Unit. The Coordinator would be entrusted with budget monitoring; provide implementation and logistical support to the districts, and ensure the quality and timeliness of monitoring and reporting activities related to the project. The advisor would also be responsible, along with the CCO, to ensure that field implementation reports are reviewed by the PCC quarterly and bi-annually and suggest any remedial actions for problems and issues in implementation.

The Environment Management Division at MoFALD will support regional cluster officers to provide climate adaptation support to the DEECCs as well the Ministry. These officers will be the M&E focal points between the WFP Coordinator and DEECCs.

IMPLEMENTATION ARRANGEMENT
Adapting to Climate Induced Threats to Food Production and Food Security in The Karnali Region of Nepal



B. Describe the measures for financial and project risk management.

Financial and project risk management measures will be assessed as an on-going process throughout the project as below.

Risks and Responses

Risk		Response Measure
Lack of awareness among participating NGOs and CBOs on climate change and potential impacts	Low	The project has built-in awareness and capacity building programs for local NGOs and CBOs who will be delivering the project. This will not be a one-off intervention. Given that there is high staff turn-over rate in many of these local organizations, it is planned to provide them regular (annual) programs on climate risk and adaptation.
Delivery of interventions in logistically challenging mountainous areas with no road access	Medium to High	The World Food Programme targets districts with high prevalence of nutrition and food security. These are in the most difficult areas of the country to access, and they overlap with the project areas. Thus, delivery mechanisms are already on the ground. The project would further strengthen the current delivery modality of working through NGO partners by strengthening government service delivery and extension mechanisms.
Changes in decentralized district and VDC structures in the next three years negatively affect the project	Low	Envisioned constitutional changes are meant to strengthen and further bolster devolution of power to the districts. It is hoped that these changes will result in greater political autonomy at local level. In view of this, the project supports both adaptation and development planning with participation of women and disadvantaged groups building their capacity to fully engage in VDC planning.
Local government in project implementation areas fail to prioritize climate change policies in their strategies and plans.	Low	The project will work closely with Citizens Forums at Wards, VDC secretaries, and LDOs to ensure that adaptation priorities remain on top of the developmental agenda. This will be done through training, capacity building, and their engagement in supervising the implementation and monitoring of the project
Community are incapable of managing and maintaining assets and structures built through the project	Low	Community user groups will be strengthened and formed (where unavailable) to maintain the assets and infrastructures created through project intervention. A recent survey of WFP asset building program found that functional and productive assets are sustainably managed by both community and local government.
Market access and financial assistance for alternate livelihoods and crops are unavailable in the target VDCs at required time	Medium	By linking target VDCs to the regional center Jumla's headquarters, the project hopes to create sustainable linkages with markets, marketing networks and financial services

C. Describe the monitoring and evaluation arrangements and provide a budgeted M&E plan. Include break-down of how Implementing Entity's fees will be utilized in the supervision of the monitoring and evaluation function.

CR 11. Overall responsibility for monitoring and evaluation will rest with WFP. As WFP will execute the largest portion of the project, it will provide technical assistance and supervise monitoring and evaluation, which will be carried out by the District DEECCs supported by a dedicated coordinating officer and a finance and administrative assistant. The monitoring and evaluation budget will be managed by WFP and funds will be allocated to the DEECC climate change section in each district as appropriate.

The project will conduct a sample baseline assessment in each VDC to establish necessary detailed baselines to measure indicators set out in the results framework. The survey will be based on household questionnaires administered by project partners or Field Monitors attached to NeKSAP Food Security Monitoring Network.

M&E will be carried out concurrently with project execution. Quarterly technical reports will be collated from each district's technical agencies. Semi-annual Progress reports will be generated by the DEECC-based coordinator collating reports from all VDC-level project staff.

Annual Progress Review will be coordinated and produced by the WFP Project Coordinator and National Project Manager, with inputs and guidance from MoFALD and MoSTE. The data for monitoring will consist of financial, procurement and physical progress reports as well as compliance with the requirements of the environmental and social assessment and management frameworks, along with financial audit reports. The issues to be reviewed by NPSC on monitoring and evaluation would include the efficacy, efficiency, sustainability, acceptance by the stakeholders of project actions. Quantitative targets will be supplemented with narrative reports. Such reports would be made available in time for NPSC to review and discuss during its meetings.

WFP's Implementing Entity Fee will be used to independently monitor the program from HQ and provide the required independent audit of the project.

The M&E activity breakdown and budgeted is included in the budget annex.

Include a results framework for the project proposal, including milestones, targets and indicators and sex-disaggregate targets and indicators, as appropriate. The project or program results framework should align with the goal and impact of the Adaptation Fund and should include at least one of the core outcome indicators from the AF's results framework that are applicable[75].

[75] Please refer to the *Project level results framework and baseline guidance* for the Adaptation Fund's results framework and guidance on developing a results framework and establishing a baseline [add link here].

Project Results Framework

Goal:	**Increasing adaptive capacity of climate vulnerable and food insecure poor by improved management of livelihood assets in Karnali mountain districts of Nepal**				
	Indicator	Baseline	Target	Means of Verification	Risks and Assumptions
Objective 1 : Strengthened local capacity to identify climate risks and design adaptive strategies	Percentage target population aware of predicted climate change impacts; and of appropriate responses Percentage of women within target population aware of predicted impacts	Less than 5% of target population aware of CC impacts and are able to devise appropriate adaptive strategies	80% of all target households display greater awareness on impacts and adaptive strategies <40% of respondents are women	-Adaptation plans -Community feedback survey -DDC budget reports	Community development priorities and adaptation priorities are easily combined to one plan Current and immediate climate risks do not undermine planned improvements in production livelihood diversification efforts are complemented by markets and technology
Objective 2: Diversified livelihoods and strengthened food security for climate vulnerable poor in target areas	Percentage of target households with stable and climate resilient sources of income No of women engaged in new income generating ventures	Livelihood and income insecurity is high. Over 25% of household income comes from uncertain sources such as wage labour. Exact baseline to be established through survey	At least 60% of target households report greater livelihood security compared to baseline 50% of new income avenues created are women-based	-Project end survey -Mid-term and end of project impact review	
Objective 3: Increased resilience of natural systems that support livelihoods to climate change induced stresses	Natural assets maintained and improved - No of households with improved access to water for agriculture and drinking -No of households engaging	Natural resource base is severely depleted due to climatic and population stresses	At least 50% of the target households report better and greater access to natural resources 50% of women surveyed	-Forest user groups annual reports -Mid-term and end of project impact review	

	in Multi-Use Systems (MUS)[76] technology - No of households have access to forest products in soil quality -Status of forest resources		report better access natural resources		
Outcome 1.1 Climate vulnerable and food insecure poor actively participate developing local climate risk reduction strategies and actions	No and type of climate adaptation strategies identified and implemented at local level	Adaptation strategies are not identified or implemented	>80% of target households have skills and knowledge to adopt adaptation strategies such as; • Greater and more stable livelihood diversity • Increased food storage and consumption • Improved soil management • Improved water management • Post- harvest technologies • Resistant crop varieties • Knowledge of climate risks and adaptation strategies • Responding to early warning and forecasting	-Project quarterly and semi-annual progress reports - Midterm and end of project impact reviews - DEECC section reports on project progress to Under Secretary, EMD, MoFALD	All section of community participate in identifying and designing risk reduction strategies The prioritizing of adaptation options are free of elitist bias but have concurrence of all groups in VDC
Output 1.1.1 Train and mobilize officers and community representatives at village and district to design, implement and monitor local adaptation strategies	No of CBO/User groups trained No of community mobilisers trained No of VDC/DDC officials trained	No specialized adaptation training exist	- 42 CBOs trained including local user groups -420 community mobilisers trained in three districts -50 officials (agriculture, livestock, forestry, irrigation)	-Training programme evaluations -annual evaluation reports of NGO/CBO performance - Project quarterly and	

[76] MUS systems are commonly applied to improved efficiency of water through technologies that promote recycling, reusing and conservation

	No of technical staff trained		trained in three districts -Climate resilient agriculture manual available -NARC conducts 03 TOTs for regional agriculture extension officials	semi-annual progress reports	
Output 1.1.2 Local food security and climate adaptation planning at Settlement, VDC and watershed level supported	Adaptation plans available for all target VDCs available Adaptation plans identify most vulnerable wards and settlements and priority adaptive actions	No adaptation plan is available at VDC level	21 plans are prepared through community participation	-Adaptation Plans -VDC Development Plan	
Output 1.1.3 Gender and social inclusion are well integrated in to the adaptation planning processes	No of community based women's groups established and functioning Marginalised groups participate in adaptation planning process Each VDC adaptation plan identifies the **most** vulnerable HH including women-headed households	Considerable exclusion of women and some ethnic-caste minorities from development decision making process at local level	All scheduled castes and communities participate in workshops Each VDC has at least one women's group formed and functioning Women's groups have 50% participation in the planning process 21 VDC plans with vulnerable households and specific adaptive actions identified	-Adaptation Plans -VDC Development Plan	
Outcome 1.2 Strengthened ownership and management of climate risk reduction activities and replication of lessons in key livelihood sectors at district/national levels	Targeted institutions and community groups have increased capacity to reduce climate change risks in development practice Type of Institutions: • Local (VDC and below) • District (DDC and agencies) • Regional and National	None of stakeholders interviewed report adequate capacity to respond to climate risks and formulate strategies Adaptation plans are not integrated or funded by DDC	Capacity developed of all types of mentioned institutions. Capacity for adaptive action planning, design, implementation and monitoring increased. 40% of the priority actions remaining by year 3 of project are funded by regular	-DDC development budget discussion minutes - Mid-term and end of project impact reviews -National Capacity Assessment conducted	Local and district governments recognize and prioritize climate risks as a development threat Ministries provide their fullest cooperation to the tasks identified

		development plans	development programmes		
Output 1.2.1 Integrate local adaptation plans process with sector-wise, VDC and district planning process	VDC and DDC plans prioritise adaptive actions identified	VDC and DDC plans do not consider climate resilience	21 VDC and 3 DDC annual development plans incorporate climate risks and adaptive actions	-DDC plans -DEECC section reports –project annual progress reports	
Output 1.2.2 Integrate climate resilience to planning processes and development projects of key national ministries	No of sectoral projects and plans updated with climate risk information in key line ministries	Low level of support for climate risk integration in national programmes	-Revised design standards for small rural infrastructure available -Regional and national agriculture research stations invest more in climate resilient models and their dissemination -At least two demonstrations of forest carbon stock measurements and carbon financing established in two districts	-Project annual reports - Mid-term and end of project impact review	
Output 1.2.3 Conduct periodic assessment and document project lessons for dissemination at community, district and national levels	Knowledge products generated No of dissemination programmes for community	None None	-10 case studies generated -02 economic, social and environmental impact analysis conducted -20 community exchange visits organized -10 community workshops organized -04 media field tours organized -Community radio programmes developed in 02 districts	-Project annual reports -media reports -community exchange programme feedback reports	Results dissemination ensures a greater profile for adaptation actions Local and regional media interest in covering adaptation lessons and best practices
Outcome 2.1 Diversified and strengthened livelihoods, livelihood assets and	No of households with increased income	Household food and income sources	> Target population report food and income availability	-Project quarterly and semi-annual progress	Asset creation and production increase will

improved access to food for climate vulnerable households	Percentage decrease in negative coping strategies No of women-led enterprises created	threatened by climate variability Households engage in a number of negative coping strategies such as; -labour migration -selling assets -consuming less -consuming seeds	improved by 40% >75% of target households report reduction in number and frequency negative coping strategies >50% of women in target households report increased income through new introduced venture	reports -Household survey at start and end of project[77] -VAM survey report on coping strategies	result in greater incomes Increased income will reduce the need to engage in uncertain livelihoods
Output 2.1.1 Increased income opportunity for poor households, especially during off-season, provided through building physical and natural livelihood related assets	Community Asset Score	VDCs have no sustained programme to build and improve livelihood-related assets	Each VDC implements at least 03 priority (as per prepared plan) asset building programmes within project period These assets directly improve livelihood opportunities	- Project quarterly and semi-annual progress reports -Asset score report in every VDC at start and end of project	
Output 2.1.2 Increased access to and local availability of food through better storage and value-addition at local level in all target VDCs	Food Gap reduced No food preparation and storage technologies introduced No of women using new technologies or methods related to food preparation/storage	Villagers have no access to technology and information on value addition and storage Seed banks are not available	-HHs consume more food types, locally available food -Food processing centers in 21 VDCs -Local food markets created in 21 VDCs -Local seed banks created in 21 VDCs >60% of women in target households use food preparation and storage technologies introduced by project	- Project quarterly and semi-annual progress reports - Household survey at start and end of project	Local people are willing to modify food habits Local women cooperatives are able to initiate and manage seed banks, milling centers and food storage
Output 2.1.3 Improved model of lease-hold forestry implemented in target	Increased income from forestry sources	Target VDCs have no lease-hold forestry	Income from forest based NTFP increased by 30% in	-DFO reports -DEECC section reports	Department of Forests is able to identify suitable

[77] Household survey is a part of the monitoring and evaluation framework

cluster VDCs/ for sustained income and food through agro forestry	No of women/ disadvantaged groups participating in leasehold forestry programmes	programmes	target VDCs	- Household survey at start and end of project -Project progress reviews	landholdings within target VDCs and provide technical back stopping for forest user groups
Output 2.1.4 Adapted current agricultural practices to new climate risks by improving crop management and animal husbandry practices	Key informants established in each VDC Field Trials conducted. Improved agricultural and livestock management practices established No of women adopting improved agricultural and livestock management practices	No such information dissemination system exists	At least 42 key informants trained and established Field trials and field extension conducted 85% target farmer households trained/ equipped (approx.. 7200 households). 50% of trainees should be women >50% of women trained use improved agricultural and livestock management practices	- -Project quarterly and semi-annual progress reports - Agriculture extension office (ilaka level) annual progress reports - Household survey at start and end of project	Farmers apply knowledge from training programmes to the field Productivity increase is visible in the short duration of the project
Output 2.1.5 Increase adaptive capacity of women and disadvantaged groups through access to services and skills	Gender Participation in user groups and C/FFA Increased Women's well-being increased	Gender disparity high Women's skill level low and level of drudgery high	Women's groups formed for livelihood and income generating activities 21 women's service centers established.	- Project quarterly and semi-annual progress reports - Household survey at start and end of project	Women's engagement is guaranteed at all levels Women actively participate in service centre facilities

Alignment with Adaptation Fund's results framework

Project Objective(s)	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator
1. Strengthened local capacity to identify climate risks and design adaptive strategies	Percentage target population aware of predicted climate change impacts; and of appropriate responses Percentage of women within target population aware of predicted impacts	Outcome 3 Strengthened awareness and ownership of adaptation and climate risk reduction at local level	3.1 Percentage of target population aware of predicted adverse impacts of climate change and of appropriate responses
2. Diversified livelihoods and strengthened food security for climate vulnerable poor in target areas	Percentage of target households with stable and climate resilient sources of income No of women engaged in new income generating ventures	**Outcome 6. Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas**	**6.1 percentage of targeted HH and communities having increased access to livelihood assets**
3. Increased resilience of natural systems that support livelihoods to climate change induced stresses	Natural assets maintained and improved - No of households with improved access to water for agriculture and drinking -No of households engaging in Multi-Use Systems (MUS)[78] technology - No of households have access to forest products in soil quality -Status of forest resources	**Outcome 5: Increased ecosystem resilience in response to climate change and variability induced stress**	**5.1 No and type of natural resource assets created, maintained or improved to withstand conditions of climate variability**
Project Outcome(s)	**Project Outcome Indicator(s)**	**Fund Output**	**Fund Output Indicator**
1.1. Climate vulnerable and food insecure poor actively participate developing local climate risk reduction strategies and actions	No and type of climate adaptation strategies identified and implemented at local level	**Output 3: targeted population groups participating in adaptation and risk reduction awareness activities**	**3.1.1 No and type of risk reduction actions or strategies introduced at local level**

[78] MUS systems are commonly applied to improved efficiency of water through technologies that promote recycling, reusing and conservation

1.2 Strengthened ownership and management of climate risk reduction activities and replication of lessons in key livelihood sectors at district/national levels	Targeted institutions and community groups have increased capacity to reduce climate change risks in development practice Type of Institutions: • Local (VDC and below) • District (DDC and agencies) • Regional and National	**Output 2.2 Targeted population groups covered by adequate risk reduction measures**	**2.1.2 Capacity of staff to respond to, and mitigate impacts of climate related events from targeted institutions increased.**
2.1 Diversified and strengthened livelihoods, livelihood assets and improved access to food for climate vulnerable households	No of households with increased income Percentage decrease in negative coping strategies No of women-led enterprises created	**Output 6. Targeted individual and community livelihood strategies strengthened in relation to climate change impacts**	**6.1.1 No and type of adaptation assets created in support of individual or community livelihood strategies** **6.1.2 Type of income sources for households generated under climate change scenario**

D. Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

(See Annexes 1 and 2)

E. Include a disbursement schedule with time-bound milestones.

(See Annex 3)

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT[79] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/program, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/program proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/program:*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

B. IMPLEMENTING ENTITY CERTIFICATION *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/program contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (……list here…..) and subject to the approval by the Adaptation Fund Board, understands that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/program.	
Name & Signature Implementing Entity Coordinator	
Date: *(Month, Day, Year)*	Tel. and email:
Project Contact Person:	
Tel. And Email:	

6. Each Party shall designate and communicate to the Secretariat the authority that will endorse on behalf of the national government the projects and programs proposed by the implementing entities.

Government of Nepal

Ministry of Science, Technology and Environment

Ref. No : 2590

16 April 2013

Letter of Endorsement by Government of Nepal

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for ADAPTING TO CLIMATE INDUCED THREATS TO FOOD PRODUCTION AND FOOD SECURITY IN THE KARNALI REGION OF NEPAL

In my capacity as designated authority for the Adaptation Fund in Nepal, I confirm that the above national project/programme proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in Mugu, Kalikot and Jumla districts of the Karnali region.

Accordingly, I am pleased to endorse the above project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by the UN World Food Programme and executed by the Ministry of Federal Affairs and Local Development.

Sincerely,

Lava Bahadur KC
Under Secretary

CC:

Nicole Menage,

Representative,

World food Programme (WFP), Nepal

Office Address :
Singhadurbar
Kathmandu, Nepal

Tel. No.
4211734, 4211641, 4211996
4211946, 4211894, 4211737
4211586, 4211698

Fax :
977-1-4211954

Email :
info@moste.gov.np

Website :
www.moste.gov.np

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT[1] *Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:*

Lava Bahadur KC, Under Secretary, Ministry of Science, Technology and Environment	Date: 16.April.2013

B. IMPLEMENTING ENTITY CERTIFICATION *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans and subject to the approval by the Adaptation Fund Board, understands that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Name & Signature Nicole Menage Nicole Menage Representative/Implementing Entity Coordinator United Nations World Food Programme (WFP), Nepal	
Date: 16 April 2013	Tel. & email: +9771-5260607 (ext.2100) nicole.menage@wfp.org
Project Contact Person: 1. Lava Bahadur KC, Under Secretary, Ministry of Science, Technology and Environment 2. Marco Cavalcante, Programme Head, WFP, Nepal 3. Kishor Aryal, Emergency Response and Climate Change Coordinator, WFP, Nepal	
Tel. & Email: 1. Tel. +9771-4211855 email lgaunle@gmail.com 2. Tel. +9771-5260607 ext.2400 & email macro.cavalcante@wfp.org 3. Tel. +9771-5260607 ext.2403 & email kishor.aryal@wfp.org	

[6] Each Party shall designate and communicate to the Secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

Government of Nepal

Ministry of Science, Technology and Environment

16 April 2013

Ref. No : 2591

To:
The Adaptation Fund Board
C/O Adaptation Fund Board Secretariat
Email: secretariat@Adaptation-Fund.org
Fax: 202 525 3240/5

Subject: Execution Function of WFP in the proposed adaptation programme

Dear members of the Adaptation Fund Board,

The Government of Nepal requests that the Adaptation Fund consider, on an exception basis, the execution by the United Nations World Food Programme of a large part of the proposed project before you entitled, **Adapting to Climate Induced Threats to Food Production and Food Security in the Karnali Region of Nepal** (the suggested outputs and budgeted amounts to be executed by WFP are shown in the attached table).

WFP has been working in the Karnali region since 2002 and has excellent operational experience and links with local communities, local governments and NGOs – all of whom will play key roles in the project, and all of whose capacity will be significantly enhanced through partnership with WFP. The Government of Nepal acknowledges WFP's capacity to carry out assistance and recommend WFP for the execution of the project activities in the region.

District Energy and Environment Section (DEES) working under the supervision of the District Development Committee and Alternative Energy Promotion Centre of the Ministry of Science, Technology and Environment will be the Government's focal units for the project at district level. It is proposed that WFP district based staff assist DEES and Village Development Committees (VDC) in the selection and contracting out of services to local NGOs (WFP's principal means of execution) and partners, provide technical assistance to VDCs, local authorities and partners, and share (with the Ministry) in monitoring and supervising the project.

We are confident that WFP execution will enhance VDC and district capacity to execute future interventions in the region. For example, the vulnerability analysis mechanism developed by WFP will be used as an assessment tool in the preparation of local food security and climate adaptation plans that will be synchronized with local government planning process. Local authorities and women's groups in particular will be trained to conduct such assessment and will be at the forefront in the formulation of local plans. Further, WFP's expertise on asset creation (its asset construction and maintenance guidelines, in particular) will help communities to develop assets in a timely and appropriate way, and to sustain and replicate them.

Sincerely yours'

Lava Bahadur KC
Under Secretary
Climate Change Management Division/DA for AF

Office Address :
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WFP Nepal: Adaptation to Climate Change - WFP Execution Budget related to Outputs

Outputs	Activities	Budget, US$	Budget Reference
1.1.1 Trained and mobilized officers and community representatives at village and district to design, implement and monitor local adaptation strategies	Logframe development, implementation guidelines preparation, part of the training, workshops and travel costs, assistance to NGO in community mobilization;	462,052	Component 1
1.1.2 Local food security and climate adaptation planning supported	Vulnerability analysis, district and VDC food security profiles, review of available planning documents, TOR drafting, hiring of experts, drafting of planning document;	126,580	Component 1
1.1.3 Gender and social inclusion are well integrated in to the adaptation planning processes	Reviews of available information, TOR drafting, hiring of experts, drafting of gender and social inclusion based adaptation plan	31,448	Component 1
1.2.1 Integrated local adaptation plans process with sector-wise, VDC and district planning process	Participation in planning sessions, meetings, workshops and orientation sessions included.	58,470	Component 1
1.2.2 Conducted periodic assessment and document project lessons for dissemination at community, district and national levels	Facilitated by experts and NGO staff	77,065	Component 1
1.2.3 Integrated climate resilience to planning processes and development projects of key national ministries	Facilitated by experts and NGO staff	135,987	Component 1
2.1 Increased income opportunity for poor households, especially during off-season, provided through building physical and natural livelihood related assets	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	7,711,362	Component 2
2.2 Increased local availability of and access to food through better storage and value-addition at local level in all target VDCs	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	958,680	Component 2
2.3 Adopted and improved current crop management and animal husbandry practices	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	678,040	Component 2
2.4 Increased income through livelihood and agricultural diversification with locally available resources	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	832,140	Component 2
2.5 Introduced renewable energy based systems to support women-led enterprises	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	1,249,710	Component 2

Component 1	891,561
Component 2	6,459,942
Total Comp 1 & 2	7,351,503
M&E Costs	110,273
ISC Costs	699,653
Total WFP costs	8,051,156

WFP Nepal: Adaptation to Climate Change - Detailed Project Budget (Output Level)

Figures in USD

Outcome	Outputs	Budget Description & Codes	2013	2014	2015	2016	Total	SN
1.1 Climate vulnerable and food insecure poor actively participate developing climate risk reduction strategies and actions	**1.1.1 Trained and mobilized officers and community representatives** at village and district to design, implement and monitor local adaptation strategies	Local Staff (4300200)	139,870	139,870	139,870	139,870	559,480	1
		Travel (4201700)	8,450	8,450	8,450	8,450	33,800	2
		workshops (7001000)	33,840	33,840	-	-	67,680	3
	Total Output 1.1.1		**182,160**	**182,160**	**148,320**	**148,320**	**660,960**	
	1.1.2 Local food security and climate adaptation planning supported	Local Consultants (4300700)	34,390	34,390	34,390	34,390	137,560	4
		Travel (4201700)	2,450	2,450	2,450	2,450	9,800	5
		Workshops (7000000)	16,820	16,820	-	-	33,640	6
	Total Ouptut 1.1.2		**53,660**	**53,660**	**36,840**	**36,840**	**181,000**	
	1.1.3 **Gender and social inclusion** are well integrated in to the adaptation planning processes	Gender experts (4300700)	11,250	11,250	11,250	11,250	45,000	7
	Total Ouptut 1.1.3		**11,250**	**11,250**	**11,250**	**11,250**	**45,000**	
1.2 Strengthened ownership and management of climate risk reduction activities and replication of lessons in key livelihood sectors	1.2.1 **Integrated local adaptation plans** process with sector-wise, VDC and district planning process	Local Staff (4300200)	13,830	13,830	13,830	13,830	55,320	8
		Travel (4201700)	1,000	1,000	1,000	1,000	4,000	9
		Meetings	6,080	6,080	6,080	6,080	24,320	10
	Total Output 1.2.1		**20,910**	**20,910**	**20,910**	**20,910**	**83,640**	
	1.2.2 Conducted periodic assessment and document project lessons for dissemination at community, district and national levels	Local Consultants (4300700)	25,890	25,890	25,890	25,890	103,560	11
		Travel (4201700)	1,670	1,670	1,670	1,670	6,680	12
	Total Output 1.2.2		**27,560**	**27,560**	**27,560**	**27,560**	**110,240**	
	1.2.3 Integrated **climate resilience to planning processes and development projects** of key national ministries	Local Consultants (4300700)	12,140	12,140	12,140	12,140	48,560	13
		Office setup (7290900)	2,070	2,070	2,070	2,070	8,280	14
		TC/IT equipment (6490900)	9,250	9,250	9,250	9,250	37,000	15
		Workshops (7000000)	25,172	25,172	25,172	25,172	100,688	16
	Total Output 1.2.3		**48,632**	**48,632**	**48,632**	**48,632**	**194,528**	
2. Build household and community resilience and increase adaptive capacity of climate vulnerable poor in 21 VDCs in Jumla, Kalikot and Mugu Districts	2.1 Increased **income opportunity** for poor households, especially during **off-season,** provided through **building physical and natural livelihood related assets**	Local Staff (4300200)	38,810	60,410	60,410	38,810	198,440	17
		Travel (4201700)	1,980	1,980	1,980	1,980	7,920	18
		Construction materials (6590900)	102,110	102,110	102,110	102,110	408,440	19
		Labour cost (Food - 2001100)	53,400	53,400	53,400	53,400	213,600	20
		Labour cost (cash - 2005000)	462,100	462,100	462,100	462,100	1,848,400	21
		LTSH (3002000)	83,140	83,140	83,140	83,140	332,560	22

	Total Output 2.1		**741,540**	**763,140**	**763,140**	**741,540**	**3,009,360**	
	2.2 Increased **local availability of and access to food** through better storage and value-addition at local level in all target VDCs	Local Staff (4300200)	6,070	6,070	6,070	6,070	24,280	23
		Travel (4201700)	584	584	584	584	2,336	24
		Construction materials (6590900)	-	13,560	13,560	13,560	40,680	25
		Labour cost (Food - 2001100)	20,030	20,030	20,030	20,030	80,120	26
		Labour cost (cash - 2005000)	173,290	173,290	173,290	173,290	693,160	27
		LTSH (3002000)	31,180	31,180	31,180	31,180	124,720	28
	Total Output 2.2		**231,154**	**244,714**	**244,714**	**244,714**	**965,296**	
	2.3 Adapted and improved current **crop management and animal husbandry** practices	Local Staff (4300200)	7,000	7,000	7,000	7,000	28,000	29
		Travel (4201700)	520	520	520	520	2,080	30
		Construction materials (6590900)	-	9,800	9,800	9,800	29,400	31
		Labour cost (Food - 2001100)	13,350	13,350	13,350	13,350	53,400	32
		Labour cost (cash - 2005000)	115,520	115,520	115,520	115,520	462,080	33
		LTSH (3002000)	20,790	20,790	20,790	20,790	83,160	34
	Total Output 2.3		**157,180**	**166,980**	**166,980**	**166,980**	**658,120**	
	2.4 Increased income through livelihood and agricultural diversification with locally available resources	Local Staff (4300200)	6,300	6,300	6,300	6,300	25,200	35
		Travel (4201700)	580	580	580	580	2,320	36
		Construction materials (6590900)	-	11,380	11,380	11,380	34,140	37
		Labour cost (Food - 2001100)	20,030	20,030	20,030	20,030	80,120	38
		Labour cost (cash - 2005000)	173,290	173,290	173,290	173,290	693,160	39
		LTSH (3002000)	31,180	31,180	31,180	31,180	124,720	40
	Total Output 2.4		**231,380**	**242,760**	**242,760**	**242,760**	**959,660**	
	2.5 Introduced renewable energy based systems to support **women-led enterprises**	Local Staff (4300200)	5,140	5,140	5,140	5,140	20,560	41
		Travel (4201700)	630	630	630	630	2,520	42
		Construction materials (6590900)	-	17,480	17,480	17,480	52,440	43
		Labour cost (Food - 2001100)	26,700	26,700	26,700	26,700	106,800	44
		Labour cost (cash - 2005000)	231,050	231,050	231,050	231,050	924,200	45
		LTSH (3002000)	41,570	41,570	41,570	41,570	166,280	46
	Total Output 2.5		**305,090**	**322,570**	**322,570**	**322,570**	**1,272,800**	
Component 1			**344,172**	**344,172**	**293,512**	**293,512**	**1,275,368**	
Component 2			**1,666,344**	**1,740,164**	**1,740,164**	**1,718,564**	**6,865,236**	
Project/Programme Execution Budget			**45,818**	**45,818**	**45,819**	**45,818**	**122,000**	
TOTAL IMPLEMENTATION COSTS			**2,056,334**	**2,130,154**	**2,079,495**	**2,057,894**	**8,262,604**	
Indirect Support Cost (ISC) -8.5%							**702,321**	
TOTAL PROJECT BUDGET							**8,964,925**	

LTSH is Landside Transport, Storage and Handling

Total Project Execution Budget				USD
	Unit	Months	Rate	Total
Climate Change Officer	1	48	1,350	64,800
Monitoring and Evaluation				57,200
GRAND TOTAL				**122,000**

Type of M&E Activity	Responsible Parties	Budget (US$) does not include staff time	Time Frame
Project Inception Workshop (PIW)	Project Manager and WFP Coordinator	3,000	Within first three months
Inception Report	Project Manager and WFP Coordinator	850	Two weeks after PIW
Household survey for results monitoring- income, coping strategies, consumption and assets	Project Manager	8,000	At beginning (Quarter 1) and end of project (Quarter 4/year 3)
Semi-annual Progress Reports (SAPR)	Project Manager	4,000	End of every Six Months
Annual Progress Reports (APR)	Project Manager/ WFP Coordinator/ JS MOFALD	3,000	End of each year
Meetings of Project Steering Committee	Project Manager/ WFP Coordinator/ JS MOFALD	2,500	First after PIW and thereafter to review SAPR
Meetings of Technical Advisory Panel at MoFALD	Project Manager/ WFP Coordinator/ JS MOFALD	2,500	At least six monthly to review divisional and basin reports
Tehcnical Reports	Technical Consultants	-	As required
Mid-term Evaluation (MTE)	External Evaluator/ Technical Consultants/ Project Coordinator	12,000	At mid point of project execution- 18-20 months
Final Evaluation (FE)	External Evaluator/ Technical Consultants/ Project Coordinator	12,000	End of project cycle
Final Report	PPD MoE, Project Coordinator, WFP Coordinator	-	At least two months before project cycle ends
Financial Information Audit	WFP	9,350	Yearly

Total (USD) **57,200**

WFP Nepal: Adaptation to Climate Change - WFP Execution Budget related to Outputs

Outputs	Activities	Budget, US$	Budget Reference
1.1.1 Trained and mobilized officers and community representatives at village and district to design, implement and monitor local adaptation strategies	Logframe development, implementation guidelines prepartion, part of the training, workshops and travel costs; assitance to NGO in community mobilization;	660,960	Component 1
1.1.2 Local food security and climate adaptation planning supported	Vulnerability analysis, district and VDC food security profiles, review of available planning documents, TOR drafting, hiring of experts, drafting of planing document;	181,000	Component 1
1.1.3 Gender and social inclusion are well integrated in to the adaptation planning processes	Reviews of available information, TOR drafting, hiring of experts; drafting of gender and social inclusion based adaptation plan	45,000	Component 1
1.2.1 Integrated local adaptation plans process with sector-wise, VDC and district planning process	Participation in planning sessions, meetings, workshops and orientation sessions included.	83,640	Component 1
1.2.2 Conducted periodic assessment and document project lessons for dissemination at community, district and national levels	Facilitated by experts and NGO staff	110,240	Component 1
1.2.3 Integrated **climate resilience to planning processes and development projects** of key national ministries	Facilitated by experts and NGO staff	194,528	Component 1
2.1 Increased income opportunity for poor households, especially during **off-season,** provided through **building physical and natural livelihood related assets**	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	3,009,360	Component 2
2.2 Increased local availability of and access to food through better storage and value-addition at local level in all target VDCs	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	965,296	Component 2
2.3 Adapted and improved current crop management and animal husbandry practices	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	658,120	Component 2
2.4 Increased income through livelihood and agricultural diversification with locally available resources	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	959,660	Component 2
2.5 Introduced renewable energy based systems to support women-led enterprises	Unskilled labour costs (food & cash); food procurement, delivery and warehouse management; cash transfer	1,272,800	Component 2

Component 1	**1,275,368**
Component 2	**6,865,236**
Total Comp 1 & 2	**8,140,604**

Annex 2: BUDGET NOTES

Adapting to Climate Induced Threats to Food Production and Food Security in the Karnali Region of Nepal

(Budget Notes correspond to SN numbers in the last column of Budget Table)

1. District and VDC level implementation support. This includes;
   A) District coordinators for each project district (hired by government) to monitor and manage the adaptation project in each district @ 735/month for 48 months
   B) 3 Local Resource Persons for 48 months (150 USD/month) in each of the 21 VDC to support planning and implementation and reporting during project period.
2. Districts, VDC and Community level travel arrangements project staff
3. Training workshops in 3 districts and follow up review meetings for Local Resource Persons, NGO support staff and government extension officers on developing and implementing Local Adaptation Plans of Action (LAPA) with community participation
4. Total of 668 person days with the involvement of 3 national experts[1] (206 USD/day) for the preparation of VDC Local Adaptation Plans addressing community food security and adaptation options in accordance to LAPA frameworks, manual and tools in 21 VDCs[2].
5. Travel for project consultants to carry out LAPA
6. Budget for workshop and meetings organisation for LAPA preparation. These are community level workshops aimed at obtaining community views, suggestions on adaptation. Local Workshops are budgeted at US$ 534/day for 100 participants in 63 events (3 in each VDC). Two workshops will be conducted in each VDC during the first two years of implementation. One to prepare LAPA and the second, to validate findings and prioritise actions for financing.
7. Total of 218 person days planned for the gender experts in order to integrate gender and social inclusion into the planning and implementation process.
8. Payment for 3 climate change officers (1 per district) to engage in lobbying with district and local government
9. Travel for district and local meetings
10. Meetings with local and district government (VDC and DDC) to mainstream adaptation needs in to local development plans
11. 503 person days of local consultant to develop case studies and assessment reports of field progress
12. Travel for local consultants to conduct periodic assessment of field progress
13. 235 person days of consulting services for the integrated climate resilience and planning process and development of projects jointly with key national ministries
14. 1 central level (at MOEST) and 3 district level (DDC) office set up
15. 10 laptops , 4 projectors, 4 printers and 4 inverters & batteries
16. 42 person days of international seminars/workshop for three staff members from MoEST, MoLD and MoAg. The budget is meant to be used for training Ministry staff on adaptation planning in order to increase capacity to manage future adaptation projects.

17. Technical support for implementing concrete adaptation actions that are identified in component 1 and implemented through food/cash for assets in component 2. This includes;
    A) Climate Adaptation Advisory Support for 36 months @ USD 2400/month
    B) Technical Assistance to monitor infrastructure design and construction for 240 days over project period at US$ 170/day
18. Project implementation related travel by technical expert to all project sites within the district
19. Materials (cement, reinforcements, gabion wires) for the construction of community assets (120 ha of irrigation; 195 ha of plantation and mini watershed development; 21 water harvesting tanks).
20. Labour cost equivalent food for distribution to beneficiaries.
21. Labour cost equivalent cash for distribution to beneficiaries
22. Internal transportation and handling of food in the warehouses located at 4 extended delivery points and 21 small transhipment locations.

[1] These national experts would already be trained and exposed to the LAPA process through MoEST's on-going adaptation project NCCSP

[2] See detailed TORs in Annex 11

23. Engaging services of one local technical expert per district to provide advisory services related to storage and value addition (54 days over project period/ local expert fee is US$ 170/day)
24. Project implementation related travel technical experts to all project VDCs within a district
25. Materials (cement, reinforcements, aggregates) for the construction of 21 community storage facilities and 63 value addition related activities in the target VDCs.
26. Labour cost equivalent food for distribution to beneficiaries.
27. Labour cost equivalent cash for distribution to beneficiaries
28. Internal transportation and handling of food in the warehouses located at 4 extended delivery points and 21 small transhipment locations.
29. Local agriculture expert per district to support communities in adopting livestock management practices that support adaptation and the observed climatic changes. These experts will be supporting the communities to improve poultry, goat and pig farming in the target VDCs together with the line agency extension officers support (Department of Livestock Development, Department of Forestry). The 60 days throughout the project period for each expert.
30. Travel to project sites by technical experts to support the improved husbandry
31. Construction materials for improved sheds, drainage system, grass and fodder trees plantation.
32. Labour cost equivalent food for distribution to beneficiaries.
33. Labour cost equivalent cash for distribution to beneficiaries
34. Internal transportation and handling of food in the warehouses located at 4 extended delivery points and 21 small transhipment locations.
35. Local agriculture expert per district to support communities in adopting crop selection and agronomic practices resilient to climatic change. These experts, working with the Department of Agriculture extension services will support communities to improve current cropping methods, soil management and crop selection. The expected advisory services will be delivered through 54 days throughout the project period for each expert.
36. Project site visits by these technical experts
37. Construction materials (live fencing, seeds, soil management, terracing and improved drainage, IPM related materials)
38. Labour cost equivalent food for distribution to beneficiaries.
39. Labour cost equivalent cash for distribution to beneficiaries
40. Internal transportation and handling of food in the warehouses located at 4 extended delivery points and 21 small transhipment locations.
41. Local technical expert (one per district) to support women's groups in each VDC to establish and run renewable energy based enterprises. These services will be delivered through 100 days throughout the project period.
42. Staff travel to supervise the construction activities and installation of solar panels.
43. Construction materials (21 women facilities, solar panels, improved cooking system)
44. Labour cost equivalent food for distribution to beneficiaries.
45. Labour cost equivalent cash for distribution to beneficiaries
46. Internal transportation and handling of food in the warehouses located at 4 extended delivery points and 21 small transhipment locations.

ANNEX 3: Disbursement Schedule and MIE Fee Breakdown

Disbursement Schedule

	Upon Agreement signature	One Year after Project Start[a/]	Year 3	Year 4	**Total**
Scheduled Date	16-Sep-13	16-Sep-14	16-Sep-15	16-Sep-16	
Project Funds	1,700,641	2,634,298	2,648,665	1,279,000	**8,262,604**
Implementing Entity Fee	136,933	225,620	227,827	111,940	**702,321**

Multilateral Implementing Entity (MIE) Fee:

Finance, Budget and Treasury	206,895
Performance Management	145,597
Information & Telecoms	69,965
Audit and Inspection	69.965
Legal	69,965
Program Support	139,930
Total	702,321

The management fee component of the budget covers the costs of services provided by WFP Country Office and headquarters in support of the implementation of the proposed project. A breakdown of the specific functional areas follows:

Finance, Budget and Treasury
General oversight, management and quality control
Ensure conformance with WFP judiciary standards and internal control processes
Manage, monitor and track financial transactions

Manage all AF financial resources through a dedicated Trust Fund
Human resource management
Procurement and supply management
Support in the identification of suppliers and cost efficient procurement processes

Performance Management
Provide technical support in the areas of risk management, screening of financial and
risk criteria and indicator selection
Provide guidance in establishing performance measurement processes
Technical support in methodologies, TOR validation, identification of experts, results validation, and quality assurance
Dissemination of technical findings within the country and the broader adaption community

Information & Telecoms
Includes maintaining information management systems and specific project management databases to track and monitor project implementation

Audit and Inspection
Ensure that financial management practices comply with AF requirements and support audit actions as required
Ensure financial reporting complies with WFP and AF standards
Ensure accountability and incorporation of lessons learned

Legal
Legal advice to assure conformity with WFP legal practices and those of the country
Contract review

Program Support
Technical support, troubleshooting, and support missions as necessary
Specialized policy, programming, and implementation support services
Evaluation support

ANNEX 4: IMPLEMENTATION SCEHDULE																				
Outputs	Year 1/ 2013				Year 2/ 2014				Year 3/ 2015				Year 4/ 2016				Year 4/ 2017			
Component 1	Q1	Q2	Q3*	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
1.1 Local food security and climate adaptation planning at Settlement, VDC and watershed level supported																				
1.2 Gender and social inclusion are well integrated in to the adaptation planning processes																				
1.3 Integrated local adaptation plans process with sector-wise, VDC and district planning process																				
1.4 Trained and mobilized officers and community representatives at village and district to design, implement and monitor local adaptation strategies																				
1.5 Conducted periodic assessment and document project lessons for dissemination at community, district and national levels																				
1.6 Integrated climate resilience to planning processes and development projects of key national ministries																				
Component 2																				
2.1Increased income opportunity for poor households, especially during off-season, provided through building physical and natural livelihood related assets																				
2.2 Increased access to and local availability of food through better storage and value-addition at local level in all target VDCs																				
2.3 Improved and adapted current crop and livestock management practices to climate risks																				
2.4 Increased income through livelihood and agricultural diversification using local resources																				
2.5 Introduced renewable energy based systems to support women-led enterprises																				

**** Starting September 2013***

ANNEX 5: FIELD CONSULTATION REPORT

ADAPTING TO CLIMATE INDUCED THREATS TO FOOD PRODUCTION AND FOOD SECURITY IN THE KARNALI REGION OF NEPAL

14 JAN 2013

Study team:

Kishor Aryal, Bakhat Niroula &Deepak Rijal

United Nations World Food Program

Nepal

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1. Introduction

1.1 Vulnerability context

Climate vulnerability is a well accepted concept at global and regional level but its down-scaling at local or sub-regional levelshas yet to be widely piloted and developed. Inadequate climatic and demographic and socio-economic information available at present has been one of the constraints to appropriately down-scale vulnerability assessment and therefore capturing such data sets locally has become a pre-requisite for planning adaptations measures. Ananalysis of individual elements of vulnerability in consultation with local stakeholders would be essential to a) document the state of knowledge and impacts, b) ways people respond to the stresses that they have been experiencing, c) ways external and institutional supports are made available locally and d) create foundation for local planning processes.Thus the vulnerability assessment has been one of the key aspects of anchoring local planning processes (Downing and Patwardhan, 2004).

Evidences of climatic variability, extremes and uncertainty have also been increasing in Nepal. National Adaptation Programme of Action (NAPA), 2011 revealed that higher climatic vulnerability is evident in the mid and far western regions of Nepal. Vulnerability in these regions has either been observed in terms of prolonged droughts, extreme precipitation and heat or cold waves. As a result, field evidences have been increasing on the magnitude of incidence of diseases, pests across plants, animals and human (NAPA, TWG – Agriculture & Food Security, 2010). Climate related events – single or in combination likely to impact food security, nutrition, sanitation, shelter and labor productivity, which exacerbate the already low level of human development.

Karnali region consisting of river and lake watershed landscape stretched from lower hills through to the mid hills and mountainsof the mid-western region,provides services to more than half a million people. Karnali is one of the most remote, least developed regions, ranked lowest in HDI. With its remoteness, undulating and irregular landscape and proneness to earth quake and equally susceptible to climatic hazards people living in the region are very vulnerable. This is also a region that houses heritages of local, regional and global importance – including medicinal herbs, cultural and natural resources and language. These are the heritages well adapted and developed under a more defined socio-cultural, environment and climatic conditions. These are the resources likely to be affected most with external forces of change, environment and increasing climatic hazards.

This report presents the vulnerability context of the Karnali region with particular focus on Kalikot, Jumla and Mugu districts that are stretched either within the Karnali River or Lake Watersheds. It outlines the results derived from different study methodologies - review of the secondary information, stakeholders' consultation and field studies. Climatic vulnerability, strategies along with community responses and adaptation measures to address such vulnerabilities are discussed.

1.2 Objectives

In agreement reached with the Government of Nepal the UN World Food Program has been developing proposal for funding through Adaptation Fund Board. AFB requires reports depicting ground realities that also indicate the ways funding is well justified in reducing vulnerability of the communities primarily those below poverty, socially excluded and economically poor households.

The main objective of this study is to document the state of knowledge depicting current vulnerability situation and also capturing past experiences and knowledge from the Karnali Region that provides foundation for identifying appropriate adaptation measures to reduce vulnerability. The specific objectives of this study are to:

- To assess climate vulnerability in the catchment and the command areas of the Karnali region in terms of rainfall and temperature changes, drought risks, landslides etc.
- To explore programs potential for future collaboration that are on-going in the Karnali region.
- To explore appropriate adaptation measures at the field level.
- To identify the most vulnerable areas, communities to climate vulnerability and uncertainty and also identify watershed, VDC that are most vulnerable but are deprived of development interventions. The consultation does not only help avoid duplication of the similar works but also to explore options that complement each others' works and
- To analyze the potential benefits arising from the proposed adaptation strategies.

2. Study Methodology

A wide range of methodological approach had been used to assess the current state of knowledge so as to crate foundation for developing the project proposal. In the one hand, the proposal development aligning with national policies, program together with priority region and impact groups have been used as study's guiding principles. Whilst developing project proposal meeting minimum criteria of the Adaptation Fund Board and strong rational have been the other challenges. To strengthen project framework,body of knowledge available and the gaps identified had been synthesized using different approaches and tools.

Goal	Approach	Tools
Update, upgrade and refine proposed project concept to minimize overlap and explore complementarities and scope for resources sharing for enhanced delivery	Consultation with different agencies – Government, Bilateral, Non-Government Organizations, Experts at central, districts and community levels.	Stakeholders consultation, Review of policy and program documents
Analysis for depicting knowledge gaps	NCCSP outputs referred –district level vulnerability assessment, Baselines surveys and resources mapping	Review and consultation with implementing partners
Enrich knowledge of local climate and environment, vulnerability as well as	Participatory, multidisciplinary, integrated and collaborative with	Transect walk & direct observation, Focus Group

community, household coping or adaptation options and strategies	district and community level stakeholders including GO, NGO	Discussion, Resources mapping, Timeline, Seasonal calendars and adaptation measures

A brief description of the tools used in the process is presented below.

2.1 Central level consultation

In order to accomplish the above objectives, the review of the documents, and the data derived from different primary and secondary sources were referred. A series of brainstorming sessions were conducted every after consultation and review. Review and consultation of the WFP's programs and the lessons learned from the field were referred to strengthen the climate adaptation planning framework. Lessons and experience of Climate Sensitive Food Security Indicators being studied jointly with ISET Nepal, Food and Cash programs of the WFP in the Karnali region and the experience and learning of the Nepal Climate Change Support Program of the Government of Nepal had been referred and considered while framing the project proposal. Where possible special attention was paid to avoid duplication of the works, ensure project complementarities and the planning and delivery units, institutional and funding arrangement complying with the GON system. The project proposal has been framed with due attention of the climate change policy and the guidelines. Outputs of the central level consultation have been well incorporated into the main project document including the focal Ministry to coordinate across all levels. However, it is also acknowledged that the interim service delivery mechanism be considered - for the transition period unless there is a functional elected government especially at the local level.

2.2 Local level consultation

A series of stakeholders' consultations were done with the key stakeholders across proposed districts and some selected VDC of the project districts. The key stakeholders include Local Development Officer, District Forest Office, District Agriculture Development Offices, District Red Cross Societies, Civil Society Organizations and Non-Government Organization that are working on natural resources. Consultation and interaction with the community/group member from Local Adaptation Plansfor Action (LAPA) they already completed the LAPA process.Interaction with the community/group of farmers' from outside LAPA-VDC was also done.A few important methods and tools used during field studies are briefed below.

2.3 In-house discussion & preparation for field work

After the review of the WFP's food security mapping and NCCSP's vulnerability assessment maps of the proposed districts and the study of the food security indicators along with other literatures the team identified gaps and checklist to acquire information from the project districts and the communities. Since the climatic information is recorded mostly from the district headquarters which in most instances under represent as the climatic variability and extreme events that differ across the landscape, watershed and river basin areas.

2.4 Transect walk and direct observation

A four members' multidisciplinary team visited the district headquarters and one of the proposed VDC observing key systems that likely to be affected by climatic variability and extremes. The team also transected sites observing households with adaptive capacity indicators together with the types, extent and quality of services that are available locally. In each stop and field exercise the team interacted with the WFP's field monitors, local communities and nodal farmers accompanied with the team. The team after each event and visitsat in the evening to summarize, synthesize, refine and clarify ideas and issues those observed and noted during the day exercise. The same cycle was repeated across the project districts and VDC.

2.5 Focus group discussion

Following the transect walk the team facilitated discussion session with the local communities at least in one of the proposed VDC of each district. The discussion was guided with an aim to understand the state of resource distribution, settlement patterns, climatic hazards and their impacts in peoples' livelihood assets. Timeline history of the main events in chronological order, seasonal calendars, hazard mapping and peoples' responses were recorded. Local adaptation measures were documented and some of the potential interventions were also discussed with the participants that promote community resilience. A separate discussion was also held with women participants on some gender related issues if that are increasingly posing additional stresses on them.

2.6 Cross validation

Locally gathered climatic information was validated with those recorded at the closest meteorological stations and also adaptation measures with options prescribed for community resilience. A two-way dialogue was conducted among local people, local planners, development agents and the climate experts to enrich climate knowledge at local level.

2.7 Data analysis

Given the exploratory and qualitative nature of the study no soft ware package was used to analyze the data. Limitation of the time was another constraint to gather numeric data but baselines information gathered under the Nepal Climate Change Support Program for the Karnali Region had been referred. In many instances, it is seen that field level qualitative information is often poorly reported and the team formulated a framework to ensure that the most relevant information is structurally collected, analyzed and presented so as to maximize its uses.A sample framework for used to acquire information and analyze is presented below.

Core problem	Root cause analysis	Community responses	Potential option
Low yield	Low inputs supply, lowered water supply, no policy incentives, increased pests and diseases incidence, shortage of labor	Crop change, low inputs technology adopted, seek off-farm jobs	Promotion of rainfed option, diversify options
Short water supply	Increased water demand, consumption, water supply either decreased or dried out at origin, Irrigation	Increased multiple use practice, shifting to low water requiring	Rain water collection, intercropping, promotion of rain fed crop species,

	policy prioritized on large scale schemes	commodities etc.	promotion of local crop varieties

2.8 Analysis of secondary data

Secondary data were collected from a number of key institutions including Nepal based UN WFP, Central Bureau of Statistics, Ministry of Agriculture Development, Department of Soil and Forest Conservation and the Ministry of Science, Technology and Environment. On the basis of secondary information vulnerability assessment done to categorically cluster VDC into different vulnerability classes were shared with key stakeholders and a consensus was reached. These maps were generated against the available data sets relating to climatic exposure, sensitivity of the systems and adaptive capacity. Different weigh was given to each sub-factor and maps were generated.

2.9 Field planning and assessment process

Consultation was done at the central district and community levels. At the district level a wide range of stakeholders particularly linked with climate change programs and those agencies already collaborating with UNWFP program. In the discussion was focused on climatic and climatic vulnerability of the respective districts and the kind of initiatives and supports being provided through different services providers. Also discussion was focused to identify the VDC with rationalizing program focal VDC of other agencies. The most challenging issues of the areas and potential intervention that can reduce community vulnerability were discussed. The detail results and the agencies and officials contacted in the district level consultation have been presented below.

At the community level the discussion was focused more on understanding climatic dynamics, variability and extremes and their trend over time and space. A wide range of tools were used to assess such trends and the factors that determine the level of community adaptive capacity. It was tried to hold a joint and or separate discussion with men and women according to the sexual representation in the discussion. The type of climate induced hazards along with the history of such events and impacts was traced back through recall method. Seasonal calendar was also developed by local people to trace back to find any degree and time during which climate change has impacts. The total number of people involved in the local level consultation over the districts is presented below. The total number of participants over sites is presented below along with their detail description in annexes 1-5.

District	Men	Women
Kalikot	51	12
Jumla	35	15

Mugu	45	13
Total	131	40

2.10 Vulnerability assessment and VDC selection

District vulnerability was assessed on the basis of available secondary data related to exposure, sensitivity and adaptive capacity. Communities exposed to drought or dry period, landslide, incidence of disease/pest outbreak etc articulated through climatic data recorded from the District based meteorological station. Some 30 years met-data were used. The sensitivity index was estimated using record of loss of human lives, household infrastructure, land and epidemic outbreak after the exposure of aforesaid climatic hazards.

The index for adaptive capacity for each VDC in the district was calculated from the data on **Core system** (access electricity and drinking water facility; Irrigated land; level of food sufficiency of the VDC level households); **secondary system** (nearest distance to the market center, telephone network in the VDC, number of households rely on agriculture as main occupation), and **tertiary system** (literacy rate and number of cooperative organizations and distance to the nearest market). Vulnerability of the individual VDC was ranked into four categories: Very high (V1), high (V2), medium (V3) and low (V4). According to the realized importance a rationalized numerical value was given to each indicator for calculating relative vulnerability of the individual VDC. However, for the Kalikot district for which there was no census data available VDC selection was done against stakeholders consultation, learning of the WFP's food security maps and DDC's ranking of the VDC according to the remoteness, resource abundance, poverty and agriculture production potential of the VDC. The vulnerability index was calculated (V=E*S*1/AC) from the exposure, sensitivity and adaptive capacity index.

Except for the Kalikot district where VDCs selection was done through consultation and review, all of the VDCs in Mugu and Jumla had been assessed on the basis of secondary data sets that determine the level of vulnerability. As elaborated earlier, value was given to individual parameters for each factor of climatic exposure, sensitivity of the system and community and adaptive capacity – following the IPCC's equation for estimating vulnerability. Daha, Lalu, Manma, Mugaraha and Rakkhu are selected for NCCSP in Kalikot. The VDCs with vulnerability rankings and those selected for the NCCSP are bold marked as presented in tables below.

Climate Change Vulnerability Ranking of VDCs in Jumla and Mugu Districts

Vulnerability	VDCs of Jumla	VDCs in Mugu
Very High (3.26->4)	**Dhapa, Kudari**	**Mangri, Jima, Sukhadhik, Rowa**

High (2.51-3.25)	Haku, Tamti, Malikathota, Chhumchaur, **Malikabota, Talium**, Kalika, Lihi(Rara), Tatopani, Labhra, Birat, Patarasi, Chandannath, Guthichaur, **Patmara**	Natharpu, RaraKalai, Karkibada, **Ruga**
Medium (1.76-2.50)	Mahatgaun, Kartikswami, Badki, MahabePattharkhola, Buvramadichaur, Dillichaur, GhodeMahadev	Dolphu, Pulu, Pina, Rara(Gilas), Dhainakot
Low (1-1.75)	Garjyangkot, Depalgaun, Shanigaun, Narakot, Kanakasundari, Pandawagufa	Photu, Bhiyee, Hyanglu, Kimari, ShreeNagar, Kotdanda, Seri, Shreekot, Gumtha, Khaumale, Mugu

Source: MOSTE, 2012: District LAPA Summary Report.

3. PROFILE OF KARNALI REGION

Characterized by irregular terrains occupied by rocky and fragile mountain and degraded land forms, temperate region with lowly precipitation, rich water resources but restricted water supply Karnali region has been identified as one of the most climate vulnerable regions in Nepal. The region consisting of Humla, Dolpa, Mugu, Jumla and Kalikot districts is characterized by widespread hunger, illiteracy, poor health, unemployment, under development, poor economy, weak educational system, high social exclusion, high incidence of disease epidemics and famines, growing out-migration in search of work, and environmental degradation. The people of this region are heavily dependent on small scale agriculture are amongst the most vulnerable, poverty-stricken, and are deprived of public services which have made them more vulnerable to increasing climatic variability, extremes and uncertainty. These are increasingly at risk from erratic rainfall and climatic hazards and constraints to diversify livelihood options (NAPA, 2010). Impacts on various social and environmental dimensions are further exacerbated by the changing climate and environmental problems that is leading to more food insecure situation.

People life expectancy for the region is less than 45 years where a chronic malnutrition among children below 5 years is 57 per cent is also reported (Adhikari J., 2010; Food crisis in Karnali). Karnali is isolated from development mainstream. There is neither road interconnection among the districts, nor are there any other well-established basic infrastructures supporting development of the region. Mugu, Kalikot and the interior parts of Jumla districts are some of the areas hit hardest due to climatic and non-climatic stresses. Further details can be found in the table below.

Human Development Indices of Karnali

District	Life Expectancy at birth	Adult literacy	Mean years of schooling	Life expectancy Index	Educational Attainment Index	Income Index	HDI	Ratio to National HDI
Dolpa	52.52	29	1.59	0.459	0.229	0.425	0.371	78.7
Humla	58.37	19.6	1.25	0.556	0.158	0.387	0.367	77.9
Jumla	50.82	26.6	1.55	0.43	0.212	0.401	0.348	73.8

Kalikot	46.67	33.2	1.81	0.361	0.262	0.342	0.322	68.2
Mugu	44.07	24.1	1.4	0.318	0.912	0.401	0.304	64.4

Source: UNDP, Nepal Human Development Report 2004

Climatic vulnerability assessment carried out at household[1] levels depicted that kalikot has the highest proportion of households belong to the highly vulnerable class followed by Mugu and Jumla.As stated earlier the relative vulnerability ranks vary by districts and sub-districts levels. The distribution of most vulnerable households often inversely relate to the access to public services, natural resources and education. For instance, the highest proportion in high vulnerability rank observed in Jumla is associated with the remoteness of the interior parts. Further details are presented in Table below.

Vulnerability level of households by district[2]

District/ Ecological Belt	Households in different vulnerability level								
	Low (V1)		MEDIUM (V2)		High (V3)		Very High (V4)		Total # Households
	%	Number of HH	%	Number of HH	%	Number of HH	%	Number of HH	
Jumla	**26**	24	**14**	13	**55**	51	**4**	4	**92**
Kalikot	**16**	19	**8**	9	**29**	35	**48**	57	**120**
Mugu	**33**	28	**7**	6	**33**	28	**28**	24	**86**

Source MOSTE, 2012

After the review of the secondary information and consultation with different stakeholders at different scales, brain storming within the UNWFP Nepal and a preliminary field level vulnerability assessment across four districts a total of 21 VDC of the three districts – Kalikot, Jumla and Mugu have been selected. After the completion of the consultation works Humla was omitted mainly because of the program focus of other agencies including MOAD. Following sections present an overview of the individual project districts with particular focus onto challenges being faced also posed by climatic change and vulnerabilities.

3.1 Kalikot project district

Kalikot district is stretched over an area of 1741 sq. km. The district is located in the north-western corner of Nepal, between 29° 5''N to 29° 28''N and 81° 28'' E to 82° 02'' E, bordering with Jumla district in the east, Aacham district in the west, Dailekh and Jajarkot in the south and Bajura and

[1] An initial Vulnerability Assessment was done for all VDCs of all 14 districts using secondary data except for Kalikot which did not have census data under the NCCSP. VA was used as the key basis for VDC selection. These Maps were shared with district level stakeholders including political leaders before they were agreed upon. Explained in the earlier section too

[2] Baseline survey was done using standard sampling techniques in least 2 VDCs of each 14 districts and have put results only for proposed-AFB districts.

Mugu in the north. The district is politically divided into one constitutional election area, 9 Illakas and 30 VDCs.

The district is headquartered at Manma Khadachakra-5. Kalikot has an estimated total population of 141,620distributed at 19,347 households, majority of which are following Hindu religion (DDC Annual Plan, 2069/70).

The maximum average temperature is 18.6°C and the minimum average temperature is 5.60°C.The average precipitation is 730 mm. All these VDCs are exposed to climate related hazards including drought, landslides and outbreak of diseases and pests.

Though the exact area coverage is not known the forest area is in about 62%of the total arable land - including for community forestry, leasehold forest, religious forestry etc. Some 10% of the total area is arable and used for farming.

Agriculture is the major occupation of the people. Rice, wheat, millet, Barley (Jau), are the major crops. Some of the VDCs also consist of pocket areas for the production of apple, walnut (ookhar), orange, potato and vegetables. Kalikot is food deficit by 628 metric ton per annum (ibid). This indicates the lower food production in Kalikot due to its climate, short growing period, and difficult terrain. The other livelihood resources are vegetable farming, livestock and non-timber forest products (NTFPs) which are also adversely affected by climate change.

Kalikot district of Karnali region fall below poverty line and rank the lowest among Nepal's district in all indicators of Human Development Index (HDI). The district ranks below 70 out of 75 districts of Nepal. In many of the other indicators the district falls below 70 among 75 districts.

District consultation with Government line agencies and other stakeholders at Kalikot

Agency	Officials/Person contacted	Inputs
District Agriculture Office (DADO), Kalikot	Prakash Pandey (Plant protection officer) Yog Prasad Kharel (Senior Agriculture Development Officer)	▪ Low income and poor nutrition status of the community ▪ Training for capacity building ▪ Information and services ▪ Market linkage and infrastructure development ▪ Agriculture Inputs are expensive, need subsidy from the Government sides ▪ Alternate service of energy ▪ Introduction of high yielding and drought resistant crop varieties
District Forest Offece	Madhav Prasad Dev (District Forest Officer) Rajesh Pokhrel (Senior Ranger)	▪ Policy intervention for the forest protection and watershed management in large scale ▪ Water collection and plantation of tree (agro-forestry) and fruit plants ▪ Seedlings production ▪ Terraces improvement ▪ Protection of water source ▪ Non –Timber forest plantation management including aromatic plants ▪ Fire control and pasture land management
District Livestock Service Centre	Netra Bahadur Shahi (Assistant Livestock Officer)	▪ Pocket area identify for the small ruminant, buffalo and cattle. ▪ Veterinary services supported weekly basis ▪ Number of sheep flock decreased from 40000 to 25000 ▪ Decrease of pasture land ▪ Increase disease infection like foot and mouth disease ▪ Traditional farming system ▪ Local breeds and low yield ▪ Increased stress for animal raising
District Development Committee (DDC)	Pushpa Raj Shahi (Local Development Officer)	▪ Share shortly regarding to the mission objective and VDCs selection for the development of project proposal to be submitted in the Adaptation Fund Board. ▪ 5 VDCs are identified as dry area by DDC (2007/2008), one VDC of Nanikot recommended based on NCCSP vulnerability analysis, WFP food security monitoring mapping, DDC declaration of as dry area (Dhaulagoha, Khin, Thirpu, Ramnakot, Nanikot and some part of Badalkot).
Nepal Red cross Society		▪ DRR proposed for all VDC, need to link with other climate change project. ▪ DRR and other local plans ▪ Aware of LAPAs ▪ Keen to support and collaborate with any project relevant to Red Cross Society.

Note: Climate vulnerability assess on site, direct observation by a team of climate expert, development practices and social consultation on the district stakeholders, agencies and local communities, networks, all party mechanism and NGO agencies in the area.

Mapping of resources along with settlement patterns and infrastructure of Ramnakot VDC, Kalikot, was done by local people. Other participants did time line analysis and seasonal calendar – all of which were presented by the group facilitators. These were the basis made for further discussion. People viewed that precipitation trend has changed and also the warmer days and seasons are increased. Also the sunny days have also increased over time and space, low to high hills. It was also clearly indicated that some of the permanent water sources were dried out and some others supply less water.

Analysis of seasonal colander above clearly indicate some degree of change notably on the timing of precipitation, cold and warm periods, cropping seasons for both summer and winter seasons over time and space. Any degree of change in climatic trends a wide range of impacts are also increasingly being observed. The red marked indicate the change observed by the local people.

A summary of the field situation on seasons, precipitation and the crop situation compared to previous 5-10 years and present within 5 years. It is based on the community experiences at Ramnakot VDC of Kalikot (Karnali)

Description	Time	Baishakh (April-May)	Jestha (May-June)	Ashad (June-July)	Shrawan (July-August)	Bhadra (August-Sept.)	Ashbin (Sept.-Oct.)	Kartik (Oct.-Nov.)	Mangshir (Nov.-Dec)	Paush (Dec.-Jan)	Magh (Jan-Feb.)	Falgun (Feb-March)	Chaitra (March-April)
Precipitation (Monson Rain)	Previous												
	Present												
Warm Season	Previous												
	Present												
Winter Crop	Previous												
	Present												
Summer Crop	Previous												
	Present												
Flowering Season (forest plants)	Previous												
	Present												
Cold Season	Previous												
	Present												

Green color indicates observation perceived as baselines , Yellow color indicates to show how things are changing, have changed over time and Red color indicates stress increasingly observed over time

Analysis of time line history through recall method depicted that a wide range of changes have been observed including the village they used to receive snow in the past but have that can be seen only villages located higher up. Farmers used to receive higher amount of precipitation earlier they could harvest better crop but yield has reduced over time and space along with changes in climatic trends. It was also highlighted that the forest areas have been drastically reduced which also resulted a loss of some of the wild animals and birds from the locality. But some of the changes have taken place on the selection of crop species and varieties as well as uses of inputs levels. This has in some instances have contributed to improve food security specially areas that can be watered. Further details are summarized below along with responses.

Timeline history memorized by elderly people, Ramnakot, Kalikot

In the past	Now a days	Observation, remarks
Until 1994, snow fall noticed up to Jarkot, higher mid hill	Snow fall noticed only up to Dhanga and Banjhkot, higher mountain	Change in the form of precipitation may indicate increase in air temperature, decreased forest cover with increased sunshine hours facilitated a rise in temperature
Until 1955 no sunshine during November, December seen in Ramnakot 5	Since 1955 people enjoy sunshine in Nov and Dec between 10 -15hrs.	Un explainable, may be forest on top of the hill might have stopped the sun, winter fog, rain decreased unlike before, need further exploration
Before 30-25 years back people used to experience a heavy precipitation - snow and rain fall	Precipitation has drastically reduced even in the monsoon seasons – July, August	Supports that the global climatic trend can also be seen at local level, further validation required if there is difference in total volume
Farmers used to cultivate pseudo crops – Fox tail millet, buck wheat, and beans	Farmers cultivate maize, wheat, millets	Situation have improved with interventions
Even until 10-15 years back none observed bugs, mosquitoes in their locality	Population of such parasites appeared and their infestation increasing	If temperature is rising with increasing sunshine hours the likely hood is that such parasites from lower elevation become more active even in higher altitudes
Until 1988-90 plenty of wild animals were available when there was higher coverage of the forest area – tiger, wild bird species, bear, kasturi, monkeys, guna etc	Their population has been drastically decreasing over time and space	Loss of the forest areas, some forest area brought under cultivation, expansion of settlement areas, Decreased food and water for wild animals.
Until 1955 local peach and citrus species used to bloom sometimes during the month of Chaitra-March	Peach and citrus start blooming from January – February	If availability of solar radiation increased as reported, temperature rose, availability of water and fertility to these species declined – likely that flowering behavior could be affected.
Even with heavy precipitation community did not notice such significant landslides	In recent times, intensity of landslides has increased even with decreased precipitation	Less frequent, unevenly distributed rain fall of greater intensity can damage more than gentle rain. Landslide may occur during sunny days especially towards southern slopes when long hour sunshine create sub-surface by vaporizing moisture available there
People used to harvest good fruits and honeys from successful bees farming	Performance of Bees and Fruits farming decreasing, Bee are dying either by scarcity of food or diseases	Related with rapeseed cultivation
AD- 1952, 1968, 1979 were the worst years ever trapped under food starvation - people survived eating wild rood and other edible foods	Situations have changed, food are available even if such stresses are realized. Farming of crops, small animals, poultry, fishes have flourished	A diversified livelihood options available, some form of external services – WFP has been providing supports under food and cash for work

Community level consultation in the Ramnakot VDC of Kalikot District regarding the climate change impacts

VDC Name	No of people involved	Outcome
Ramnakot: one of the Proposed VDC of Kalikot	63 people (W=12, M=51) *Name list are attached in annexes*	Community perception of climate change and its impacts are; delay and reduced frequency of snowfall, uncertainty of rain (monsoon) even during the rainy season, prolonged dry spells that affects winter crop, water stress (irrigation and drinking water), decrease forest resources, inadequate production of cereal crops, decreased animal population both of small ruminant and cattle, decreased the number of wild animals but increase the population of jackal (it is due to reduce the number of tiger), scarcity of drinking water sources, increased pest and disease incident both crop as well as livestock, limited improve seed availability, local crop varieties (low production), lack of fodder and forage crop species, short duration of sun/day light, Change pattern in the qualitative and quantitative yield of vegetation types in community forests. Decrease the valuable non-timber forest product (NTFPs), red beans, mustard, black gram and some variety of local cowpea are in danger condition. Poor infrastructure of school building, health service centre, road etc. Fragile ecosystem and difficult to increase the production and income. Some groups of community are already migrated to Tarai, and most of the young people are migrated seasonally for the copping during the stress period. Some alternative options are; ▪ Introduction improve and dry resistant crop varieties ▪ Protection of water source ▪ Watershed management with agro-forestry and crop diversification ▪ Preservation and protection of local variety of cotton plants ▪ Massive plantation of apple, orange, mango, banana, walnut ▪ Protection and management of NTFPs as well as some species of aromatic plants ▪ Building market linkage and coordination with local institution ▪ Protection and promotion of local cereal and vegetable crop ▪ Development of skillful manpower ▪ Institutional capacity building ▪ Terrace improvement ▪ Introduction of new variety and species of fodder and forage species ▪ Pasture land management

3.2 Jumla project district

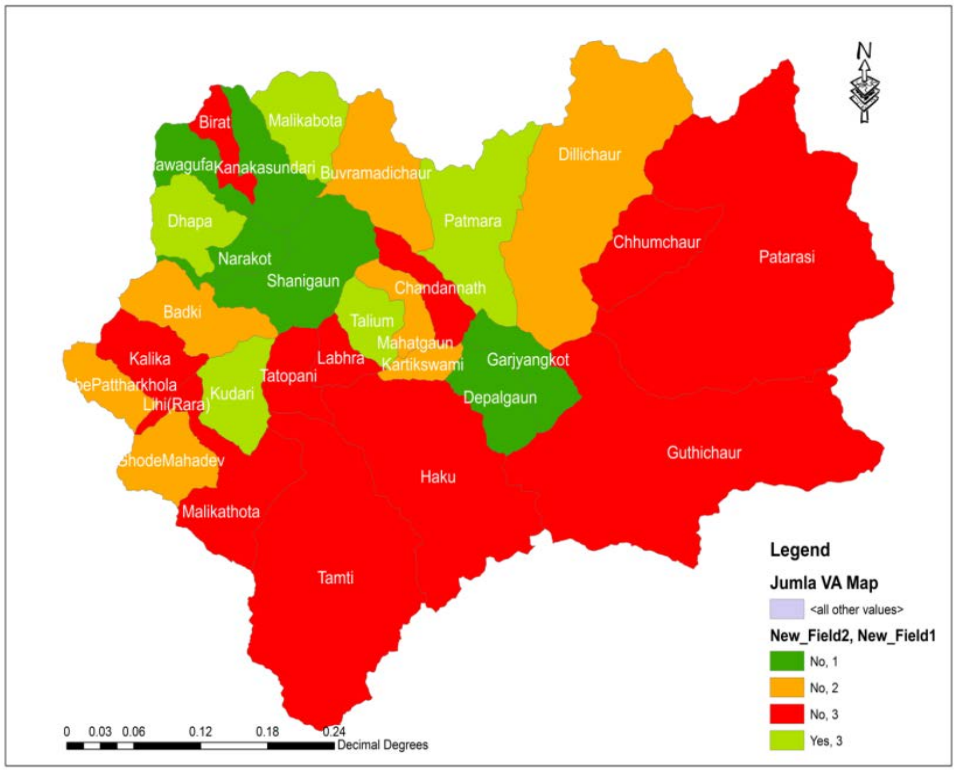
Jumla covers an estimated area of 2531 sq. km. Forest covers 106430 hectare and arable land is about 39486 hectare. The district is located in the mid west region of Nepal, between 25° 58'N to 29° 30'N and 81° 51'E to 82°35'E, bordering with Dolpa district in the east, Kalikot district in the west, Jajarkot district in the south and Mugu in the north. Jumla has an estimated total population of 105001 distributed at 16948 households, majority of which are of brahmin/chhetri caste (DDC Annual Plan, 2068). The district is headquartered at Jumla Khalanga, Bazar.

The altitude for Jumla ranges from 7000 to 21077 feet asl. The maximum average temperature is 30°C and the minimum average temperature is - 14°C degree Celsius. The average annual precipitation is 800 mm.

Agriculture is the major occupation of the people. *Rice, wheat, millet, barley (Jau*), uwa, buckwheat are the major crops. Food production scenario is somehow satisfactory in comparison with other district of Karnali. But the production still does not meet the food demand and people have to manage food supplies at least for 3-4 food deficit months every year. This suggests that the local food production and food demand are mismatched mainly due unfavorable climates leading to short growing periods, low yield, poor community access to technical services and marginality of the

production systems. The other livelihood resources are vegetable farming, livestock and non-timber forest products (NTFPs) which are also adversely affected by growing climatic hazards.

Map below depicts vulnerability clusters of VDC carried out against factors relating to climatic exposure, sensitivity of the systems and the adaptive capacity. It is to note that this assessment is a relative and therefore differences on vulnerability classes may be slightly different. As the legend shows red indicates the most vulnerable VDC, green for least vulnerable and so on (MOSTE, 2012).



In the process of developing a proposal for the Adaptation Fund Board district and field level consultations were carried out across the most vulnerable region and districts identified by the National Adaptation Program of Action, NAPA (2010). Of the districts within the mid and far-west regions, all districts of the Karnali zones were identified the most vulnerable not only in terms of landscape fragility, fragile land forms, extreme precipitation and temperature, poorly distributed water, forest and natural resources and more importantly constrained by remoteness and access to all form of public services including road, education, irrigation, information, agriculture and forestry services. With a view to further explore and gather opinion and suggestion consultation was done with different stakeholders on climate vulnerabilities that could be incorporate in the AFB proposal.

Date	Field Activity	Remarks
June 4, 2012	Kathmandu - Nepalgunj travel and Meet with Dr. Deepak Rijal make some preliminary discussion regarding field visit and information collection procedures.	Arrangement of plane ticket and preliminary work
June 5, 2012	▪ Met with Shalik Ram Sharma, District Administrator and briefly shared the mission objectives of the consultation. Since he was recently transferred in the district yet to update with the district scenario, geographical locations and the ecological situations. He was keen on climate change and WFP's initiatives to support GON to make this application from the AFB. ▪ Informal meeting with some stakeholders like local initiative for biodiversity research and development (LI-BIRD) - leading preparation of local adaptation action for action (LAPA) in the Karnali region for the GON-DFID Nepal Climate Change Program. ▪ Shared that the 5 most vulnerable VDC namely Dhapa, Talium, Kudari, Malikabota and Patmara VDCs were selected for the implementation of the Nepal Climate Change Support Program of the GON supported by the DFID and EU.	Individual consultation in the district
June 6, 2012	District level consultations with key stakeholders. ▪ Prior to open for discussion key stakeholders were briefed about WFP's country programin general and the recent mission to develop proposal for the AFB funding. ▪ Arjun Thapa, LDO highlighted some key factors that contribute to climate change. Also Mr. Thapa highlighted the growing problem on deforestation, water protection and land utilization. ▪ Some areas are identified for specific commodities for example Tamti VDC is identified as pocket area for small ruminants (sheep and goat). Other VDC are known for cereals, legumes or apple. ▪ The team was briefed about ways VDC are grouped in terms of: ▪ *Linking with RCIW road corridor* ▪ *Potential of commercial agriculture, NTFPs and* ▪ *Drought and hazards affected VDCs* **Delivery mechanism**; ▪ Weak public resource ▪ Possibility of lifting irrigation ▪ Pond irrigation (plastic pond, rain water harvest tank) ▪ Promotion in energy sector and development of interconnection road in the district ▪ Infrastructure development (school building) **Program Approach**; Coordination and linkages with other programs like Himali, High Value Crop project, LI-BIRD and potential organizations is important not only to complement and share learning but also to minimize duplication of the wors and focus areas. **Role of DDC**; ▪ Facilitator, promoter and regulator for all kind of programme and project being implemented in the district. ▪ Establishment linkage and coordination among the stakeholders (GoVN, I/INGOs) for the effective and resourceful implementation of development programme.	Shalik Ram Sharma (CDO), Arjun Thapa (LDO), Aita Singh gurung (DADO), Lok Darshan Shrestha (Chairperson from Red Cross), Sandesh Neupane (LiBIRD), Jagadish Chaulagain (Red Cross)
June 6, 2012	Meeting with Sr. Agriculture Development Officer at DADO office and discussion were made on key issues and concern of the agriculture sector in the district. There were lot of potential area for the programme integration like;	Aita Singh Gurung (Acting DADO)

	▪ Rain water harvesting/pond irrigation ▪ Plastic pond for the vulnerable group of farmers ▪ Sprinkle irrigation ▪ Drip irrigation ▪ Introduction of drought resistant varieties (red bean of local variety is drought resistant). ▪ Promotion of cellar store for apple grower farm families. ▪ Rustic store for potato ▪ Possibilities for the intercropping (bean some year) with apple and walnut. ▪ Plantation and domestication of some key NTFPs in the lease hold forest. **Some focused area for further improvement are:** ▪ Scope of small ruminants ▪ Poultry farming even it is quite expensive due to lack of feeds ▪ Improve cow ▪ Bee keeping ▪ Vegetable seed production (Carrot, Rayo, Coriander, Pea, Radish and local Bean). ▪ Linkage and coordination with local resource person (LRP). In each ward of the VDCs has one LRP for the promotion of new technology in the area of agriculture.	
June 7, 2012	Interaction with community at Talium VDC (LAPA); **Scope and objective of LAPA:** ▪ To promote and protect environment, make natural balance, natural resource management, use and distribution of resource, create awareness for the people. **Potential scope:** ▪ 110 apple nurseries in the district, among them most of are in the Talium VDC indicates that apple farming is being commercially grown ▪ Scope of off season and commercial vegetable farming ▪ Scope of fruit farming (apple, walnut etc) ▪ Reduction of cereal crop and promotion of fruit farming including cereal and vegetable farming as intercrop in the beginning. ▪ Promotion of NTFPs and aromatic medicinal plants and herbs **LAPA process:** ▪ Every three ward within the VDC are one group ▪ Group leading by VDC secretary ▪ Representation from political parties and civil society ▪ Representative from each ward member ▪ Select 12 to 15 project list and prioritize each according to the scope of work ▪ District level consultation meeting organize **Identified Vulnerability in the VDC;** ▪ Drought, torrential rainfall, flooding, landslide, delay and frequent snowfall, disappear of water source, hail storm, conflict among group of people (resource sharing), different climatic variation within the VDC, difficult to establish apple farming in the area of low paddy field, strong wend, long term effect of cold snap, difficult to protect paddy seedling, seedling raised after March 25 (Chaitra 12) is quite good. **More vulnerable group;** ▪ Women and children in the VDC ▪ Poor and marginalized people ▪ Elderly people	

	Prioritize programme; ▪ River training, plantation, management of insect pest of the crop, Drought, land slide and flooding **Some of the key and immediate plans;** ▪ Introduction of improve and resistant crop varieties (Chandan Nath-3 paddy variety) ▪ Commercial vegetable farming ▪ Introduction of high value crop ▪ Organic production of fruit and vegetable ▪ Off season and commercial vegetable farming ▪ NTFPs cultivation and management ▪ Irrigation cannel and pond construction ▪ Promotion of apple nurseries to supply other mountain districts ▪ Preparation and management of organic pesticide ▪ Capacity development for the farmers to implement LAPA ▪ Implementation plan of every household for the implementation of LAPA ▪ Promotion and improvement of socio-economic status through different income generating activities **Monitoring and evaluation plan;** ▪ Selected representative from every ward to monitoring the ongoing programme and prepare support mechanism to groups ▪ VDC has have provision of monitoring and evaluation committee in the VDC ▪ Declared open defecation free (ODF) for the whole VDC	
June 7, 2012	**Haku VDC**: ▪ They have lot of issues and concern like; ▪ Paddy production drastically decreased compared to last 4 to 5 years, it is due to blast disease, hail storm, untimely and inadequate rainfall, deforestation and lack of farm yard manure ▪ People are started to cultivate apple tree, however difficult to irrigation management ▪ Insect/pest and disease infestation ▪ Coping strategy through limited cereal crop, vegetable, fruits, local employment and start to sale of land ▪ Out of 150 household 100 are food insecure ▪ Poor and inadequate supply system of drinking water ▪ Dried of water source ▪ Poor infrastructure (school) ▪ Lack of awareness and poor adaptation capacity ▪ 20 years ago there was snow recorded up to 7' but day by day snowfall rate is decreasing. **Climate change impacts**; ▪ Production of NTFPs and some medicinal plants are decreased ▪ Disappear some species of wild animal ▪ New appearance of animal disease ▪ Low quality of apple ▪ Change in the vegetation types of forest ecosystems (community) and its measurable ▪ Only 5 percent households has have pit latrine in whole VDC	
June 8, 2012	**De-briefing meeting were organized in the DDC office;** ▪ Karnali is one of the most vulnerable zone need to focus on existing programme ▪ Hardware, software and livelihood option are the major area of focusing	CDO, LDO, Engineer from District technical office and other from NGOs sectors

	▪ water availability for-technical option, fruit farming and seed production has have scope of the area ▪ Awareness and skill development programme-small scale enterprise development, management of drinking water supply system, irrigation and intervention of hydropower ▪ Complementary on software and hardware activities ▪ DADO has have networking in the VDC level could be possible for the development of adaptation plan through LRPs ▪ Multiyear and annual plan of DDC could be a implementing guideline for the development and plan for the activity ▪ Coordination with DDC and private sector ▪ Coordination committee at regional, district (LDO) and VDC level (secretary), and village level working coordination committee could be establish	
June 8, 2012	**Consultation with Bharat Babu Shrestha (DFO);** ▪ Total Community Forest User Group in the district are 152 (19786.36 hac) ▪ Total lease hold forest 127 (1916.30 hac) **Scope in the field of forest;** ▪ Plantation in the degraded barren and watershed area ▪ Control of forest fire and open grazing system ▪ Fencing in the lease hold forest for the protection and plantation of NTFPs species ▪ In private land-promotion of NTFPs as major source of income ▪ Agro-forestry management ▪ Service delivery mechanism through Local Resource Person (LRP)- ▪ Nursery management and distribution seedlings of forest/forage and tree species at local level ▪ Improvement of collaborative forestry concept in the district **CBS Jumla;** ▪ Information and data collected from CBS was useful	Om Paudyal
June 11, 2012	<u>Visit Dandafaya VDC ward No. 3;</u> As per discussion some major Community perception on climate change are; a. delay and reduced frequency of snowfall b. untimely and erratic rainfall c. prolonged dry spells that affects winter crop d. water stress (irrigation and drinking water) e. scarcity of drinking water sources f. increased pest and disease incident both crop as well as livestock g. early maturing of crops and new crop opportunities h. decreasing of crop production compare to last year i. only limiting local crop varieties (low production) j. lack of fodder and forage crop species k. low production l. short duration of sun/day light m. Change pattern in the qualitative and quantitative yield of vegetation types in community forests.	
June 12, 2012	Consultation with district Forest Office, some priority area are; ▪ Strengthen of Lease hold forestry including plantation of NTFPs, medicinal herbs and aerometric plants ▪ plantation and management of forest resources ▪ nursery establishment and seedlings production of seedlings	

	▪ promotion of forage and fodder crop species ▪ community forest/watershed management ▪ construction of green house for medicinal high value species ▪ agroforestry system development ▪ rain water harvest in water scare area for the irrigation purposes in the crop field and plantation area	
June 13, 2012	Fly back to Nepalgunj-kathmandu	

3.3 Mugu project district

The district is politically divided into one constituency, 9 Ilaka and 24 VDCs. Mugu has an estimated total population of 43,937distributed at 7359 households, 89.03% of which are following Hindu religion (DDC, 2064).

The district is a habitat of more than 250 medicinal plants including *Yarsagumba, Chiraito, Jatamashi, Panchaaule, Nirmashi* (ibid). Rice, wheat, millet, foxtail millet (chino), Barley (Jau), potato, Walnut (ookhar) are the major crops. However, the food production in Mugu is very low due to its cold climate, short growing period, and difficult terrain. The other livelihood resources such as livestock and non-timber forest products (NTFPs) are also adversely affected by climate change.

All these VDCs are exposed to climate related hazards including drought, landslides, river ban cutting and outbreak of diseases and pests. Mugu district of Karnali region fall below poverty line and ranks the lowest among Nepal's district in all indicators of Human Development Index (HDI). The district ranks below 70 out of 75 districts of Nepal. In many of the other indicators the district falls below 70 among 75 districts.

Figure 1: Vulnerability map of Mugu

Consultation with line agencies at DHQ and local community, Gamgadi, Mugu

Consultation was conducted with the key government and some local organizations. Discussions were focused aligning with the mandate and roles individual stakeholders have been given. Discussion started with the update of the WFP's program and the current mission to make application on climate adaptation program for funding through ABF. The team briefly elaborated about the mission objectives and shared the proposal development process and VDC selection criteria for the WFP climate change project intervention. Discussion with sector agencies was focused onto technical and sector specific issues including challenges and way forward as envisioned by the concerned agencies. Government agency – DDC and DTO were consulted for their consent in selection of project areas, impact groups, linkages with different sectoral, cross cutting and local level plans. It was also intended to share and learn from the local government authorities on how climate adaptation programs be implemented locally and mechanism to measure progress. Some of the nominated local organizations were consulted including those WFP's field monitors to explore the social dimension, climatic hazards and impacts and ways people have been responding their ways. The key points and concerns noted during discussion with different stakeholders have been presented along with the key remarks made by the concerned agencies in the table below.

Summary outcomes of the consultation with district level consultation

Agency	Person contacted	Inputs
District Technical Office	Bir Bahadur Rawal, Acting LDO of DDC Mugu)	Regarding vulnerability it was shared that; • Slope and terrace landscape • Inadequate market access and road linkages • Poor infrastructure • High climatic hazards due to its ecosystem fragility • DHQ are also vulnerable due to its poor geological structure • Low yield due to dry spell, low soil fertility, use of low yield crop varieties with low yield potential, low income and malnutrition especially on children are key problems • Land slide and flooding has been the major climatic hazards • Limited growing period - Green vegetable available only in summer, wet season. • Low or no community access to knowledge & information – crop, crop variety selection and agronomic practices, and soil fertility inputs • Low capacity of community people
District Development Committee (DDC)	Bharat Gautam, Local Development Officer	▪ Mugu is district always faces a acute food deficit, poverty prone with fragile geology and ecosystem - drought and the district as a whole is very fragile and vulnerable – Drought and climatic hazards ▪ Low yield, low income are key feature of the communities Despite all hazards and challenges some of the potential options for this district include: ▪ Tree plantation in denuded and farm lands ▪ Land/terrace improvement in their farm lands ▪ Management of river banks and flood control ▪ Irrigation and drinking water management ▪ Water source protection ▪ Promotion of high value crop and NTFP for income generation ▪ Increase crop production by introducing additional drought tolerant crop varieties. Suggested to include some other VDC from the more remote areas such as **Pulu and Kimri** which are very vulnerable to climatic hazards
District Agriculture Development	Ramji Devkota (Senior Agriculture Development Officer),	**Key problems summarized** ▪ Free grazing system in winter season ▪ Poor market linkage and networking ▪ Poor sanitation in household level

Office	Lal Bahadur Khattri (Junior Technician) Harichandra Khadka-Shreenagar-9 Rudra Bahadur Mahatara-Karkibada-3 Lok Bahadur Bista-Jima-3 Surya Hamal-Shreenagar-5 Charbhuji Chaudhari (Agronomist) Brahmadev Shaha (Planning Officer)	▪ Low income at household level Lack of employment opportunity ▪ Inadequate cultivated land compared to district population **Characterizing district** In total only 5% of land are cultivated, out of them 6% land has irrigation facilities and 94 % area un-irrigated ▪ Drought, land slide and flooding and cold wave are major climatic hazards - Single harvest a year ▪ Lack of improve crop varieties, community cultivate local crop varieties that has low productivity and harvest very low yield but some improved wheat varieties are cultivated include Annapurna-4, RR-21 and WK 1204 ▪ Only women, children and senior citizen are working in the farming ▪ People has have change their occupation instead of farming **Some pocket area identified include:** • Cereal crop - Khatyad area (Khamale, Shreekot, Seri, Gamtha, Kotdanda, Sukadhik and Hyangly VDC) ▪ Pulses crop -Soru area (Jima, Natharpu, Bhee, Dhainakot, Kaila and Rara VDC) ▪ Fruit crop - Gam area (Pina, Karkibada, Shreenagar, Ruga and Rowa) ▪ Apple pocket area - Khamale and Gamtha ▪ Potato pocket area –Khamale, Pina, Rowa, Mugu, Dolphu, Kimri, Polu, Mangri **Some options are-** ▪ Introduction of high yielding variety of paddy, drought resistant variety of cereal crops, short duration crop varieties, grasses that can be used for flood control, soil erosion and supplies fodder for the livestock ▪ Fruit processing machine (apple) ▪ Shifting up the cultivation paddy and maize crop even higher altitude, cultivation area might be expanded for cereals ▪ Vegetable seed production (Radish, broad leaf mustard, carrot, cauliflower, cabbage, pea and coriander) ▪ Could be introduce water heating system by metallic stove
District Livestock Service Centre	Khadga Bahadur Sijali (District Livestock Support Officer) Gobinda Bahadur Mahat	▪ Lack of fodder crop during winter season ▪ Lack of cross breed ▪ Lack of pasture land, low yield of grass due to poor soil fertility ▪ There are 3 service centre, 8 sub service centre

	(Planning Officer) L. B. Shahi Hasta Bahadur Budha (Admin finance officer)	▪ Population of donkey and horse have increased ▪ Introduce some cross breed in poultry ▪ Change of occupation and less prefer to raise animal ▪ Low population of animal ▪ Low production of wool due to decrease the sheep and goat ▪ No slaughter house in the main market (district head quarters) ▪ Low production of milk and dairy product ▪ Local breeds and low yield ▪ No any opportunity for the commercialization in this sector ▪ Cold hazard for animal ▪ Increased stress for animal raising
District forest Office (DFO)	Ram Nath Chaudhary (Acting DFO)	▪ Forest area decreasing day by day and forest fire also happen every year as there are not or less options available to replace energy sources coming from the forest ▪ Inadequate policy intervention for the forest protection and watershed management in large scale ▪ Water collection and plantation of tree (agro-forestry) and fruit plants ▪ Seedlings production and plantation in barren land ▪ There are lot of opportunity of Non –Timber forest plantation and management ▪ Fire control and pasture land management ▪ Need to introduce plant species specially fodder for animal raising
District Administration Office	Ishwar Raj Regmi (Chief District Officer)	▪ Community always creating pressure for rice due to insufficient grain production in the district. ▪ We should have alternate plan to meet the local demand and should have production plan ▪ Bean, Potato and Apple could be produced in large scale ▪ Management of *yarsa gumba* (non-timber forest product) for their harvest and marketing
District Environment and Energy Office	Ghana Shyam Sharma (EDO-Engineer)	▪ Actively involved in the GON's Climate Change Program - LAPA preparation for the five VDC of Mugu district ▪ Some major hazards are; hurricane, drought, land slide, flood, hailstorm, forest degradation, lack of information and networking, lack of access on food and other household equipment, lack of institutional arrangement and capacity, Lack of knowledge of climate change sector.
Consultation with Local NGO		
Rural Reconstruction Development	Tilak Bahadur Malla-Chair person of the NGO	Suggest to construct water collection tank in different water scare area like MUS, river control, promotion of awareness in sanitation, gravity ropeway to transport agriculture product in the market centre, focus should be given for the irrigation and drinking water,

Centre (RRDC)		source protection, community forest management, infrastructure development work like-road, school building, market centre, community hall for social gathering, promotion of kitchen garden, management of fruit farming.
Rara VDC Ward No. 9 (Murmatop)	31 Community members (M+24, W -6)	Met the local community of Rara VDC ward no. 8/9 murmatop and discuss in details regarding the climatic hazards and its impacts, based on the knowledge and experiences of the local community some of major climatic hazards are; ▪ Drought that affects the production of local crop as well as small ruminant_low production of wool ▪ No irrigation facilities in the VDC ▪ Inadequate drinking water facility ▪ Cereal crop maturity time almost one year ▪ Community has had their traditional plan to leave the barren land for crop rotation. ▪ Encroachment of wild animal in the farm land ▪ Inadequate precipitation in the area (Monsoon rainfall and snowfall) ▪ The area (Ward No. 8/9) are in between buffer zone **There was some historical events;** ▪ In 1964 there was heavy food shortage in the VDC ▪ In 1972 there was heavy rain and big flooding across the Tarai region (Rajapur-Bardiya) ▪ In 2001 there was heavy drought in the area

Community consultation

Consultation was scaled down to community level to enrich team's understanding on the basis of the ground realities. After introduction of the team's mission objectives teams' expectation from the community shared – was to learn local experience of climatic trends, hazards, and the resources that are most at risks, ways people are responding and identify potential options that reduce vulnerability. The map below depicts the settlement pattern, resources distribution and infrastructure and distribution of the land area. A scattered type of settlement pattern prevails. The distribution of water and forest resources observed together with a few number of service providers noted in the area. The sources of water are scarce that can be access with low cost as most volume of water is available in river system which are flowing just below the cultivable land and settlement.

To understand the vulnerability of the system, communities, natural hazards – relating to climates, and diseases or pest outbreaks a timeline history was traced back from local residents using recall method. These events were documented over time – past and against the recent times. Though climate scientists consider 30 years as time duration to explain climates local people though long experience they strongly believe that 10-15 years time interval would be more realistic comparison. The following table elaborates time series events recalled by the local residents including project personals.

Some time line events recalled by WFP field monitors, motivators and other community people at Mugu.

Past scenario	Present scenario
▪ Low population and dense forest resources ▪ High monsoon precipitation, livelihoods are depends on conventional agricultural system ▪ Lot of wild animal and birds, divers ecology ▪ Local crop species produce ▪ Due to lack of awareness and inadequate opportunity people facing the food insecure ▪ Traditional system in the health care ▪ Sufficient water source in the area ▪ Occasional land slide, flood and disaster ▪ Cotton was the main source of income	▪ High population pressure and inadequate forest resources ▪ Uncertain monsoon and disappear the water source ▪ Some new technology adopted in the agriculture system ▪ Other option are available in the livelihoods ▪ Disappear some wild animal and birds due to forest degradation ▪ Somehow people has have concept of awareness

▪ Sufficient snowfall in the area ▪ During 1973 there was a big food crisis in the area so that many household migrated to the Kailali	▪ People has have option for employment, trade and seasonal migration ▪ More climatic hazards like-land slide, flood, forest fire etc ▪ Decrease the number of animal ▪ Disappear the cotton from the district ▪ Some people has have option to migrate in the tarai region.

It is important to capture local climatic experience as Nepal does not have stations to capture climatic information at the lower level. In order to capture local climatic variability and hazards and their impacts on community and natural systems was examined that was observed over the seasons, months. Peoples' perceptions on climatic trends and impactsrecalled by social Mobilizers of different proposed VDCs of Mugu, Karnali

Description	Time Factors	Baishakh (April-May)	Jestha (May-June)	Ashad (June-July)	Shrawan (July-August)	Bhadra (Aug-Sept.)	Ashbin (Sept.-Oct.)	Kartik (Oct.-Nov.)	Mangshir (Nov.-Dec)	Paush (Dec.-Jan)	Magh	Falgun (Feb-March)	Chaitra (March-April)
Precipitation (Monson Rain)	Previous												
	Present												
Warm Season	Previous												
	Present												
Winter Crop	Previous					Sowing at August 21 to October 16 and harvesting at August -September							
	Present					Sowing at September first week and harvesting at August							
Summer Crop	Previous												
	Present												
Flowering Season (forest plants)	Previous												
	Present												
Cold Season	Previous												
	Present												
Precipitation (Snow Fall)	Previous												
	Present												

Green color indicates observation perceived as baselines , Yellow color indicates to show how things are changing, have changed over time and Red color indicates stress increasingly observed over time

Local assessment of climatic trends and observed impacts as a result of such changes. It is based on the experiences of community of RARA VDC, Murmatop, Mugu, Karnali.

Description	Time	Baishakh (April-May)	Jestha (May-June)	Ashad (June-July)	Shrawan (July-August)	Bhadra (Aug-Sept.)	Ashbin (Sept.-Oct.)	Kartik (Oct.-Nov.)	Mangshir (Nov.-Dec)	Paush (Dec.-Jan)	Magh (Jan-Feb.)	Falgun (Feb-March)	Chaitra (March-April)
Precipitation (Rain)	Previous												
	Present												
Warm Season	Previous												
	Present												
Winter Crop	Previous												
	Present												
Summer Crop	Previous												
	Present												
Flowering time	Previous												
	Present												
Cold Season	Previous												
	Present												
Precipitation (Snow Fall)	Previous												
	Present												

Green color indicates observation perceived as baselines , Yellow color indicates to show how things are changing, have changed over time and Red color indicates stress increasingly observed over time

Across the Karnali districts the major hazards observed are irregular and precipitation of varying intensities, which resulted flood and landslide and humid or prolong drought which lead to have more hotter and drier days. Local experience has been that the availability of the water resource has been decreasing over time and space. As a result of prolong drought or high intensity rainfall which does not allow recharge aquifers some of the permanent water sources recorded in Ramnakot Kalikot have been dried out. A variety of other types of impacts have been seen include heavy infestation of diseases and pests in agricultural crops, livestock and human and decreased agricultural production.

3.4 Scenario analysis across project districts

Problem, vulnerability	Symptoms, indications	Community responses on their impacts
Snowfall	Retreat snowline, moved upward	Early flowering, maturity, upward expansion of cultivation, lowered available moisture down hill
Rainfall	Delay start & early set of monsoon rain, extreme rainfall events:heavy or no, low rain, reduced rainfall both in winter & summer	Water availability decreased for cropping, Temporary water sources drying out, lowered water supply from permanent sources, crop duration shortened, mature early, low yield, diseases infestation on animal and human increasing, landslides even without floods and heavy rain
Summer seasons	More hotter, drier & sunny days counted, sunshine hours increasing	In high hill - winter wheat mature earlier by one month, Some more crops started growing well at higher altitudes
Winter seasons	Shorter winter and more warmer days, long sunshine hours	Crop yield increased with improved water supply, decreased yield in rain fed crops, population of wild birds and animals decreasing
Low yield	Varieties of local origin, decreased availability of water for crop, drinking, Change in food habit, increased alternate options labor intensive agriculture	Promoting cultivation of apple, beans, small ruminants, and kitchen garden vegetables. Wheat and millet cultivation yet popular with changing habit of inclusion of chapattis in local diet. Uses of inputs through organic and inorganic sources increasing, apple nursery is increasingly growing as an enterprise
Low response capacity	Low technical support, lack of skill and knowledge related to farming, lack of inputs including irrigation facility, lack of support services that promote agriculture – energy, water, land and forest resources	Public services are weakly available, NGO and other agencies have been more supportive, with improved communication, roads people are accessing services from multiple sources, district line agencies, pocket area program and private sectors. No significant incentives for enterprising and going to production scale for any of the commodities, people struggling for the food, health, nutrition and children's education. Though there are plenty of schools in almost every wards and secondary schools in every VDC quality of education has still been a question and now 2 technical schools are started – Karnali Technical in Jumla and one in Kalikot provide training to local people.

3.5 Finance and coordination at local level

Since the Karnali zones is one of the priority programs of the GON for which a wide range of mechanism are established including the Karnali Development Council. There are wide range of national and international NGO and bilateral and UN agencies operating in different sectors of their expertise. In an informal discussion with local people it was revealed that a significant amount of finance is being invested especially activities supportingfood security, children education, infrastructure-road, irrigation and farming small ruminants. Since these service providers have

specific targets and therefore hardly collaborate with other sectors unless there are agreement made among those agencies. UNWFP with its focus on multiple sectors and grass root level networks and the climate change which has emerged as one of its priority areas there is a need to collate with other agencies on all cross-cutting issues so as to maximize the output of the investment.

4. CONCLUDING REMARKS

The Karnali Region which until recently been isolated from the mainstream development is characteristically - one of the most remote, poverty driven, geologically fragile and most vulnerable to climatic extremes, variability and uncertainty. Poorly designed small houses that are heat inefficient, restricted dietary diversity also led by limited scope for crop diversification and food tradition most local people especially children, women and men are vulnerable to a variety of climate stresses including those posed by climate change. WFP's support through food for work program has proved that the region fall under acute food shortage. Consistently low yield are recorded which is associated with the traditional farming practices, inadequate supply of soil nutrients, water and improved seeds of higher qualities and inadequate access to technical knowhow. As the growing evidence reveals that the region has huge potential for a variety of high value commodities including some of the highest priced herbs, food products and non-timber forest products and agro-eco-tourism. With improving communication system and road transport a variety of gateways are increasingly opening for promoting those high value commodities that directly support local food security and wellbeing of the people. If their promotion together with the capacity enhancement and skill development is properly done the likelihood is that such potential resources could be maximally exploited for the welfare of the communities. Climate adaptation program will directly contribute to food security through local innovation and community training program being designed appropriate for the local condition. It is anticipated that the current support being provided through the WFP's food for work program will be gradually withdrawn along with the program VDC gradually become self-sustaining in their production and supplies.

Climate change scenarios as available on reports and records and the assessment of the same at the ground level agree that the climate extremes, variability and uncertainties have visibly changing. In the discussion with the communities it was agreed that such changes have been undermining development interventions and any initiatives taken over locally. Also traditional systems on which peoples' livelihoods are depended are increasingly challenged to develop community resilience specially with increasing climate extremes over time and space. The climate induced hazards and impacts found to be very similar in their nature but differed in their degree of impacts over study sites. A dynamic and pragmatic strategy would be required to promote community resilience sustainably. As learned from GON implemented Nepal Climate Change Support Program a detail vulnerability and adaptation assessment would be required together with capacity assessment of

the local service providers, and baseline and indicators complying with WFP' food for work program would be necessary. These activities need to be performed as part of the implementation process.

Through vulnerability and adaptation assessment of the project VDC across three districts appropriate adaptation measures will be explored, promoted and also introduced those potential options – adaptable and acceptable to local context. Since there appear very limited option available to farmers' farm innovation, locally identified good practices and research outcomes will be promoted as well as there is a need of support for research stations to developing appropriate technologies. It is important that local adaptation options be consistently explored, assessed and promote or eliminate, if they are leading to mal-practices in the longer term.

Climate vulnerability, social dynamics and driving forces that determine community resilience,are some of the least understood processes and therefore demands partnership and cooperation among actors including communities to effectively tackle vulnerability and risks. Sharing climate knowledge and hazards being learned over time and space whether local or region would help enrich understanding its dynamics and also to explore potential adaptation measures suitable for the ever changing context. A researcher – farmers- service providers' (including finance) alliance would be desirable for tackling climate change impacts. To make the local people more informed decision makers even under stresses also posed by climate extremes and variability a variety of training and exposure programs be designed who could also be serving local communities as and when need but also on cost basis. A variety of skill oriented training are required to diversify livelihood option as there seems limited opportunity and areas through which agriculture production can be increased and also substantially employs youths and women farmers.

Though consultation at districts and community levels over the districts the team was strongly advised to expand this program to some adjoining VDCs of Kalikot and Mugu Districts that are ranked as some of the most poverty driven and vulnerable to climate extremes, variability and uncertainty. In Kalikot the DDC has identified as PANATA region, consists of five VDC - Dhaulagoah, Khin, Thirpu, Ramnakot and Nanikot (DDC, 2007/8) which are characteristically poor, most food insure, extremely isolated from the mainstream development, low external supports and declared as dry region in the district. Considering outcomes of the district and community level consultations carried out in Kalikot district one VDC - Nanikot has been added to make altogether 23 VDC across all project districts.

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Annex 1. Name of participants at community level interaction, Ramnakot of Kalikot, District

SN	Name of Participants	VDC	Ward No.	Gender		Cluster
				Man	Women	
1	Prem Bahadur Sejwal	Ramnakot	5	1	0	
2	Dhruba Bahadur Sejwal	Ramnakot	5	1	0	
3	Bishnu Lal Neupane	Ramnakot	6	1	0	
4	Mun Bir Sejwal	Ramnakot	5	1	0	
5	Dhana Krishna Neupane	Ramnakot	6	1	0	
6	Muni krishna Neupane	Ramnakot	6	1	0	
7	Nara Bahadur Bam	Ramnakot	6	1	0	
8	Durga Yedi	Ramnakot	6	1	0	
9	Krishna Sejwal	Ramnakot	5	1	0	
10	Krishna Sejwal	Ramnakot	5	1	0	
11	Karnabir Sejwal	Ramnakot	6	1	0	
12	Rati B.K	Ramnakot	5	0	1	
13	Lalit Sejwal	Ramnakot	5	1	0	
14	Raghubir Sejwal	Ramnakot	5	1	0	
15	Jir Sejwal	Ramnakot	5	1	0	
16	Kal Darji	Ramnakot	5	1	0	
17	Maya Sejwal	Ramnakot	5	0	1	
18	Jana Sejwal	Ramnakot	5	0	1	
19	Mana Bahadur Bam	Ramnakot	5	1	0	
20	Anarup Rokaya	Ramnakot	5	1	0	
21	Jayalal Sejwal	Ramnakot	5	1	0	
22	Aja Sejwal	Ramnakot	5	1	0	
23	Dan Sejwal	Ramnakot	5	1	0	
24	Nayarup Basnet	Ramnakot	5	1	0	
25	Fagu Sejwal	Ramnakot	5	1	0	
26	Jaidan Sejwal	Ramnakot	5	1	0	
27	Manbir Sejwal	Ramnakot	5	1	0	
28	Surya Bahadur Bam	Ramnakot	5	1	0	
29	Napa Darji	Ramnakot	5	1	0	
30	Man Bahadur Sejwal	Ramnakot	5	1	0	
31	Mamaraj Sejwal	Ramnakot	5	1	0	
32	Pankha Sejwal	Ramnakot	5	1	0	
33	Pamphu Sejwal	Ramnakot	5	0	1	
34	Rajendra Bahadur Bam	Ramnakot	5	1	0	
35	Ranu B.K.	Ramnakot	4	0	1	
36	Singharaj Bam	Ramnakot	5	1	0	
37	Narabir B.K.	Ramnakot	4	1	0	
38	Munilal Yedi	Ramnakot	8	1	0	Khai
39	Hari Prasad Neupane	Ramnakot	5	1	0	Lapha
40	Hari Bahadur Bam	Ramnakot	5	1	0	Lapha

41	Bipana Sejwal	Ramnakot	5	0	1	Lapha
42	Dan Bahadur Bam	Ramnakot	5	1	0	LGCDP
43	Pharek Neupane	Ramnakot	5	1	0	LGCDP
44	Tek Bahadur Bam	Ramnakot	1	1	0	Banjh
45	Min Bahadur Bam	Ramnakot	1	1	0	Banjh
46	Tek Bahadur Shahi	Ramnakot	3	1	0	Banjh
47	Dhir Bahadur Shahi	Ramnakot	3	1	0	Banjh
48	Rajan Sejwal	Ramnakot	5	1	0	Banjh
49	Nilbir Kathayat	Ramnakot	7	1	0	Rachai
50	Amardip Luwar	Ramnakot	4	1	0	Banjh
51	Mahajin Thapa	Ramnakot	9	1	0	Khai
52	Jayasingh Sejwal	Ramnakot	5	1	0	Khai
53	Ganerikala Shahi	Ramnakot	5	0	1	Khai
54	Hasta B.K	Ramnakot	4	1	0	Khai
55	Nauna Sejwal	Ramnakot	5	0	1	Khai
56	Gaura Neupane	Ramnakot	6	0	1	Khai
57	Takka Sejwal	Ramnakot	5	1	0	Khai
58	Nrip Darjee	Ramnakot	5	1	0	Khai
59	Naula Sejwal	Ramnakot	5	1	0	Khai
60	Bir Sejwal	Ramnakot	5	1	0	Khai
61	Shanti Darjee	Ramnakot	5	0	1	Khai
62	Jana Sejwal	Ramnakot	5	0	1	Khai
63	Sharada Baral	Ramnakot	6	0	1	Khai
Total Participants				**51**	**12**	

Annex 2: Name list of participants at community level interaction on climate change issues at **Talium VDC Jumla**, District

SN	Name of Participants	VDC	Ward No.	Gender	
				Man	Women
1	Til Giri	Talium	3	1	0
2	Ram Chandra Giri	Talium	3	1	0
3	Ambar Bahadur Raut	Talium	2	1	0
4	Purna Prasad Regmi	Talium	2	1	0
5	Chandra Bahadur Hamal	Talium	1	1	0
6	Katak Bahadur Dangi	Talium	4	1	0
7	Tilak Bahadur Rawal	Talium	4	1	0
8	Jageshwor Upadhaya	Talium	1	1	0
9	Ratan Bahadur Rawal	Talium	2	1	0

10	Til Bahadur Rawal	Talium	2	1	0
11	Shushila Nepali	Talium	4	0	1
12	Chaiti giri	Talium	3	0	1
13	Rajkali giri	Talium	3	0	1
14	Rupdara B.K.	Talium	4	0	1
15	Birendra Giri	Talium	3	0	1
16	Rita Rokaya	Talium	5	0	1
17	Dharma Raj Bohara	Talium	7	1	0
18	Tara Devi rawal	Talium	2	0	1
19	Shanti Giri	Talium	3	0	1
20	Ram Bahadur Khatri	Talium	7	1	0
21	Bhanumati B.K.	Talium	2	0	1
22	Dhanrashi Bhandari	Talium	7	0	1
23	Bishnu Bahadur Rawal	Talium	7	1	0
24	Gorakh Bahadur Dangi	Talium	4	1	0
Total Participants				**14**	**10**

Annex 3: Name list of participants at community level interaction on climate change issues at Haku VDC Jumla, District

SN	Name of Participants	VDC	Ward No.	Gender	
				Man	Women
1	Dharma Raj Neupane	Haku	3	1	0
2	Man Bahadur Hamal	Haku	3	1	0
3	Dhan Prasad Neupane	Haku	3	1	0
4	Agni Prasad Neupane	Haku	3	1	0
5	Tirtha Neupane	Haku	3	1	0
6	Padam Prasad Neupane	Haku	9	1	0
7	Khadananda	Haku	3	1	0
8	Man Bahadur Dangi	Haku	8	1	0
9	Nanina Nanda Neupane	Haku	3	1	0
10	Man Bahadur Neupane	Haku	3	1	0
11	Tularam Neupane	Haku	3	1	0

12	Gorakh Shahi	Haku	7	1	0
13	Rekha Upadhaya	Haku	3	0	1
14	Sita Neupane	Haku	4	0	1
15	Dhanlaxmi Neupane	Haku	3	0	1
16	Bindu Neupane	Haku	3	0	1
17	Menuka Upadhaya	Haku	5	0	1
18	Krishna Prasad Pande	Haku	4	1	0
19	Sharad Neupane	Haku	3	1	0
20	Hari Bahadur Hamal	Haku	9	1	0
21	Khagendra Raj Giri	Haku	8	1	0
22	Lok Bahadur Kadayat	Haku	3	1	0
23	Ratna Chandra Neupane	LiBIRD		1	0
24	Shiba Shankar Neupane	Haku	4	1	0
25	Bala Bahadur Giri	Haku	9	1	0
26	Muni Chandra Upadhaya	Haku	3	1	0
Total Participants				**21**	**5**

Annex 4: Name of community members participated at RARA VDC consultation, Murmatop, Mugu

SN	Name of Participants	VDC	Ward No.	Participants by sex		Cluster
				Man	Women	
1	Balakrishna Rokaya	RARA	8	1	0	Murmatop
2	Birkha Bahadur Rokaya	RARA	8	1	0	Murmatop
3	Gagan Bahadur Rokaya	RARA	8	1	0	Murmatop
4	Bal Bahadur Rokaya	RARA	8	1	0	Murmatop
5	Mani Chandra Rokaya	RARA	8	1	0	Murmatop
6	Ajbir Rokaya	RARA	9	1	0	Murmatop
7	Dhansing Rokaya	RARA	8	1	0	Murmatop
8	Rajesh Rokaya	RARA	8	1	0	Murmatop
9	Harisingh Rokaya	RARA	9	1	0	Murmatop
10	Jivan Rokaya	RARA	8	1	0	Murmatop
11	Ranna Rokaya	RARA	8	1	0	Murmatop
12	Dabal Rokaya	RARA	9	1	0	Murmatop
13	Birkha Kami	RARA	8	1	0	Murmatop
14	Bhakta Rokaya	RARA	9	1	0	Murmatop
15	Rudra Rokaya	RARA	9	1	0	Murmatop
16	Bija Lal Rokaya	RARA	9	1	0	Murmatop
17	Singha Karki	RARA	8	1	0	Murmatop
18	Larcha Rokaya	RARA	8	1	0	Murmatop
19	Gopichandra Rokaya	RARA	9	1	0	Murmatop
20	Basanta Rokaya	RARA	8	1	0	Murmatop
21	Bhairab Bahadur Rokaya	RARA	8	1	0	Murmatop
22	Ms Swani Rokaya	RARA	9	0	1	Murmatop
24	Ms Nani Rokaya	RARA	8	0	1	Murmatop
25	Ms Bhaura Rokaya	RARA	8	0	1	Murmatop
26	Khadga Buda	RARA	9	1	0	Murmatop
27	Ms Dhauli rokaya	RARA	8	0	1	Murmatop
28	Surjit Rokaya	RARA	9	1	0	Murmatop
29	Ms Bishu Rokaya	RARA	8	0	1	Murmatop

30	Ms Laljira Rokaya	RARA	9	0	1	Murmatop
31	Dhanakrishna Rokaya	RARA	8	1	0	Murmatop
Total Participants				**24**	**6**	

Annex 5: Name of participants of the focus group discussion at district level interaction, Gamgadi, Mugu

SN	Name of Participants	VDC	Ward No.	Gender		Cluster
				Man	Women	
1	Tila Malla	Kalai	4	0	1	Khanaya
2	Nanda Bahadur Buda	Khaumale	8	1	0	Lamera
3	Din Bahadur Sawat	Roba	6	1	0	Salim
4	Hira Singh Kathayat	Sukadhik	2	1	0	Sukadhik
5	Naradip Rawat	Kotdanda	7	1	0	Lui
6	Karnajit Malla	Dhainakot	9	1	0	Tilbada
7	Ramkrishna Sejwal	Roba	3	1	0	Gagpani
8	Anka Bahadur Nepali	Roba	4	1	0	Jhakot
9	Ujjar Singh Baduwal	Roba	3	1	0	Charap
10	Arjun Bahadur Shahi	Pina	9	1	0	Pina
11	Ganesh Prasad Kafle	Pandugufa	3	1	0	Jumla
12	Ummer Bumi	Bhee	3	1	0	Mugu
13	Ammarjit Rawat	Kotdanda	7	1	0	Mugu
14	Bramha Bahadur Shahi	Pulu	8	1	0	Mugu
15	Surya Bahadur Katuwal	Roba	3	1	0	Charap
16	Prithibi Bahadur Shahi	Gamdha	2	1	0	Mugu
17	Khadga Bahadur Rokaya	Hyanglu	3	1	0	Mugu
18	surya Bahadur Katuwal	Jima	3	1	0	Purumuru
19	Milan Kumar Sejuwal	Karkibada	4	1	0	Thathar
20	Radhika Shahi	Natharpu	5	0	1	Judepani
21	Yanju Lama	Mugu	1	0	1	Mugu
22	Devaki Karki	Sukadhik	3	0	1	Aam
23	Bhawana Jaisi	Gumtha	7	0	1	Gumtha
24	Karna Rokaya	Khamale	2	1	0	kawa

25	Purbilal Bdha	Roba	4	1	0	Jhakot
26	Arjun Bahadur Rokaya	Sukadhik	5	1	0	Narapaji
27	Kusum Rokaya	Sukadhik	5	0	1	Sukadhik
28	Krishna Bahadur Rawat	Karkibada	8	0	1	Karkibada
Total Participants				**21**	**7**	

ANNEX 6: Summary of Community Consultations

Ground level assessments of current climatic variability closely tally with reports on climate change scenarios. The climate conditions in mountainous areas are rapidly changing. In discussion with affected communities, it was agreed that such changes are undermining development interventions and any local initiatives to overcome poverty and rural income insecurity. Traditional systems and seasonal rainfall patterns on which peoples' livelihoods are based have changed to a degree that sowing, harvesting and even livestock rearing is increasingly uncertain. Climate induced hazards and impacts found to be very similar in their nature but differed in their degree of impacts over the VDCs that were surveys as part of the field consultations.

Since there appear very limited option available to farmers in the high hills of Karnali to diverisify in to non-agricultural livelihoods, it was commonly agreed that farm innovation, locally identified good practices and research outcomes will be promoted as well as there is a need of support for research stations to developing appropriate technologies. It is important that local adaptation options be consistently explored, assessed and promote or eliminate, if they are leading to mal-practices in the longer term. A researcher – farmers- service providers' (including finance) alliance would be desirable for tackling climate change impacts. To make the local people more informed decision makers even under stresses also posed by climate extremes and variability a variety of training and exposure programs be designed who could also be serving local communities as and when need but also on cost basis. A variety of skill oriented training are required to diversify livelihood option as there seems limited opportunity and areas through which agriculture production can be increased and also substantially employs youths and women farmers. Migration, both short term for employment and permanent for better livelihood were both observed in the VDCs.

Some of the adaptation options suggested by both community members and officials of the VDC/DDC and technical agencies are; Improved and drought resistant crop varieties; Protection of water sources and increased water harvesting, Watershed management with agro-forestry and crop diversification; Shift to perennial crops of high value such as apple, orange, mango, banana, walnut; Protection and promotion of local cereal and vegetable crop; Protection and management of NTFPs as well as some species of aromatic plants; Building market linkage and coordination with local institution and Pasture land management.

ANNEX 7: Food Security Indicators Developed for WFP Country Programme Targeting

Adapted from SYNTHESIS DOCUMENT FOR THE NEPAL COUNTRY PROGRAMME (2013-2017).Food Security Monitoring and Analysis Unit, December 2011

CP GEOGRAPHICAL TARGETING – ESTABLISHING A COMPOSITE INDEX

Following three key food security indicators are employed to establish the composite index of food insecurity:

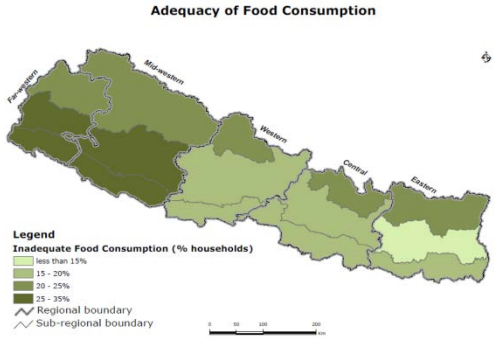
- Prevalence of households with inadequate of food consumption (percentage of households that consume inadequate energy or quality AND food poor – data source NLSS-III):
- Prevalence of child stunting (data source NLSS-III);
- Recurrence of acute crisis (mean average value of the 2008-2010 food security phase classification – data source NeKSAP)

Values of each indicator are converted into indices of zero to one (one meaning the worst-off). Table below presents the original values as well as the indices.

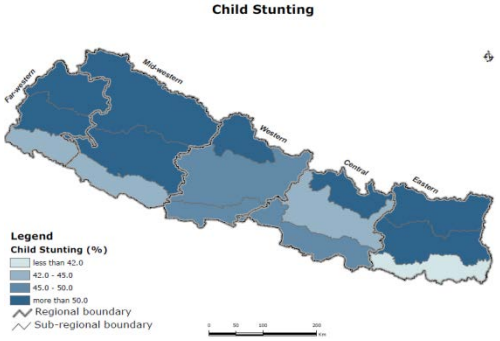
	Value			Index			**Composite Index Score**
	Inadequacy of consumption	Stunting*	Recurrence of acute crisis	Inadequacy of consumption	Stunting	Recurrence of acute crisis	
Mountains	20.5%	58.1%	1.54	0.605	1.000	1.000	**2.605**
Urban KTM	4.7%	22.5%	1.00	0.000	0.000	0.000	**0.000**
Urban Hill	6.9%	29.3%	1.00	0.082	0.190	0.000	**0.272**
Urban Terai	13.1%	31.3%	1.00	0.320	0.246	0.000	**0.565**
Rural Hills - Eastern	12.5%	53.3%	1.26	0.297	0.865	0.486	**1.648**
Rural Hills -Central	19.3%	44.3%	1.15	0.560	0.612	0.288	**1.459**
Rural Hills - Western	15.4%	45.7%	1.08	0.409	0.652	0.155	**1.216**
Rural Hills - MF West	30.8%	52.7%	1.49	1.000	0.849	0.912	**2.761**
Rural Terai - Eastern	15.9%	41.8%	1.08	0.427	0.542	0.150	**1.119**
Rural Terai - Central	15.7%	45.7%	1.03	0.422	0.652	0.055	**1.129**
Rural Terai - Western	17.0%	45.9%	1.00	0.469	0.656	0.000	**1.125**
Rural Terai - FM Western	25.4%	44.5%	1.14	0.792	0.618	0.261	**1.670**

*NLSS-III preliminary findings (estimated by WFP)

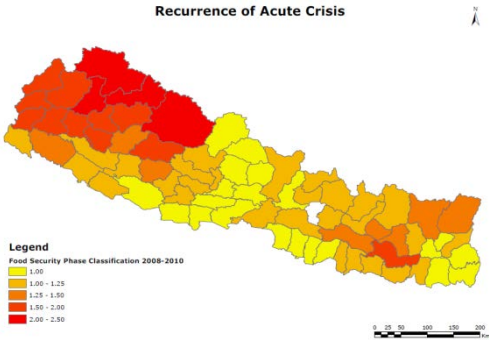
Adequacy of food consumption is measured by looking at three indicators: the *Energy Intake*, the *Food Consumption Score* (FCS) and the *Food Poverty*. The *Energy Intake* measures the quantity of food (kcal) consumed whereas the FCS measures the quality of food (diversity) consumed. The *Food Poverty* expresses a household's inability to afford a basic necessary food basket. These three are complimentary, providing the accurate understanding of the degree of household's access to an adequate diet. The NLSS-III data is used to derive the information.



Under-nutrition: *Child Stunting* is employed to look at the degree of under nutrition. Note that geographical distribution of stunting and wasting differs in the context of Nepal (i.e. a higher prevalence of stunting is found in the mountain region while the prevalence of wasting is higher in the terai region). As the CP primarily addresses chronic food insecurity, stunting is used in the analysis. The NLSS-III is the information source.



Recurrence of acute crisis expresses the degree of vulnerability in a given geographical area – i.e. the communities' exposure to shocks and hazards, as well as the level of adaptive capacity. The NeKSAP food security phase classification data over the past three years (2008 – 2010) is employed to derive the information.



Based on data from the Nepal Living Standard Survey (2010/11) and the food security monitoring data collected under the NeKSAP, the target group for the WFP supported Productive Safety Net are the chronic food insecure population living in the Far and Mid-west Hills and Mountains an area characterized by a high concentration and severity of food insecurity and malnutrition, extreme poverty and vulnerability to natural disasters.

Within the specific target population, there are sub population groups particularly vulnerable to hunger and under-nutrition, such as pregnant and lactating women and young children. As the household food consumption in the target area is predominantly cereals with insufficient quantity of protein-rich food and micro-nutrients[1], targeted intervention for those population groups would be needed while the F/CFA intervention can be designed to address the situation to increase the availability of different food items through promoting the agricultural production including pulses, vegetables and livestock products.

Considering that the CP is to address the chronic food insecurity, providing a longer-term (repeated) food assistance to the vulnerable population, the intervention programme needs to be designed to promote a

[1] "NLSS-III Thematic Report on Food Security and Nutrition", draft 2011; "Pulse consumption and production situation in Nepal", unpublished paper, WFP 2011

sustainable hunger solution through fostering own production, market functionality and economic empowerment and addressing nutrition needs.

VULNERABILITY PROFILE OF DISTRICTS

Two sets of indicators were looked at for the *Sensitivity* and *Adaptive Capacity* analysis. The *Sensitivity* represents the degree to which a system is susceptible to, or unable to cope with the adverse effects whereas the *Adaptive Capacity* expresses the ability to respond effectively to a susceptible situation. In this context, vulnerability is considered as a function of the *Sensitivity* and the *Adaptive Capacity*: Vulnerability = *f*(sensitivity, adaptive capacity)[2]. Table below presents the list of indicators employed to analyze each of the *Sensitivity* and the *Adaptive Capacity*. Each indicator is converted into an index of zero to one, one being the worst for the *Sensitivity* and the best for the *Adaptive Capacity*. A vulnerable community is characterized as high sensitivity and low adaptive capacity. A vulnerability score is derived through looking at the ratio of the *Sensitivity* to the *Adaptive Capacity*, based on the understanding that there is an inverse relationship between the two.

Table below presents the list of indicators. Note that the list is not a final one, which is to be further refined during 2012.

TABLE. SENSITIVITY AND ADAPTIVE CAPACITY INDICATORS

SENSITIVITY

INDICATOR
Natural Hazards
DAG (Disadvantaged Group)
Disease Outbreak
Market Price
Recurrence of Acute Crisis

ADAPTIVE CAPACITY

DIMENTION	INDICATOR
AGRICULTURE*	Agriculture production (per capita)
	Agriculture land (per capita)
	Irrigated land (per capita)
INFRASTRUCTURE	Road density (length/100 sqkm)
	Access to basic services
EDUCATION**	Net enrollment rate (percent)
WASH	Toilet facility (percent)
	Drinking water coverage (percent)
GENDER	Gender Empowerment
	Girls enrollment rate (percent)
WEALTH	Poverty

*Indicators related to livestock products are to be added;

**Other relevant indicators including drop-out rate, repetition/promotion rates need to be considered

Food Security Phase Classification looks at 12 indicators on availability, access and utilization of food security. Table below presents the list of indicators and their thresholds. The tool is designed to capture the changes and to alert the occurrence of acute hunger of a given period of time. Analyzing the 12 indicators can provide information on the contributing factors to the reported acute hunger. A time series data of the 2010 Phase Classification is looked at with an attempt to capture the vulnerability factors affecting the recurrent acute food insecurity outcome in a given geographical area.

[2] IPCC 2001

14 hills and mountain districts in mid and far west regions are selected for the Country Programme 2013-2017. Data from 72 districts excluding the three Kathmandu Valley districts were used to create indices and to rank the districts.

		Sensitivity			Adaptive Capacity						
Districts	Sub regions	Index	Rank	Category	Index	Rank	Category	Vulnerability Index	Final Ranking	Category	Programme District MW&FW Hills & Mountain selected using Final Ranking
Humla	MW MOUNTAIN	0.897	1	Very high	0.324	71	Low	2.774	1	Very high vulnerable	1
Mugu	MW MOUNTAIN	0.867	2	Very high	0.314	72	Low	2.759	2	Very high vulnerable	2
Dolpa	MW MOUNTAIN	0.750	4	Very high	0.376	67	Low	1.994	3	Very high vulnerable	3
Kalikot	MW MOUNTAIN	0.859	3	Very high	0.450	57	Low	1.907	4	Very high vulnerable	4
Bajura	FW MOUNTAIN	0.640	6	Very high	0.366	68	Low	1.750	5	Very high vulnerable	5
Bajhang	FW MOUNTAIN	0.578	9	Very high	0.353	69	Low	1.636	6	Very high vulnerable	6
Jumla	MW MOUNTAIN	0.733	5	Very high	0.453	56	Low	1.620	7	Very high vulnerable	7
Achham	FW HILL	0.582	8	Very high	0.403	64	Low	1.446	8	Very high vulnerable	8
Khotang	E HILL	0.522	15	Very high	0.384	65	Low	1.359	9	Very high vulnerable	
Dailekh	MW HILL	0.546	12	Very high	0.410	63	Low	1.332	10	Very high vulnerable	9
Udayapur	E HILL	0.600	7	Very high	0.478	48	Moderate	1.254	11	Very high vulnerable	
Doti	FW HILL	0.509	16	Very high	0.418	61	Low	1.217	12	Very high vulnerable	10
Mahottari	C TERAI	0.527	13	Very high	0.469	53	Moderate	1.123	13	Very high vulnerable	
Jajarkot	MW HILL	0.468	26	High	0.418	62	Low	1.118	14	Very high vulnerable	11
Rautahat	C TERAI	0.479	23	High	0.431	59	Low	1.111	15	Very high vulnerable	
Taplejung	E MOUNTAIN	0.564	10	Very high	0.519	36	High	1.086	16	Very high vulnerable	
Sankhuwasabha	E MOUNTAIN	0.560	11	Very high	0.525	34	High	1.066	17	Very high vulnerable	
Saptari	E TERAI	0.482	21	High	0.457	55	Low	1.056	18	Very high vulnerable	
Rukum	MW HILL	0.439	30	High	0.419	60	Low	1.049	19	High vulnerable	12
Sindhuli	C HILL	0.365	41	Moderate	0.350	70	Low	1.041	20	High vulnerable	
Dhanusa	C TERAI	0.524	14	Very high	0.505	41	Moderate	1.037	21	High vulnerable	
Baitadi	FW HILL	0.506	17	Very high	0.504	42	Moderate	1.005	22	High vulnerable	13
Bhojpur	E HILL	0.481	22	High	0.488	44	Moderate	0.986	23	High vulnerable	
Sarlahi	C TERAI	0.498	18	Very high	0.510	38	Moderate	0.976	24	High vulnerable	
Parsa	C TERAI	0.460	28	High	0.481	47	Moderate	0.956	25	High vulnerable	
Rolpa	MW HILL	0.355	44	Moderate	0.377	66	Low	0.942	26	High vulnerable	14

The vulnerability index is the function of sensitivity and adaptive capacity mention in table 1.

ANNEX 8: NAPA Process and Priority Profiles

National Adaptation Plans for Action are prescribed by UNFCCC (according to decision 29/ CP7) for least developed countries to identify and prioritize adaptation needs to enable financing for urgent resilience-building actions. With support from donors and development partners, the Ministry of Environment in Nepal undertook the preparation of a NAPA in 2009-2010. The government of Nepal (GoN) intended the NAPA prioritization process to be comprehensive enough to subsequently translate in to a national policy for adaptation; and that the NAPA would draw in financial assistance from multilateral and bilateral sources for implementation.

The Objectives of the NAPA document are to;

1. Assess and prioritise climate change vulnerabilities and identify adaptation measures
2. Development proposals for priority activities
3. Develop and maintain a knowledge management and learning platform
4. Develop a multi-stakeholder framework of action on climate change.

Formulation of the NAPA document is a critical point of departure for Nepal in identifying urgent and immediate adaptation needs. Summarized below are some of the major findings on vulnerability and the priority profiles for immediate action in Nepal's context.

Vulnerability Assessment

Nepal's low development and complex topography renders it vulnerable to climate change. The on-going climate change and changes are projected to occur are likely to have an impact on the different sectors of Nepal such as agriculture forestry, water, energy, health, urban development and infrastructure, tourism and even industry. Overall there is projected to be significant impact on livelihoods and economy

The sectors identified by the NAPA as being vulnerable to climate change in Nepal are;
1. Agriculture and food security: A large portion of Nepali farmers are at subsistence level and as such they are already facing declining yield in crop and livestock production. Reduced stream flows, erratic monsoon and winter rainfall, more frequent events of flood and drought have combined to increase vulnerability of subsistence farming. Rice yields are particularly sensitive to climatic conditions and these may fall in the western region where a larger population of the poor live and threaten food security.

2. Water resources and energy: Climate induced water-related hazards will directly affect agricultural productivity, malnutrition, health and sanitation. Already impacts of rainfall variability is being felt by communities in the hills and mountains where reduced stream flows impact micro-hydro based power generation and domestic water supplies. Increased number of cloudy days is reported to impact on solar power generation in the mountains and increased forest fires threaten already fragile catchments.

3. Management of climate induced disasters: Climate induced disasters in the last ten years have claimed 4000 lives and caused US $ 5.34 billion in damages in Nepal. Above this, every year over a million people are susceptible to climate induced disasters such as floods, landslides and drought. There are currently 20 glacial lakes at risk of GLOF. These disaster conditions are expected to worsen with climate change.

4. Forests and biodiversity: Observed shifts in agro-ecological zones, prolonged dry spells, new alien species and increased pests and diseases threaten forests and biodiversity. Large areas of productive community forests have been lost to fires in recent years . Wetland ecosystems are shrinking due to rainfall changes and longer dry spells.

5. Public Health: Many vector and water borne diseases are known to be sensitive to climate conditions. There is a notable increase in mosquito-borne diseases such as malaria, Japanese encephalitis and visceral leishmaniasis. As temperature rises, larger areas of the country would be susceptible to such

diseases. Human health is already at risk from malnutrition and infectious diseases that could also increase with climate change impacts.

6. Urban Settlements and Infrastructure: Impacts for urban infrastructure are largely related to climate induced disasters that affect essential infrastructure such as roads, bridges, culverts, community buildings and schools. These impacts compound existing issues on urban water, energy resources and human health issues in urban areas. Addressing such issues is also challenging due to an influx of climate-induced rural to urban migration in recent years.

7. Gender and other cross cutting sectors: Since women are largely engaged in climate sensitive sectors- such as subsistence agriculture, domestic livestock, water and health any degree of climate change increases their vulnerability. For example, small farmers are sensitive to any degree of change in availability of water; firewood and agricultural production. Women are also negatively impacted by socio-cultural and institutional arrangements through which remedial actions could be delivered.
Other cross cutting sectors are industrial production and tourism; both of which depend on the natural resource base of the country.

District-Level Vulnerability Assessment
As part of the NAPA formulation process a series of climate change vulnerability assessments at the districts was conducted. The assessment was carried out by overlaying climate risk and exposure maps, sensitivity maps and adaptive capacity maps, following the vulnerability assessment framework of the IPCC. The study used data on the spatial distribution of various climate related risks/exposure in the 75 districts and based on this assessment the most climate vulnerable districts were identified.

The primary objective of this study was to supplement the NAPA process by supplying climatic information and identifying different vulnerabilities at district level. The specific objectives are;

- To support NAPA process by identifying key climatic vulnerabilities and triangulating vulnerabilities assessed through the Transect Appraisal Exercise (TAE) and desk reviews in Nepal
- To identify the magnitude of vulnerabilities in districts (depending on data availability)
- To show these vulnerable districts on a map for ease of reference

Concept and Method

The concept follows the IPCC TAR definition of vulnerability as 'the degree to which a system is susceptible to, or unable to cope with the adverse effects of climate change including climate variability and extremes'. In other words vulnerability is a function of exposure, sensitivity and adaptive capacity.

In the Nepal vulnerability mapping, exposure was defined by the highest number of variables including annual temperature trend, rainfall trend, climate related hazard (landslide, flood, drought GLOF) occurrences, deaths and damages and ecological indicators such as population pressure on forest land, human poverty and motorable access. Sensitivity was defined by two indicators human and ecology-including population data, area, protected area, forest area etc.

Adaptive capacity was determined by three indicators including socio-economic (human development index, human poverty index, gender development index, and human empowerment index);
Infrastructural (road length, area, landline phones, population) and Technology (irrigation availability)

District Ranks – Combined Vulnerability Index

Rank	District	Score	Group
1	Kathmandu	1.000	Very High
2	Ramechhap	0.995	
3	Udayapur	0.956	
4	Lamjung	0.948	
5	Mugu	0.922	
6	Bhaktapur	0.886	
7	Dolakha	0.855	
8	Saptari	0.852	
9	Jajarkot	0.838	
10	Mahottari	0.785	High
11	Dhading	0.758	
12	Taplejung	0.756	
13	Siraha	0.749	
14	Gorkha	0.733	
15	Solukhumbu	0.725	
16	Chitwan	0.725	
17	Okhaldhunga	0.680	
18	Achham	0.662	
19	Manang	0.650	
20	Dolpa	0.649	
21	Kalikot	0.648	
22	Khotang	0.647	
23	Dhanusha	0.635	
24	Dailekh	0.625	
25	Parsa	0.604	
26	Salyan	0.603	
27	Sankhuwasabha	0.574	Moderate
28	Baglung	0.574	
29	Sindhuli	0.567	
30	Bhojpur	0.565	
31	Jumla	0.562	
32	Mustang	0.559	
33	Rolpa	0.548	
34	Bajahang	0.538	
35	Rukum	0.536	
36	Rautahat	0.536	
37	Panchthar	0.531	
38	Parbat	0.525	

Rank	District	Score	Group
39	Dadeldhura	0.523	
40	Sunsari	0.515	
41	Doti	0.513	
42	Tanahu	0.503	
43	Makwanpur	0.496	
44	Myagdi	0.492	
45	Humla	0.476	
46	Bajura	0.474	
47	Baitadi	0.464	
48	Bara	0.432	
49	Rasuwa	0.426	
50	Nawalparasi	0.414	
51	Sarlahi	0.410	
52	Sindhupalchok	0.403	
53	Darchula	0.395	
54	Kaski	0.389	
55	Nuwakot	0.337	Low
56	Dhankuta	0.311	
57	Kanchanpur	0.309	
58	Bardiya	0.296	
59	Kapilbastu	0.290	
60	Terhathum	0.288	
61	Gulmi	0.280	
62	Pyuthan	0.248	
63	Surkhet	0.231	
64	Arghakhanchi	0.230	
65	Morang	0.228	
66	Dang	0.205	
67	Lalitpur	0.193	
68	Kailali	0.192	
69	Syanja	0.182	
70	Kavrepalanchowk	0.180	
71	Ilam	0.140	Very Low
72	Jhapa	0.125	
73	Banke	0.071	
74	Palpa	0.003	
75	Rupandehi	0.000	

NAPA Priority profiles

Nepal's NAPA prioritization process deviated from looking at individual projects, combining instead a group of urgent actions in to sectoral profiles. Members of different technical working groups agreed to pool in common priority actions under combined programmatic profiles. The nine profiles and their activity components are detailed below;

Combined Profile	Activity components	Estimated Cost
1. Promoting Community Based adaptation through integrated management of agriculture, water, forests and biodiversity sectors	- ensuring ecosystem and community adaptation to climate change through integrated watershed management in Churia -initiating on-farm soil and water conservation activities to support hill and mountain communities vulnerable to climate change -Promoting water management I river basin areas at municipal level - Reducing the vulnerability of communities and increasing their adaptive capacity through flood management - Promoting and up-scaling multi-use systems for the benefit of the poor and vulnerable communities in mid-hills and Churia range - Scaling up and implementing non-conventional irrigation systems in water-stressed areas	US $ 50 million
2. Building and Enhancing adaptive capacity of vulnerable communities through improved systems and access to services related to Agricultural Development	- Enabling climate vulnerable communities to sustain livelihoods by improving access to agricultural services - Increasing community climate adaptive capacity through improved production and marketing services - Strengthening highland-lowland linkages to improve community access to goods and services - Promoting sustainable underground water management for irrigation - Promoting improved animal breeds adaptable to climatic uncertainty	US$ 44 million
3. Community-based disaster management for facilitating climate adaptation	- Building capacity to enhance community-based adaptation to climatic hazards - Developing water retaining structures as sustainable adaptation measures to address the effect of climate change - Establishing, rehabilitating and conserving small scale drinking water supply schemes and traditional water sources - Reducing the disaster risks at community level with climate change dimension	US $ 60 million
4. GLOF monitoring and disaster risk reduction	- Monitoring of GLOF and reducing climate related disaster risks - Developing early warning systems in	USD 55 million

	disaster prone areas - Linking climate change with disaster risk reduction and enhancing institutional capacity at different levels Mapping of hazards, assessing disaster impacts and developing contingency plans - Managing existing hydrological and meteorological network at the Department of Hydrology and Meteorology (DHM) and scaling up its services - Initiating GLOF and disaster related research and development activities	
5. Forest and Eco-system management for supporting climate adaptation innovations	- Managing trees outside forests in private lands (agro-forestry) - Maintaining balance between fuelwood demand and supply in rural households through energy plantations - Scaling up of biomass energy technologies (quantity, quality and coverage) for less fuel consumption Managing community-based forests fire in the mid hills and terai	USD 25 million
6. Adapting to climate chanllenges in public health	- Reducing public health impacts of climate change through evidence based reaerch and piloting - Enpowering communities through public education to respond to advserse effects of climate change in public health - Investigating diease outbreat and emergency repsosne - Scaling up programmes on vector borne, food and water borne diseases and disasters - Stregthening forecasting, early wanring and surveillance systems on climate change and health	USD 15 million
7. Eco-system management for climate adaptation	- Promoting improved pasture and rangeland management techniques to rehabilitate degraded mountain ecological zones -Conserving and promoting medicinal plants and NTFPs in all potential ecological zones - Initiating integrated wetland management in terai - Managing the biological corridor between Terai and mountains	USD 31 million
8. Empowering vulnerable communities through sustainable management of water resources and clean energy supply	- Conserving lakes supplying water and ecological services to urban areas - Promoting rainwater harvesting structures and technologies - conserving water supply source(quantity and quality) and strengthening programmes of existing projects affected by source	USD 40 million

	reduction - Developing a nation-wide urban ground water monitoring system and enhancement of regulatory measures - Establishing and improving micro-hydro projects affected by acute water shortages - improving water mills for multi-use	
9.Promoting climate smart urban settlements	- Enforcing building codes in municipal areas incorporating climate change dimensions - Rehabilitating vulnerable communities - Increasing the efficiency of use of ground water resources for urban populations -Establishing municipal compost plants and developing s strategy to link with Clean development Mechanism to generate revenue -Building the capacity of local level institutions for efficient water and energy planning and project implementation	USD 30 million

ANNEX 9: LAPA Framework, Process and Tools

Adapted from LAPA Manual: Local Adaptation Plans for Action (MoE) and Nepal's Climate Change Policies and Plans. Local Community Perspective. Helvitas, Nepal.

The Local Adaptation Plans for Action (LAPA's) ensures that the process for integrating climate change adaptation in to local and district planning is **inclusive and bottom-up.** The framework allows local 'decision makers' to identify the most vulnerable VDCs, wards and households; and with support from community and local service delivery, initiate local responses or integrate their adaptation needs in to village and district planning processes.

The LAPA approach has been successfully piloted in 10 districts under the Climate Adaptation Design and Piloting-Nepal (CADP-N) Project and then replicated in 14 far and mid-western districts through the National Climate Change Support Project (NCCSP). The experience has demonstrated that LAPAs can successfully;

- Identify the most vulnerable VDCs, wards and people in a given area
- Prioritise adaptation actions with local communities so that prioritizing decisions are owned by local people
- Prepare and present local adaptation plans in to village, district planning according to the Local Self Governance Act
- Identify appropriate service delivery agents and channels for funding to implement Local Adaptation Plans for Action. The LAPA framework can ensure that the most appropriate state and non-state service providers are identified to carry out the sequence of adaptive actions in a timely and resource-efficient manner.
- Assess progress of LAPAs at local and district level to ensure effective planning and delivery
- Provide cost-effective options for scaling up through national departments, DDCs and NGO/private sector.

LAPA allows for inclusive bottom-up, community-involved planning of adaptation needs. It follows the below seven steps and a range of social and economic analytical tools to determine community adaptation needs, priorities, capacities and opportunities.

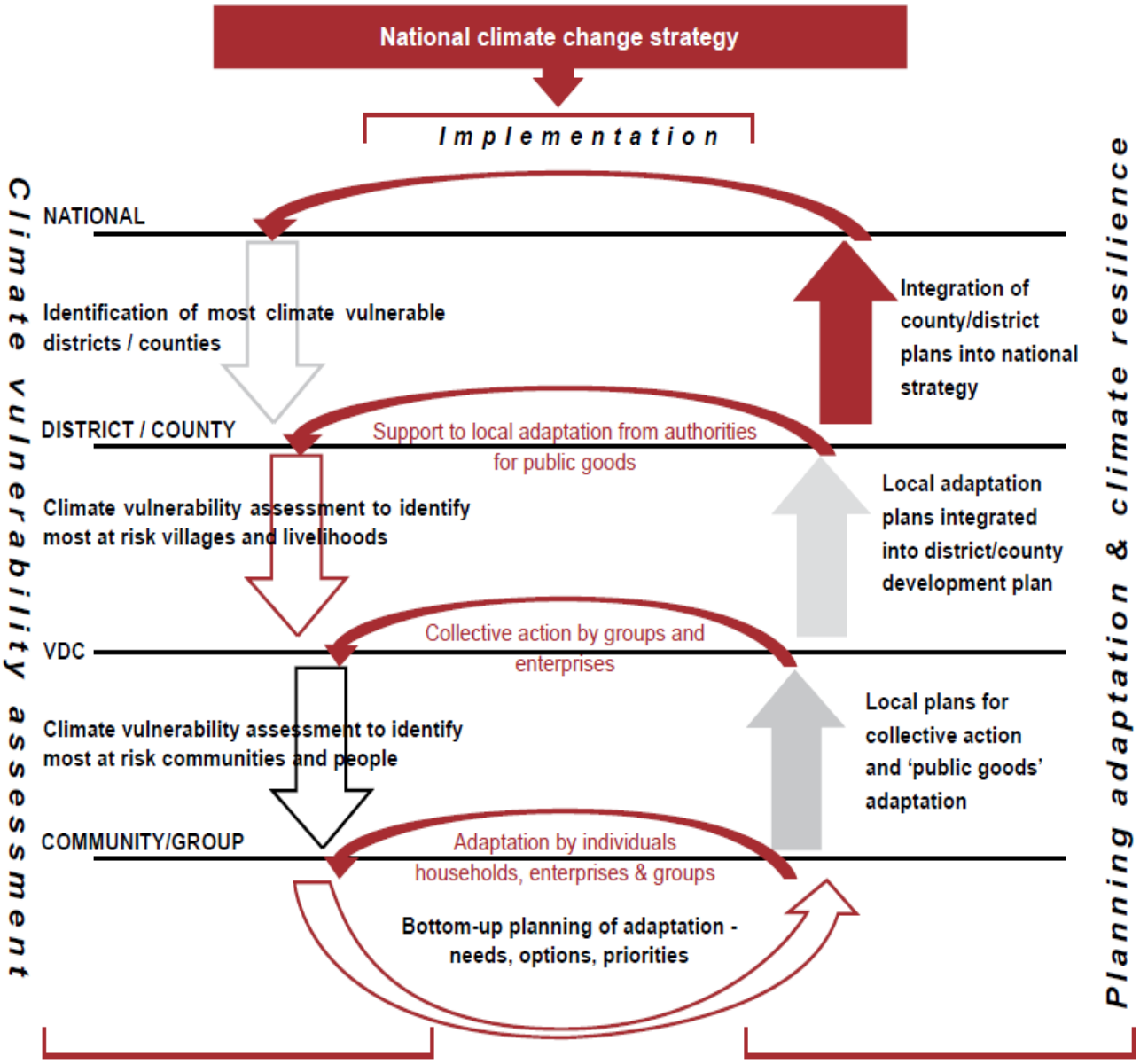
Recommended tools for different LAPA steps

	LAPA Steps	Core Tools	Additional Tools
1.	Climate change sensitization	1. Shared Learning Dialogue (District Level) 2. Gateway Services Analysis (district Level) 3. Visuals and Stories 4. Climatic Hazard Trend Analysis 5. Seasonal calendars	1. Climate adaptation capacity assessment 2. cause and effect analysis (problem tree) 3. Envisioning climate scenarios 4. Hazard and impact analysis 5. Hazard and response analysis 6. Mapping: hazards, vulnerability and resources 7. Timeline history regarding changes 8. school level awareness raising tools
2.	Climate vulnerability and adaptation assessment	1. Gateway Services Analysis 2. Mapping: hazards, vulnerability and resources 3. Disaggregated vulnerability analysis 4. Hazard and impact analysis 5. Envisioning climate scenarios 6. Climate adapted well being analysis	1. Cause and effect analysis 2. GIS mapping 3. Hazard and response analysis 4. Seasonal calendars 5. Livelihood impact analysis 6. Climate hazards trend analysis

	7. Visioning high adaptive capacity	7. Mapping of service providers/ institutional analysis
3. Prioritization of adaptation options	1. Multi-criteria ranking 2. Participatory cost=benefit analysis	1. Impact implementation matrix 2. Pair wise ranking 3. Scenario tool for identifying energy pathways
4. Developing Local Adaptation Plans for Action	1. Service Providers Analysis 2. The 4 WHs (what when where who) 3. Budget	1. Logical Framework 2. inclusion sensitive budgeting (for example, gender and indigenous people sensitive budget)
5. Integrating the Local Adaptation Plan for Action with the development planning process	1. Shared Learning Dialogue 2. Policy and institutional analysis to identify entry points and/ or adopt entry points included in this framework	
6. Implementing Local Adaptation Plans	n/a	n/a
7. Assessing Progress of Local Adaptation Plans	1. Visioning high adaptive capacity 2. Service Providers Analysis 3. Behaviour change journals analysis 4. Disaggregated vulnerability matrix 5. Mapping (risks, vulnerability, service providers) 6. climate adapted well being 7. Self-monitoring and evaluation 8. Most-significant change analysis	1. Mapping hazards, risks and vulnerability 2. Envisioning climate scenarios 3. Logical frameworks 4. Hazard trend analysis 5. Seasonal calendars 6. Hazard response analysis 7. Gateway systems analysis 8. Policy and institutional analysis

Each step has activities conducted at the local community level. For instance, Step 1 includes activities such as 'creating awareness of the local stakeholders at household, community, VDC, DDC, and national scale, on the impacts of climate change and means to address these impacts so that climate change resilience can be integrated into development planning'. In Step 2 LAPA activities are aimed at identifying climate vulnerable hotspots, vulnerable communities, and people within these wards; identifying adaptation outcomes and actions that will reduce vulnerability to current and future climate change; and supporting effective and efficient targeting of resources. In a quest to capture the basic elements at the community, and even household level, LAPA uses actions, tools and approach that is more bottom-up.
However, depending upon the nature of actions and steps, LAPA adopts top-down approach as well for effective planning and design. For instance, during climate change vulnerability assessment in Step 2, LAPA 'combines a top-down assessment that helps identify the status and quality of services and resources at the ward level, with a bottom-up assessment that helps identify the extent to which vulnerable communities and households can access these resources and services'. It is anticipated that LAPA will be a living document, which is open to amendments and adjustments per the changing context and circumstances. It is especially essential in the context of policy documents that cater to the dynamic and evolving issues like climate change and working directly with the local communities

FIGURE 3 | LAPA Framework



ANNEX 10: River Basin Vulnerability Analysis

Extracted from a vulnerability analysis report prepared by IWMI for the Department of Soil Conservation and Watershed Management, under the ADB funded project for Building Climate Resilience of Watersheds in Mountain Eco-Regions of Nepal.

The Himalayan region is considered to be very sensitive to climate change due to the high variation in altitudes. The significant effect of climatic variability in major rivers and their tributaries have already been observed. As a result, rivers and tributaries, and watersheds are at risk from increased flooding, landslides, soil erosion, drought and more intense rains during the monsoon.

The main objective of this study was to identify and prioritise sub-basins/watersheds in the middle and high mountains of Nepal that are significantly vulnerable to climate change. The vulnerability assessment framework of the United Nations Intergovernmental Panel on Climate Change (IPCC) was used to guide the study, which built on the assessment carried out during Nepal's NAPA formulation process. However, the study is more comprehensive and at a higher spatial resolution which is geared towards management interventions at watershed level.

This study indicates that the Karnali River Basin and its watersheds are most vulnerable, followed by Koshi River Basin.

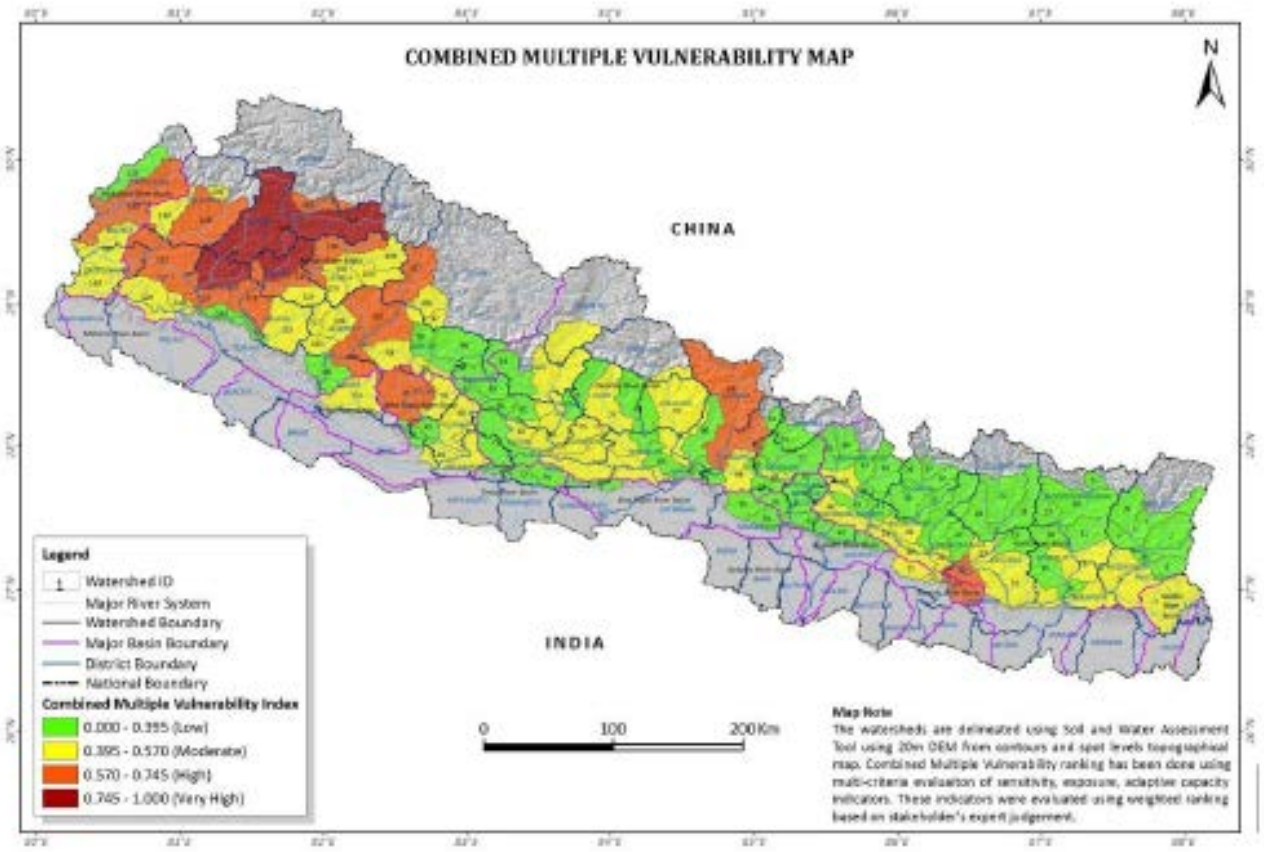


Table 20 Watersheds ranked by Combined/Multiple Vulnerability Index

Class	Major River Basin	Sub-Basin	Watershed	WS ID	Area (Sq. km)	Included District	Rank
Very High (0.745-1.000)	Karnali	-	Upper Karnali	120	2557.76	Bajura, Humla, Kalikot, Mugu	1
	Karnali	Mugu Karnali	Mugu Karnali	117	1049.18	Mugu	2
	Karnali	West Seti	Budhi Ganga	124	1744.53	Achham, Bajura	3
High (0.570-0.745)	Karnali	West Seti	Middle West Seti	126	1487.56	Bajhang	4
	Karnali	Humla Karnali	Humla Karnali	119	297.04	Humla,Mugu	5
	-	West Rapti	Siban Khola	93	1281.69	Pyuthan, Rolpa, Rukum, Salyan	6
	Karnali	West Seti	Lower West Seti	127	1827.91	Achham, Baitadi, Bajhang, Dadeldhura, Doti	7
	Karnali	Tila	Lower Tila	115	545.12	Jumla, Kalikot	8
	Karnali	Tila	Daine Khola	116	738.82	Jumla	9
	Karnali	-	Middle Karnali	121	903.7	Achham, Dailekh, Kalikot	10
	Karnali	Thuli Bheri	Bheri	107	1014.37	Dolpa	11
	-	Kamala	Baidyanath Khola	24	428.15	Sindhuli, Udayapur	12
	Karnali	Thuli Bheri	Upper Bheri	105	1457.55	Jajarkot, Rukum	13
	Karnali	West Seti	Chaira Khola	123	380.75	Achham, Doti	14
	Gandaki	Budhi Gandaki	Budhi Gandaki	63	2960.15	Dhading, Gorkha, Nuwakot	15
	Karnali	Humla Karnali	Loti Karnali	118	120.06	Humla, Mugu	16
	Koshi	Sun Koshi	Yari Khola	23	359.71	Khotang, Okhaldhunga, Sindhuli, Udayapur	17
	Mahakali	-	Chamaliya	133	1953.57	Baitadi,	18

Annex 11: Climate Change Projections for Nepal

Adapted from Climate Change Uncertainties and Nepal's Development Predicaments. National Climate Change Vulnerability Study Team (NCVST). ©ISET2009

Table 4.4. Change in mean temperature (°C, relative to mean of 1970-1999) from GCM projections.

EASTERN NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2030s	1.4 (0.5, 1.8)	1.5 (0.5, 2.0)	1.3 (0.3, 1.9)	1.1 (0.3, 2.0)	1.3 (0.5, -2.4)
2060s	2.7 (1.7, 3.3)	2.9 (1.7, 4.1)	2.3 (1.1, 3.0)	2.5 (1.4, 3.2)	2.9 (1.8, 4.0)
2090s	4.2 (3.2, 5.4)	4.7 (3.3, 6.1)	3.5 (2.0, 5.6)	4.0 (2.9, 5.4)	4.7 (3.4, 6.1)
CENTRAL NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2030s	1.4 (0.9, 2.0)	1.7 (0.8, 2.5)	1.4 (0.5, 2.2)	1.2 (0.7, 2.0)	1.6 (0.9, 2.8)
2060s	3.0 (1.7, 4.1)	3.1 (1.9, 4.7)	2.5 (1.0, 3.4)	2.6 (1.8, 4.1)	3.4 (1.9, 4.6)
2090s	4.9 (3.0, 6.3)	5.4 (3.5, 7.0)	4.5 (1.9, 5.5)	4.6 (3.2, 5.9)	5.4 (3.7, 7.1)
WESTERN NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2030s	1.4 (0.8, 2.0)	1.8 (0.8, 2.1)	1.4 (0.5, 2.2)	1.1 (0.5, 2.0)	1.5 (0.7, 2.8)
2060s	2.8 (1.9, 3.8	3.0 (2.2, 4.4)	2.3 (1.4, 3.3)	2.6 (1.8, 4.0)	3.4 (1.7, 4.5)
2090s	4.9 (3.7, 5.9)	5.3 (4.0, 6.5)	4.0 (2.8, 5.9)	4.3 (3.3, 5.5)	5.6 (3.7-6.2)

Table 4.5. Change in frequency of hot days (%, relative to mean of 1970-1999) from GCM projections.

EASTERN NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	16 (12, 35)	26 (16, 45)	24 (10, 66)	24 (10, 66)	26 (19, 80)
2090s	22 (14, 45)	43 (29, 62)	35 (8, 84)	35 (8, 84)	53 (31, 91)
CENTRAL NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	18 (10, 41)	25 (17, 52)	25 (14, 75)	26 (9, 49)	37 (18, 65)
2090s	29 (16, 49)	48 (27, 66)	43 (14, 85)	45 (28, 61)	68 (35, 79)
WESTERN NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	17 (12, 39)	26 (18, 55)	21 (11, 63)	23 (7, 48)	33 (17, 89)
2090s	23 (16, 48)	40 (26, 69)	39 (16, 84)	45 (19, 58)	64 (33, 94)

Table 4.6. Change in frequency of hot nights (%, relative to mean of 1970-1999)

EASTERN NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	6 (7, 30)	26 (4, 37)	56 (6, 77)	27 (9, 32)	29 (9, 41)
2090s	37 (22, 44)	45 (19, 60)	85 (29, 93)	44 (31, 56)	53 (14, 88)
CENTRAL NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	23 (13, 26)	26 (3, 34)	55 (25, 71)	23 (16, 36)	28 (10, 40)
2090s	33 (20, 38)	45 (6, 56)	77 (44, 89)	38 (25, 51)	54 (14, 86)
WESTERN NEPAL					
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	23 (8, 26)	25 (2, 36)	48 (12, 61)	22 (8, 32)	27 (6, 40)
2090s	32 (17, 39)	42 (9, 58)	81 (40, 87)	38 (18, 51)	54 (9, 77)

Table 4.7. Change in monthly precipitation (%, relative to mean of 1970-1999)

EASTERN NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2030s	0 (-26,10)	0 (-36, 71)	0 (-17, 20)	-4 (-35, 24)	6 (-45, 46)
2060s	10 (-26, 44)	2 (-37, 53)	11 (-21, 71)	2 (-14, 36)	-8 (-52, 35)
2090s	15 (-43, 80)	18 (-59, 97)	25 (-52, 121)	27 (-22, 105)	-5 (-72, 22)

CENTRAL NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2030s	0 (-34, 22)	-7 (-32, 11)	5 (-17, 40)	-4 (-26, 86)	-10 (-43, 13)
2060s	0 (-36, 47)	-10 (-45, 19)	10 (-37, 79)	4 (-15, 119)	-11 (-42, 11)
2090s	7 (-32, 64)	-13 (-54, 36)	19 (-46, 123)	4 (-42, 132)	-19 (-56, 21)

WESTERN NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2030s	0 (-31, 16)	-10 (-40, 16)	0 (-14, 37)	-5 (-23, 125)	-12 (-40, 26)
2060s	4 (-33, 67)	-15 (-43, 29)	2 (-40, 143)	6 (-15, 186)	-6 (-50, 15)
2090s	3 (-23, 74)	-17 (-45, 32)	6 (-45, 135)	1 (-30, 205)	-19 (-49, 32)

Table 4.8. Change in precipitation as heavy events (%, relative to mean of 1970-1999)

EASTERN NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	2 (-8, 5)	2 (-13, 9)	3 (-4, 20)	1 (-5, 2)	-2 (-32, 5)
2090s	6 (-4, 23)	4 (-34, 12)	6 (-6, 34)	7 (0, 28)	-5 (-21, 9)

CENTRAL NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	4 (-7, 12)	0 (-14, 12)	4 (-6, 17)	3 (-9, 24)	-4 (-10, 6)
2090s	6 (1, 21)	-1 (-17, 16)	8 (-21, 30)	8 (-12, 26)	-1 (-13, 13)

WESTERN NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060s	3 (-6, 9)	-2 (-14, 14)	5 (-4, 12)	3 (-11, 26)	-6 (-15, 10)
2090s	7 (-1, 11)	-3 (-15, 16)	9 (-13, 15)	8 (-15, 30)	-3 (-27, 15)

Table 4.9. Change in maximum 1-day rainfall (mm, relative to mean of 1970-1999z

EASTERN NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060	2 (-10, 57)	0 (-7, 12)	2 (-3, 61)	1 (-1, 5)	0 (-18, 5)
2090	10 (0, 91)	3 (-12, 10)	9 (-2, 98)	11 (0, 57)	-2 (-7, 7)

CENTRAL NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060	3 (-10, 38)	0 (-13, 7)	3 (-3, 43)	2 (-2, 13)	0 (-9, 4)
2090	12 (-1, 61)	0 (-10, 4)	5 (-4, 67)	8 (0, 20)	0 (-6, 11)

WESTERN NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060	4 (-9, 43)	0 (-11, 8)	2 (-3, 45)	2 (-4, 17)	-2 (-8, 6)
2090	11 (-4, 40)	-1 (-7, 5)	4 (-14, 43)	9 (-2, 16)	0 (-7, 7)

Table 4.10. Change in maximum 5-day rainfall (mm, relative to mean of 1970-1999

EASTERN NEPAL

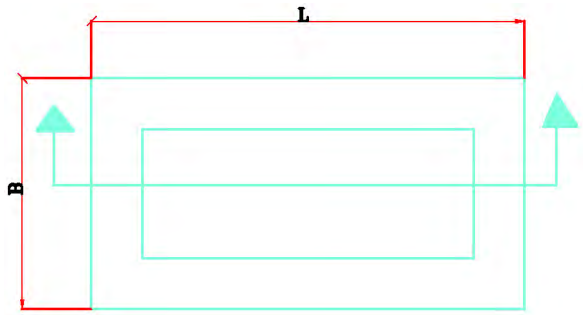
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060	7 (-18,119)	1 (-14, 20)	6 (-17, 22)	3 (-3, 22)	2 (-30, 8)
2090	25 (-2, 224)	6 (-22, 25)	32 (-2, 210)	18 (0, 135)	-4 (-12, 9)

CENTRAL NEPAL

Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060	10 (-27, 95)	1 (-29, 16)	8 (-8, 100)	4 (-7, 33)	-2 (-19, 2)
2090	15 (0, 170)	0 (-22, 12)	18 (-9, 168)	15 (-6, 63)	-2 (-17, 14)

WESTERN NEPAL

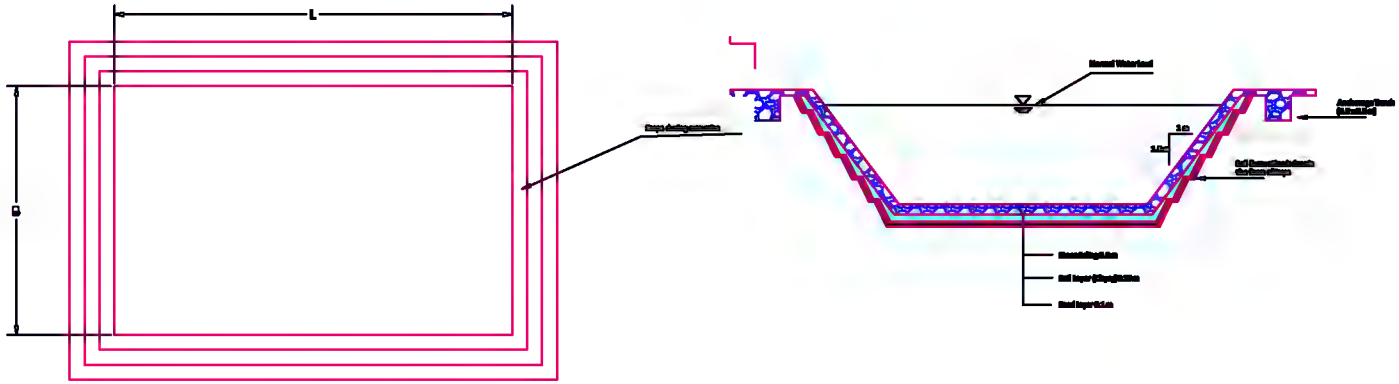
Time Period	Annual	Pre-Monsoon	Monsoon	Post-Monsoon	Winter
2060	8 (-24, 70)	0 (-21, 21)	9 (-16, 75)	4 (-6, 20)	-2 (-17, 6)
2090	14 (-6, 75)	-2 (-12, 13)	14 (-31, 65)	16 (0, 36)	-2 (-23, 17)



Plan

Section

World Food Programme Nepal Patan Dhoka, Lalitpur	PROJECT NAME :Pond		Surveyed by : Designed by		
Consultant NAME :.....	PROJECT LOCATION :	PROJECT NO :	Recommended by : Approved by :		FISCAL YEAR 068/069



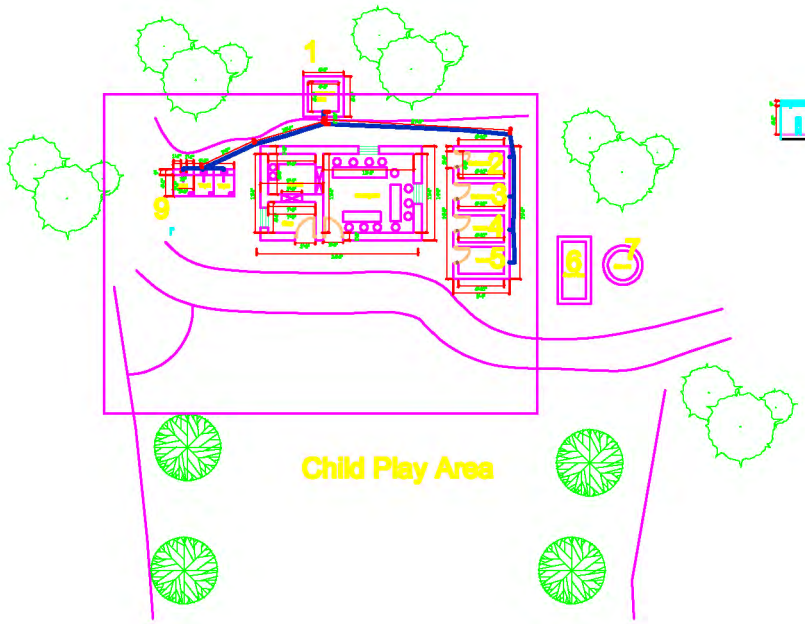
World Food Programme ,Nepal Patan Dhoka, Lalitpur	PROJECT NAME :Pond	Surveyed by Designed by	PROJECT NO :
Consultant NAME :.....	PROJECT LOCATION :	Recommended by Approved by	**Water Harvest Pond using Local Material**

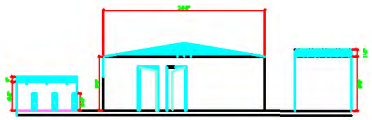
Summary of the Cost: Water Harvesting Structure (Ridge Pond)

Description of Works	Number	Amount (USD)	Remarks*
Unskilled labour including local materials	500.00	1,759.53	Rate of the unskilled labour is estimated at Rs 300 per day (3.5 USD/day)
Skilled labour	100.00	527.86	Rate of the skilled labour is estimated at USD 5.27 per day.
Grand total		**2,287.39**	

* The rates are site and district specific depending on which district they are and where they are located.

** The lead distance for transporting stone is estimated at 1km.





1.water Tank
2. Bathroom
3. Bathroom
4. Toilet
5. Toilet
6. Septik Tank
7. Soak Pit
8. Tap

World Food Programme Nepal Patan Dhoka, Lalitpur	Project Name: Services Center For Woman	
Consultant NAME :.....	Project Location:.....	Designed by..
	Project No	Drawing No.....

Summary of the Cost: Service Centre for Women

Description of Works	Amount (USD)
Cost of nonlocal materials including transportation and wood works	3,354.43
Roofing works using slate	6,039.59
Water supply , sanitary works and solar	5,231.67
Unskilled labour	13,647.22
Skilled labour	3,165.52
Grand total	**31,438.44**

ANNEX 14: Terms of Reference

National Level – Project Implementation Committee	
Function	**Description Of Duties**
1.NPD – Joint Secretary, MOEST	- Provide over all guidance to the project under the NAPA framework - Coordinate Project Steering Committee Meetings - Provide overall supervision to project monitoring and reporting - Ensure that project results are disseminated and shared with other line ministries, Ministry of Finance and National Planning Commission - Tracking service delivery as per agreed plans with service providers and provide strategic guidance & direction as required
2. NPM – Under Secretary, MOEST	- Ensure project is timely and effectively delivered - Bridge between GON and service providers for smothering working culture - Ensure Project delivery and implementation is aligned with nationally agreed financial and managerial procedures; at the centre and in the districts - Provide technical and managerial services at National and District Levels. - Supervise the project support unit staff and ensure timely delivery of project outputs according to agreed plan - Supervise implementation, monitoring and reporting - Supervise the recruitment of project staff and consultants
3. National Climate Change Officer (01)	- Assist & facilitate as link person for NPM, NDP in coordinating stakeholders at district, region and centrally - Assist NPM to call, organize meetings, workshops in consultation with project support staff - Involve in field monitoring & evaluation when nominated from the GON side - Ensure progress, periodic or annual reports are timely submitted & keep them intact - Set up and manage the Project Support Office (PSO), including staff facilities and services, in accordance with the project work plan; - Prepare and update project work plans, and submit these to NPD and NPM and WFP Project Coordinator for clearance and ensure their implementation is consistent with the provisions of the project document. - Ensure that all agreements with designated implementing agencies and responsible parties are prepared, negotiated and signed. - Coordinate project implementation between key Ministries MoEST, MoFALD, DDCs in MuguJumla and Kalikot and with WFP. - Manage the project support unit and the district level officers - Ensure quality delivery from all project staff and consultants - Act as a principal representative of the project during review meetings, evaluations and in discussions and, hence, be

	responsible for preparation of review and evaluation reports. - Ensure the timely mobilization and utilization of project personnel, subcontracts, training and equipment; - Prepare a Terminal Report for consideration at the Terminal Tripartite Review meeting and submit a copy of this report to NPD, NPM and WFP Country Director for evaluation - Ensure all terminal arrangements relating to project personnel are completed at the final closure of the project.
Technical Advisor, Climate Change and climate Adaptation in Mountainous Districts– National Level	- Liaise with MoEST, especially NPD, NPM to support delivery of project through the national and district implementation modalities - Ensure smooth fund flow from WFP CO to MoEST and Districts to implement activities - Support MoEST to organize Steering Committee meetings - Support MoEST to establish PSO and district units –recruitment, logistics and coordination - Ensure quality reports are submitted to AFB through WFP CO annually on progress - Manage the logistics of two external evaluations of the project at mid-term and project end - Visit project locations for quality assurance of outputs and supervision of budget

District Level – Project Implementation Committee	
Position	**Description of Duties**
District Climate Change Officer (03) Three climate change officers will be stationed in each DEECC (District Energy, Environment and Climate Change) Unit to support adaptation planning and integration	- Ensure timely and quality-managed delivery of project outputs in Component 1 in each VDC - Coordinate between government and non-government stakeholders in districts to carry out effective asset building programmes in Component 2 - Work with national Climate Change Officer and Technical Advisor to improve project delivery and ensure streamlining with national objectives - Work with district development committees to integrate climate adaptation priorities in to development planning process - Support local adaptation planning and adaptation interventions through technical guidance - ensure transparency and accountability of project delivery in the field - Monitor progress and submit reports to DEO, DDC Secretary and CCO and NPM on a quarterly basis -
District Project Coordinators (03) Three district coordinators will be stationed in each DEECC (District Energy, Environment and Climate Change) Unit to coordinate project implementation	- Coordinate with the DEECCC Committee for effective implementation of the climate change project in all three districts of Mugu, Kalikot and Jumla. - Support to DEECC Section for the partner selection process coordination with DDC and other line agencies at district level. - Support and coordinate logistical arrangements for field visits by WFP, MoEST and AFB officials - Coordinate external consultants especially mid-term review and

	terminal review of project impacts Facilitate to prepare all the required reports related to the project to be submitted to WFP and line ministries; - Establish district level office close coordination with DDC and DEECCC Committee and other stakeholders. - Coordinate and contribute to research stations for the research work to be disseminated in other programme districts; - Facilitate to conduct and participate in the field level implementation works in coordination with partner and communities for the effective and smooth implementation ; - Facilitate to conduct and contribute to the workshops/trainings/orientation for the staffs of partner organization as well as all level of stakeholders at district and regional levels in coordination with partner agencies and DDC of the concern districts; - Document lessons learnt and feedback received in course of the project implementation period; Prepare and submit field visit reports, monthly, quarterly project review reports, and technical progress reports to WFP Coordinator as per donor requirements. - Contribute to preparing for the climate change information products (template, final report, ongoing bulletins); - Plan and develop effective delivery mechanism _such as cash and food to the users of concerned district.
Technical Advisor, Climate Change and climate Adaptation in Mountainous Districts– National Level	- Provide expert guidance to project delivery - Support climate change officers at national and district level in carrying out project outputs and activities - Ensure quality ad timely monitoring of results - Supervise the technical consultants work in relation to adaptation benefit and project objectives - Ensure quality reports are submitted to AFB through WFP CO annually on progress - Support the two external evaluations of the project at mid-term and project end - Visit project locations for quality assurance of outputs and supervision of results

Community Organizations (CO) and User Groups for Project Implementation

Process to Form CO/ User Groups (if they do not exist) in project villages

- The VDC should prioritize its wards on the basis of vulnerability index developed through Output 1.1
- With VDC support organize meetings in each cluster to initiate dialogues in the selected wards. The primary focus is to motivate the beneficiaries (men and women, special focus on dalits) through dialogue and discussion to form their own COs voluntarily for generating savings, investment for productive purposes and enhancing their skills through training to improve their livelihood systems.
- A common approach is followed in forming the COs. The mobiliser should explain about the project, its objectives, conceptual package and implementation methodology and procedures to the beneficiaries in an open community forum.
- The mobiliser will then encourage/motivate the community members, focusing mostly on *dalits,* minority groups and deprived families with special attention, to organize themselves into the CO in each cluster.
- Each CO/UG elects two office bearers through consensus – a Chairperson and a Fund Manager for a period of one year. At the end of term, their performance could be reviewed and extended; or new office bearers elected.
- The Chairperson is expected to be an older person with community respect and will preside over CO/UG meetings and oversee the activities of the group. The Manager should be capable enough to prepare a meeting minute, to maintain all books of accounts, to deposit the savings of CO members in the bank and provides joint leadership to the CO together with the Chairperson.
- CO/UG acts as the foundation of the community members to participate in project activities, including adaptation planning and prioritising.
- At least 50% of the total COs has to be organized with women. A CO may be only male, or female, or mixed; however females have to be awarded with executive position in a mixed CO.
- Each member should pay a standard membership fee and contribute savings in to the account of the CO/UG. The group can function as a micro finance institution at local level.

Eligibility Criteria for CO/UG Membership

The eligibility criteria for the membership of a CO/UG include:

- At least 18 years of age.
- A permanent resident of the VDC.
- Committed to the objectives, main principles and implementation strategy of the project.
- 19

Accounting System

Each CO/UG will maintain following books of account:

• Cash-book; General Ledger; Personal Saving Ledger; Personal Loan Ledger; Saving and Loan Pass Book; and Loan Register.

(Adapted from WUPAP and WFP FFA Implementation guidelines and Forest Department's FUG Guideline)