REQUEST FOR PROJECT/PROGRAMME FUNDING FROM ADAPTATION FUND

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to

The Adaptation Fund Board Secretariat
Email: secretariat@adaptation-fund.org

PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

PROJECT/PROGRAMME CATEGORY:	REGULAR PROJECT
COUNTRY/IES:	RWANDA
SECTOR/S:	
TITLE OF PROJECT/PROGRAMME:	REDUCING VULNERABILITY TO CLIMATE CHANGE IN NORTH WEST RWANDA THROUGH COMMUNITY BASED ADAPTATION
TYPE OF IMPLEMENTING ENTITY:	NATIONAL IMPLEMENTING ENTITY
IMPLEMENTING ENTITY:	MINISTRY OF NATURAL RESOURCES (MINIRENA)
EXECUTING ENTITY/IES:	RWANDA NATURAL RESOURCES AUTHORITY (RNRA)
AMOUNT OF FINANCING REQUESTED:	9,904,868(IN U.S DOLLARS EQUIVALENT)

1. PROJECT / PROGRAMME BACKGROUND AND CONTEXT:

Provide brief information on the problem the proposed project/programme is aiming to solve. Outline relevant climate change scenarios according to best available scientific information. Outline the economic social, development and environmental context in which the project/programme would operate.

1.1 Socio-economic, development and environmental context

1.1.1 Socio-economic and development context

Rwanda is the most densely populated country in Africa with over 11 million inhabitants living in an area of 26,338 square kilometres. Population density data highlights the North Western part of the country as one of the most densely populated and food insecure part of the country. With Rwanda's population projected to rise to around 16 million by 2020, there is likely to be continued intense pressure on natural resources.

Despite being one of the poorest countries in the world with a Human Development Index ranking of 166 out of 187 (2011), Rwanda is on a positive growth trajectory and it is a national priority to transform Rwanda's economy into a middle-income country (per capita income of about USD 1240 per year, from USD 520[1]). The number of people living below the national poverty line has reduced from 57% in 2000/2001 to 45% in 2011[2]. However, significant challenges remain particularly around food security,as

[1] World Bank national accounts data, 2010
[2] EICV

illustrated by a national health survey in 2010which showed that the rate of stunting among children under the age of five years was found to be 44%nationally and 51.5% in Nyabihu district where most of the proposed project will be carried out[3].

Rwanda is a predominantly agrarian economy withapproximately 74% of the population residing in rural areas and agriculture providing around 36% of GDP and 80% of employment in Rwanda[4]. It also generates more than 45% of the country's export revenues (mainly coffee and tea grown on around 3% of the harvested land). Given its dominant role in the economy and that 72% of households who rely on agriculture for a majority of their income are poor, agriculture is considered an important driver for sustainable growth and poverty reduction. Agricultural output grew at an average rate of 4.9% over each of the last 5 years with Rwanda becomingfood sufficient in 2009. However, this was achieved by expanding the area under cultivation and there is little room for further expansion. The Government is therefore, currently implementing a Crop Intensification Programme[5].

Supporting productive high value and market-oriented agriculture is a national priority in Rwanda's Vision 2020 document while protection of natural resources and gender equality are cross-cutting issues. The Government recognises climate risks and has committed to implementingimproved land and water management techniques and a sound biodiversity policy to combat deforestation, the depletion of bio-diversity, erosion and land-slides, pollution of waterways and the degradation of fragile ecosystems, such as swamps and wetlands.

Rwanda has also actively promoted gender equality and equity in its laws and education policies. It has a proactive policy that promotes women participation in all areas of socio-economic life and currently has a higher percentage of women in parliament than any other country in the world.

1.1.2 Environmental context

Rwanda is situated in the equatorial zone but has a temperate climate[6] due to its relatively high elevation and is one of Africa's most biologically diverse countrieswith Montane rain forestand degraded Montane forest in the West, Grass savannas in the Central plateau, low altitude savannas on hill slopes in the valleys of East and South, medium and high swamps found at 1300-2500 m and alpine and sub-alpine volcanic vegetation in the North West. These diverse ecosystems are home to some 40% of the continent's mammal species (402 species), a huge diversity of birds (1,061 species), reptiles and amphibians (293 species), and higher plants (5,793 species).This includes theVolcanoes Mountain Gorilla (*Gorilla beringeiberingei*), a highly endangered

[3] Demographic and health survey in 2010, National institute of Statistics Rwanda

[4] 90% of the population are engaged in subsistence agriculture (81% men; 93% women), where landholdings are very small (Water Resources Management sub-sector strategic plan 2011-15).

[5] Under the Strategic Plan for the Transformation of Agriculture

[6] Average annual temperature in Rwanda range between 16ºC and 20ºC though temperatures are much lower than this in the mountainous regions.

subspecies existing only in the Virunga Conservation Area encompassing the North West border regions of Rwanda, Democratic Republic of Congo and Uganda. Rwanda has nearly 70% of gorillas living in the Virunga range.

There are two major drainage basins dividing the country: the Nile basin to the east and the Congo basin to the west. The two basins are separated by the Congo-Nile ridge - a range of mountains (2500-3000m) dominated in the North-West by a range of volcanoes located in Volcanoes National Park.This creates a topography and local climate that is highly sensitive to climate change as the steep, over-cultivated hills and high rainfall give rise to high levels of run-off, erosion and flooding during intense rainfall events that have become more prevalent in the last decade (see Section 1.5).

1.2 The problem

Rwanda's high population density[7](deriving from natural increase and from the repatriation of Rwandans displaced during the massacres in 1959 and the genocide in 1994)combined withits reliance on rain-fed agriculture means that the predominantly rural population is increasingly farming smaller and smaller plots of land. More than 80% of households own less than 1 ha of land[8]. Moreover, as the population has grown and land has become increasingly scarce, farmers have started to cultivate marginal land on steep slopes (up to and above 55%). The large number of people farming on Rwanda's hilly and mountainous terrain[9] has led to serious environmental degradation due to overexploitation of the soil and extensive erosion[10] which results in soils being washed down the hillsides into the valleys causing extensive sedimentation of the main rivers and other water-bodies.About 15 million tonnes of soil is lost annually. This has been translated to represent a decline in the country's capacity to feed 40,000 people/yr, as well as an annual economic loss of US$34,320,000, or almost 2% of GDP equivalent[11].The farmed Northern and Western uplands of Rwanda are considered the most vulnerable to erosion due to their steeper terrain and higher annual rainfall.

In addition to these unsustainable farming practices, there has been significant unplanned settlement in fragile and sensitive areas particularly following the 1994 genocide when nearly 3 million people returned from neighbouring states to a war ravaged countryside.This was particularly the case in the settlements that dominated the Gishwatiforest which was extensively deforested with serious consequences associated with land degradation including landslides and floods in the proposed project

7 The average population density is 534 people per sq Km and 67% of the population is under 25 years.
8 More than 60% of household cultivate less than 0.7ha, 50% cultivate less than 0.5ha and 30% cultivate less than 0.2ha. UNEP 2011, Rwanda: from post conflict to sustainable development.
9 More than 40% of Rwanda's land is located at elevations of between 1,500-1,800 mm and over 70% of the cultivated land surface has slopes greater than 10%.
10 According to the FAO about 40% of Rwanda's land is classified as being under a "very high risk" of erosion and about 37% requiring soil retention measures before cultivation, only 23.4% of the land not prone to erosion (MINAGRI, 2009 Strategic Plan for the Transformation of Agriculture in Rwanda – Phase II (PSTA II) final report.)
11 REMA (2009) State of Environment and Outlook Report 2009.

area. The high dependence on biomass fuels further contributes to deforestation and erosion of the hilly landscape.

Recent changes in the variability of rainfall have had a dramatic effect on these already highly perturbed ecosystems particularly in the mountainous North West part of the country which has experienced floods and landslides. As rainfall is predicted to become more erratic with increasing intensity and uncertainty in the onset and cessation of rains, there are serious implications for rural communities living in these areas as they are ill equipped to respond and adapt to climate change.

1.3 Analysis of climate models and scenarios

1.3.1 Climate trends

The climate in Rwanda is complex with wide variations across the country and strong seasonality. The annual average temperature of Rwanda is 18^{o}C and ranges from 13˚C to 25˚C. There are two rainy seasons, March-May and mid-September to mid-December with an annual average rainfall of 1,295 mm. The highest monthly average rainfall, observed in April,is 157mm. The annual mean temperature varies eastward from 15°C to 21° from western highland to eastern plains and hills respectively. In the North-West, temperatures range from13 °C to 20 °C.

Recent analysis of rainfall trends[12]for Rwandashow that rainy seasons are tending to become shorter with higher intensity leading to decreases in agricultural production and events such as droughts in dry areas and floods or landslides in areas experiencing heavy rains.

According to Rwanda's Second National Communication, monthly and annual total rainfalls recorded between 2004 and 2010 were generally lower than the average recorded between 1961 and 1990. Moreover, rainfall in April, the month with the highest rainfall, has dramatically reduced(27%, 48%, 88%, 70% and 52% of the average rainfall recorded for this month between 1961 and 1990 respectively in 2000, 2001, 2002, 2003 and 2005).

The average number of rainfall days per month has also declined from 146 between 1971 and 1990 to 131 days between 1991-2009. Similarly, the monthly average rainfall totals decreased between1991 and 2009. This is also confirmed by the annual average rainfall totals which decreased from 1020mm to 920mm. On average, the annual total number of rainfall days decreased from 148 days to 124 days between 1971 and 2009.

Despite the overall downward trend in annual rainfall, the recorded rainfall for July, September, November and December hasbeen higher than normal with percentages of 1441% (in 2001), 189% (in 2003), 165% (in 2006) and 153% (in 2006) when compared with the 1961-90 period. For example, the mean monthly total rainfall for July in 2001 was 120.8mm compared with only 8.4 mm for the period 1961-1990. Most of this rain

[12] Rwanda Country Situational Analysis - Alphonse Mutabazi

fell in one day on 22nd July 2001 resulting in heavy floods.Rainfall in Rwandahas therefore become increasingly erratic and unpredictable.

Rising temperatures have also been observed. The monthly average increased from 19.8°C in 1971 to 21.0°C in 2009, an unprecedented rise of 1.2°C in just 39 years (see Figure 1).

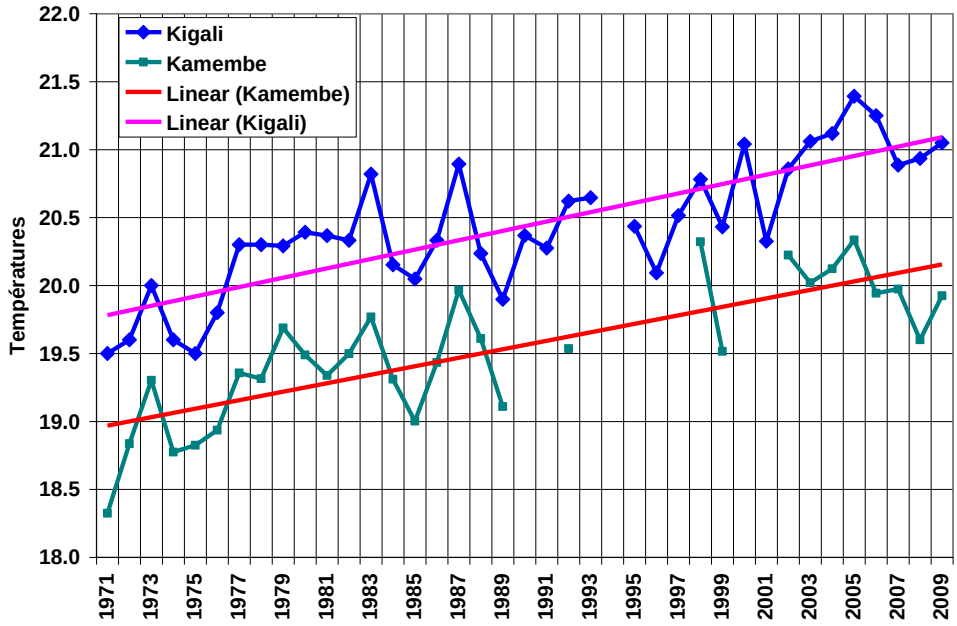

Figure 1: Variation in annual average temperatures (°C) at Kigali and Kamembestations

Source: Rwanda second National Communication related to Climate change (REMA, 2010)

1.3.2 Climate projections

A lack of meteorological data for Rwanda stemming from the destruction of most of the weather stations during the 1994 genocide makes climate projections difficult as most models require 20 years of uninterrupted data. Continuous records are only available for the meteorological station in Kigali airport.Most of the climate projections for Rwanda are based on the outputs of Global Circulation Models (GCM) and use the period from 1971 to 2007 as the base line. The models[13] predict an increase in minimum, average and maximum temperatures with an increasing number of warm days exceeding 30°C[14] between 2010 and 2100 and prolonged periods without rain.

According to climate scenarios A1F1, A2, B1 and B2 the temperature is expected to increase gradually in Rwanda during the 21st century from 0.75 to 3.25°C during the

[13] PCM_ 00, IAP_97 and LMD_98
[14] Based on 3 climate models (PCM_00, IAP_97 and LMD_98) - Second National Communication under UNFCC

shorter dry season (December to February) and from 1 to 3.25°C during the longer dry season (June-August)[15].

Rainfall is also projected to increase by 10 and 20% (of observed mean rainfall in 1961-1990) by the end of 21st century although model predictions are averages for long periods - daily, monthly and annual variability are therefore uncertain[16]. However, the models predict that despite the overall rise in rainfall, there is likely to be a decrease in the number of rainfall days with more dry spells in the rainy seasons and an increase in the frequency of torrential rain with daily rainfall sometimes exceeding the total monthly rainfallleading to an increasing incidence of floods, landslides and soil erosion.

The information on extreme events (floods and droughts) is much more variable. While there is some evidence of a recent intensification of these events, the future projections vary widely. Nonetheless, many models indicate an intensification of heavy rainfall in the wet seasonscreating a greater flood risk[17].

Model[18] outputs also show that the annual potential evapo-transpiration is likely to increase every year reaching 1351mm by 2020, 1432mm by 2050 and 1682mm by 2100.

1.4 Project location – general description

1.4.1 The North West

The North West is one of the most climate sensitive regions in Rwanda due to high rainfall and the steep-slopingmountains which though limited in area coverage, are a source of intense flooding during the rainy seasons. Drainage systems are Inadequate and are quickly overwhelmed by these flood events.

The slopesin the North West are particularly prone to landslides and soil erosion (with heavy leaching of nutrients and mineral content, as well as loss of organic matter) as the deep volcanic soils[19] are fragile and underlain by rocky material.The potential evapo-transpiration is also limited since the area is located in the highland, frost and alpine zone.

As well as increasing variability in rainfall intensity, the timing and duration of the rainy season has also changed. In the past, the two rainy seasons extended from April to

[15] Ruosteenoja, K., Carter, T.R., Jylhä, K. and Tuomenvirta, H.: 2003, 'Future climate in world regions: an inter-comparison of model-based projections for the new IPCC emissions scenarios', The Finnish Environment 644, Finnish Environment Institute, 83 p.

16 Mxolisi E. Shongwe , Projected changes in mean and extreme precipitation in Africa under global warming, Part II: East Africa" (Journal of Climate, November 22, 2010)

17 Stockhom Environment Institute (2009) Economics of climate change in Rwanda.

18 IAP_97

19 More than 82 % of the land has a soil depth of more than 1 meter, while around 17% ranges from 0.5 to 1m and less than 1% is bare rock.

June and November to December but now farmers report an earlier onset of the rains in March extending to June and a later cessation of rains in the second rainy season which now extends from November to January.

The North West also experiencesa deficit in drinking water supply due to limited modern infrastructure for water supply - more than 60% of households have to travel for more than 500 m to access potable water.[20] Wetland degradation, upland droughts, squatter settlements and pollution also lead to environmental degradation making the area even morevulnerable to the impacts of climate change, warming and flooding, and soil erosion.

1.4.2 The project area

The proposed project will operate in 2 districts: Nyabihuand Musanzewhich lie to the south of Volcanoes National Park (a mountain range of 8 volcanoes covering the Northern Rwandan border, Uganda and the Democratic Republic of Congo) in North Western Rwanda.The proposed area extendsacross 7sectors from:Busogo sector of Musanze district through Bigogwe, Jenda, Mukamira, Karago, Jomba and Rurembo sectors in Nyabihu district (see Figure 2).

Thearea was selected on the basis of: (i) the frequency of landslides and flooding (ii) the vulnerability (exposure to impacts including food insecurity, human displacements, incidences of disease and death) of communities living in the affected area; (iii) the presence of key infrastructure and economic assets; (iv) the presence of fragile and/or degraded buffer ecosystems; (v) the strategic location that serves as a critical starting point in effective region specific interventions to climate change impacts and (vi) complementarities with other interventions.

The agro-climatic zone includes Wet Highland to Wet Mid-highland and the area is divided into three ecological zones, namely the upland zone comprising the hilly areas to the west and north of the area, the middle plateau, and the low lands including the Mugogo wetland. The slope gradient ranges between 0% and more than 70%. The area has an extensive network of localised aquifers and thousands of springs which are important for maintaining the minimum flow of rivers and as a source of drinking water.

The proposed area is highly vulnerable to the increasing variability in rainfall due to the steep slopes, high density of poor farmers and complex hydrological and ecological conditions. The area is one of the most densely populated areas of Rwanda with around 700 people per square kilometre. There are an estimated 35,441 households in the project area.

[20] Second National Communication

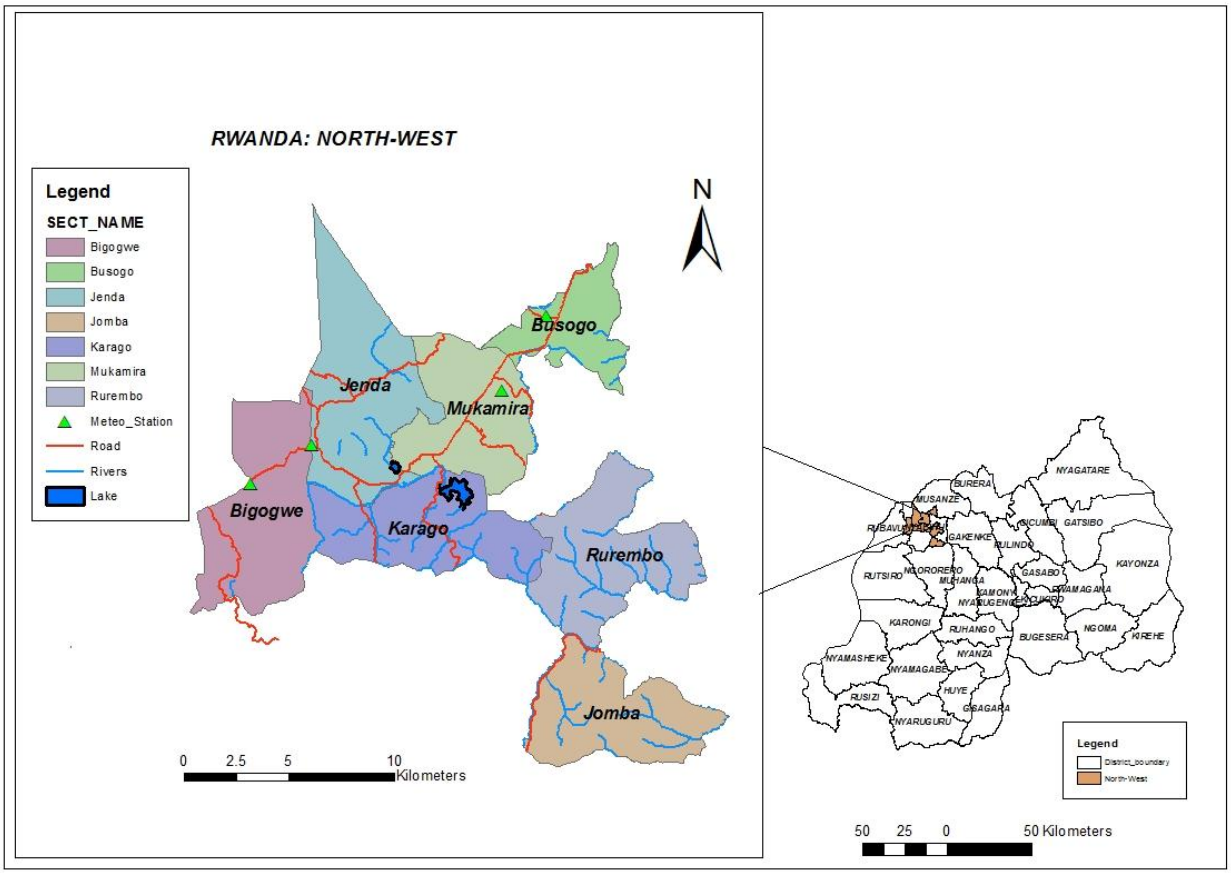

Figure 2: Map of Rwanda showing project area

Some basic data for each of the districts is shown in Table 1. Most of the population rely on agriculture for an income and yet the average size of cultivated land is less than0.5 ha. Around11% of the population in the target area are classified as extreme poorand there is a high proportion of female headed households (>32% of total households) in the area. Malnutrition rates among child are among the highest in the country with 51.5% suffering from moderate to severe stunting.

Table 1: Socio-economic data for each district

	Nyabihu	Musanze
Area (Km2)	535	530
Population	330,000	416,000
Population density (Inhabitants/ km2)	616	785
No. of HH	68,000	87,000
Mean no. of persons per HH	4.8	4.8
Mean size of cultivated land (ha)	0.46	0.45
% HH whose main job is in agriculture	74	67
% of HH with <0.3 ha cultivated land	50	50
% HH experiencing erosion	41	14
% HH experiencing reduced yields	29	6

	Nyabihu	Musanze
% HH experiencing destructive rains	6	9
% HH living in *Imidigudus*(planned settlements)	21	26
% population who are poor (excluding extreme poor)	17	14
% population who are extreme poor	12	6
% population who are orphans with 1 or less parent	21	20
% female headed or de-facto[21] female headed HH	36	32

Source: EICV 2011, National Institute of Statistics

More than 12,000 households in the two districtshave experienced destructive rains and approximately 42,000 households are experiencing reduced yields. Erosion rates are high with 57-76% of the area of the two districts losing between 50 and 100 tonnes per hectare per year (see Table 2).

Table 2: Erosion rates (tonnes/ha/yr) based on GIS modelling[22]

	Musanze		Nyabihu	
Erosion rates	Area (sq km)	% district	Area (sq km)	% district
0-30	0.03	0.01	-	-
30-50	46	9	43	8
50-100	401	76	302	57
100-150	65	12	185	35
150-300	-	-	0.05	0.01
Water bodies	18	3	1	0.28

The land is mostly used for agriculture due to the fertile volcanic soils[23] present in this area. Musanze and Nyabihu Districts are important production centres for potatoes and beans although the land is also used to grow a variety of other crops including peas, maize, wheat, sorghum and two cash crops tea and pyrethrum. Despite this, the District of Nyabihu which borders the Volcanoes National Park is one of the most food insecure places in Rwanda. The high population density has resulted in a shortage of land to support traditional agriculture and livestock activities. Musanze District also borders the Volcanoes National Park andincludes Musanze town, the commercial centre of the Northern Province which has rapidly transformed into a thriving tourism centre.

The Ministry of Local Government (MINALOC) have identified the number of households living in high risk[24] areas in each of the districts, these are shown in Table 3 below. These households have been tagged for resettlement in *imidugudus*[25].

[21] Due to absence of male head of household

[22] UNEP 2011. Rwanda: from post conflict to environmentally sustainable development

[23] Typically acidic.

[24] High risk due to flooding, living on steep slopes or living on a riparian buffer zone

[25] Following the genocide in 1994, the *imidugudu* was intended to be a planned settlement programme which freed up productive agricultural land, promoted reconciliation and facilitated cost effective service delivery to concentrated clusters of households. The approach was scaled up in 1997 through the National Human Settlement Policy and the concept was incorporated into the Vision 2020. By 2007, around 20% of the population was resettled in 5486 *imidugudus* across the country. The Government plans to have 45% and 70% of the population

Table 3: Households located in high risk areas in the project area[26]

District	Total no of HH	No. of HH in high risk area	No. of HH re-settled	No of HH remaining
Bigogwe	6,392	148	1	147
Jenda	6,986	623	23	600
Jomba	4,784	819	78	741
Karago	5,065	233	15	218
Mukamira	5,831	389	31	358
Rurembo	5,580	417	19	398
Nyabihu total	**34,638**	**2629**	**167**	**2,462**
Busogo	803	163	7	156
Musanze total		1117	154	963
Total Nyabihu and Musanze	**35,441**	**2,792**	**174**	**2,618**

1.5 Impacts of climate change in North-WesternRwanda

In the mountainous areas of North-West Rwanda, climate change is leading to more volatile, highly variable rainfall (reduced rainfall days but greater intensity during rainy periods), placing agriculture which is predominantly rain fed in a vulnerable and unpredictable position. In the North Western part of Rwanda where the project will be located, **flooding and landslides**are the dominant climate-related hazardsdue to the steep sloping terrain (see Figure 3).

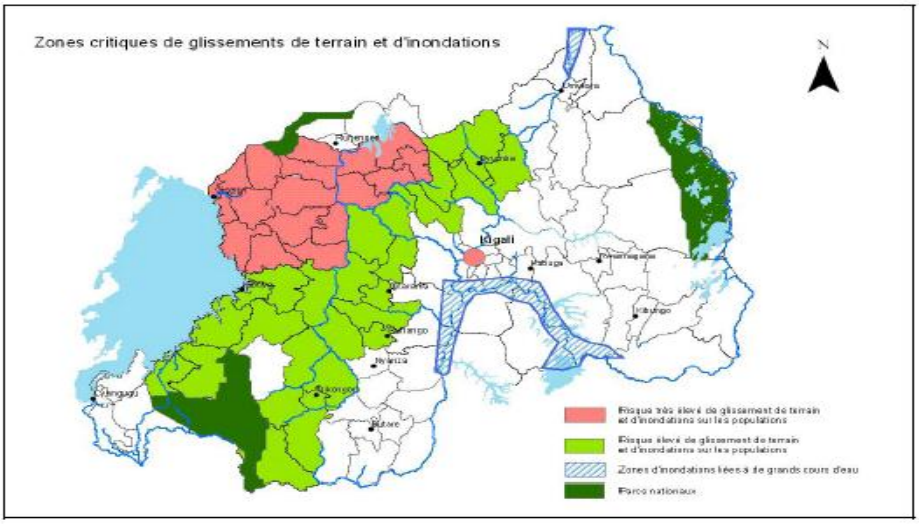

Figure 3: Areas prone to flooding and landslides

living in *imidugudus* by 2011 and 2020 respectively. Currently an estimated 72% of the rural population lives in *imidugudus*.

[26] MINALOC records, 2012

The mountainous terrain coupled with the natural fragility of the volcanic soils and a loss of ecosystem services[27] resulting from deforestation, unplanned settlement and poor agricultural practices mean that heavy rainfalls cause extensive runoff, eroding a significant amount of land into valleys and lowlands. This results in soil erosion, rock falls, landslides, floods and siltation and water-logging of the deep valleyswhich destroy crops, houses and other infrastructure (roads, bridges and schools), food insecurity, losses in biodiversity as well as loss of human and animal lives.

Major flood events occurred in Rwanda during 1997, 2006, 2007, 2008, 2009 and 2012 where rainfall resulted in infrastructure damage, fatalities and injuries, landslides, loss and damage to agricultural crops, soil erosion and environmental degradation.Table 4 lists some of the major floods and landslides that have occurred in the North West region during the last decade.

Table 4: Flooding and landslides that have occurred on North West Rwanda

Disaster	Damages and consequences	Affected regions	Period (year)
Floods Accompanied by landslides	• death of 42 persons • collapsed houses: 1,244 • destructed houses: 4.605 • damaged crops: 1,645 ha • death to livestock: 159 • damaged infrastructure: 83 (50 bridges, 24 roads, 9 schools)	The north-west and the west of the country	September to December 2001
Floods associated witherosion and landslides	• deaths: 66 people • collapsed houses: 1,929 • destructed houses: 1,213 • Damaged infrastructure: • 116 (22 roads, 7 bridges, 16 small bridges, 2 water supply, 63 water sources, 6 schools • death of Livestock: 175 • Crops: 1,077.5 ha damaged	North-west, south-west Kigali City	May 2002
Torrential rains	• 15 people died and two others were reported missing • 456 houses and hundreds of hectares of plantations of potatoes were also destroyed. • 2403 people from 438 families were displaced	Sectors of Bigogwe (Nyabihu district) and Kanzenze (Rubavu district) respectively in the Northern and Western Provinces.	September 12, 2007
Floods	• 217 households destroyed by flooding	Busogo sector in Musanze District, NW Rwanda	2007
Floods	• Rwandan Red Cross assisted more	Nyabihu, Rubavu,	2006-2008

[27] food, supporting services, regulatory services including flood protection and recreational and cultural services. A 2009 study found that ecosystem services are integral to the Rwandan economy and underpin over 50% of Rwandan GDP,as well as sustaining a very large proportion of the population.

Disaster	Damages and consequences	Affected regions	Period (year)
	than 5,820	Musanze, Kayonza, Kirehe, Ngoma and Rwamaganadistricts	
Heavy rains, floods and winds	• more than 500 homes submerged • 2,000 hectares of crops destroyed • bridges, roads and pylons, as well as schools severely damaged. • Up to 1982 homes, 72 primary schools and 34 secondary schools completely or partially destroyed.	12 sectors of Rubavu District: Gisenyi, Rubavu, Rugerero, Nyamyumba, Nyundo, Cyanzarwe, Nyakiriba and Kanama.	Sept. 2008
Floods	• 73 families requiring relief following floods	Busogo Sector in Musanze District	May 2010
Floods	• 13 people died, 598 households completely destroyed, 748 households partially destroyed and 6114 ha of crop land destroyed.	12 sectors of Nyabihu District in NW Rwanda: Bigogwe, Jenda, Jomba, Kabatwa, Karago, Kintobo, Mukamira, Mulinga, Rambura, Rugera, Rurembo, Shyira	April/May 2012

Source: MININFRA, Department of Meteorology, 2004; Situation reports from Nyabihu District HQ and Busogo Sector HQ 2012.

Figure 4: Floods at Bigogwe, Nyabihu District, on 12th September 2007

Of the recorded seven major floods since 1963, five have occurred in the last decade (1998-2008)[28]. It's estimated that nearly 2 million people have been affected by floods in Rwanda between 1974 and 2008. The steep topography in the North West means that floods are frequently accompanied by landslides which can block the flow of small rivers. As the upstream pressure builds the blockage eventually collapses causing the release of huge volume of water into valleys downstream.

[28] UNEP (2011). Rwanda: from post conflict to sustainable development.

The floods in 2007 were particularly severe displacing thousands of people and destroying hundreds of hectares of highly productive agricultural land. In Nyabihu and Musanze districts, the 2007 flood killed 20 people; while 4 000 others were displaced. In addition, 706 houses were destroyed and many hectares of crops were damaged. In 2009, heavy rains destroyed 208 houses and 635 hectares of crops[29].

In 2012, Rwanda experienced heavy rains between January and May. The average rainfall increased from 40–70 mm in 2011 to 80–115mm for the same periodin 2012. This resulted in floods, landslides and in the destruction of public infrastructure and properties. From January to May 2012, 32 people died because of these rains, 1434 houses, 11 roads, 4 bridges as well as 3 dykes were destroyed, 2227 ha of crops have been washed away and 25 schools were destroyed or seriously affected[30].

More than half of Rwanda's electricity supply derives from hydropower much of which is fed by lakes and rivers in the Northern Province. Erratic rainfall has already resulted in **power outages** in the past 10 years.

Climate change when combined with increasing population pressure and associated unsustainable farming practices is likely to have major implications for agricultural production with the potential for **national food shortages** and an increasing reliance on food imports at a time when global food prices are highly volatile.

A recent study showed that existing climate variability has caused significant **economic costs** and that Rwanda is not adequately adapted to these risks. Moreover, the study also concluded that future climate variability will lead to additional economic costs. Aggregate models used in the study indicate that the additional net economic costs (on top of existing climate variability) could be equivalent to a loss of almost 1% of GDP each yearby 2030 in Rwanda, though this is likely to be an underestimate as it excludes the future effects of floods and other extremes[31]. Ultimately, climate change threats, unless adequately addressed, could significantly undermine progress towards Rwanda's Vision 2020 development targets.

1.6 Underlying causes of vulnerability in the project area

The adverse effects of climate change are considered to be significant in Rwanda due to its high vulnerability and low adaptive capacity.Rwanda's geographical location, its relief, population density and socio-economic indicators make it particularly vulnerable to natural and anthropogenic risks. The underlying causes of vulnerability are discussed below.

1.6.1 Physical drivers of vulnerability

The increased **variability in precipitation** observed in recent decades has severe implications for agriculture in this area, which is mostly rain-fed. The onset and

[29] 2009 Economics of climate change in Rwanda
[30] UNDP 2012
[31] Stockholm Environment Institute (2009). Economics of climate change in Rwanda

cessation of rains have become increasingly unpredictable leading to reduced growing seasons and crop losses due to unexpected rainfall or drought. Moreover, the increasing intensity of rainfall combined with the topography, soil conditions and coverage of vegetation in the project area make it highly vulnerable to flooding and landslides.

The **terrain** in the North West is mountainous, the slope gradient ranges between 0% and more than 70%. Morethan half the area (57%) has a slope of more than 40% which means that periods of intense rainfall result in erosion, landslides and flash flooding of low-lying areas. The narrow valleys and ravines channel these run-off waters at high velocity through settlements and farm-land causing displacement and loss of crops and infrastructure.

In addition, the **fragile volcanic soils** throughout the area are easily eroded during heavy rainfall and the porous rocks and soils mean that the water can flow in many directions often underground and rivers can change course inundating new areas and changing the hydrology of the watershed. This has been observed in Nyabihu District where the River Kinoni has diverted into the low-lying areas of Mugogo where it has caused extensive flooding and water-logging as the absorptive capacity of the low-lying areas has been exhausted. It is important therefore, that any intervention takes account ofthe long-term impacts of climate change on hydrological regimes of the watershed.

The increased sediment loads[32] in surface waters impacts on water quality[33] and reduces the discharge flow of rivers and the sediments accumulate in riverbeds, Lake Karago and other low-lying areas. A UNEP study[34] showed that in excess of 54cm of sediment had been deposited in Lake Karago in less than one year. This reduces the water holding capacities of lakes and chokes water channels. In particular, the network of caves peculiar to this area of Rwanda that have traditionally been used to drain the lowlands have become blocked with sediment.

Any measures to decrease sediment loads in River Kinonyi and River Nyamukongoro which feeds into Lake Karago will reduce the risk of flooding and water-logging.

1.6.2 Anthropological drivers of vulnerability

Anthropological factors compound the physical drivers of vulnerability and if not addressed are likely to have increasingly adverse impacts on economic development, food security and poverty levels in this area and beyond (as the North Western region of Rwanda is an important source of vegetables, especially potatoes and beans, for the rest of the country).

The **population density** in this part of Rwanda is one of the highest in Africa (nearly 1000 people per square kilometre). The return and **unplannedresettlement** of more

[32] Recorded sediment loads in samples taken from two of the major rivers in the North West were 500-660mg/l and 320-350mg/l for the Sebeya and Nybarongo rivers respectively (UNEP 2011)
[33] suspended sediments act as carriers of pathogens and pollutants (UNEP 2011)
[34] UNEP 2011. Rwanda: from post conflict to sustainable development).

than 3 million people from neighbouring countries to Rwanda following the 1994 genocide created an immediate impact on natural resources. While most of the 2 million people displaced between 1990 and '94 were able to return to their previous homes, around 800,000 returnees who had fled during the earlier 1959 massacres were resettled on public and state owned land in settlements known as *imidugudu*.

This included around 3070ha of Gishwati Forest Reserve (in Nyabihu, Rubavu and Rutsiro Districts) which was cleared for resettlement. This followed a World Bank project in the 1980's whichhad already converted around two thirds of the forest into pastures and pine plantations. Between 1980 and the present time, the forest was reduced from 23,000ha to around 1500ha[35]. This deforestation resulted in huge run-off of topsoil into the Nyamukongoro River and reduced the surface area of Lake Karago by 25%[36].

The Ministry of Natural Resources is in the process of restoring and rehabilitating the reserve but is hampered by a lack of resources.The Government is also currently considering relocating the entire population living in the forest Reserve (approximately 20,000 people) to new settlements along the main road from Musanze District to Rubavu.

Poverty is another important contributing factor to vulnerability to climate change in North West Rwanda. Around 28% (10,206) of people living in the project area fall into the poor or extreme poor categories[37]. The rural poor, particularly women are the most vulnerable to these climatic events as they have limited resources and abilities to cope with disaster and climate change impacts. Women headed households comprise a high proportion (35% of which 56% are widows) of the population in Rwanda as a result of the 1994 genocide[38]. Women headed households often need to hire extra labour during the peak agricultural seasons which limits their capacity to increase production. Around 62% of women headed households are poor and 37% are food insecure[39].

Population growth, poverty, the topographyand the scarcity of lands are therefore the underlying drivers for the increased pressureon natural resources since the livelihoods of 80% of people living in the target area are inextricably linked to land and opportunities for alternative livelihoods are limited by the lack of electricity (only 5% of Rwandans have access to electricity and 99% of these are located in urban areas) and other services including credit facilities and adequate marketing facilities.

The scarcity of land, poverty and a lack of alternative, off-farm livelihoods have have inadvertently been responsible for**unsustainable land use practices**resulting in persistent and severe land degradation. Land is over-cultivated and no longer set aside for fallow periods, grazing land has been cultivated and the steep slopes that were previously forested or covered in natural vegetation are increasingly being cultivated and settled on. This settlement and cultivation on steep slopes as well as

35 Gishwati Area Conservation Programme

[36] UNEP 2011. Rwanda: frpm post conflict to environmentally sustainable development.

[37] EICV 2011. National Institute of Statistics Rwanda.

[38] UNEP 2011. Rwanda: from post conflict to sustainable development.

[39] Household Living Conditions Survey

deforestation[40]has lead to erosion and declining soil fertility, de-stabilised the hillsides and has contributed to watershed degradation increasing the risk of flooding and landslides.Conserving the soil and improving its productivity are therefore directly linked to improving food security and reducing rural poverty.

Often during periods of intense rainfall, the run off from the steep slopes floods the most productive land in low-lying areas. The absorptive capacity of these low lying areas becomes saturated and the normal water outlets[41] become silted up with sediment from the run-off leading to extensive water-logging.

In these already fragile areas, the increasing variability in precipitation (uncertain rainfall patterns and increasing intensity of rainfall) exacerbates the environmental degradation and increases the vulnerability of poor rural communities who are highly dependent on agriculture for a livelihood and food security.

Any intervention must therefore include measures to reduce the exploitation of natural resources by diversifying livelihood opportunities in this area as the available productive land cannot sustain the high number of people living in this area.

1.7 Barriers to addressing the causes of vulnerability

The project plans to address the following barriers:

a. The high dependence on natural resources and rain-fed agriculture through the provision of rain-water harvesting and support for alternative off-farm livelihoods. This includes wide ranging support that tackles factors which constrain the transition out of agriculture including interventions to improve markets, increase access to and uptake of credit, increase investment in agro-processing and other off-farm businesses and develop the necessary skills to develop enterprises and move into employment in other sectors as well as resettlement patterns that ensure these climate adaptation measures are sustainable.

b. The lack of knowledge of climate resilient cropping and livestock management systems and limited application of appropriate technologies through investment in farmer field trials to identify suitable varieties in order to optimise crop planning and varietal selection and building capacity of farmers to innovate and make informed choices.

c. Low awareness of climate change issues and linked to this a low capacity to adopt risk reduction and adaptation measures through community mobilisation and community led climate adaptation planning.

d. Crop selection strategy under Crop Intensification Programme which may undermine the flexibility needed for climate resilient crop selection by farmers by engaging MINAGRI and local authorities in project design and implementation and promoting climate resilient farming methods.

[40] for fuel wood and charcoal as well as for agriculture and local construction.

[41] this volcanic area has an extensive network of caves and underground channels which have served to drain low lying areas but these have now become blocked due to the high sediment load in the water running off from the surrounding hills.

e. Lack of resources to install and maintain improved water management measures through investment in improved storm water management and drainage systems, erosion control and rainwater harvesting.

f. Limited capacities at local level to support community based climate adaptation through training for local Government staff and NGOs.

PROJECT / PROGRAMME OBJECTIVES:

The objective of the proposed project is **to increase the adaptive capacity of natural systems and rural communities living in exposed areas of North Western Rwanda to climate change impacts**.

This objective is aligned with the Results Framework of the Adaptation Fund and directly contributes to Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress as well as to Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas.

The strategy of the project is to manage the risks and effects from recurring floods, landslides and erosion through an integrated natural resource management and alternative livelihoods programme in one of the most climate sensitive and vulnerable areas of Rwanda.

The project aims to address factors that exacerbate the effects of intense rainfall and lead to flooding and landslides. These include erosion and unsustainable farming practices linked to demographic pressure on natural resources. By introducing erosion and flood control measures, building the capacity of farmers to adapt to climate variability and supporting the development of off-farm livelihoods to reduce the pressure on natural resources, the project will restore the ecosystem functions necessary to reduce the incidence and severity of flooding and landslides on local communities and resources. For example, the absorption capacity of local watersheds will be increased by improved farming practices, restoration and protection of steep slopes through improved flood control, soil, land and water management measures.

As well as reducing the ongoing loss of life and economic losses resulting from intense rainfall events, the project will also positively impact on food security and household incomes of local communities as improved farming practices and erosion control deliver higher yields. At the same time, the project will result in more diversified and secure livelihoods for local communities through the Rural Development Hubs that will deliver the investment and capacity development necessary to drive pro-poor growth and reduce people's dependence on over-exploited natural resources.

Moreover, the focus on a specific geographic location and building effective synergies with other on-going as well as planned and future interventions, means that the project can deliver long term benefits to communities within a framework of co-ordinated, comprehensive and complementary climate adaptation. The project's emphasis on

developing the adaptive capacity of farmers and local institutions ensures that the developed resilience becomes embedded within communities enabling them to continue adapting to future climate variability beyond the lifetime of the project.

This programme will be based on principles of local empowerment and implemented by grassroots organisations such as farmer groups, community based organisations and local NGOs with the support of local government. The success of the project will depend on the ownership and implementation by the twoDistricts (Nyabihuand Musanze). The anticipated impact of the project is the reduction of livelihood insecurity and losses from extreme climate events in 35,441 households located in the project area.

The proposed project willincrease climate resilience through community-based adaptation and is anticipated to contribute to the implementation of national policies and programmes that are in line with Rwanda's obligations under the UNFCCC.

The project duration will be 4 years and the project will operate at the community level.

PROJECT / PROGRAMME COMPONENTS AND FINANCING:

Fill in the table presenting the relationships among project/programme components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.

For the case of a programme, individual components are likely to refer to specific sub-sets of stakeholders, regions and/or sectors that can be addressed through a set of well defined interventions / projects.

The project has 3 components:

1. Adaptation to climate change (rainfall intensity and duration) through integrated land and water management to support climate-resilient production and post-harvest systems.
2. Support for the transition from exploitive farming practices to sustainable alternative off-farm livelihoods.
3. Capacity building of local institutions to improve understanding of climate change impacts and scale up effective adaptation strategies at the local level.

The project components relate to three main Outcomes and the Outputs identified to achieve them (see below). The proposed Outcomes contribute to the overall objective, while the Outputs are the deliverables of the project produced by its proposed activities.

PROJECT/ PROGRAMME COMPONENTS	EXPECTED CONCRETE OUTPUTS	EXPECTED OUTCOMES	AMOUNT (US$)
1. Adaptation to climate change (rainfall intensity and duration) through integrated land and water management to support climate-resilient production and post-harvest systems.	1.1 Community level mobilisation and climate adaptation planning. 1.2 Investment in integrated land and water management technologies. 1.3 Diversification and integration of crop and livestock production systems to minimise the impact of variable rainfall on rural livelihoods (agro-sylvopastoral systems, integrated aquaculture etc.). 1.4 Introduction of climate-resilient crop and fodder varieties (short season crops, seasonal pastures etc.). 1.5 Introduction of climate resilient	Reduced flooding and diversified and higher yields leading to enhanced food security and increased household incomes.	3,776,701

	post-harvest processing and storage systems for safe handling and storage of agricultural produce during extreme climate events (floods, rains).		

2. Support for the transition from unsustainable settlement patterns and exploitative farming practices to sustainable alternative, off-farm livelihoods.	2.1 Identification of alternative livelihood opportunities and constraints. 2.2 Development of Rural Development Hubs within selected *imidugudus*to promote and facilitate productive and market-linked,off-farm livelihoods (agro-processing, eco-tourism, handicrafts etc.). 2.3Resettlement of 100 households living in high-risk zones to Rural Development Hubs. 2.4 Increased access to credit and technical support to help vulnerable groups. 2.5 Increased investment in market development (infrastructure, transport, storage, market research etc.). 2.6Increased investment in and access to renewable energy (Biogas plants, solar etc.) for enterprise development.	Diversified and climate resilient livelihoods of vulnerable households in project area.	4,504,633
3. Capacity building of local institutions to plan and implement climate resilient land and water management regimes and scale up effective adaptation strategies at the national and local levels.	3.1 Training of government stakeholders: technical staff, civil society and Private Sector staffin climate risk management and flood and landslide prevention measures for further scaling up. 3.2 Sharing project results and lessons learned and mainstreaming new approaches in local and national planning.	Enhanced capacity of local actors and Government to develop and implement risk reduction strategies for areas prone to flooding and landslides.	157,000
5. Project/Programme Execution cost			791,467
6. Total Project/Programme Cost			8,438,335

7. Project/programme Cycle Management Fee charged by the Implementing Entity (if applicable)	675,067
Amount of Financing Requested	**9,904,868**

PROJECTED CALENDAR:

Indicate the dates of the following milestones for the proposed project/programme

MILESTONES	EXPECTED DATES
Start of Project/Programme Implementation	Nov 2013
Mid-term Review (if planned)	Nov 2015
Project/Programme Closing	Nov 2017
Terminal Evaluation	Aug 2017

PART II: PROJECT / PROGRAMME JUSTIFICATION

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

Component 1: Adaptation to climate change (rainfall intensity and duration) through integrated land and water management to support climate-resilient production and post-harvest systems.

Considering the importance of agriculture to the rural economy, preserving the underlying ecosystems services that agriculture depends on is crucial to sustaining and enhancing agricultural productivity. This component aims to address existing shortfalls in support for improved land and water management necessary to restore ecosystems services.

It emphasises the importance of building localcapacities (authorities, farmer associations, civil society organizations, and the private sector) to lay the foundations for effective management of climate risk through community based adaptation and empowering people to cope with and plan for the impacts of climate change.

1.1 Community level mobilisation and climate adaptation planning

This output aims to increase the understanding by local stakeholders of the value of conservation and protectionof steep slopes as well asthe impacts of climate change and the urgent need tobuild support forproposed interventions. Empowering farmers through participatory engagement to make informed decisions will be a constant

element of project support to ensure interventions are appropriate to local conditions and to develop local capacities.Where possible, the project will engage with communities through existing cooperatives and community groups and build the capacities of rural communities forcommunity-based decision-making. At the same time, the project will integrate both scientific and local knowledge into community planningprocesses through linking communities to experts.

The approach will be to raise farmers' awareness of the benefits of soil and water conservation measures, help communities better understand the climate threats which affect them and support them in taking appropriate steps to plan for and enhance their climate resilience. This participatory approach will empower local communities by building their capacity to assess their own needs. It is not enough to simply introduce a set of measures to combat existing climate impactsas future climate trends are uncertain. The evolving nature of adaptationtherefore, means that local communities need to learn about risks, evaluate response options, and adapt accordingly checking and rectifying possible mal-adaptation and exchanging information. Government's role is to create the right conditions for adaptive action.

Initial surveys and assessments will be participatory and community-based. This will build the capacity of local people to identify the specific interventions for investment in improvements and promote integrated land and water management. The participation of local communities in these initial assessments will foster ownership of the findings and planned interventions. It will also ensure that any interventions are appropriate to local conditions and provide an opportunity for dialogue, consensus building and capacity development on climate adaptation.

Activities planned under this output include:

- Vulnerability based selection of target areas and target groups for support
- Awareness raising of climate change issues
- Community meetings and planning workshops
- Development of local adaptation plans with zonation of land for agriculture, pasture, perennial crops/grasses etc. with community and agricultural experts

1.2 Investment inintegrated land and water management practices

Local watersheds have become degraded from the effects of flooding, erosion, over-cultivation and human encroachment. The project will support the development of local management plans to rehabilitate and protect micro-watersheds and enhance agricultural productivity. The plans will incorporate soil conservation and enrichment measures including agro-forestry and land use planning. The plans will make special provisions for climate change impacts on vulnerable groups.

Where slopes are greater than 40^{o}, the project will work with communities to phase out tillage systems and restore permanent vegetative cover to reduce erosion. The project will support the poor farmers cultivating these marginal lands to transition into alternative livelihoods via paid work for planting and maintaining perennial cover and off-farm employment and enterprise development Under Component 2.

Farmers have responded to climate variability by diversifying the crops cultivated shifting from the year round cultivation of potatoes to rotating peas, maize and potatoes. The project will use this indigenous coping strategy as a starting point for further surveys (during Full Proposal development), investigations and experimental trials to discover and promote other innovations, improve varietal selection and identify other rotational and integrated farming systems that may be appropriate to this area.

Restoring soil cover will involve matching crops and permanent vegetation (grasses, shrubs etc.) to soils and farming methods to the terrain. The project will emphasise biological measures in erosion control although physical interventions (construction of terraces and check dams, tree planting on gully banks, groundwater recharge structures, percolation pits, ponds, sediment traps etc.) will also be used where appropriate and cost effective. The project will promote:

- planting on raised bunds along the contours (but slightly sloping to allow drainage) and planting hedges of grass or bushes every 10 metres, with the cultivation of large ridges covered with pulses or sweet potatoes every 5 metres,
- mulching to reduce run-off and increase infiltration,
- intercropping to make the most of the space available by selecting plants and cropping formations that maximise light, moisture and soil nutrients,
- crop rotation which will give soils a chance to recover nutrients and restore productivity,
- agro-forestry (species that are commonly used for erosion control in Rwanda include: *Alinus, Datura, CaliandraLeucena, French Cameroon,citeria, tribusacum*),
- planting of fodder grasses on bunds/ridges to increase stability and provide fodder for harvesting and food for animals[42],
- the development of irrigation systems from water harvesting, and
- the introduction of permanent vegetation in small strips at appropriate intervals along the contour to prevent further erosion and conserve rain water.

Where slopes are steep, the project will promote the planting of permanent vegetative cover and where grass cover alone is insufficient to prevent erosion, filter strips or wattling or brush layering will be installed to break the slope into short segments and dissipate the flow of water over the surface. Grass species that are commonly used for erosion control in Rwanda include: Kikuyu grass (*umucaca*), *Tefrozia* as shrubs, *Desmodium, Trifrorium, Mukuna* etc.

[42] Rwanda has a zero grazing policy to reduce erosion

In gullies, vegetation will be planted in strips across the gully to slow the velocity of water, trap silt, and prevent further erosion and check dams and wattles installed where necessary.Specific slope-treatment measures above the gully area and in the eroded area between the branch gullies may also be required, such as retention and infiltration ditches, terraces, wattles, fascines and staking to reduce the rate and amount of surface run-off and divert surface water away from critical planted areas.

The interventions in each area will take into account climatic information (rainfall variability etc.), soil type (pH, nutrient levels and texture), plant species and competitive ability, aspect and topography (slope stability and angle) as well as an assessment of the local surface erosion. The project will support farmers to assess the appropriate land preparation (countours, ridges, percolation ditches etc.) required before seedling planting. Fast growing herbaceous species and woody varieties will be included along with grasses and legumes. A mix of species will be promoted to ensure a continuous even protection along the slope. Specialists will be consulted to ensure the seed mix is appropriate to site conditions and application rates for fertlisers (organic and inorganic) are correct.

As with the overall approach of the project, the communities will be at the centre of the planning and implementation process and will work together with specialists to develop appropriate plans and actions. Intervention measures will be based on local priorities, needs, knowledge and capacities so that the interactions between future and current climate hazards and development can be managed effectively.

Riparian degradation is a contributing factor to vulnerability to flooding in the project area. Riparian damage from cultivation, livestock and fuel-wood collection is prevalent on most of the major rivers banks throughout the project area. The project will support the regeneration of grasses, shrubs and tree species to restore riparian ecosystem services.

The project will also promote investment in small-scale water collection and storage structuresat the household and community level in upland areas to increase water conservation and reduce run-off and erosion during heavy rainfall.This will include the installation of rain-water harvesting in tanks as well as the construction of a network of ponds to absorb storm water overflows and provide supplemental irrigationand water for livestock during the dry season (which will increase agricultural productivity).

There is also provision for measures to improve local drainage and storm-water management (check dams, water breaks etc.).

To ensure the sustainability of these small- scale infrastructure, the project will establish a variety of committees will be created at the sector and cell level to select the sites, manage and maintain the structures. The role of the committees will be to follow up, monitoring, maintaining and rehabilitating the small-scale infrastructure

after the end of the project. The project will ensure effective arrangements are put in place to ensure continuing support to community management by competent external organisations, this will most likely be local governments.

The project will initially determine the demand from users for infrastructure interventions. If demand exists, the project will ensure that households and communities are fully informed of the likely life cycle costs (operation, maintenance and eventual rehabilitation) of their services and develop appropriate tariff structures that include support for the poorest and most marginalised. The project will ensure that user participation is addressed, together with user contributions to capital and recurrent costs, choice of technology and participation in monitoring. The project will then develop a functioning management and maintenance system comprising tools, supply chains, transport, equipment, training and individuals/institutions with clear responsibilities.

Specific support will be provided to enhance the long-term technical, financial, and managerial capacity of the Committees to ensure the effective operation and management of the structures. The project will also identify adequate sources of funding for operation and maintenance costs, define the roles and responsibilities of different players, and in particular build the capacity of local government.

External support for the Committees will include: management support to enhance decision making, technical support for maintenance and repair, means for cost sharing of recurrent costs[43], support to supply chain and service providers (in the form of registration and licensing, training and technical assistance, access to capital, and financial and administrative services etc.) and support for coping with ongoing climate trends and shocks including the preparation of contingency plans. The activities of different land uses and potential threats from external factors such as drought and flooding will also be taken into account during project design.

Finally, the project will build the capacity of local authorities to maintain records of functionality and utilisation of infrastructure with data generated through community and household monitoring and surveys at one year, three years, five years and ten years after implementation.

Activities planned under this output include:

- Community based survey of project area and prioritisation of interventions with communities, water and agricultural experts and other stakeholders
- Development of local management plans - prioritisation of interventions with stakeholders and zonation of land
- Awareness campaign on erosion control and improved soil management

[43] Recognising that rural communiteis may not be able to afford the full costs of operating and maintaining structures.

- Support for erosion control (progressive terracing and re-planting of steep slopes with perennial grasses and shrubs)
- Installation of rainwater harvesting tanks to secure water flows for agriculture
- Excavation of ponds to manage storm water
- Formation and support of committees to manage small scale infrastructure
- Capacity building of local authorities to support the committees and maintain records of functionality and utilisation of infrastructure
- Re-planting on channel, river and lake shores (trees, shrubs, grasses)
- Drainage works

1.3Diversification and integration of crop and livestock production systems to minimise the impact of variable rainfall on rural livelihoods

In the foothills, where slopes are less than 40^{o}, the aim would be to improve land management practices through conservation agriculture based on minimal soil disturbance (reduced tillage), perennial soil cover and crop rotations along with optimisation of inputs. This will protect the soil from direct rainfall impact, improve water retention and replenish organic matter. The approach would incorporate agro-forestry, small wood lots and integrated livestock management systems to improve soil structure and fertility.

Integrated farming systems ensuregood land husbandry and enhance water retention capacities, reducing run-off (and thereby reducing soil erosion and risks of flooding and landslides). An integrated farming system maximises the use of resources by combining crops (food and fodder) with livestock (and in low lying areas fish species). The waste products of one component serve as a resource for the other. For example, manure is used to enhance crop production and crop residues and by-products feed the animals, contributing to improved animal nutrition and productivity. Integrated systems improve soil fertility by recycling soil nutrients and allowing the introduction and use of rotations between various crops and forage legumes and trees, or for land to remain fallow and grasses and shrubs to become re-established.

There are numerous advantages for farmers in adopting integrated farming practices including: a spread of risk of crop failure (since a variety of crops are grown), year-round income from different crops maturing at different times and yield increases that accrue from a diverse range of crops utilising different parts of the agro-ecosystem (and nutrient recycling) and increased profits as well as reduced erosion and improved soil biodiversityand reduced poverty and malnutrition and greater environmental sustainability.

Most importantly, integrated farming systems will provide farmers with a variety of options to face the uncertain weather conditions associated with the increased climate variability. This will contribute to stable production because if one crop or variety fails, another may compensate leading to greater food security and improved household nutrition levels. In addition, it will enable farmers to generate a surplus of some products that can be sold at market. As crop and livestock production improves resulting from benefits of integrated farming, opportunities for alternative livelihoods increase including small scale processing of livestock products such as cheese and other milk products. This will help address other rural poverty issues such as malnutrition as diets for women and children improve towards achieving MDG targets.

Rotation systems would include leguminous crops and fallow periods. Inter-cropping, which can be highly beneficial in terms of pestand disease management and nutrient management (reducing inorganic fertiliser requirements) including organic manuring and composting as well as soil mulching to improve water retention.

Erosion is closely associated with low agricultural productivity. Erosion control can therefore generate significant positive impacts on household income and food security. Enhancing water retention and preventing erosion is usually achieved by increasing the cover of perennial vegetation.One way of doing this is through agro-forestrywhichcan reduce erosion by up to 90%[44] as it aids soil and water retention. Agro-forestryencompasses an integrated land management approach, where trees, shrubs, deep-rooted perennial grasses and their combinations, are grown along contours and associated bund and terrace structures at horizontal intervals commensurate with geology, soil conditions, slope and rainfall on the same land management unit as agricultural crops.

Agro-forestry maintains soil cover and improves water retention while integrating tree species with agriculture. It improves soil conditions through nutrient recycling and increased organic matter. The practice also provides an important source of forage, wood, and other products for animal husbandry.Many agro-forestry species are leguminous with nitrogen fixing capacity so contribute to soil conservation. Agro-forestry also provides a source of wood for fuel and other non-timber products (e.g. fodder, fruits, honey etc.). The trees most commonly used in Rwanda include: *Grevillearobusta, Maesopiseminii*or*Markhamialutea*and shrubs such as*Callindracalothyrus, Cajanuscajan, Leucaena spp. Or Sebaniasesban*.

The project will also explore the integration of livestock with on-farm tree cultivation (agro-sylvopastoral systems) which combines animal manure and the application of leguminous biomass in crop cultivation. Harvesting of fodder shrubs and crops for livestock under zero-graze systems[45] will also be explored with farmers.

[44] UNEP 2011. Rwanda: from post conflict to sustainable development.

[45] Zero-graze systems are being promoted by the Government along with the introduction of improved breeds to reduce pressure on pasture land.

Farmers' cooperatives have been used extensively in Rwanda as a useful entry point for mobilising and supporting small holders. Supporting farmer's cooperatives would entail building their capacity to support their members in innovating and adapting to climate variability so that they can prepare for and respond more effectively to shocks and trends, linking them to markets, networking them to other cooperatives, credit and other service providers where necessary. The specific support will be defined in more detail during the development of the Full Proposal.

Activities planned under this output include:

- Community based survey of existing crop and livestock production systems
- Field trials with researchers and farmers to identify climate resilient integrated farming systems
- Support for development of tree nurseries for agro-forestry (60,000 trees in each sector)
- Support for development of tree nurseries for fruits (10,000 trees in each sector)
- Support for vulnerable farmers' cooperatives (1 cooperative per sector)
- Facilitate inputs and extension support through existing Government and Private Sector channels
- Promotion and support for uptake of improved technologies
- Provision of inputs and extension support through existing Government and Private Sector channels

1.4 Introduction of climate-resilient crop and fodder varieties (short season crops, seasonal pastures etc.) in low-lying areas.

Crop and variety selection are important in terms ofsecuring livelihoods and food securityas well asadaptation to climate variability. This output aims to facilitate the adoption of climate resilient crops by promoting the selection of crops/varieties that are productive, less vulnerable to climatic hazards and resilient to pest and disease threats. By adopting a participatory approach with farmers, the project will promote optimised crop planning and varietal selectiontaking into account climate variability.

The approach will emphasise developing farmers' knowhow and skills to make informed choices for adaptation to climatevariability and climate change. Field workers and local researchers will act as mentors building farmers' capacities to makeinformed choices on crop and variety selection. Field workers will emphasise flexibility in decision-making on the selection of crops and varieties by farmers.

The use of farmer field trials to identify flood resilient varieties and improved farming strategies (under Output 1.5) will promote better understanding of the varieties that

grow best under local conditions. It will also build the capacity of farmers to better understand the agro-ecosystem and try new innovative approaches hence enhancing their adaptation capacity. Cross visits of farmers to various field trials will aid in the dissemination and uptake of improved varieties and farming practices.

Specific activities planned under this output will include:

- Review of existing data and studies on flood-resilient varieties
- Field trials with researchers and farmers to identify appropriate varieties
- Promotion and support for uptake of flood resilient varieties by farmers

1.5 Introduction of flood resilient post-harvest processing, storagesystems for safe handling and storage of agricultural produce during extreme climate events (floods, rains)

Periods of intense rainfall can cause extensive damage to post harvesting equipment and facilities. Many aspects of the post harvest chain can be adversely affected by floods and heavy rainfall ranging from the harvesting process itself to the drying, storing and processing of agricultural products as well the packaging and marketing. Existing storage and post harvest facilities are inadequate for coping with extreme weather events which results in reduced food reserves and poor quality of harvested crops.A lack of secure storage in particular makes farmers highly vulnerable to heavy rainfall as it can result in the loss of a whole season's crops and lead to food shortages and price fluctuations. Improved storage technologies are therefore important if farmers are to avoid losses during periods of flooding.

The project will provide a range of support to combat the deficiencies in post harvest handling and storage systems that make farmers vulnerable to post harvest losses when flooding occurs. These include: direct investment to support farmers' associations improve (weather resistant) post harvest facilities and technical support to improve post harvest processes to mitigate against climate shocks and trends.

Activities planned under this output include:

- Survey of existing post-harvest storage,processing, packaging and marketing systems and prioritisation of interventions with communities, local authorities and other stakeholders to reduce post-harvest losses
- Technical support for improved handling, processing and storage systems

- Creation of and capitalisation of a credit facility for construction and operation of weather resistant agro-processing and storage facilities
- Increase access to existing credit facilities
- Promotion and support for uptake of credit and technical support

Component 2. Support for the transition from exploitative farming practices to sustainable alternative, off-farm livelihoods.

This component would support sustainable, economically viable and market oriented alternative livelihoodsas well as resettlement where necessary for vulnerable groups who are dependent on farming marginal lands in high-risk areas and those householdsthat are impacted by the adverse effects of climate change. This support will reduce the impact from unsustainable farming practices on natural resources and increase the resilience of local communities and these natural systems to the impacts of climate change.

An estimated 12,000 households across the 2 districts have experienced destructive rains. In the project area, there are 2792 households (approximately 14,000 people) located in high-risk zonesthat have been prioritised for relocation to low risk areas with approximately 2618waiting to be resettled. The aim is to provide 100% employment or involvement in enterprise development for resettled households and extend this livelihood support to people already living in *imidugudus*.

The approach will be to promote off-farm livelihood development through improved access to credit schemes, vocational training, support for enterprise development(including securing a viable energy source) and employment generation from Component 1 activities. These include labour intensive work of re-planting of vegetative buffers, terracing, trenching and other structural measures to improve the stability of the flood protection infrastructure and around settlements and other economic assets.

With regards to credit, the aim is to connect project participants with existing credit schemes to ensure they have sufficient start up capital to invest in enterprise development. In this way the project would work with existing institutions providing credit services. Access to credit has improved in Rwanda over the past few years (more than 90% of adults Rwandans live within a 5km radius from a formal financial institution). This is largely due to the Rwandan Financial Sector Development Programme (FSDP) that was launched in 2006 to enhance access and affordability of financial services. To improve the uptake and usage of financial services and products from formal institutions, the Government also launched the *Umurenge* Savings and Credit Cooperatives (*Umurenge* SACCO) in 2009 to reach out to areas that were unattractive to banks. The aim was to establish at least one financial service provider in each administrative sector. 22% of adults now have *Umurenge*

SACCO products. For most financial institutions strict deposit and minimum balance requirements do not apply. The main requirement for opening a basic entry- level type of account is proof of identity[46] so eligibility is not considered to be a major barrier for would be entrepreneurs.

Despite good access and eligibility, more than half (52%) of Rwandan adults (18 years or older) do not use any financial product or service. The most significant barrier to uptake of formal financial products and services is consumers' lack of awareness or understanding[47] of how the uptake and usage of financial products would improve their lives. There is a perception among the unbanked that they 'don't need bank accounts because they earn insufficient money to justify opening a bank account' (this is the perception of 80% of unbanked adults). With regard to credit uptake, consumer attitude to debt seems to be a more significant barrier amongst Rwandan adults than access and eligibility or perceived affordability. According to a recent survey[48], 45% of non-borrowers did not borrow because they feared not being able to meet repayment requirements; 5% of non-borrowers did not borrow because they did not want to borrow or did not believe in borrowing; and 10% of non-borrowers did not borrow because they did not have collateral or did not meet other lender requirements. This is where the project intends to intervene, in terms of building awareness and understanding among project participants of the types of financial support they can access to support business development. In this way the project will ensure the flow of both financial and technical support to local communities.

The specific outputs expected from this component are: (i) to identify alternative livelihood options; (ii) to develop rural development hubs to facilitate and promote sustainable off-farm livelihoods; (iii) to resettle people from high risk zones; (iv) increase access to credit and technical support for vulnerable groups; (v) increase investment in market development and (vi) to increase access to renewable energywhich will support increase the broader investment goals beyond the energy dependent investments.

In terms of resettling people, the Government has already conducted a survey which identified households living in high risk areas (prone to flooding etc.) and earmarked these households for relocation to new sites. Provisions are included to provide financial support to vulnerable households to relocate (this is covered under the new Land Law). However, this process is progressing slowly due to a lack of funds and many households remain in vulnerable locations. The project plans to develop a pilot climate resilient settlement and directly support vulnerable households to relocate to this settlement. The Government has already acquired the land and has relocated some households to the settlement.

[46] Carrying of the national identity card is obligatory to every Rwandan 16 years or older.

[47] Around 27% of adults have no formal education and an additional 56% have achieved some level of primary school education but no secondary school education.

[48] Finscope (2012) Financial inclusion in Rwanda 2008 – 2012

This will be a pilot intervention targeting the most vulnerable households from this group of 2618 households. Recent figures from MINALOC show that there are 208 households which fall into Category[49] 1 (which include the most vulnerable groups). The project plans to target 200 households from this category for resettlement. The households were identified and classified according to the Government's classification scheme (see footnote below).

Once households from a high-risk area have been resettled, Rwandan Law prohibits resettlement on this land. Moreover, Land Use Masterplans currently being developed for each district (a nationwide initiative) will determine how the land will be used. All types of land tenure must be in compliance with the designated land use and environmental protection measures as outlined in the Land Use Master Plan (Organic Land law N0 08/2005 of 14/07/2005, article 6). Further, project interventions under component 1 will ensure that the land is either restored with permanent vegetation to prevent erosion (if it is on a steep slope) or used for agricultural production according to the particular community adaptation plan for that area. There is, therefore, little chance of resettlement on the land.

Under the Organic Land Law, there are clear provisions on land tenure for people resettled from high risk areas to imidugudus and there are provisions for compensation for land and other assets (see previous response on Technical Standards).

Households not included in the resettlement activities of the project that remain in high risk areas will be supported by other project interventions (alternative livelihood support etc.) until they are resettled. These households although vulnerable are not in the poorest category of the Ubudehe classification system and therefore have greater means to transfer to the imidugudu. This aspect will be investigated in more detail during the project design and Full Proposal development to see if additional support is required for these households.

This component would be implemented in partnership with local communities, local NGOs active in supporting saving schemes for vulnerable groups, private sector organisations such as Inyange as well as small and medium enterprises (SMEs), banks and micro-lending institutions, Civil Society Organisations, and Local Government.

Output 2.1 Identification of alternative livelihood opportunities and constraints.

The project will empower the communities in the targeted areas to diversify and improve livelihood opportunities in non-farm sectors such as agro-processing, eco-tourism and handicrafts. The project will help farmers who want to move out of farming to explore and plan for other viable alternatives. The process will involve communities identifying

[49] This is based on the classification system used by the VUP which classifies households using a community-based Ubehebe system. There are 6 household (HH) Ubedehe categories – Category 1: poorest, no able bodied person(s), Category 2: very poor, with able body person(s), Category 3: poor, some land and housing, Category 4: resourceful poor, HH Category 5: food rich, and Category 6: money rich.

alternative livelihood opportunities in a participatory process with project staff and other key stakeholders.

Some of the opportunities identified so far during the initial stakeholder consultation include employment creation and enterprise development through:

- tree nursery development, replanting schemes and rehabilitation of waterways to improve flow and drainage,
- agro-processing activities,
- development of supply chains for inputs (seeds, fertilisers, materials etc.) and
- development of distribution outlets for products and services (agricultural products, eco-tourism, rural financial services, development and/or rehabilitation of market infrastructure, transport to markets).

Activities planned under this output include:

- Identify potential opportunities and constraints with communities and other stakeholders
- Inclusion and prioritisation of vulnerable groups in re-planting and other work schemes

Output 2.2 Development of Rural Development Hubs within selected *imidugudus* to promote and facilitate productive and market-linked off-farm livelihoods (agro-processing, eco-tourism, handicrafts etc.).

An estimated 72% of the rural population has already been resettled in planned developments (*imidugudus*) to consolidate and intensify agricultural production, promote reconciliation and facilitate cost-effective improved access to basic services (health, education, electricity, water etc.).

Although basic housing and some infrastructure have been developed, people re-located in these settlements often lack the resources and know-how to adopt new off-farm livelihood strategies. The lack of alternative livelihood opportunities deters others from re-locating from marginal lands which become further degraded leading to ever diminishing returns from agriculture as well as increased flood risk.

Provision of alternative livelihood opportunities in these settlements is therefore crucial to ensure households have an income to sustain them and do not return to unsustainable farming practices. There are approximately 7500 households located in *imidugudus*across the project area. Existing *imidugudus* situated in the project area provide a useful and cost-effective entry point for the creation of productive, off-farm livelihoods since they are planned clustered developments usually located in proximity to roads and other essential services.

The project will support the development of a suite of enterprise and market development services in selected *imidgudus*. This will include support for:

- the creation of co-operatives and Self Help Groups to create economies of scale in production and securing inputs at reasonable prices as well as in marketing products and services to maximise returns,
- provision of vocational training to develop the skills needed to deliver quality products and services,
- improved access to flexible, low cost credit for start up and operation costs for new enterprisesand where necessary provision of financial support for initial capital investment in viable enterprises,
- improved vertical linkages to markets for inputs and sale of products and services, and
- embedded technical support for product and service delivery in value chains.

Access to a financial system is an important aspect of supporting livelihoods of poor populations, especially empowering women and vulnerable groups. Improving access to low cost credit is therefore crucial toincreasing the availability offinancial resources for enterprise development, including micro-financing schemes, to provide the start-up capital for new ventures.

The project will link into theUmurenge Savings and Credit Cooperatives (UmurengeSACCOs)which has been successful in providing formal financial services to Rwandans who would otherwise not use and benefit from such formal financial services. The Umurenge SACCO initiative was launched in 2009 with the aimof reaching out to areas that were unattractive to banks.SACCO products are more likely to be actively used than bank products in rural areas because there is a branch in each Sector.In addition, many Rwandans (37% of the population) also belong to informal savings groups despite their use of formal savings products provided by banks and SACCOs[50].

Output 2.3 Resettlement of households living in high-risk zones to Rural Development Hubs.

Of the 2792 households living in high-risk areas, around 2618 have not yet been resettled and there are limited resources to cover relocation especially for the extreme poor households who receive greater financial support to re-locate. Provision of financial support to assist these households would therefore expedite the relocation process and reduce pressure on marginal, unproductive, cultivated steep slopes.

The project will support the resettlement process by identifying the most vulnerable households that want to relocate and procuring materials for house construction for

[50] Financial inclusion in Rwanda, 2012

100 families. Each household will supply labour for construction to reduce the resettlement costs.

Output 2.4 Increased investment in market development (infrastructure, transport, storage, market research etc.).

Markets in the target area are poorly developed and focused almost entirely on agricultural products and services. In order for people to transition to off-farm livelihoods, there needs to be a market for off-farm products and services. For the transition to be sustainable, the development of off-farm employment and enterprise development must be demand led and market-oriented. It is crucial that new markets are properly researched and value chains understood before there is investment into new enterprises in the project area. The activities planned under this output include:

- development of a market research and information service,
- value chain analysis of opportunities identified under Output 3.1,
- promotion of local products and services to high value markets, and
- facilitating access to low cost credit for the development of improved market infrastructure.

Output 2.5 Increased investment in and access to renewable electricity (Biogas plants, pico-hydro, fuel-efficient stoves, solar etc.) for enterprise development.

The lack of electricity is a major constraint for economic development in rural areas. Moreover, the high population density and reliance of biomass for cooking presents major challenges for combating deforestation and ensuring effective waste management services. The project will therefore aim to improve access to renewable energy (including solar and biogas). Use ofbiosolids from human waste (contain phosphate) to produce plant fertiliser will also be promoted. Financial support (subsidies and low interest loans) under Component 2, will be provided for installing solar power and constructing and maintaining biogas plants at selected *imidugudu* settlements to reduce reliance on fuelwood and charcoal supplies.

Activities planned under this output include:

- Provision of subsides for installing renewable energy sources
- Facilitation and/or provision of technical support for construction, operation and maintenance

Component 3. Capacity building of local institutions to plan and implement climate resilient land and water management regimes and scale up effective adaptation strategies at the national and local levels.

3.1 Training of government technical staff in climate risk management and flood and landslide prevention measures for further scaling up.

Enhancing capacities for planning, coordination andimplementation at the local level are critical toguarantee effective climate adaptation. A climate change adaptation training programming will use project site visits as a training tool. The project will also hold informal round table discussions with key stakeholders where local project beneficiaries will report on improved water and land management practices and new livelihood strategies in the project area.

The project will target the training towards key staff in the local authority at District, Sector and Cell levels[51]. At the District level this will include: Agronomist Officers, Environment Officers and interns, Infrastructure Officers, Lands Officers, Forestry Officers and RAB CIP Officers as well as the contracted CIP service providers who organise seed and fertiliser distribution and provide extension advice.

At the sector level, the training will target the Agronomist officer who covers many of the above functions dealing with aspects of rural infrastructure, lands adjudication/title registration, forestry and environmental management (responding to the respective four designated officers at District level) in addition to the 'primary' focus on agriculture, livestock and horticulture. Livestock Veterinary Assistants and Forestry Officers deployed at Sector level by MINAGRI and MINRENA respectively will also be included in this training.

At the Cell level, the training will target the Social Development Officers (better known as the Integrated Development Programme Officers or 'IDPs') as this is the main salaried post concerned with agricultural and development issues. Training will also target relevant staff from local and national NGOs.

Training will also be organised at the Regional level to disseminate lessons learned to policy makers and build capacity for scaling up. At the national level a series of workshops will be held to communicate key findings, deliver key messages and disseminate best practices that are relevant for scaling up in other parts of the country.

Training will be delivered by project staff. The expected result of the training is an increased understanding of climate change hazards, an improved understanding of how Government can best support communities to increase their adaptive capacity to future climate variability and an enhanced capacity to support community adaptation.

A training manual and other materials will be developed and posted on the MINIRENA website to disseminate the tools used. It is expected that the training will

[51] The Institutional Structure in Rwanda divides into 5 Provinces, 30 Districts, 416 *Imirenge* (Sectors), 2148 *Akagari* (Cells) and 14,837 *Umdugudu* (Villages)

contribute to scaling up these approaches in other areas of the country beyond the end of the project.

The project will also explore how a Climate extension service could deliver adaptation information as well as to provide technical assistance and capacity to meet specific local adaptation needs.

Activities planned under this output include:

- Training needs assessment
- Training workshops, round tables and short courses for Government and NGO staff
- Preparation of training and awareness materials
- Evaluation and revision of training materials

3.i Sharing project results and lessons learned and mainstreaming new approaches in local and national planning.

Results from project monitoring will be collated and disseminated nationally. The aim is to promote dialogue, learning and cooperation between the project participants and other stakeholders.

The outcomes of this project are designed to strengthen the foundational capacities required to continue implementing adaptation measures and for the ongoing replication of adaptation strategies country-wide; hence this project, when implemented is expected to make a lasting contribution to the sustainability of all adaptation projects in the country. The project will integrate good adaptation practices into existing development planning at community, regional and national levels through a variety of means.

Scaling up will be an integral part of the project planning process. During the development of the Full Proposal key actors will be identified as those who will have to be convinced of the value of the planned concept and approach. These will include the actors who are important for scaling up such as key ministries (MINAGRI, MINALOC, MINIMAR etc.), local authorities, NGOs as well as the private sector. The strategy is to involve them in planning, implementation and evaluation processes at an early stage and build a working relationship with them. Getting their support will be crucial in ensuring the interventions have the necessary political backing for scaling up (including incorporating the concept into their own sector programmes or policies).

Evidence will be provided of the additional value generated by innovative approaches. The project will demonstrate its verifiable value added generated through timely result based monitoring so that scaling up can be justified. During this process, the critical success factors and potential areas of resistance will be

identified so that they can be taken into account in the scaling up strategy. Moreover, a cost benefit analysis will be carried out to determine the value added by the project compared with existing approaches and practices.

Guidelines and manuals will be developed to help ensure the quality of any scaling up by describing the individual steps involved in the process and describing tried and tested approaches and tools. Scaling up into new geographical areas will be achieved through peer-to-peer learning where community representatives meet other community representatives from areas where successful interventions have taken place. Dialogue and learning on the basis of concrete examples at workshops will ensure horizontal scaling up.

During the inception stage, the project will develop an effective communications strategy and invest specifically in disseminating information and in awareness programmes to ensure that major stakeholders and population groups are informed, convinced and involved. This will include the production of briefing notes for policy makers to create a positive environment for scaling up. The project will use a website, site visits, and the media to:

- broadly advertise project results and foster replication and scaling up of successful interventions,
- provideupdates on the progress and project activities,
- disseminate case studies and comments from the project participants, and
- communicate lessons learned from project activities.

Other options which the project could explore would be the feasibility of providing incentives to enhance the uptake of effective adaptation practices and the introduction of competitions to reward innovative approaches could also be included. These will be explored in more detail during the Full Proposal stage.

Ultimately scaling up will require long-term financing. There will therefore be a need to develop an investment plan to secure additional finance at the end of Year 3 to ensure continuity as well as foster private sector participation in the project. For example by encouraging a close exchange between businesses and vocational training centres.

Activities planned under this output include:

- Preparation of briefing notes for local and national decision makers (quarterly from mid term)
- Development of a communications strategy
- Preparation of guidelines and manuals

- Development a results based monitoring system
- Farmer-to-farmer fora (cross visits, community meetings etc.)
- Development of participatory videos
- Media articles in newspapers, journals, newsletters, radio
- Business roundtables with private sector
- Website development (under existing site)
- Development of an investment plan

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

The main beneficiaries of the project are the 35,441 households located in the 7 sectors of Nyabihu and Musanze where project interventions take place. The Project is designed to target the most vulnerable communities that depend on subsistence agriculture for a livelihood. By restoring ecosystem functions and services, the project will reduce vulnerability to climate induced hydrological stresses such as flooding and landslides benefiting thousands of households. Moreover, reducing dependency on agriculture and diversifying livelihoods will increase the capacity of the target communities to withstand flood events and reduce the need for costly repair and restoration work.

Environmental benefits

The habitat restoration activities will reduce erosion and land degradation leading to increase yields as well as improvements in the overall hydrology of local watersheds currently affected by high sediment loads that impede river flow and drainage. The proposed interventions will improve the hydrological functioning of the watershed reducing runoff and sedimentation of rivers and other water bodies. Improving water flows in the hydrological network will not only restore ecological services but also economic services (e.g. for hydroelectricity and irrigation).

Restoration of steep slopes and riparian habitats with natural vegetation and the expansion of agro-forestry systems will also increase carbon sequestration, improve biodiversity, quality of fodder and reduce erosion, landslides and floods.

Social and Economic Benefits

The project will directly benefit approximately 35,000 households living in the project area through reduced vulnerability to floods and landslides. Around 28% of households in the project area fall into the poor or extreme poor category[52] as well as approximately 13,000 female-headed households[53].

The project will specifically target these extreme poor and poor households under the alternative livelihoods and resettlement component decreasing their dependency on agriculture and increasing the incomes of around 10,000 households through the diversification of livelihood opportunities.

[52] The two lowest categories of the Ubudehe socio-economic classification system
[53] EICV

The farming community will directly benefit from reduced erosion, improved soil fertility and enhanced yields derivingfrom integrated and adaptive farming practices and more resilient ecosystems and services. The proposed adaptation activities of the projectwill therefore secure and enhance agricultural production in this important food production area of Rwanda improving national food security.

The diversification of production systems, the introduction of climate resilient varieties and improved post harvest systems will decrease the risk of crop failure and post harvest losses following extreme weather events and increase the resilience of local communities to climate change. The availability of water for irrigation, livestock and domestic use will also increase. Household incomes are also expected to rise further strengthening the ability of local communities to cope with extreme weather events.

Moreover the heightened awareness of climate threats and participation in project design and implementation will enhance the capacity of local communities to adapt to climate change in future.

Regenerating eroded hillsides and riparian landscapes will also increase the area's potential for developingeco-tourism opportunities to capitalise on the established tourism activities in the neighbouring Volcanoes National Park.In 2011, earnings from tourism were US$251 million, up by 25% from 2010. These earnings are expected to increase to over US$ 600 million by 2020 as tourist arrivals are projected to increase from about 980,000 in 2008 to over 2 million. The mainstay of tourism receipts are visitors to Volcanoes National Park and tourists visiting the Volcanoes National Park and the Musanze area generate around US$ 1 million in income for poor workers and producers. There is therefore, a unique opportunity to expand tourism beyond the park to neighbouring districts.

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

The current approach to flood risk management in Rwanda is largely reactive, with interventions focusing mostly on costly response and rehabilitation. Investment in improved and integrated land and water management regimes and resettlement will significantly reduce the risk and impact of flooding in the project area.

A variety of soil erosion control measures have been implemented in Rwanda includingafforestation/reforestation, grass strips, progressive terraces and radical terraces. However the focus has been on resource-intensive structures, primarily radical terraces[54]. This project will emphasise soil and water conservation oriented farming practices (such as agro-forestry) whichare less resource intensive.

[54] *Strategic Environmental Assessment of the Agricultural Sector in Rwanda, 2012.*

The improved water and land management interventions being proposed including zoning (to optimise land use), erosion control and adaptive, integrated farming systems should reduce the need for and cost of disaster response and rehabilitation programmes as the numbers of people at risk will be greatly reduced. MININFRA and districts experts estimate that up to 40% of the roads budget is spent on rehabilitation and maintenance of infrastructures destroyed by water.

The project has been designed to deliver adaptation benefits in the most cost-effective way by building on existing best practices from past and on-going interventions. The project will utilise existing land and water resource, and socioeconomic data accumulated through District and National authorities and from previous projects.

The project will build the capacities of communities and local institutions to ensure sound decision-making and actions for integrated resource planning and management taking into account local climate risks.Building local capacity will reduce the need for financial resources and other support from the national level organisations improving the self-sufficiency of local sectors and districts.

By building awareness and using a participatory approach the project will involve local people in developing improved water and land management regimes which will lower the operational costs and sustainpositive outcomes. For example, the project will support farmer led field trials to develop climate-resilient farming systems. This will be more cost-effective than running trials within research institutions and will build capacity of poor communities. Rwanda also has a strong tradition on communal projects including the monthly *umuganda* communal work days where Rwandan citizens throughout the county provide free labour on the last Saturday in each month for community projects.

The project has been conceived taking into account proposed and on-going interventions with a view to complimenting these other investments and adding value by creating synergies. For example, the project will link in with Farmer Field Schools (supported through RAB), Village Savings Groups (promoted by NOGOS such as CARE and its partner NGOs) and the national Girinka (One-Cow-per-Family) programme[55] (agro-forestry interventions planned under this project have the potential to compliment this programme as they provide a source of fodder).

The project will also investigate if it is possible to facilitate access to the recently introduced weather insurance system for farmers, operated through the BanquePopulaire as a means of reducing their vulnerability to climate threats.Weather index insurance covers weather-related risks such as drought and excess rain and is usually offered to small farmers through their cooperative, input dealer, a microfinance institution or bank.

55 Since 2006, more than 200,000 cows have now been distributed to the poorest families and these animals have begun to bear offspring which recipient families then pass along to their neighbours who have yet to receive a cow.

Weather insurance has only recently become available in Rwanda but the project intends to explore whether it can be incorporated into its intervention. MicroEnsure is one such scheme which is in its early stages of delivery. It is currently only available to 15,000 farmers in 5 districts (not including the project area). MicroEnsure is partnering on the ground in Rwanda with Urwego Opportunity Bank (a subsidiary of Opportunity International) which is also designing a range of insurance and finance products for poor and vulnerable households.

Another scheme called “KilimoSalama,” launched in Oct 2012 is available to 20,000 farmers in southern and western provinces who plant maize and beans. The scheme is a partnership between the Syngenta Foundation for Sustainable Agriculture, the Ministry of Agriculture and Animal Resources, One Acre Fund, SORAS Insurance in Rwanda, and Swiss Re Corporate Solutions.

Although there are no schemes operating currently in the project area, the design team will endeavour to find out if these schemes can be expanded to include its target communities. Further information will be provided in the Full Proposal.

The initiatives above all have in-built efficiencies in project implementation that significantly relies on local knowledge and expertise and employs local beneficiaries in project execution which reduces the cost of implementation and enhances sustainability of project outputs.

Component 1 with a resource allocation of US$3,776,701aims to:

- restore the critical functions of the watershed emphasising the factors that have a decisive influence on the occurrence of flash floods specifically soil conditions and coverage of the terrain but also taking into account the intensity and duration of the rainfall and local topography; and
- promote climate resilient crop, livestock and marketing systems.

Component 2with a resource allocation of US$ 4,504,633 supports the development of sustainable alternative livelihoods to enable vulnerable households to transition from unsustainable, subsistence farming to more productive jobs and businesses.

Component 3 focuses on building the capacity of local institutions to plan and implement climate resilient land and water management regimes and scale up effective adaptation strategies at the national and local levels. Awareness raising and training will increase understanding of climate threats and how to manage these risks by local stakeholders and promote learning and cooperation among different sectors and communities. ApproximatelyUS$157,000has been allocated to this component. This component will increase secondary uptake of successful interventions within and around the target area potentially benefitting an estimated 746,000 people living in the two districts who depend on natural resources and are most vulnerable to the impact of climate change.

The project will also benefit from existing monitoring and evaluation systems which are in place within MINRENA to ensure the project is cost effective and provides value for money.

The Ministry of Natural resources (MINIRENA) has environment, climate change and natural resources under its mandate and is the Ministry responsible for ensuring sustainable management and rational use of natural resources. It is responsible for the development of policies, strategies and programmes as well as the formulation of regulations and mobilising resources for the development of the sector. The Ministry is also responsible for Monitoring and evaluation of the Implementation of environment, climate change and natural resources management at the national level.

REMA operates as an Agency under MINIRENA and is responsible for the implementation of policy and framework legislation relating to environment and climate change. The other agency under MINRENA is the Rwanda Natural Resources Authority[56] (RNRA) which will be the executing agency for this project. As agencies operating and executing national mandates under the oversight of MINRENA, both RNRA and REMA use the same systems as MINRENA for all aspects of project and financial management. This project will therefore be implemented within MINIRENA systems (Planning, Budgeting, Reporting, procurement and financial management).

The systemincludes measures to:

- ensure the required inputs have been identified and the procurement proceduresare appropriate and to ensure they are obtained cost effectively,
- assess the unit costs of the outputs, and
- quantify the outputs and assess the appropriateness of project indicators.

Using this Value For Money framework, the cost effectiveness can be assessed on three fronts:

- economy: the right inputs have been identified to deliver the required outputs and will be procured cost effectively
- efficiency: best use possible of limited resources,operational costs are appropriate given the benefits and the benefits exceed the cost,
- effectiveness: best strategy to achieve result, the project achieves one or more outcomes of the Adaptation Funds' Results Framework.

[56] RNRA leads the management of promotion of natural resources (land, water, forests, mines and geology). It supervises, monitors and ensures the implementation of issues relating to the promotion and protection of natural resources in programs and activities of all national institutions.

Assessing other benefits accruing from project interventions the value of each benefit (obtained from international organisations such as IUCN) can also be used in a cost Benefit Analysis to determine the cost effectiveness of the project.

D. Describe how the project / programme 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.

The project is aligned with several national and local strategies related to climate change and environmental management and builds on existing activities.

The development of watersheds to combat the effects of climate change was ranked as a high priority in Rwanda's Second National Communication. The National Adaptation Programme of Action articulates Rwanda's strategy to reduce vulnerability to climate change and provides a technical basis for decision makers to prioritise action areas. The plan has provisions for the implementation of adaptation measures to climate change and includes developing and strengthening programs for integrated management of water resources with specific provisions for anti-erosion planning, including landslides and protection of riverbanks and lakeshores.

The project is also consistent with Rwanda's National Development Vision and Strategic framework set out in the Vision 2020 which has been the main development roadmap for Rwanda since 2000. The relevant priority areas are:

- extending agro-forestry systems to 85% of all cultivated area;
- productive high value and market oriented agriculture;
- reducing dependency on agriculture toreduce the pressure on water resources, given that agriculture accounts for nearly 70% of the total water use;
- developinghuman resources and pursuit of a knowledge-based economy to facilitate a strategic shift from agriculture and natural resources-dependant sectors to a knowledge economy;
- private sector-led development: a private sector-driven economic growth path implies that the Government will divest from service provision to more strategic areas like watershed rehabilitation, natural resources monitoring and regulation; and
- infrastructure development: infrastructure developments are being made in energy, transport and communications, housing, tourism.

The project is also aligned with the 7-Year Government Plan (2010-2017). Under this plan, the GoR has identified 231 priority activities to transform the country. Those with particular relevance for the project are: climate change management; establishing a national fund for environmental protection; rehabilitating critically degraded ecosystems and watersheds; and mainstreaming environmental conservation/ protection into all development.

Rwanda's National Green Growth and Climate Resilience Strategy recognises Rwanda's high vulnerability to climate change due to its dependence on rain-fed agriculture both for rural livelihoods and exports of tea and coffee. This project also fits within this strategy.

The EDPRS (2007-2012) has four priorities all of which underpin project aims:

i. Increasing economic growth by investing in infrastructure; promoting skills development and the Service Sector; mainstreaming private sector development, improved land administration, enhancing sustainable land use management practices.

ii. Slowing down population growth by reducing infant mortality; family planning and education outreach programmes;

iii. Tackling extreme poverty through improved food security and targeted schemes of job creation and social protection;

iv. Ensuring greater efficiency in poverty reduction through better policy implementation which includes enhanced coordination among sectors and between levels of government; sharper prioritisation of activities; better targeting of services for the poor; widespread mobilisation of the Private Sector; and effective monitoring and evaluation.

The community-driven development approaches and strengthening of local capacities for planning promoted by the project are key elements of the Government'sDecentralised Governance and Service DeliveryPolicy and provides an opportunity to implement project activities at local level.

The Water Policy, 2011also includesthree key strategic actions which are relevant to the project, these include:

- theintroduction of measures for managing water related disasters and stresses, arising from climate change, floods, droughts and demographic trends;
- thedevelopment and promotion of best practices of efficient and appropriate watershed management to maximise water yields and maintain quality; and

- the rehabilitation of critical watersheds and catchments and restoration of basic ecological functions by June 2016.

The project components are also consistent with Rwanda's commitment to adopting a low carbon, services-centred growth path that aims to deliver pollution-free and resource-efficient development due reduce its dependence on natural resources for economic growth. The project also aligns with the International Dialogue and Declaration on Sustainable Water Resources Management.

The National Agriculture Plan 2008 promotes the transition from subsistence-based to market oriented production through intensive crop farming. The policy promotes investment in rural infrastructure and the development of rural financing schemes and markets. This includes support for the development of agro-based manufacturing industry to add value to agricultural produce and provide employment for those displaced by commercial agriculture.The strategic objectives of NAP are operationalised by the Strategic Plan for the Transformation of Agriculture.

The Forestry Policyalso includes provision for promotion of tree-growing in all farming systems to boost land productivity, increase income and improve food security. The Ministry of Natural Resources has planned to increase forest cover to 30% by 2020[57] and reach 85% of the agro-forestry system of the national territory.

The National Land Policyensures equal right to land use for all Rwandan citizens. In order to achieve the objective of the Land Policy, Rwanda is undergoing a land reform process targeting three main objectives: (1) Use of the Land for economic growth and poverty reduction, (2) Ensuring equal rights to land for all Rwandans and (3) Protecting environment and land resources.

The National Land Use Development Master Plan (NLUDMP) provides a general framework and guidance on land use planning in Rwanda. The Project isaligned with this plan since it will be implemented on land identified as agriculture land that needs to be mixed with agro-forestry.

The National Environment Policy is premised on the principles of sustainable growth, community participation, decentralization, intergenerational equity and fairness, emphasis on prevention, polluter pays, and recognition of regional and international environmental inter-connectedness.

The Urbanisation and Human Settlements Policyis driven by the need to optimize productive land use due to increased land scarcity. Rwanda's urbanization and human settlement policy 2002 envisaged 40% of the population to be in urban areas by 2020, and all the population to live in organized clustered settlements

The Industrial policy and Investment code aims to increase value addition to primary production in order to boost exports and create more jobs for the growing population.

57 21% of the country is currently covered by forests.

The National Biodiversity Policy seeks to: improve management of protected areas, conservation of biodiversity outside protected areas, access to genetic resources and benefits sharing, agro-biodiversity, bio-prospecting and biodiversity business, and biodiversity knowledge management including research and indigenous knowledge.

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

The following laws and Technical Standards are applicable to this project:

- The Guidelines for imidugudu settlements (No MINITRAP/01/1997 Annex 17) guide the development of new settlement sites including land acquisition, construction processes and materials, future expansion etc.

- The Land Law (2005) and associated Ministerial Order (002/2008 OF 01/4/2008) which secure tenure rights for all existing private landholders, whether under customary or written law and promote rational land use. The law is implemented through the Land Tenure Regularization System (LTRS), the National Land Use Master Plan and the detailed District Land Use Master Plans (to be developed). All types of land tenure must be in compliance with the designated land use and environmental protection measures as outlined in the Land Use Master Plan (Organic Land law N0 08/2005 of 14/07/2005, article 6).

- The Organic Law on Environment (2005) and the associated Ministerial Order which provides for modalities for protection, conservation and promotion of environment and has other technical tools and instruments for implementation of the law(s) such as Strategic Environmental Assessments (SEAs) and Environmental Impact Assessments (EIAs) which guide mainstreaming and implementation of environment and climate change considerations across sectors including agriculture. Environmental Impact assessments (EIAs) are mandatory for major development projects, activities and programs in the Republic of Rwanda. The EIA process is overseen by REMA (with support from RDB) which issues approvals or a certificate stating that an EIA is not required. Where required (e.g. Infrastructure developments), the project will submit a Project Brief to REMA to assess whether an EIA is required as per the EIA Guidelines. During full Project preparation, measures will be undertaken to ensure full compliance with relevant national requirements and standards as needed.

- The Water Law (2008) which puts in place the use, conservation, protection and management of water resources and is implemented through the Water Resources Management Master Plan. Rwanda's Water Law provides that water

is a public good, and responsibility for its proper use and protection is the responsibility of the state, the private sector, civil society and the citizens. The water law recognizes principles such as protecting water resources from pollution, requiring water users and water polluters to pay, using water user associations, and providing for the public distribution of water.

- The Forestry Law (2008) which is implemented through the Forestry Master Plan by the National Forestry Authority. The strategy provides for the participation of all key stakeholders in forestry at various levels (national, district and community) in decision-making and explicitly promotes the adoption of agro-forestry. All interventions in the forest sector must also be geared towards improvement of livelihoods and fighting poverty.

The above Laws and Ministerial Orders are formulated within MINRENA and MINALOC, line Ministries that have been involved in the project design and will be responsible for or closely involved with implementation. The Project will comply with all Ministerial Orders relating to implementation.

Specific provisions that apply to *imidugudu* development under Ministerial Order No MINITRAP/01/1997 (Annex 17) that are relevant to this project include:

- "The only acceptable way of people living in rural areas is by living in Grouped Settlements *Imidugudu*
- Rwandans are allocated plots of land within the *Imidugudu*, and its prohibited to build outside the designated *Imidugudu* sites"
- The number of households in *imudugudu* site should be between 100 to 200 households.
- The selected *Imudugudu* site should not be suitable for agriculture
- The selected *Imudugudu* site should neither be in a hilly, slope or swampy area
- Between each household to another, there should be a distance of 8-10m
- The recommended houses in *Imidugudu* should have an area of 42 square metres, that is to say a 3 bed roomed house and a sitting room.
- The main house should also have a kitchen and a store of an area equal to 12 and 6 sq meters respectively
- There should also be a toilet with an area of 4 sq metres which is 12-20 meters deep.
- The main house should have a foundation between 40-80 cm with a width of 40cm.
- Construction materials can either be burnt bricks or mud blocks depending on the geographical area.
- The Government of Rwanda is currently encouraging use of tiles in roofing of houses in settlement sites because of their durability.

The following list comprises the existing legislation that relates to Land and resettlement issues in Rwanda:

- The Rwandan Constitution, promulgated in 2003;
- Organic Land law N0 08/2005 of 14/07/2005 determining the use and management of land in Rwanda;
- Organic law determining legislation around environmental management and protection;
- Land Valuation Law promulgated in 2007;
- Land Expropriation Law promulgated N0 18/2007 of 19/04/2007;
- Presidential Order N° 54/01 of 12/10/2006 determining the structure, the responsibilities, the functioning and the composition of Land Commissions; and
- Ministerial Order N° 001/2006 of 26/09/2006 determining the structure of Land Registers, the responsibilities and the functioning of the District Land Bureau.

Rwanda has been widely recognized as a country with a successful record of implementing polices and other legislative mechanisms in place. The Organic Land Law recognizes existing rights, whether written or unwritten, under both civil law and customary practices through new national land tenure arrangements. Rural populations with customary/indigenous land rights are being encouraged to register their land through decentralized land institutions like the District Land Bureau, Sector Land Committees and Cell Land Committees (Ministerial Order N° 001/2006 of 26/09/2006 determining the structure of Land Registers, the responsibilities and the functioning of the District Land Bureau).

Private property, whether individually or collectively owned is inviolable in Rwanda. Exceptionally, the right to property may be overruled in the case of public interest. In these cases, circumstances and procedures are determined by the law and subject to fair and prior compensation (Article 29). Eligibility for compensation is enshrined under the Rwandan constitution (Article 29) and the Expropriation Law. The two laws regulate and give entitlement to those affected, whether or not they have written customary or formal tenure rights. The person to be expropriated is defined under article 2 (7) of the Expropriation Law to mean any person or legal entity who is to have his or her private property transferred due to public interest, in which case they shall be legally entitled to payment of compensation. Article 4 of this law also stipulates that any project which results in the need for expropriation for public interest shall provide for all just compensation in its budget.

Article 22 (2) of the of the Expropriation Law provides that through an agreement between the person to expropriate and the one to be expropriated, just compensation may either be monetary, alternative land or a building equivalent as long as either option equates to fair and just monetary compensation. The valuation is made considering the size, nature and location of land as well as the prevailing market price. The amount of compensation for property is determined on the basis of the replacement cost of the property. The Land Valuation Bureau is responsible for undertaking valuation of all assets affected by expropriation and is considered to be independent from the government. MINELA provides relevant land assessments and information on price differentials according to the location of land to be expropriated, which will form the basis upon which fair and just compensation is to be calculated.

The law provides for public sensitization on the importance of the project to be established and the need for expropriation. This requires prior consultative meetings. The Land Use Master Plan should be referred and a survey conducted in order to get a comprehensive description of the activities/items on that land as well as the list of beneficiaries of activities on that land.

After the survey process is completed and approved by LVEMP II /PCT[58], parties must sign a contract detailing the objective of expropriation, the value of compensation and the payment method and schedule. The contract serves as a documentary evidence of the full consent of all parties to the rights and obligations as well as procedures enshrined therein. They bind the parties to it and the contractual provisions become the law between the parties.

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

The Government of Rwanda has prioritised integrated water/land management in several of its national policies and strategies. Hence there are number of on- going initiatives that the project will coordinate its activities with. The proposed Project is fully aligned with and aimed at complementing and scaling up the on-going efforts by the Government of Rwanda.

The Government has an ongoing programme to foster resettlement of the population in planned developments (*imidugudus*) to consolidate and intensify agricultural production, promote reconciliation and facilitate cost-effective improved access to basic services (health, education, electricity, water etc.). In particular, the 2792 households to be resettled from high-risk areas across the 7 sectors will benefit from the alternative livelihood support provided under Component 2. The proposed project will also benefit from the on-going resettlement efforts (as it will contribute to reducing over-cultivation marginal lands) and will complement them by directly financing resettled communities with job creation, skills training, and provision of initial capital for alternative livelihoods.

The project also compliments a reforestation support program (Gishwati Reforestation Projectalso known by PAREF - its French acronym) whichis carrying outthereforestation of public lands, reconversion of degraded public forests, and agro-forestry. The project was started in 2012 by MINIRENA in partnership with MINADEF through the Reserve Force and operates in Musanze, Nyabihu, and Rubavu as well as 12 other districts in Rwanda. In Gishwati, the project has restored over 3,000 hectares by planting trees as well as relocation 400 families who will be supported under the alternative livelihood component of the proposed Adaptation Fund project. The proposed project will also draw lessons from the relevant components of Gishwati Reforestation Project.

MINIRENA has developed a national land use master plan and local land use plans are currently being developed and will guide the land zoning process in the improved

[58] Resettlement Policy Framework and Process Framework for LVEMP II

land/water management interventions. These land use plans will also include an assessment of soil suitability for different crops to guide planting regimes and fertiliser application so will feed into the project's adaptation planning and promotion of climate resilient crop and livestock production systems.

MINAGRI[59]and the Ministry of Local Government are implementing aLand and Water Management Projectthrough the Rwanda Agricultural Board in the Gishwatiarea which is upstream of the target area. The Government funded Gishwati Land and Water Management Project (with a budget of US26 million over 3 years until 2014) aims to improve land productivity and reduce erosion (with bench terracing and improved land husbandry) as well as increase forest cover and ecosystem restoration in the Gishwati Forest Ecosystem (in Nyabihu and Rubavu districts). This presents an opportunity to learn from this intervention and review project outcomes prior to implementation of the proposed project. The project is under MINAGRI and implemented through the Task Force of Irrigation and Mechanization. The project operates in Rubavu District (in Kanama,Kanzenze and Nyakiriba Sectors) and in Nyabihu District (in Bigogwe,Rambura,Karago and Jenda Sectors) adjacent to Gishwati forest.

There is also a collaborative project (US$1.25 million over 4 years from 2010 to 2014) between RAB and REMA supported through the Least Developed Country Fund which promotes soil conservation and improved resource management (reforestation, radical terracing, horticulture and agroforestry) including the restoration of ecosystem functions to Karago Lake. There is a direct overlap with this project since it operates in 2 sectors of Nyabihu (Karago and Rambura) and the proposed project will draw on lessons learned and build on the experience gained to date.

There are also three UNEP/GEF projects that are relevant:

a) Reducing Vulnerability to Climate Change by Establishing Early Warning and Disaster Preparedness Systems / Support for Integrated Watershed Management in Flood Prone Areas

This project is executed by the REMA and aims to reduce the vulnerability of communities in the Gishwati forest and the associated Congo-Nile watershed area to climate change impacts. Specifically, the project aims to: (i) prepare an early warning and disaster management plan for the Gishwati forest and the Congo-Nile watershed; (ii) produce a land use master plan for climate resilience; (iii) introduce improved land use management practices; and (iv) distribute the lessons learned from pilot areas to the rest of the country.

The main outputs include: an Early Warning System (EWS) established in Gishwati area, climate change risks incorporated into District development planning; and good practices to reduce vulnerability promoted among communities in the project areas. The main components of this project are based on developing an early warning system and

[59] key institution for soil and water conservation in agriculture at a policy level

capacity building. Predicting the climate is the first stage but follow on interventions are also needed to support mitigation and adaptation. The proposed project by including adaptation measures such as flood control through integrated water resources and land management will complement rather than duplicate the existing interventions.

The GEF/UNEP project intervention area includes the four districts bordering the Gishwati forest, identified through the NAPA process as being among the most vulnerable to climate change impacts. These include 2 of the sectors in Nyabihu District where the proposed project will operate Bigogwe and Karago. Even in these sectors, there has been a deliberate identification and selection of cells (one administrative level below the sector) for the current project in a way to avoid overlap and duplication by including a field worker who is involved in the implementation of this GEF/UNEP project in this project design. The proposed project will operate in these and sectors to the East of the ongoing intervention so it will be ideally positioned to capture the benefits and lessons learned from this project before it ends in 2014. In the two overlapping sectors, there is an opportunity to learn from the ongoing project and build on the improved land use management practices and other climate change adaptation approaches that have been piloted by the project.

b) Landscape Approach to Forest Restoration and Conservation (LAFREC)

This project will introduce and implement landscape restoration management plans and develop risk and vulnerability assessments for the Gishwati forest area (4 districts including Nyabihu but the sectors have not yet been identified[60]). The project will also support infrastructure measures and the restoration of marshlands and river basins along with improved Water management practices. There is also provision for the support of alternative energy sources and the adoption of sustainable and alternative agricultural practices and livelihoods including Climate resilient agricultural and livestock practices in the target areas.

This project (above) once underway, will complement and benefit the project under design as most of its activities are upstream of the project area. As the two project designs are both being carried out by the Environment and Natural Resources Sector, there is limited scope for duplication and the design teams will collaborate to ensure that the projects do not operate in the same geographic areas. The selection of the specific locations and activities for implementation will seek complementarity and synergies with the current project and avoidance of duplication.

c) Building resilience of communities living in degraded forests, savannahs and wetlands of Rwanda through an ecosystem management approach

This project has 3 components: (1) local and national institutional capacity development for an ecosystem management approach to adaptation; (2) strengthening the policy and

[60] Potential areas for project intervention include the margins and slopes around the Bugesera wetland, as well as degraded micro-watersheds in the critically degraded Kadahokwa microwatershed – a tributary of the Nyabarongo river.

strategy environment to promote the up-scaling of an ecosystem management approach to adaptation in Rwanda; and (3) Interventions that reduce vulnerability and restore natural capital. The project targets 3 ecosystems: savannahs in East Rwanda and degraded forests and wetlands in North West Rwanda. Under the third component, the project will establish biodiversity-rich ecosystems, reduce erosion and regulate water flow; as well as develop and promote alternative livelihoods based on the restored ecosystems. The specific locations for project interventions have not yet been decided and (as above) if this project is approved, site selection will be co-ordinated with the design team to avoid overlap in working intervention areas. This will be relatively straight forward since the project comes under MINIRENA, REMA and MINAGRI.

The fact that all these interventions are focused on the North West area of Rwanda sends a clear message in regard to the severity of the climate change related challenges in the area and therefore the need to ensure and enhance synergistic and complementary national efforts to addressing vulnerability of the communities in the area to climate change impacts. The Adaptation Fund therefore adds significant value and comes at the right moment to reinforce the national efforts towards addressing climate change issues in the vulnerable North-Western region of Rwanda.

There is also an ongoing small scale project to install water breaks in some of the rivers running down from the Volcanoes to reduce the velocity and downstream impacts of high rainfall (supported by the Prime Minister's Office). Again the project can build on this experience and consolidate gains in ecosystem services where appropriate.

The proposed Adaptation Fund project is a natural extension and continuation of the interventions in the upstream Gishwati forest area and Karago and Rambura sectors of Nyabihu district. By scaling up improved land and water management regimes beyond the Gishwati Forest to downstream areas, the project can build on this experience and reinforce ongoing watershed restoration activities which are currently under-funded. There is also potential for collaboration with a nationwideFarmer Field School Programme which promotes Integrated Pest Management and is being implemented by the RAB.

The Government of Rwanda has also signed an MOU with the United Nations Economic Commissions of Africa/ACPC in 2012 which has committed to support Integrated Water Resources Management Development (IWRMD) through the Rwanda Natural Resources Authority for the development and implementation of the African Climate Policy Centre work programme in the following areas:

- Improve the hydrological data network, management and information system of Rwanda
- Analysis of risk and vulnerability
- Establishing a community based flood early warning system
- Capacity Development

Support for these interventions begins in 2013 and runs through to 2015. The Results of the risk and vulnerability assessment will help to identify the most vulnerable communities and necessary interventions not only to manage disaster but also enhance adaptation capacities.

The project will also collaborate with a GEF project implemented through UNEP and UNDP on integrated watershed management with Early Warning and disaster preparedness componentswhich is being developed and if approved will be piloted in Gishwati.

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

One of the key activities of the Project is that of climate change education and awareness raising as it relates to vulnerable upland ecosystems in North West Rwanda. Building awareness raisingon the value of preserving ecosystem services and reducing the impacts of climate change will take place through consultations, awareness campaigns, and direct involvement in the integrated land and water management activities.

Lessons will be captured primarily through the Monitoring and Evaluation system which will provide regular monitoring of project indicators, as well as progress against the key milestones. The project will promote Participatory Monitoring and Evaluation System so that, as much as possible, the results of climate adaptation approaches will be measured, processed and evaluated by the communities involved. As well as enabling project participants to use the information to modify approaches as they go, this approach will also build the capacity of local communities to adapt to future climate trends and shocks. In addition to the routine monitoring of indicators, the project will also collect case studies under each component to drill down into specific innovations and practices that arise due to project interventions.

The lessons will be disseminated through farmer-to-farmer fora (cross visits, community meetings etc.), enterprise development meetings, participatory videos to showcase local experiences, techniques and achievements, and directly transmit messages to decision makers and donors, project reports and briefing notes, a project website, as well as mass media outlets (newspapers, radio etc.) to promote a wider understanding of the issues and the secondary uptake of successful approaches.

A lesson learning exercise will also be included at the mid-term of project implementation and at project completion. During this process significant new understandings will be catalogued and used to build the knowledge base of best practices as well as document where project implementation has resulted in unexpected impacts or investigate approaches that have not worked and why.

Lessons learned will include detailed, specific information about behaviours, attitudes, approaches, that will inform project implementation and other interventions.

The knowledge acquired under this project will enhance that of other projects or initiatives funded by the GEF/UNEP and other donors in the areas of sustainable natural resource management, environmental protection and climate change. Lessons learnt as well as knowledge acquired will inform project annual reports, completion reports and performance evaluation reports. The reports as well as recommendations will be incorporated into project activities to improve the performance of the project.

Dissemination of lessons will also take place under the capacity building component (no 3) where peer influence and learning will be used to learn from other local governments and projects working on climate adaptation as well as to motivate other government departments to support climate adaptation. The project will also facilitate the emergence of "adaptation champions" among local community leaders and senior officials at the local and national levels. The project will also engage experts and private sector stakeholders to become involved in the adaptation planning processes.

During the preparation of the full proposal a full review of relevant studieswill be conducted and lessons learned and good practices from other related projects and initiatives will be compiled so that these can be incorporated into the project design.

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

A wide range of stakeholders, particularly local communities, have been consulted during preparation of the project concept. The consultations will intensify during the development of the full proposaland a plan will be developed to communicate and consult with stakeholders throughout the lifetime of the projectat this stage also.

A series of consultations with key stakeholders was held in Kigali, Nyabihu and Musanze districts between 7th and 23rd January to solicit viewpoints and to better understand the problem, it's root causes and potential interventions that would achieve greater resilience to climate change shocks in North West Rwanda.

The techniques used included Town Hall style meetings with local administrators and community members, Focus Group Discussions, structured interviews and transect walks with farmers. The Town Hall Meetings were structured around 4 areas:

- Perceptions and awareness of climate change and how it is affecting rural livelihoods;
- Problem identification: climate change (rainfall variability), erosion, declining yields, sedimentation and water-logging and flooding, diversion of scarce resources into flood response and rehabilitation.
- Root causes/ contributing factors to the problems identified: unsustainable farming practices, unplanned settlement, fragile soils, topography, complex hydrology, lack of alternative livelihoods, lack of electricity, poorly developed markets.
- Potential solutions to the problem: erosion control, reforestation, agro-forestry, rain-water harvesting, improved water management and storm water control, development of decentralised renewable energy supply, support for off-farm jobs and enterprise development.

A list of stakeholders consulted during this exercisecan be found in Annex 1.These include representatives of all the relevant line Ministries (MINAGRI, MINRENA, REMA, RAB, RNRA, EWASA and MINALOC), community leaders, District, Sector and Cell levelGovernment representatives, local groups (including a women's marketing co-operative and local farmers) as well as representatives from local civil society organisations (including local Pasteurs) and international NGOs (CARE and WCS). These stakeholders will continue to be consulted throughout the design process, implementation and monitoring and evaluation of the project.

A more in depth consultation process will be carried out during development of the full proposal (it is anticipated that this will be funded by a Project Formulation Grant). This will entail detailed field surveys, structured interviews and focus group discussions with vulnerable groups and other stakeholders,round table discussions and resource mapping. The role of agricultural institute will further build on the opportunities for knowledge management. The Meteorology department is building capacity for climate change surveillance that has the potential to support local communities to apply and integrate local knowledge in climate surveillance and early warning systems in a way that reinforces the resilience of communities against climate change effects.

A gender analysis will be incorporated into the Full Proposal development to ensure that there is a good understanding of gender roles, and a disaggregation of women's and men's specific interests, needs, and priorities as they relate to the project. The analysis also will explain how climate change affects women and men in different ways and ensure that gender sensitive approaches are incorporated in the project design and gender disaggregated indicators integrated into the project framework to ensure gender parity in the distribution of project benefits.

The Government's gender policy clearly states the integration process of gender related issues in all development sectors in order to promote gender equity and equality. There are significant number of projects that have been implemented at the national levels that have demonstrated benefits of gender sensitivity as a project

beneficiary selection criteria. It is clearly evident from implementing Poverty and Environment Initiative (PEI) and Decentralized Environment Management Project[61] (DEMP) that women and children (particularly school age) comprise a community segment that derive benefits from water harvesting and biogas programmes. These are some of the climate adaptation strategies that this project will promote. Some of the benefits include reducing the distance women and children travel to fetch water and fuel wood as well as reducing exposure to indoor smoke pollution.

Moreover, it is worth noting that the project will operate in a progressive policy environment where there is strong political support for empowerment of women in Rwandan society through the constitution, national law (for example the Land Law which was reformed to provide secure land tenure for women) and a number of other ongoing initiatives.

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

Current interventions are insufficient to adequately address Rwanda's adaptation gap particularly in North West Rwanda where climate threats present a serious drain on resources (i.e. the cost of responding to floods and landslides). This area of Rwanda is important to national food security and hence the achievement of MDG 1 and avoidance of hunger. The cost of addressing these climate threats increases as time progresses due to the cumulative impacts of climate change and anthropogenic stressors (population growth, unsustainable farming practices etc.).

Building adaptation capacity now avoids future costs incurred from continued increasing pressure on natural resources and future climate variability. Continued soil erosion and over-cultivation on ever diminishing plots of land, left unchecked will lead to major declines in agricultural productivity and food insecurity in a country that already faces many related development challenges including addressing high levels of moderate to severe levels of malnutrition. This will leave local communities exposed to declining incomes, food shortages, flooding and landslides while finite Government resources become increasingly diverted into flood response and rehabilitation activities.

The proposed project specifically addresses climate adaptation measures proposed in Rwanda's Second National Communication, theNational Adaptation Programme

[61] The government's Decentralisation and Environmental Management Project which runs from 2009 to 2013, is implemented by Rwanda Environment Management Authority (REMA) with support of the United Nations Development Program (UNDP). The project is designed to strengthen the capacity of REMA and adopt collaborative planning and management of Lake Kivu watersheds and associated riverbanks. The project has planted vegetation on about 80% of the shoreline of Lake Kivu and riverbanks feeding the lake. The project has also provided households with improved cooking-stoves, introduced rainwater harvesting and runoff-control technologies, and designed a resettlement program for people living within 50 meters of Lake Kivu's shoreline.

of Action, Rwanda's Vision 2020 and the 7-Year Government Plan. It is also aligned closely with the Water Policy, National Agriculture Plan and the Forest Policy.

The financing from the Adaptation Fund would be used to ensure ecosystem services are restored and that farmers are equipped with the knowledge and resources necessary to adopt climate resilient cropping strategies that minimise their exposure to climate threats. The project will also secure alternative livelihoods and diversifythe economic activities of local communities whodepend onfarming and are vulnerableto climate change. These interventionswould significantly reduce the anthropogenic stresses on the uplandecosystems that exacerbate the impacts of climate change.

Finally, building capacity of local institutions to plan and implement climate resilient land and water management regimes and scale up effective adaptation strategies at the national and local levels specifically addresses capacity shortfalls identified at the local level. This is a specific aim of the Government's Decentralised Governance and Service Delivery Policy. It also enhances the sustainability of the project.

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

The current approach to flood risk management in Rwanda is largely reactive, with costly response and rehabilitation absorbing significant resources from stretched Government funds.The government allocates some funds for structural flood and flash flood prevention measures but these are often inadequate and the structures require constant maintenance due to high sediment loads in rivers and drainage channels. Investment in improved and integrated land and water management regimes to reduce erosion is expected to significantly reduce these sediment loads, reduce maintenance costs and lessen the impact of flooding in the project area.

By supporting adaptation measures that address the factors that are exacerbating the impacts of increasing variation in rainfall and increasing the resilience to long-term climate change risks, the proposed project provides a longer-term, more sustainable solution.

The participatory approach will root ownership of the project interventions firmly in the local communities. By engaging communities in the design and implementation of the project and creating local employment and enterprise development schemes, the project will empower and build capacity of local people to continue adapting to climate change risks.Adaptation plans will be incorporated into District Performance Contracts to institutionalise and sustain community interventions.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Describe the arrangements for project / programme implementation.

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

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.

D. Include a results framework for the project proposal, including milestones, targets and indicators and sex-disaggregate targets and indicators, as appropriate. The project or programme 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[62].

E. 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.

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

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

A. RECORD OF ENDORSEMENT ON BEHALF OF THE GOVERNMENT[63] *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:*

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

[62] 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].

[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.

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 (……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/programme.	
Name & Signature Implementing Entity Coordinator	
Date: *(Month, Day, Year)*	Tel. and email:
Project Contact Person:	
Tel. And Email:	

Annex 1: List of stakeholders

Design team

1. Patrick NSABIMANA, Field Environmentalist, REMA / SPIU
2. Eng.InnocentMusabyimana, Director of Planning,M&E, Ministry of Natural Resources (MINIRENA)François-Xavier TETERO,MSc, Watersheds Management Coordinator, Rwanda Natural Resources Authority
3. BizimanaJean de Dieu, Monitoring and Evaluation Expert, Ministry of Natural Resources (MINIRENA)
4. Alex Mulisa, Co-ordinator, Fund Management Team (FMT), Rwanda Environment and Climate Change Fund (FONERWA)
5. Alphonse MUTABAZI (Mr.), Climate Change Program Manager, Rwanda Environment Management Authority
6. Richard, M&E Co-orindator, Fund Management Team (FMT), Rwanda Environment and Climate Change Fund (FONERWA
7. ImmaculéeUwimana, Climate Change Mitigation Officer, Rwanda Environment Management Authority,Department of Climate Change and International Obligations
8. Debbie Caldwell, Consultant

List of people consulted

1. Meeting with 80 people from Busogo sector of Musanze District
2. Meeting with 90 people from ** sector of Nyabihu District
3. Dr Suresh Kumar Nande, Senior Lecturer, Higher Institute of Agriculture and Animal Husbandry, Busogo, Musanze
4. Project Manager, WASH, WASA, Musanze
5. Farm labourers, Mugogo, Musanze
6. Women's marketing co-operative, Musanze
7. Youth, River Nyamukongoro, Nyabihu
8. Kampayana Augustine, Chairman of Rural Settlement, MINALOC
9. Frank KAGAME, M&E Expert, Rural Settlement Task Force, Ministry of Local Government
10. MartinNsengiysmua, Civil Engineer, Focal Point for Disaster Management, MINALOC
11. TelesforNdabamyl, Deputy Director General, Soil Erosion Control, Rwanda Agriculture Board.
12. Jean Claud, TF MINAGRI
13. Madeleine Nyiratuza, Project Manager, Monitoring Ecosystem Services, Agriculture and Livelihoods in Rwanda, Wildlife Conservation Society (WCS) and President of Forest of Hope Association (FHA)
14. Matt Bannerman, Country Director, CARE Rwanda

Annex 2: Some photographs of the stakeholder consultation






REPUBLIC OF RWANDA

Kigali, on...31 JAN 2013

Ref..0.1161.16.03

MINISTRY OF NATURAL RESOURCES

P.O.BOX 3502 KIGALI

RE: IMPLEMENTING ENTITY CERTIFICATION

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 (Vision 2020, EDPRSII, NAPA, National Green Growth Strategy) 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.

Caroline KAYONGA Implementing Entity Coordinator	
Date: *January 28th 2013*	Tel. and email: +250788304816; ckayonga@minirena.gov.rw and ckrwiva@yahoo.com
Project Contact Person: Innocent MUSABYIMANA	
Tel. And Email: +250788849234; musasebin2000@yahoo.fr	

C. Kayonga

Caroline KAYONGA
Permanent Secretary and
NIE Focal Person

ADAPTATION FUND

RE: Letter of Endorsement by Government of Rwanda

Date: 31 JAN 2013

0115/16.03

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

Subject: Endorsement for a Project: REDUCING VULNERABILITY TO CLIMATE CHANGE IN NORTH WEST RWANDA THROUGH COMMUNITY BASED ADAPTATION

In my capacity as designated authority for the Adaptation Fund in Rwanda; I confirm that the above selected national project proposal is in accordance with the government's select national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the North West Region of our Country.

Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by Ministry of Natural Resources (MINIRENA) and executed by Rwanda Natural Resources Authority (RNRA).

Sincerely,

C. Kayonga

Caroline KAYONGA
Permanent Secretary
Ministry of Natural Resources (MINIRENA)

ADAPTATION FUND

Project Formulation Grant (PFG)

Submission Date: 30 January 2013

Adaptation Fund Project ID:
Country/ies: **Rwanda**
Title of Project/Programme: **REDUCING VULNERABILITY TO CLIMATE CHANGE IN NORTH WEST RWANDA THROUGH COMMUNITY BASED ADAPTATION**
Type of IE (NIE/MIE): National Implementing Entity/**Public Institution**
Implementing Entity: **Ministry of Natural Resources (MINIRENA)**
Executing Entity/ies: **Rwanda Natural Resources Authority (RNRA)**

A. Project Preparation Timeframe

Start date of PFG	**6 April**
Completion date of PFG	**Submission date for Full Proposal**

B. Proposed Project Preparation Activities ($)

Describe the PFG activities and justifications:

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount
Comprehensive stakeholder consultation - Stakeholder mapping - Community meetings - Focus Group Discussions with community sub-groups - Structured interviews Includes data collection, mapping, and analysis. Budget covers consultant fees and accommodation and travel for consultant, field workers, venue facilities, refreshments and refund tickets for the participants.	Stakeholder's knowledge, experience and viewpoints fed into project design	6,000
Livelihoods survey of vulnerable households. Assessment of community based adaptive capacity[1]: - existing asset base[2] - existing livelihood strategies and available economic opportunities - drivers of livelihood vulnerability - local coping strategies - access to climate information - gender dimensions[3]	Detailed understanding of vulnerability context (shocks, trends, seasonality), livelihood assets, structures and processes, existing livelihood strategies and livelihood outcomes.	9,000

1 Adaptive capacity is what enables those affected by climate change to make choices and decisions, which allow them to continue to realise sustainable development and reduce and spread risks in the face of continuous change and uncertainty (CARE PMERL Manual, 2012).
2 Availability of key assets that enable the system to respond

- institutional issues and enabling environment [4] Budget covers consultant fees and accommodation and travel for consultant and field workers.		
Lesson learning from ongoing and recently completed projects - review of project documents - meetings with project staff - field visits and discussions with beneficiaries Budget covers consultant fees and accommodation and travel for consultant and field workers.	Experience of pervious projects built into project design.	7,000
Project Design Validation - workshops and meetings with key stakeholders Budget covers consultant fees and accommodation and travel for consultant, field workers venue facilities, refreshments and refund tickets for the participants.	Project design is viable, appropriate to local conditions and accepted by all stakeholders.	3,000
Preparation of Full proposal - integration of surveys and investigations (above) into Full Proposal - completion of Part III (implementation) and budget Budget covers consultant fees and accommodation and travel for consultant and field workers	Project document contains all the necessary information and analysis in line with AF funding guidelines	5,000
Total Project Formulation Grant (PFG)		**30,000**

C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Caroline KAYONGA		22 FEB 2013	Eng. Innocent MUSABYIMANA	+250788849234	musasebin2000@yahoo.fr

3 Distribution of resources, benefits and responsibilities between women and men, boys and girls as well as rights, roles, opportunities for women and men

4 Existence of institutions and systems to support adaptation and an enabling environment that fosters innovation to take advantage of opportunities