



ADAPTATION FUND

**REQUEST FROM RWANDA FOR PROJECT FUNDING
FROM ADAPTATION FUND**

FINAL DRAFT

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

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PROJECT/PROGRAMME PROPOSAL

PART I: PROJECT/PROGRAMME INFORMATION

| | |
|--------------------------------|--|
| PROJECT CATEGORY: | REGULAR PROJECT |
| COUNTRY: | RWANDA |
| SECTOR/S: | |
| TITLE OF PROJECT: | 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: | RWANDA NATURAL RESOURCES AUTHORITY (RNRA) |
| AMOUNT OF FINANCING REQUESTED: | 9,969,619 (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 520¹). The number of people living below the national poverty line has reduced from 57% in 2000/2001 to 45% in 2011². However, significant challenges remain particularly around food security, as illustrated by a national health survey in 2010 which showed that the rate

¹ World Bank national accounts data, 2010

² EICV

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 out³.

Rwanda is a predominantly agrarian economy with approximately 74% of the population residing in rural areas and agriculture providing around 36% of GDP and 80% of employment in Rwanda⁴. 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 becoming food 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 Programme⁵.

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 implementing improved 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 climate⁶ due to its relatively high elevation and is one of Africa's most biologically diverse countries with Montane rain forest and 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 the Volcanoes Mountain Gorilla (*Gorilla beringei beringei*), a highly endangered subspecies existing only in the Virunga Conservation Area encompassing the North West border regions of Rwanda, Democratic Republic of Congo and Uganda. Nearly 70% of gorillas living in the Virunga range are located within Rwanda's borders.

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

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 16°C and 20°C though temperatures are much lower than this in the mountainous regions.

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 density⁷ (deriving from natural increase and from the repatriation of Rwandans displaced during the massacres in 1959 and the genocide in 1994) combined with its 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 land⁸. 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 terrain⁹ has led to serious environmental degradation due to overexploitation of the soil and extensive erosion¹⁰ 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 which has translated into 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 equivalent¹¹. The farmed Northern and Western uplands of Rwanda, important for potato and bean production, 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 Gishwati forest which was extensively deforested with serious consequences associated with land degradation including landslides and floods in the proposed project 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

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.

The climate in Rwanda is complex with wide variations across the country and strong seasonality. The annual average temperature of Rwanda is 18°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 from 13°C to 20°C.

Recent analysis of rainfall trends¹² for Rwanda show 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 between 1991 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 has been 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 fell in one day on 22nd July 2001 resulting in heavy floods. Rainfall in Rwanda has 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).

¹² Rwanda Country Situational Analysis - Alphonse Mutabazi

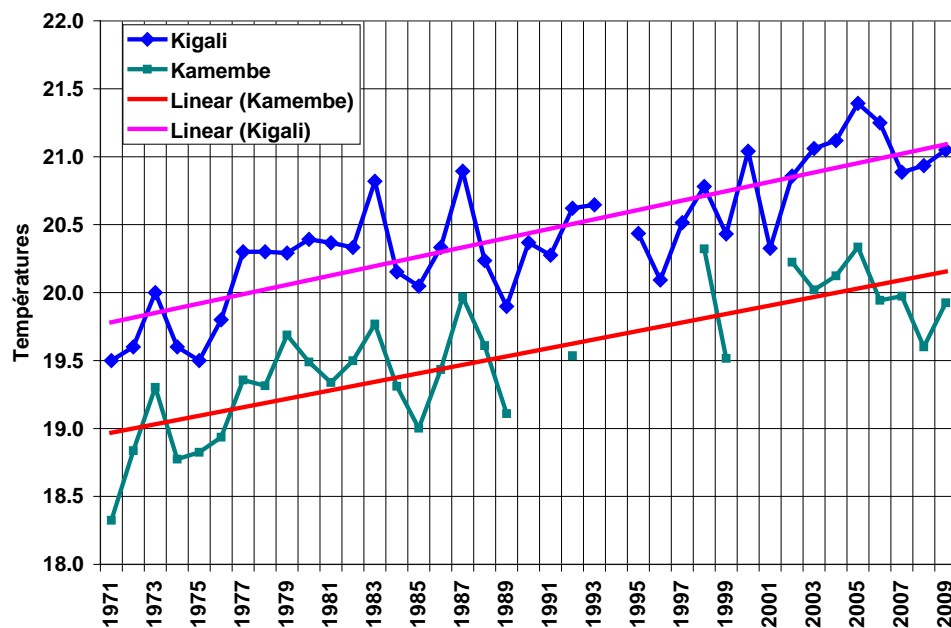


Figure 1: Variation in annual average temperatures (°C) at Kigali and Kamembe stations

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 models¹³ predict an increase in minimum, average and maximum temperatures with an increasing number of warm days exceeding 30°C¹⁴ 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 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 uncertain¹⁶. 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

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

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)

spells in the rainy seasons and an increase in the frequency of torrential rain with daily rainfall sometimes exceeding the total monthly rainfall leading 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 seasons creating a greater flood risk¹⁷.

Model¹⁸ 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-sloping hills 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 slopes in 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 soils¹⁹ 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 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 experiences a 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 more vulnerable 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: Nyabihu and Musanze which 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 project

¹⁷ Stockholm 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.

²⁰ Second National Communication

will cover approximately 400km² and extends across 8 sectors from: Busogo sector of Musanze district through Rambura, Jenda, Mukamira, Karago, Jomba, Kintobo and Rurembo sectors in Nyabihu district (see Figure 2).

The area 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 for 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 target 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. It is also one of the most densely populated areas of Rwanda with around 700 people per square kilometre. There are an estimated 38,266 households in the project area.

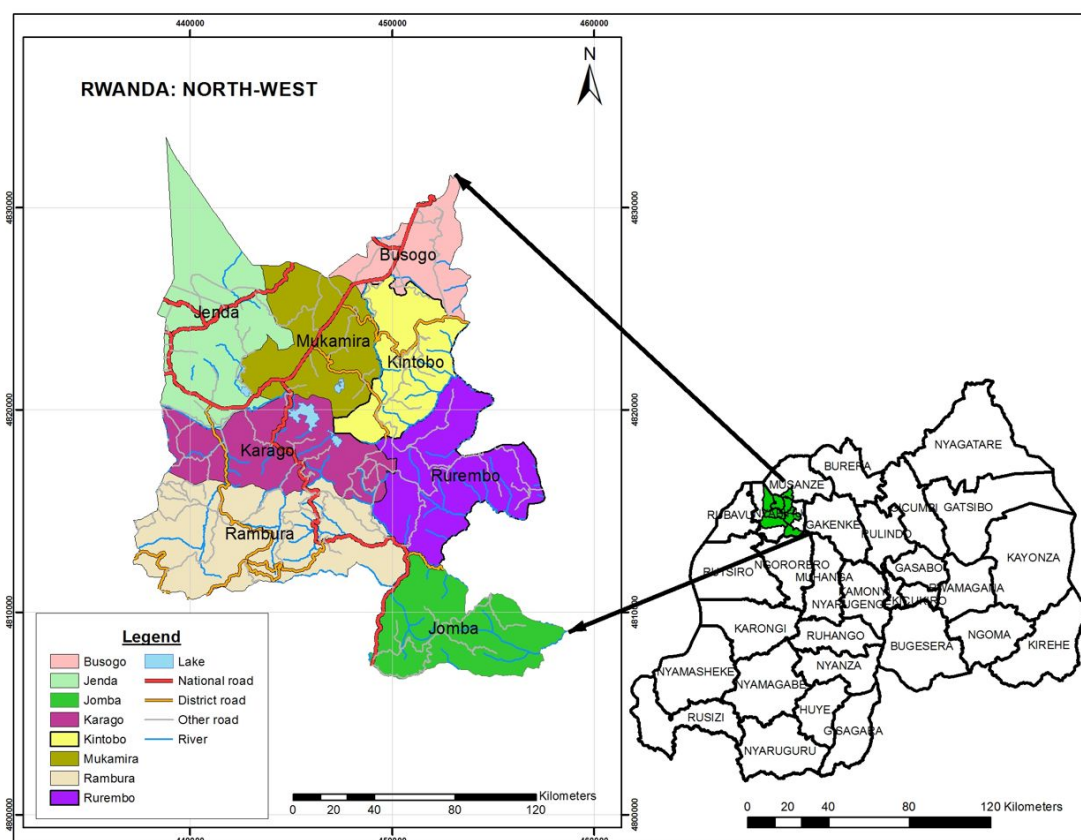


Figure 2: Map of Rwanda showing project area

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 than 0.5 ha. Around 11% of the population in the target area are classified as extreme poor and 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 (Km ²) | 535 | 530 |
| Population | 330,000 | 416,000 |
| Population density (Inhabitants/ km ²) | 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 |
| % HH experiencing destructive rains | 6 | 9 |
| % HH living in <i>Imidigudus</i> (planned settlements) | 21 | 26 |
| % population who are poor (excluding extreme poor) | 17 | 14 |
| % population who are extreme poor | 12 | 6 |

| | Nyabihu | Musanze |
|--|---------|---------|
| % 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 districts have 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 modelling²²

| | 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 soils²³ 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 three cash crops tea, coffee 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 and includes 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 risk²⁴ 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 living in *imidugudus* by 2011 and 2020 respectively. Currently an estimated 72% of the rural population lives in *imidugudus*.

Table 3: Households located in high risk areas in the project area²⁶

| District | Total no of HH | No. of HH in high risk area | No. of HH re-settled | No of HH remaining |
|----------------------------------|----------------|-----------------------------|----------------------|--------------------|
| Rambura | 5841 | 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 |
| Kintobo | 3376 | | | |
| Nyabihu total | 34,638 | 2629 | 167 | 2,462 |
| Busogo | 803 | 163 | 7 | 156 |
| Musanze total | | 1117 | 154 | 963 |
| Total Nyabihu and Musanze | 38,266 | 2,792 | 174 | 2,618 |

1.5 Impacts of climate change in North-Western Rwanda

1.5.1 Extent and impact of flooding and landslides in project area

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 hazards due to the steep sloping terrain (see Figure 3).

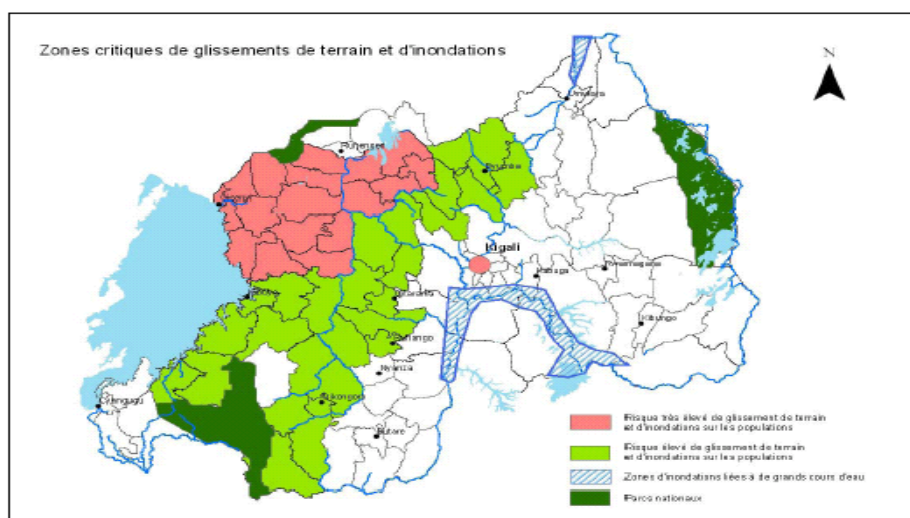


Figure 3: Areas prone to flooding and landslides

²⁶ MINALOC records, 2012

The mountainous terrain coupled with the natural fragility of the volcanic soils and a loss of ecosystem services²⁷ 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 valleys which 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 | <ul style="list-style-type: none"> death of 42 persons collapsed houses: 1,244 destructured 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 with erosion and landslides | <ul style="list-style-type: none"> deaths: 66 people collapsed houses: 1,929 destructured 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 | <ul style="list-style-type: none"> 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 Rambura (Nyabihu district) and Kanzenze (Rubavu district) respectively in the Northern and Western Provinces. | September 12, 2007 |
| Floods | <ul style="list-style-type: none"> 217 households destroyed by flooding | Busogo sector in Musanze District, NW Rwanda | 2007 |
| Floods | <ul style="list-style-type: none"> Rwandan Red Cross assisted more than 5,820 | Nyabihu, Rubavu, Musanze, Kayonza, Kirehe, Ngoma and Rwamagana districts | 2006-2008 |
| Heavy rains, floods and winds | <ul style="list-style-type: none"> 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 | 12 sectors of Rubavu District: Gisenyi, Rubavu, Rugerero, Nyamyumba, Nyundo, Cyanzarwe, Nyakiriba and Kanama. | Sept. 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) |
|----------|---|---|----------------|
| | partially destroyed. | | |
| Floods | <ul style="list-style-type: none"> 73 families requiring relief following floods | Busogo Sector in Musanze District | May 2010 |
| Floods | <ul style="list-style-type: none"> 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: Rambura, 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 Rambura, Nyabihu District, on 12th September 2007

Of the recorded seven major floods since 1963, five have occurred between 1998-2008²⁸ and since then there have two more major floods in 2010 and 2012. 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.

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 crops²⁹.

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 period in 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

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

²⁹ 2009 Economics of climate change in Rwanda

were destroyed, 2227 ha of crops have been washed away and 25 schools were destroyed or seriously affected³⁰.

Three distinct zones of climate change impacts can be found within the project area. These are shown in Figure 5 and include:

1. **Upland areas on the volcanoes**, which have fragile volcanic soils and are suffering from severe soil erosion and associated reductions in agricultural productivity. This also causes damage to water distribution networks that serve the surrounding districts. This includes Mutera Spring and the Lake Nyirakigugu catchment.
2. **Upland areas in the South of the project area**, where soil erosion is also severe but where there are also frequent landslides because of the steep slopes. This includes Jomba Sector: Gasura and Gasizi Cells; Rurembo Sector; Mutato
3. **River valleys**, which are suffering from flooding due to siltation of drainage systems. This includes Lake Nyirakigugu, straddling Mukamira and Jenda Sectors; Lake Mugogo; new springs at Byangabo.

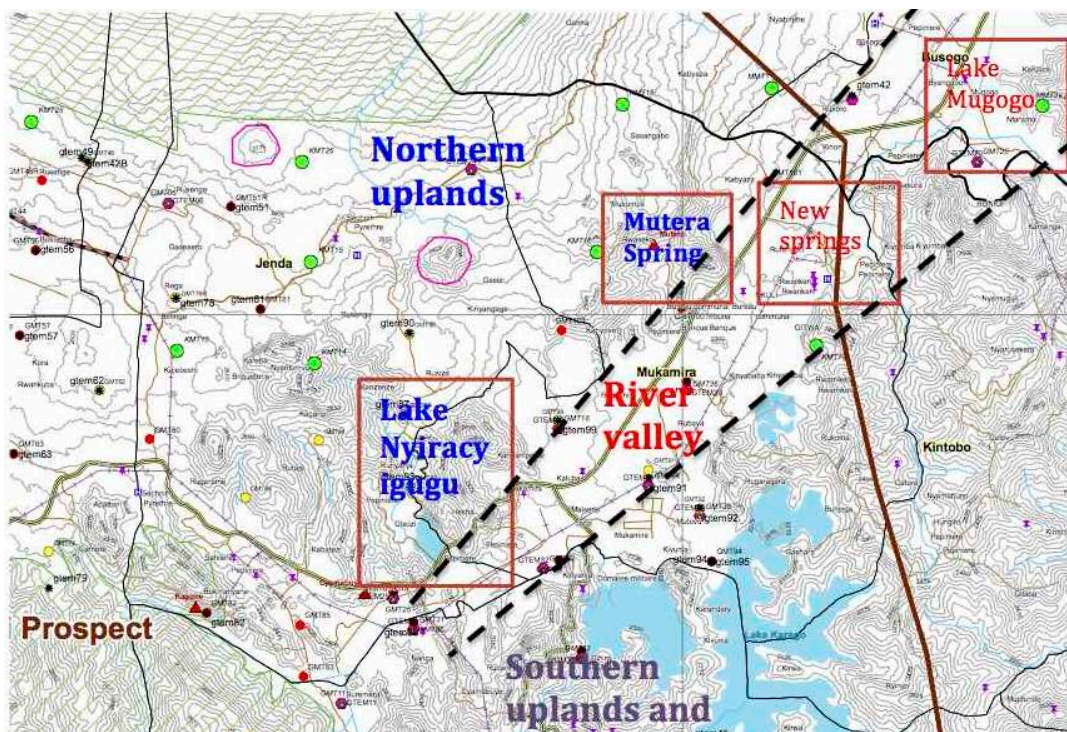


Figure 5: Project area showing the different areas

The **upland areas on the volcanoes** are different from upland areas in the south of the region for two main reasons. Firstly, the soils there are much more fragile and deeper than those in the south of the area. According to some stakeholders, this makes them more prone to erosion and less

³⁰ UNDP 2012

suitable for terracing. Secondly, the area contains a number of springs that are the water sources for a significant number of people in the District. Landslides occasionally destroy water supply pipes and the high levels of erosion may be contributing to siltation downstream that is causing new springs and lakes to form in lowland areas.

The catchment for the water in Lake Nyirakigugu is also in the Northern region. The lake has expanded over the last few years, flooding nearby houses. Stakeholders near the lake attributed this to high levels of silt in the water due to poor farming practices on the hills around the lake, which affects the river coming from Nyantomvu.

The **south of the project area** generally has steeper slopes and poorer soils than the north. This is due to the difference in the underlying geology of the area, which is comprised of much older basement rocks rather than more recent volcanics. Most of the area is suffering from severe soil erosion (this is very visible on the road South from Mukamira).

Both Jomba and Rurembo Sectors have similar problems because of their steep slopes. They are also the two poorest sectors in the District, with large numbers of people in high-risk zones (Jomba has 138 families who are in high-risk zones). Gasura and Gasizi Cells in Jomba are particularly vulnerable to climate change impacts due to the steep slopes and numbers of people at high risk. These sectors include Mutaho which are large steep areas in the Lake Karago watershed, zoned for forestation, but where rehabilitation activities have not yet been carried out. Rambura Sector, also located in the southern uplands, is high and steep, contains the degraded Gishwati Forest, and erosion here is leading to siltation in Lake Karago.

The **river valleys** are prone to flooding due to more intense rainfall, combined with reduced drainage due to high siltation rates. There are two main areas where the expansion of lakes is causing flooding, and one area where new springs have formed since 2007 and are flooding people's houses. The two largest lakes in the project area are: Lake Nyirakigugu, straddling Mukamira and Jenda Sectors, and Lake Mugogo in Busogo Sector.

The area of new springs is in Mukamira Sector to the south of the road between Mukamira Town and Busogo, in a village called Byangabo. 30-40 houses have been flooded in this area.

The sectors targeted by the project have had a number of key events such as floods and landslides. The following table highlights the sectors targeted within Nyabihu and Musanze Districts, the main events which have affected the population, and the key cells that continue to be vulnerable to flooding, landslides and erosion³¹.

Table 5: Extent of flooding and landslides in each sector in the project area

| Sector | Historical data of catastrophic events |
|-------------------------|---|
| Nyabihu District | |
| Rambura | - The sector is made up of almost entirely high mountains; therefore the impact of heavy rain and landslides has resulted in erosion of the soil. People still cultivate but due to the high levels of erosion, the soil is very unproductive. For example, many people grow beans now, but before they used to grow corn, sorghum and sweet potatoes. Most people have abandoned these crops as productivity is so |

³¹ Note, in this section Rambura as well as Bigogwe have been included as there has been some discussion that Rambura should be substituted for Bigogwe Sector.

| | |
|-----------------|---|
| | <p>poor.</p> <ul style="list-style-type: none"> - According to the Stakeholder Analysis, this area was previously forest, however it was deforested after the war due to refugees resettling in the area. People have been resettled since 2007 and cultivation has stopped in the forest, however few trees have grown back³². - There have been limited interventions in this sector, and minimal anti erosion measures. - Heavy rain and landslides have occurred in this sector between 2008 – 2013, affecting the cells of Nyundo, Birembo, Kibisabo, and Mutaho. Heavy winds also affect the cells of Rugamba and Kibisabo. |
| Karago | <ul style="list-style-type: none"> - This sector has had landslides, heavy rain and flooding. - In some cells there is eroded soil, however in general there have been improvements in the soil through initiatives. - The cells of Busoro, Cyamabuye (flooding only), Karengera, Kadehenda, Gihirwa (landslide only) are the most affected. |
| Jomba | <ul style="list-style-type: none"> - The main disasters in this sector are landslides, erosion and flooding. - The most high-risk places are the cells of Nyamitanzi, Gasura, Guriro, Gisizi, Gasiza, Kavumu. These cells are all affected by landslides. Flooding and heavy rains have mostly impacted the cells of Gasura and Nyamitanzi. - In 2012 there was a landslide in the cells affected by landslides; this destroyed some houses. - Climate change impacts have been severe in this area. Rains destroyed crops and were also followed by insect problems. There has also been flooding in some areas. The river is also expanding and it now has more suspended sediment. People are no longer using it for drinking as it is too dirty. - This sector has benefitted by VUP between 2009 – 2010. This included building of terracing, investment in social programs such as schools and direct support for vulnerable people. |
| Jenda | <ul style="list-style-type: none"> - Jenda sector has been less affected as there have been anti erosion measures such as terracing which has been able to mitigate the impact of heavy rains. - However in 2012 there was flooding and heavy rains in the cells of Bukinanyana (15 houses destroyed) and Nyarakigogo (8 houses destroyed). - The soil is volcanic in this sector, therefore it is affected by erosion. |
| Mukamira | <ul style="list-style-type: none"> - From 2010 – 2013 there has been flooding and landslides in this sector. - In the cell of Rurengeri water is coming from the river. This has affected 300 households, as well as destroyed crops. In the cells of Kanyove, Jaba, Rugeshi and |

³² 2013. Stakeholder Evaluation. Reducing vulnerability to climate change in Northwest Rwanda through community based adaptation. MINIRENA. Government of Rwanda.

| | |
|-------------------------|---|
| | <p>Rubaya water is coming from Virunga and is also affecting homes and fields.</p> <ul style="list-style-type: none"> - All soil in this sector is volcanic, therefore when the rains come it leads to erosion. Erosion has led to a decrease of productivity of the land. |
| Rurembo | <ul style="list-style-type: none"> - In this sector there are mostly landslides and heavy rains. This has mostly affected the cells of Rwaza, Mwana and Gahondo. |
| Musanze District | |
| Busogo | <ul style="list-style-type: none"> - In this sector there is mostly flooding with some landslides. - During the month of May for the past 2 years (2012 and 2013) there has been flooding in the cells of Sahara and Useselo. The flooding can last up to 3 months. In these areas the soil is fragile and people are cultivating potatoes and have not stabilized their land on the hills, leading to a loss of soil and sometimes landslides. People living on hills with very steep slopes are mostly affected. - Families have now abandoned their fields and houses in the areas that have been flooded. Tea owned by the tea plantation was destroyed in the valley during the flooding. - A large part has stayed underwater; a 60ha lake has formed. This area was planted fields, leading to a large loss of land as well as houses. Many people have been resettled. - Last year the District spent 300,000rwf to drain this water, creating a waterway, however this year the area flooded again. - Historically this rain didn't create a problem but over the years as erosion has increased it has filled up the natural drainage systems, leading to a permanent flooding situation. |

Source: Vulnerability analysis undertaken during design phase

1.5.2 Impact on vulnerable groups living in the project area and existing coping mechanisms

Within the project area the following populations are the most vulnerable to climate change disasters:

- **Households living on slopes.** Households living on slopes are affected by landslides and soil erosion. This is because people have been practicing intensive farming with no anti-erosion measures such as terracing or planting of trees, therefore when the rains come there is nothing to prevent soil erosion.
- **Households living in valleys or near lakes and rivers.** Flooding can be temporary, but in recent years it is becoming more and more regular, expected at every rainy season, and in some areas this has led to permanent lakes forming. This impacts households through the loss of crops, trees, destruction of stables for animals, and damage to homes. In April and May 2013, in one area in Mukamira sector in Nyabihu District the river overflowed and flooded fields and houses. Some people had to leave their houses due to the flooding; some temporarily, other permanently. In another part of Mukamira sector, rain waters flood their

community every year. They have tried to mitigate this by building a channel for the rain to flow out so that it will not lead to flooding, however this is not entirely effective.

- **Households relying on agriculture.** Irregular rain and periods of drought and heavy rainfall are affecting anyone that relies on agriculture for survival. This affects crops such as pyrethrum or maize which require steady rainfall throughout the growth season, but also other crops such as coffee and tea. Some mitigation strategies are being introduced to mitigate this, for instance the District of Nyabihu will begin to determine whether maize can be planted in different times of the year, coffee farmers are being encouraged to plant shade trees and to mulch to mitigate against drought. Other farmers have abandoned crops that are affected by climate change and have switched to other crops such as Irish potatoes. Other crops such as tea have no strategies to mitigate except by irrigation which is expensive for farmers.

At the **household level**, the loss of land from flooding or landslides has particular implications for young men who are expected to have built a house on their own land before being able to marry. Moreover, the effects of climate change are particularly pronounced on **vulnerable groups** such as the poor and women. Many respondents interviewed during the design indicated that it was mostly *Ubudehe* 1 – 3 who were the most affected as their ability to adapt post event is poor. This is because their asset base is poor: they own few animals to sell, own smaller pieces of land, they have limited human assets, such as strength and knowledge and skills, and a poor financial base. Table 6 identifies the assets: financial, physical, social, human and political for *Ubudehe* categories 1-3 and looks at their ability to cope to climate change disasters based on access to these assets.

Table 6: Characteristics of *Ubudehe* categories 1-3 and ability to cope with climate shocks

| <i>Ubudehe</i> Category | Assets according to category | Ability to cope based on their asset base |
|--|---|---|
| Ubudehe Category 1: Umutindi nyakujya | <ul style="list-style-type: none"> - No land - No livestock - No shelter - Beg to survive or rely on neighbours or the community - Limited physical strength; chronically ill, elderly with no family support, disability - Limited political power | <ul style="list-style-type: none"> - No physical assets to sell. - Human assets, i.e. physical strength, is poor, therefore difficult for people to rebuild homes - Rebuilding homes will be impossible for this group; will need to rely on the community and government to provide labour and materials to rebuild homes if destroyed. - Category 1 relies on neighbour's goodwill. This may be depleted as neighbours may also be affected by disasters. |
| Ubudehe Category 2: Umitindi | <ul style="list-style-type: none"> - No land - No livestock - Physically able to work, this category often does daily labour work to earn money to provide for family | <ul style="list-style-type: none"> - No assets to sell. - This category of people will continue to rely on daily labour in order to survive, however the challenge will be whether other families have the resources to pay for them in lieu of disasters that can affect a large number of families. In some circumstances where fields have been destroyed, this may result in more work for these families. - This group of people while having the strength to rebuild, will struggle to obtain the finances to rebuild homes, and will need to rely on government to provide roofing and housing materials in case of houses being destroyed. |
| Ubudehe Category 3: Umekene | <ul style="list-style-type: none"> - Asset base: land, shelter, some livestock - Produce enough to survive on: self-sufficient | <ul style="list-style-type: none"> - Assets to sell if needed, although these will be limited. If shocks continue to occur regularly this category's asset base will slowly be depleted, possibly even pushing them down to category 2. |

| | | |
|--|---|---|
| | <ul style="list-style-type: none"> - Limited savings | <ul style="list-style-type: none"> - Some in this category have accessed informal or formal financial services, however their savings amounts are very small, therefore this will not be able to mitigate much. - Physical health therefore will be able to work on other people's farms in order to make a daily wage if the work is available. This can help bring in money so the family can survive if crops are destroyed and food reserves are limited. - If get money through daily labour or government support, this category would be able to replant fields or homes. |
|--|---|---|

Source: Vulnerability analysis undertaken during design phase

Women headed households and the elderly are also considered highly vulnerable as they are often from poorer segments of Rwandan society, therefore have less assets and less alternative income opportunities to enable them to cope with climate shocks. As women experience a disproportionate burden from climate change, their participation in adaption planning is important especially since the number of women headed households throughout the project area is so high (between 37-53%³³). Unequal access and control over assets mean that men and women do not have the same adaptive capacity and bear a disproportionate burden of climate change consequences due to their social roles, poverty and intra- household inequity. Women are especially vulnerable to seasonal, episodic weather and natural disasters because of their:

- responsibility for water procurement and household care;
- role in securing food and fuel;
- reliance on low technology agriculture; and
- greater exposure to risk in crisis and severe weather events that may have been influenced or impacted by climate change.

Children are also considered more at risk as they could more easily get sick or hurt due to the instability of the home or land (landslides or flowing water or flooding), and are often pulled out of school as families struggled to get money to pay for damaged school materials.

The effects of climate shocks in North West Rwanda are often characterised by sudden changes in household income impacting on food consumption, distress sales of assets, reduced school attendance for children and in some cases, alcohol misuse by men. These stresses can lead to **increased conflict within households**, including incidents of gender based violence and abandonment. Moreover, female-headed households left behind as men **migrate** as a result of extreme events and disasters are often the poorest. The workloads of these women, their children and the elderly, increase significantly as a result of male out-migration, which is likely to expand as climate change related impacts escalate.

In general people adapt to climate change events in a number of different ways depending on their asset base. The various coping strategies identified during the design phase include:

- Changing the way family members eat: cutting back on proteins or vegetables, eating less number of meals.

³³ The figures for female headed households including de facto female headed households is 36.9% in the Nyabihu District Profile and 53.2% in the Nyabihu District Development Plan.

- Pulling children out of school as parents do not have money to buy materials, or as children are sick and are not able to get the health care needed.
- Sending family members off to work as day labourers.
- Buying food at markets instead of eating their own.
- Moving the family to an *imidigudu*.
- Those that have, rely on their income from doing small businesses.
- Neighbours helping out, by providing food, letting households live with them temporarily.
- *Umuganda* constructing houses, and the government provides roofing materials.
- People renting new houses if they have the means to do this.
- Re-directing flood waters away from the house, but this sometimes leads to flooding of other properties.
- Relying on family members in Kigali or offshore family members who have a regular income.
- Relying on community support systems: women's support groups, savings groups, or other social networks such as churches.
- If households have land in a couple of different areas this means they can withstand the shock better as only one of the fields may be affected.
- If there is drought and households can diversify crops, this also can mitigate the shock.
- Drawing down on savings.

1.5.3 Economic impacts of climate change

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 year by 2030 in Rwanda, though this is likely to be an underestimate as it excludes the future effects of floods and other extremes³⁴. 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

³⁴ Stockholm Environment Institute (2009). Economics of climate change in Rwanda

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 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%. More than 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. Ground and surface water flow in the area is influenced by sub-surface features such as lava tunnels and caves with diameters ranging from 10 to 500m³⁵. This can be important for drainage – for example, water from Nyabihu District flows eastwards, disappearing underground and reappearing downstream in parts of Nyabihu and Musanze Districts as high discharge streams and lakes³⁶. This unique characteristic of the area means that 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 of the long-term impacts of climate change on hydrological regimes of the watershed.

The increased sediment loads³⁷ in surface waters impacts on water quality³⁸ and reduces the discharge flow of rivers and the sediments accumulate in riverbeds, Lake Karago and other low-lying areas. A UNEP study³⁹ 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.

³⁵ IGIP, 2004, cited in WSS Services Ltd. (2010) Study of Groundwater in the Lava Region of Rwanda. Report produced for the Ministry of Environment and Lands.

³⁶ WSS 2010

³⁷ 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 Nyabarongo rivers respectively (UNEP 2011)

³⁸ suspended sediments act as carriers of pathogens and pollutants (UNEP 2011)

³⁹ UNEP 2011. Rwanda: from post conflict to sustainable development).

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). Historically the population was less dense, so people could leave their homes and fields in the case of flooding, landslides or poor productivity of the soil and move to new land. Houses were temporary so people could leave a house and move onto a new plot of land that was more productive or less risky. Now with permanent houses and lack of new land for people, this is no longer possible.

The return and **unplanned resettlement** of more 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 which had 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 1500ha⁴⁰. This deforestation resulted in huge run-off of topsoil into the Nyamukongoro River and reduced the surface area of Lake Karago by 25%⁴¹.

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 categories⁴². 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. Many of the country's smallholder farmers are women. While they are responsible for the food security of millions of people, agriculture is one of the sectors hardest hit by climate change.

The high proportion of women headed households (between 37 and 53% of the population of the north west of which 56% are widows) as a result of the 1994 genocide⁴³. Around 62% of women headed households are poor and 37% are food insecure⁴⁴ which makes them highly

⁴⁰ Gishwati Area Conservation Programme

⁴¹ UNEP 2011. Rwanda: from post conflict to environmentally sustainable development.

⁴² EICV 2011. National Institute of Statistics Rwanda.

⁴³ UNEP 2011. Rwanda: from post conflict to sustainable development.

⁴⁴ Household Living Conditions Survey

vulnerable to climate shocks. Women headed households often need to hire extra labour during the peak agricultural seasons which limits their capacity to increase production.

Population growth, poverty, the topography and the scarcity of lands are therefore the underlying drivers for the increased pressure on 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 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 **deforestation**⁴⁵ have led 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 outlets⁴⁶ 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

⁴⁵ for fuel wood and charcoal as well as for agriculture and local construction.

⁴⁶ 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.

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. Under the Crop Intensification Program people are encouraged to mono-crop according to district land use plans which restricts their ability to diversify their crops to withstand drought or too much rain. While farmers' production might increase; their risk may also increase. People who are poorer may have even less options to choose as their land is limited and they may own one plot of land in one location. The project will address this through consultation with agronomists in local authorities and MINAGRI.
- e. Power dynamics between local authorities and farmers are often skewed in favour of local authorities in order to enforce the priority crops through the land consolidation program. According to a MINAGRI report⁴⁷, this is driven by targets to ensure their population adheres to the new policies such as the CIP and called for more efforts to ensure that both agents and farmers understand the voluntary nature of the program, and the benefits that will come to farmers if they do get involved in the land use consolidation program. The project will address this through consultation with agronomists in local authorities and MINAGRI.
- f. Lack of resources to install and maintain improved water management measures through investment in improved storm water management and drainage systems, erosion control, irrigation and rainwater harvesting.
- g. Limited capacities at local level to support community based climate adaptation through training for local Government staff and NGOs. In particular, more capacity building is needed for cooperatives to get to a point of sustainability and to more effectively link to markets. Government also lacks capacity to support the uptake of off-farm income in terms of analysing what types of livestock provide the best returns and better understanding value chains.
- h. Traditional gender roles and patriarchal attitudes towards women in rural Rwanda mean that women have limited control over assets and decision making at the household and community level. This weakens their adaptive capacity and makes them more vulnerable to shocks and stresses linked to climate change. Women's involvement in certain livelihoods is also limited by gender relations which limits the ability of women to take up certain off-farm livelihoods. The project has been designed to engage on these issues and will work in partnership with local NGOs that have expertise in this area. It will

⁴⁷ Ministry of Agriculture and Animal Resources (MINAGRI) (2012) *Farm Land Use Consolidation in Rwanda: Assessment from the Perspectives of Agriculture Sector*. Kigali: Republic of Rwanda

also work closely with the District Authorities which have prioritised increasing the role of women in community decision making in their DDPs.

- i. Inadequate support for farmers switching to different crops and land management for example, for farmers switching to tea production (under District Land Use Plans) there is no support for the first 3 years before it is productive; for coffee farmers it is 5 years before there is a harvest; families who implement radical terracing lose income for 1 year. These are recognised as presenting very difficult economic challenges for local people. The project aims to focus erosion control measures that are non-structural in nature and do not result in a loss of land use. Moreover the project will diversify cropping strategies that provide a regular flow of cashflow to target households.
- j. Inadequate economic opportunities and Government support available for inhabitants of Modern Villages or imidugudu means that it is very difficult for these people to move out of planting maize and Irish potatoes on small plots of land. The project has allocated significant resources for livelihood diversification among households who have relocated to imidugudus.
- k. Low levels of financial literacy among poorer categories of people restricts their ability to save and access loans from formal financial services for IGAs. Savings would also help to mitigate people against shocks from climate change. Improving access to loans is important for people trying to move into productive off-farm income opportunities. The project will address this by engaging and partnering with micro-finance institutions that are working to improve financial literacy and savings. Moreover, the project will also inject capital into local finance institutions to increase the amount of finance available for climate proofing post harvest facilities, income generating schemes, market infrastructure and renewable energy.
- l. Cultural views on livelihoods mean that people's mindsets are set on very specific agricultural products (mostly Irish potatoes, beans and maize and cattle) which can lead to a lack of diversification. This can hinder people's focus on legitimate economic opportunities that just might be outside of the traditional norm. The project includes a number of awareness and advocacy programmes to address these types of issues. By focusing on supporting only market oriented livelihoods, the project will demonstrate the viability of alternative livelihoods which will act as an incentive to low income households currently engaged in subsistence agriculture.

2. 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.

The project will specifically target the most vulnerable groups who have less resources to mitigate and adapt to climate change. This includes: the poorest groups of society (*Ubudehe* categories 1-3) and women headed households (who tend to be poor and are particularly vulnerable to climate change).

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 two Districts (Nyabihu and Musanze). The anticipated impact of the project is the reduction of livelihood insecurity and losses from extreme climate events in 38,266 households located in the project area.

The proposed project will increase 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 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 fully-developed project/programme documents, the budget is required at the output level. Please also indicate the budget for execution costs and project cycle management fee.

The project aims to reduce vulnerability to flooding and rainfall variation through the promotion of climate resilient production and post harvest systems, supporting livelihood diversification and capacity building to scale up successful climate adaptation strategies. 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 diversified 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 to address women's and men's needs and priorities. | Reduced flooding and diversified and higher yields leading to enhanced food security and increased household incomes. | 254,553 |
| | 1.2 Investment in integrated land and water management technologies. | | 3,523,727 |
| | 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 agriculture etc.). | | 117,013 |
| | 1.4 Introduction of climate-resilient crop and fodder varieties and agronomic practices (short season crops, seasonal pastures etc.). | | 22,920 |
| | 1.5 Introduction of climate resilient post-harvest processing and storage systems for safe handling and storage of agricultural produce during extreme climate events (floods, rains). | | 662,480 |
| | | | Total 4,580,694 |

| | | | |
|---|---|---|------------------------|
| 2. Support for the transition from unsustainable settlement patterns and exploitative farming practices to sustainable, diversified livelihoods. | 2.1 Identification of alternative livelihood opportunities and constraints for vulnerable households. | Diversified and climate resilient livelihoods of vulnerable households in project area. | 28,257 |
| | 2.2 Development of Rural Development Hubs within selected <i>imidugudus</i> to create and promote sustainable, market-linked, diversified livelihoods (agro-processing, livestock, handicrafts etc.). | | 1,158,242 |
| | 2.3 Resettlement of 200 vulnerable households living in high-risk zones to Rural Development Hubs. | | 1,711,931 |
| | 2.4 Increased investment in market development (infrastructure, transport, storage, market research etc.). | | 841,444 |
| | 2.5 Increased investment in and access to renewable energy (Biogas plants, solar etc.) for enterprise development. | | 78,642 |
| | | | Total 3,818,516 |
| 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 staff in climate risk management and flood and landslide prevention measures for further scaling up. | Enhanced capacity of local actors and Government to develop and implement risk reduction strategies for areas prone to flooding and landslides. | 120,565 |
| | 3.2 Sharing project results and lessons learned and mainstreaming new approaches in local and national planning. | | 89,325 |
| | | | Total 209,890 |
| 5. Project Execution cost | | | 757,883 |
| 6. Total Project Cost | | | 8,609,100 |
| 7. Project Cycle Management Fee charged by the Implementing Entity | | | 602,637 |
| Amount of Financing Requested | | | 9,969,619 |



Projected Calendar

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

| MILESTONES | EXPECTED DATES |
|---|----------------|
| Start of Project Implementation | Dec 2013 |
| Mid-term Review | Jan 2016 |
| Project Closing (6 months after project completion) | Jun 2018 |
| Terminal Evaluation | Sep 2017 |

PART II: PROJECT JUSTIFICATION

A Project components

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 local capacities (authorities, farmer associations, civil society organisations, 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.

The target areas for these interventions comprise:

- The **upland areas on the volcanoes** where there are a number of springs that are the water sources for a significant number of people in the District and where landslides have destroyed water supply pipes. High levels of erosion may be contributing to siltation downstream that is causing new springs and lakes to form in lowland areas. These lakes are overflowing flooding nearby households. The area includes the catchment for Lake Nyirakigugu which has overflowed during the last few years, flooding nearby houses and Lake Karago where water is overflowing to a downstream wetland due to high sedimentation of the lake whereas. This lake is important for energy generation, recreation and fishing.
- The **south of the project area** including Jomba, Rurembo and Rambura Sectors with steep slopes, severe soil erosion and numbers of poor households in high-risk zones particularly in Gasura and Gasizi Cells in Jomba. The area contains Busoro and Mutaho which are large steep areas in the Lake Karago watershed, zoned for forestation, but where rehabilitation activities have not yet been carried out.
- The **river valleys** which are prone to flooding due to more intense rainfall, combined with reduced drainage due to high siltation rates. This includes two main areas that were flooded due to the sedimentation of caves that serve as drainage outlets and one area close to Byangabo village in Busogo Sector which has flooded since 2007 affecting around 180 ha. This flooded area continues to expand, destroying more and more houses and arable land.

These areas will be more clearly defined during project inception following the baseline survey.

The target households for this component comprise:

- **Households living on slopes** which have been practicing farming with no anti-erosion measures causing extensive soil erosion.
- **Households living in valleys or near lakes and rivers** which are prone to flooding due to siltation of natural drainage systems.
- **Vulnerable households dependent on agriculture** that are adversely affected by variable rainfall patterns.

Output 1.1 Community level mobilisation and climate adaptation planning

This output aims to increase the understanding by local stakeholders of the value of conserving and protecting steep slopes and riparian buffer zones as well as the impacts of climate change and the urgent need to build support for proposed 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 for community-based decision-making. At the same time, the project will integrate both scientific and local knowledge into community planning processes 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. The evolving nature of adaptation (as future climate trends are uncertain), means that local communities need to learn about risks, evaluate response options, and adapt accordingly checking and rectifying possible mal-adaptation and exchanging information. The 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.

The project will support the development of local adaptation plans to increase resilience as well as to rehabilitate and protect micro-watersheds and enhance agricultural productivity. The plans will incorporate soil conservation and enrichment measures including agro-forestry and will make special provisions for climate change impacts on vulnerable groups.

Activities planned under this output include:

- Selection of target areas and target groups for support

- assessment in target areas Climate change vulnerability and capacity
- Awareness raising of climate change issues
- Training of project staff and community animators in gender sensitive adaptation planning
- Community based survey of project area and prioritisation of interventions with communities, water and agricultural experts and other stakeholders
- Community meetings and planning workshops
- Development of local adaptation plans with zonation of land for agriculture, pasture, perennial crops/grasses etc. (based on District Land Use Plans) with community and agricultural experts

Output 1.2 Investment in integrated 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 rehabilitation of micro-watersheds and promote soil conservation and enrichment measures including agro-forestry.

Where slopes are greater than 40%, 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 alternative 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 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 (contour trenches⁴⁸, 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 (on slopes 16-40°);

⁴⁸ Contour trenching involves digging trenches along the contours of a hill. As well as erosion control, the technique is used replenish the sub-soil and helps air and water to infiltrate compacted soils, improving soil conditions. Soil from the trenches is spread over the surface, where it creates a fertile top soil. Stone walls are often built upstream to filter silt out of the runoff water. It is used on slopes with less than 10% gradient. The location and interspacing is determined by rainfall and upstream overland flow.

- the use of cover crops to provide a physical barrier to runoff as well as to increase soil organic matter, enhance soil structure, improve the nutrient and water holding capacity of the soil, enhance the soil macrofauna habitat and enhance households incomes;
- mulching to reduce run-off and increase infiltration;
- intercropping (on slopes between 6 and 16°) 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*, *Caliandra Leucena*, *French Cameroon*, *citeria*, *tribusacum*);
- planting of fodder grasses on bunds/ridges to increase stability and provide fodder for harvesting and food for animals⁴⁹;
- use of improved vegetated fallows;
- conversion from annual to perennial crops;
- the development of irrigation systems from water harvesting, and
- the introduction of permanent, perennial vegetation in small strips at appropriate intervals along the contour to prevent further erosion and conserve rain water.

Where slopes are steep (more than 40°), the project will promote the planting of permanent vegetative cover and green manures 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*, *Triflorum*, *Mukuna* etc.

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.

Where slopes are less than 40°, the project will promote agro-forestry and the use of cover crops as these have proved to be cost effective in reducing soil erosion (compared with terracing). Cover crops are fast growing plants that quickly cover the soil surface. They are usually seeded between rows of crops or after harvest to reduce the velocity of rainfall falling on bare soil so reducing runoff. The root growth from the cover crop also increases the porosity of the soil improving drainage and also enhances soil micro-fauna. Cover crops are ploughed back into the soil increasing the water content and organic matter and can be used as mulch to improve water retention. Cover crops have also been used to control weeds, pests and diseases. Moreover use of leguminous cover crops (green manure) can improve the nutrient levels in the soil and enhance growth of the main crop. Species that have been used in Rwanda include: non edible cover crops such as *centro*, *stylo*, *puero* and *mucuna*, edible cover crops such as groundnuts, cowpea, soya beans, melon and fluted pumpkin and grasses such as carpet grass and giant star grass.

⁴⁹ Rwanda has a zero grazing policy to reduce erosion

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 (contours, contour trenches, 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 fertilisers (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.

There is also provision for measures to improve local drainage and storm-water management (check dams, water breaks, spot pits, spate irrigation⁵⁰, ridges, contour bunds etc.). These structures are important for reducing the flooding of downstream, low-lying areas in Busogo in particular. The main method for controlling flooding in the region has been the construction of drainage channels in the Mugogo valley and the Kinoni river. However, these offer only a temporary solution to the flooding. The proposed project will therefore include a technical feasibility study which will examine the various options available. The options include either diverting the flow to an existing river or removing silt from five caves/lava tubes that normally help to drain some of the flooded areas and constructing water breaks and settlement tanks to reduce sediment loads in the water flowing into the caves. This study will be used to leverage additional funding (from FONERWA) for the delivery of a long term solution.

The project will also promote investment in small-scale water collection and storage structures at the household and community level in upland areas to increase water conservation and reduce run-off and erosion during heavy rainfall. Water storage is a key strategy for climate change adaptation, using harvested rainwater will enable farming households to diversify the cropping systems, introduce new vegetables and perennial crops, and increase household incomes. Rainwater harvesting also provides an increased level of drought protection and allows more flexibility in market timing for farmers who produce market crops. Rainfall harvesting enables households to manage their own water supply for drinking water, domestic use, irrigation and other income generating activities.

Two methods of rainwater harvesting will be promoted: 1) roof top harvesting and 2) communal ponds. Roof top harvesting will entail installing 560 rain-water harvesting tanks and a guttering system to deliver water into the tanks. Each tank will be shared between two households and splashguards will be used to prevent overshooting of rainwater. The runoff

⁵⁰ Spate irrigation involves techniques in which flood water is used for supplemental irrigation of crops grown in low-lying lands, sometimes far from the source of runoff.

from the first rainfall, which contains most of the dust and debris that have accumulated on the roof, will be diverted from the storage tanks by a manually or semi-automatically operated first-flush device.

The project will also support the construction of a network of 96 ponds to absorb storm water overflows and provide supplemental irrigation and water for livestock during the dry season (which will increase agricultural productivity). Ponds will be made cost-effective by using local materials and community labour.

The design, materials, siting and installation of this water infra-structure will take the prevailing and projected weather conditions into account. The villages where these structures will be installed are located in safe zones and in accordance with *immidugudu* controls and regulations (explained in detail in the proposal). Moreover, the project will ensure that the design and construction of ponds, tanks and drainage systems is such that the structures can withstand heavy rainfall and other climatic extremes. This will include building in redundancies to ensure that the water infrastructure can continue to operate effectively under changing climatic conditions.

In order to prevent siltation of run-off channels into the ponds which may affect the storage capacity the project will ensure that silt traps⁵¹ and filters⁵² are used to minimise the risk of siltation. In addition, the construction of the ponds will be closely linked into erosion and flood control measures (contour trenches, bunding, progressive terracing, ridges, pits, perennial cover of steep slopes and riparian buffer zones, agro-forestry, check dams, tree planting on gully banks, drainage channels etc.) to maximize their effectiveness as water storage facilities.

The participation of the community (under Outputs 1.1 and 1.2) in adaptation planning as well as in the design, siting, construction and maintenance of rainwater harvesting facilities will ensure they are climate proofed and that they are sustainable. Monthly community meetings are routinely held in all cells and these will also provide an opportunity for the community members to participate in the decision making around new developments such as these.

The technology employed along with the approaches for sustaining the small-scale water infrastructure through water user groups will be communicated and internalised through the capacity building interventions under Component 3. These will include training of key practitioners, production of guidelines and manuals, farmer-to-farmer fora (cross visits, community meetings etc.), participatory videos, media articles in newspapers, journals, newsletters, radio and a website.

To ensure the sustainability of the small-scale infrastructures introduced by the project (ponds, water breaks etc.), the project will establish a variety of committees 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, monitor, maintain and rehabilitate the small-scale infrastructure after the end of the project. The project will ensure effective arrangements are put in place to ensure continuing

⁵¹ this is a small pit used to catch sediment carried by the water. It prevents the pond from becoming clogged. The size of the trap will depend on the amount of runoff (heavier runoff means a bigger trap) and the amount of sediment it carries. If there is a lot of sediment, a two-chamber trap will be installed - one to catch soil and sand and the second one to trap finer silt. The silt trap will be located at least 3 meters away from the pond to prevent water from overtopping during heavy rains.

⁵² a filter mesh is used to trap leaves and other debris.

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 costs⁵³, 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:

- Consultation with MINAGRI and district agronomists on zoning of land for agriculture, pasture, perennial crops/grasses etc. with community and agricultural experts
- Awareness campaign on erosion control and improved soil management
- Support for erosion control (agro-forestry, use of cover crops, 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

⁵³ Recognising that rural communities may not be able to afford the full costs of operating and maintaining structures.

- 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)
- Feasibility study for long term solution to water logging of Mugogo lowlands in Busogo
- Drainage works

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

Crop diversification reduces susceptibility to climatic variability that might result in crop failure. At the same time, it increases the number of marketable activities such as adding livestock to a cash crop operation and hence serves to reduce farmers' risks resulting from weather fluctuations.

In the foothills, where slopes are less than 40°, 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 ensure good 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 biodiversity and 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 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 will also be promoted as it can be highly beneficial in terms of pest and 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-forestry which can reduce erosion by up to 90%⁵⁴ as it aids soil and water retention. Agro-forestry encompasses 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: *Grevillea robusta*, *Maesopsis eminii* or *Markhamia lutea* and shrubs such as *Callindra calothyrsus*, *Cajanus cajan*, *Leucaena spp.* Or *Sebania sesban*.

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 systems⁵⁵ will also be explored with farmers.

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.

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

⁵⁴ UNEP 2011. Rwanda: from post conflict to sustainable development.

⁵⁵ Zero-graze systems are being promoted by the Government along with the introduction of improved breeds to reduce pressure on pasture land.

- Support for development of tree nurseries for agro-forestry (120,000 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 (agro-forestry, integrated farming, conservation agriculture etc.)

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

Crop and variety selection are important in terms of securing livelihoods and food security as well as adaptation to climate variability. In the project area, rainfall has become unpredictable in that although the total amount of precipitation is comparable to normal years, there is now uneven rainfall distribution. Crop varieties with physiological plasticity and water-stress tolerance are needed (potential varieties include crops like sorghum, millets and teff). Adoption of crop varieties and forages with increased resistance to heat stress, shock and drought are critical to minimising climate change effects.

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 selection taking into account climate variability. The approach will emphasise developing farmers' knowhow and skills to make informed choices for adaptation to climate variability and climate change. Field workers and local researchers will act as mentors building farmers' capacities to make informed choices on crop and variety selection. Field workers will emphasise flexibility in decision-making on the selection of crops and varieties by farmers. The project will support on-farm seed production and breeding. This will enable farmers to produce their own seed in the community ensuring they have sufficient seeds for planting and reduce their reliance on the supply of climate resilient varieties from other sources.

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

- production groups Establish and build capacity of community seed
- varieties by farmers Promotion and support for uptake of flood resilient

Output 1.5 Introduction of flood resilient post-harvest processing, storage systems for safe handling and storage of agricultural produce during extreme climate events

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 as 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

This output aligns well with the DDPs for Nyabihu and Musanze which have prioritised the development of private-public partnerships to improve post harvest operations for sorting, grading, packing, and cold chain storage for certain perishable products.

Component 2: Support for the transition from exploitative farming practices to sustainable, diversified livelihoods

Because around 40% of rural households in Rwanda have less than 0.3 hectares of land and there are high numbers of near-landless agricultural households (who tend to be the poorest

people in the workforce⁵⁶), non-farm sources of income are essential to these households if they are to achieve a decent standard of living.

Component 2 would support sustainable, economically viable and market oriented alternative livelihoods as well as resettlement where necessary for vulnerable groups who are dependent on farming marginal lands in high-risk areas and those households that are impacted by the adverse effects of climate change. The project will specifically target vulnerable groups (*Ubudehe* groups 1, 2 and 3) living in high risk areas including a specific focus on poor women-headed households who were identified as particularly vulnerable to 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 zones that have been prioritised for relocation to low risk areas with approximately 2618 waiting 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 alternative 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, gully restoration, progressive terracing, trenching and other structural measures to improve the stability of the flood protection infrastructure 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 (informal and formal) micro-finance institutions providing savings and credit services. Access to credit has improved in Rwanda over the past few years (more than 90% of adult Rwandans now 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 nationwide *Umurenge* Savings and Credit Cooperatives (*Umurenge SACCO*⁵⁷) 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 identity⁵⁸ so eligibility is not considered to be a major barrier for having a bank account.

⁵⁶ Dickson Malunda and Serge Musana (2012). *Rwanda case study on economic transformation*. Institute of Policy Analysis and Research – Rwanda (IPAR). Report for the African Centre for Economic Transformation (ACET).

⁵⁷ Umurenge SACCO is savings scheme designed to mobilise finances at the Sector level. Individuals make regular contributions to this savings scheme and once their savings reach a given threshold, the government contributes to the scheme at sector level. People can then use these savings to invest in productive activities.

⁵⁸ Carrying of the national identity card is obligatory to every Rwandan 16 years or older.

Despite good access and eligibility, more than half (52%) of Rwandan adults (18 years or older) do not use any financial product or service. According to a recent FINSCOPE report (2012), the most significant barrier to uptake of formal financial products and services is consumers' lack of awareness or understanding⁵⁹ 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 survey⁶⁰, 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. However, it is important to note that SACCOs do not yet support the most vulnerable people in communities. According to a national survey, only 3% of Category 1 households have a SACCO account⁶¹. SACCOs also face challenges in developing their infrastructure (only 4 SACCOs in this District have an office) and governing bodies. This is where the project intends to intervene, in terms of building awareness and understanding among project participants of the types of informal and formal 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, diversified 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 energy which will support 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.

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 Category⁶² 1 (which include the most vulnerable groups). The project plans to target 200

⁵⁹ 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.

⁶⁰ Finscope (2012) Financial inclusion in Rwanda 2008 – 2012

⁶¹ Grundling (2012) The Impact of *Umurenge* SACCOs on the Rwandan Financial Sector.

⁶² 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) Ubehebe 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.

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 areas 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 section 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 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. The project will help farmers who want to move out of farming to explore and plan for other viable alternatives. This is in line with District Development Plans which emphasise decreasing the number of people in agriculture and increasing the percentage of people working in commerce or other off-farm activities.

The project will involve communities identifying alternative livelihood opportunities in a participatory process with project staff and other key stakeholders.

Table 7 taken from the Vulnerability Analysis highlights a number of alternative livelihoods which show potential for the project's target group. The selection of recommended livelihoods was based on income possibilities for participants (regular income and a reasonable income), feasibility and where there was an adequate market for the products produced.

Table 7: Livelihood opportunities identified in the project area

| Livelihood | Income | Key opportunities and challenges |
|------------|--|---|
| Rabbits | With 10 females and 1 male the possibility of an annual income of 480,000rwf spread throughout the | <ul style="list-style-type: none"> - High reproductive ability - Low feed and ongoing costs - Regular income throughout the year |

| | | |
|---------------------|---|---|
| | year, every 3 months 120,000rwf. | |
| Chickens: Eggs | Once chickens start laying, with 20 layers, monthly net income (minus feed costs) of 10,200rwf per month. Would need 60 layers to make it a worthwhile monthly income of 30,000rwf. | <ul style="list-style-type: none"> - The feasibility of this will be dependent on whether there is an adequate local market for eggs. - Regular income, even daily income. - Can also meet protein needs for family. - Need to keep local chickens away from modern types. - Would need highly motivated individuals, as the skill set would be high. |
| Chickens: Meat | <p>While raising broilers intensively can provide a good annual income, the lack of a market suggests that it would be better to raise modern varieties locally.</p> <p>20 modern varieties raised locally, would provide an income of 400,000rwf per year. There would be some supplementary feed costs however this would be minimal.</p> | <ul style="list-style-type: none"> - As raised similarly to local chickens, it would be easy for people to acquire the technical skills to manage. - Taste would be similar to local chickens, therefore a strong local market. - Income every 5 months. - Would need to keep local chickens away from these breeds to avoid passing on diseases. - Vaccinations? |
| Bricks (see note 1) | 300,000rwf per month if sold 50,000 bricks. Suggest that cooperatives form with a maximum of 20 people to maximize income for members. | <ul style="list-style-type: none"> - Regular income. - Provision of daily salaries for people or cooperative members. - High start up costs as need to purchase land. - Need proper soil, good access to water, wood for burning and proximity to roads to access markets for sales. - High competition. - Cooperatives need to be made up of fewer people in order to have a better profit per member. |
| Mushrooms | With 60kg of seeds leads to 704,000rwf per year net profit. | <ul style="list-style-type: none"> - Local and international market needs to be determined. - Good regular income throughout the year. - Requires strong technical skills for success. |
| Tree tomatoes | 2.4 million on 10 are property | <ul style="list-style-type: none"> - Good for those with limited land. - High income per annum. - Need good disease control. - Trees are good for environment. - Could lead to other added value products, such as juice. - 12 months before the first harvest. |
| Honey | Two modern hives would produce a net income of 240,000rwf. Would need at least this per family in order to have adequate returns. | <ul style="list-style-type: none"> - Income three times a year. - Would need to group producers in cooperatives and provide them with simple machines to extract the honey from the combs. - Would need highly motivated individuals who are committed to caring for the bees as it requires good technical skills for success. - Could lead to other added value opportunities such as packaging and selling directly to Kigali. |
| Pigs | Best to sell piglets as income is more often and investment in feed is lower. With 1 sow, selling 10 | <ul style="list-style-type: none"> - If selling piglets, income every 5 months; instead of every 12 – 15 months. - Requires highly motivated individuals who |

| | | |
|------|--|--|
| | piglets every 5 months for an annual net profit of 360,000rwf. This can be increased with an additional sow. | <p>are committed to providing supplementary feeding and the proper care.</p> <ul style="list-style-type: none"> - Investment of feed for the first 5 months of 48,000rwf if selling piglets. (If selling full-grown, this is a 12 – 15 month investment of 348,000rwf.) - Would need to determine market for piglets both locally and regionally. - Need minimal land for production. |
| Cows | If production is increased per cow to 10 litres per day of milk sold, this will equal a gross income of 30,000rwf per month. | <ul style="list-style-type: none"> - High start up costs (cost of a cow is high). However the project could work with farmers who already own cows, such as the GoR's 1 cow 1-family project to improve the quality and quantity of production of milk. - Ongoing regular income. - Zero grazing so need access to grasses and possibly additional feeds. |

Notes:

1. The project will not support environmentally destructive activities such as fired bricks which consume local wood reserves. The Government has banned using wood for firing; coffee husk fuel is now used as this is a more quickly renewable resource. The Government also supports other improved methods to make bricks and tiles. For example, Compressed Earth Blocks (CEB's) which can be made with manual or powered machines. Manually produced CEB's (Makiga) is recommended for low-cost housing. The blocks require no burning, thus destructive deforestation is avoided. Brick making using these methods could be financed through the credit facility offered through the project.

There are also a number of different business opportunities for participants to get involved in to diversify their income. For example, buying and selling goods at the market, small processing such as making bread, donuts, small restaurants, banana juice/beer brewing, selling of chickens, maize flour, etc. However one of the major barriers they identified was the lack of credit to expand their businesses to make them more profitable (this will be addressed under Output 2.2.

Activities planned under this output include:

- Raise awareness of potential alternative livelihood 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 sustainable, market-linked and diversified livelihoods

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 (land, capital etc.) and know-how to adopt new 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 livelihoods since they are planned clustered developments usually located in proximity to roads and other essential services. The Nyabihu District Development Plan also identifies Mukamira town a focus of a new economic zone so the project will work with District authorities to support this⁶³.

The project will establish a series of Rural Development Hubs. These hubs will essentially comprise a suite of mobile enterprise and market development services including a credit facility, vocational training, capacity building for self-help groups and cooperatives, creation of market linkages and provision of technical support. The services and credit facilities will be targeted toward 7500 poor households living in *imidugus* as well as households engaged in unproductive and unsustainable farming of marginal lands (e.g. on steep slopes, riparian buffer zones etc.).

The hubs are intended to augment existing Government and NGO programmes which, in the project area, lack sufficient outreach to deliver the outcomes envisaged under Component 2. These include the Business Development Centres⁶⁴ (an initiative of the Rwanda Development Board), Private Sector Federation activities, SACCO's and Village Savings and Loans Associations. In the project area there is a Business Development Centre in Mukamira and two Access Centres which are located in Jomba and Busogo sectors. These provide business development services to people with small businesses or wanting to start a business. Their approach focuses on supporting businesses throughout the business development cycle, so that chances of success are higher. They have trained 'proximity business consultants' to help rural households access their services and also have approaches aimed at engaging poorer households, women and youth (special training and larger subsidies). In addition, there are a number of SACCO's throughout the project area.

These physical structures at the sector level will serve as a base for the services provided under the project in terms of promoting the services and providing information. However, many of the services will be channelled through Self-Help Groups (in particular Village Savings and Loans Associations) and Co-operatives at the village level. Some of these groups already exist but others will be established where needed) building their capacity to develop market oriented enterprises. Each group would have approximately 20 members and over 4 years the project, through a partner NGO, its own staff and community animators, would support 375 groups (75 groups in Year 1 and 100 groups each in Years 2, 3 and 4). The credit facility will be channelled through the SACCO's and Village Savings and Loans Associations (which are regarded as a stepping stone to formal savings schemes).

Support will include:

⁶³ DDP (2013). Nyabihu District Development Plan (DDP). Draft produced by Nyabihu District Office.

⁶⁴ BDCs support start-ups with high potential and existing SMEs that can be moved to the next level with a special emphasis on value addition and export promotion. These centres provide a range of services including: Entrepreneurial Development, Business Registration, Business Advice and Counseling, IT, Business Information, Export Development, Tourism Information, and Tax Advice. Environment Compliance and Cleaner Production Services

- increasing the capacity 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 (linking where possible to existing vocational training centres),
- improved access to flexible, low cost credit for start up and operation costs for new enterprises and 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.

For ease of operations, marketing (rather than producer) cooperatives will be encouraged: where farmers produce separately and come together to bulk and sell together, buy inputs together or even add value through transforming together. Key areas of capacity development for cooperatives will be on the provision of sound technical expertise, business plan development, financial literacy and marketing.

There are a number of new ventures starting up in the project area which the project will create synergies with. This includes a mushroom factory which is being constructed in Musanze town to produce the seeds for mushrooms as well as produce mushrooms. After a few years the company will also look to the processing of mushrooms. Construction will begin this year.

There are also plans to construct a chicken feed factory which will help in the professionalization of chicken and egg production. This will also help small farmers who need access to feed for backyard chicken production. The project will liaise closely with these new ventures to promote mushroom and chicken and egg production relying on the chicken feed factory for inputs.

In terms of developing the necessary skills for off-farm employment, the project will link and supplement existing vocational schools and training. The project will ensure there are opportunities in the area for employment before training people. Discussions with a vocational training school in Nyabihu suggest that there is little work to be found for certain vocations such as sewing and embroidery, plumbing, mechanics and electricians. There are too many people who have sewing skills to make this a feasible employment opportunity. There are few job opportunities for electricians due to the lack of a electricity supply to most of the area, however with the GoR's electrification program there may be more opportunities for electricians in the future. A lack of jobs in plumbing is related to the lack of houses with internal plumbing systems. And with mechanics, while there are increasing numbers of vehicles on the roads, there are few garages in the project areas so employment may be limited.

Most work to be found is in the building industries: carpentry, construction, bricklaying and metalworks. Vocational training opportunities that offer the best chance of employment or income generation are therefore those linked to the rural construction sector including:

- Carpentry
- Metalwork

Graduates in these disciplines from the Kilihekane Vocational Training Centre in Nyabihu can generally find jobs earning RWF 3,000 per day (this is for diploma graduates). The project will combine this technical training with other training in financial and business management as well as linking to sources of credit and financial support⁶⁵ needs to ensure these student graduates can be successful. These start ups will be supported by linking with established savings and loan groups for the target groups, specifically *Ubudehe* 1 – 3.

Furthermore, as most of these vocations have traditionally been for men, the project will sensitise the population and build awareness at the community level to encourage young women to go into these more profitable vocations.

Access to a financial system is an important aspect of supporting livelihoods of poor populations, especially empowering women and vulnerable groups. Both districts are below the national average of 39% of accessing formal finance (Musanze at 38% and Nyabihu at 27%). Improving access and uptake of low cost credit is therefore crucial to increasing the availability of financial resources for enterprise development, including micro-financing schemes, to provide the start-up capital for new ventures.

The intervention will align with the DDPs for Musanze and Nyabihu which have prioritised improving financial literacy, encouraging more informal finances services through Village Savings and Loan Associations (VSLAs) and strengthening *Umurenge* SACCOs. The project will link into the existing micro-finance products and services available in the area including increasing access to the *Umurenge* Savings and Credit Cooperatives (*Umurenge* SACCOs) and the VSLAs.

The SACCOs have 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 aim of 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. Research has indicated that while 22% of adults use *Umurenge* SACCO products, only 21% of *Umurenge* SACCO members are from *Ubudehe* category 2 and less than 3% from category 1. Around 1.3 million adults (28%) are still excluded from any formal financial services⁶⁶.

Informal savings and credits groups have developed to meet the cash needs of the very poor and build a foundation for those people with low economic capacity and limited financial education to start organizing and gaining support for navigating the financial system. Many Rwandans (37% of the population) belong to informal savings groups despite their use of formal savings products provided by banks and SACCOs⁶⁷. These groups often provide small loans for members to pursue small business opportunities to supplement and diversify income. The groups also can impact people psychosocially, motivating people to do more for themselves and their families.

⁶⁵ The District level Business Development Fund may be able to provide funds for this.

⁶⁶ EICV3

⁶⁷ Financial inclusion in Rwanda, 2012

One example of an informal micro-finance group is the VSLA which is an informal credit and savings group aimed at the poorest households each comprising about 25 to 30 people per group. 77% of VSLA members are women and 41% of these are widows. The system allows each member to save weekly and borrow funds in an amount equal to what they can personally easily manage. The group is based on strict principles of transparency, good management and flexibility. There are around 3000 VSLAs (soon to be scaled up to 6000). The approach was developed by CARE and is recognised by the Government as an important step in helping people to access formal financial services such as SACCO accounts (below) which require an initial deposit to open. CARE also provides training in financial literacy training and income generating activities to its members. Informal savings groups are a key priority for the DDP for Musanze District.

These savings groups are complementary to formal services such as *Umurenge* SACCOs as they are often used as a stepping-stone to economic opportunities for people in the lower *Ubudehe* categories. The financial literacy of these categories of people is very low, so they often struggle to access products from *Umurenge* SACCOs. Savings groups improve people's financial literacy skills, improve their ability to manage their cash flow and they can graduate to SACCOs to access more money to expand their enterprises. Research by CHF in Rwanda in 2011 indicated that 93% of their groups had savings accounts through SACCOs, banks or MFIs ; CARE estimates that after one year 70% of the individual members in savings groups are ready to move into a formal financial product such as offered by an *Umurenge* SACCO.

The project will also look for public-private partnerships to help resolve the issue of long-term finance for farmers through agro processors or other buyers along the value chain.

This output directly aligns with the District Development Plan for Nyabihu which includes actions to increase women's participation in local decision-making and to empower women economically by enhancing their skills and improving access to finance and business opportunities.

It will also capitalise on local Government initiatives to develop markets for raw materials such as the new factories (poultry feed, mushrooms, and a potato chip factory) being built in Musanze, as well as la Maizerie and Mukamira Dairy which can serve as end markets for raw materials as farmers' productivity increases and there is excess to sell.

The districts are also working to create better market linkages for farmers in Musanze and Nyabihu. The value chains for crops such as maize and wheat have already been mapped and links established with factories in Kigali and Pembe for wheat, and the Maizerie will restart up to provide end markets for maize.

The delivery of the enterprise and market development services will be co-ordinated by a full-time Enterprise Development Officer with support from the Project Co-ordinator, the Community Development Officer (all based in Nyabihu District) and 16 Community Animators (one female animator and one male animator for each sector). Key support functions (capacity building of groups, market linkages and technical support for product and service delivery through value chains) will be supplied by specialist service providers (local NGOs) and consultants.

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

The District Development Plans have targets for resettlement of poor and vulnerable farmers in high risk areas to five new sites. The DDP for Nyabihu emphasises the development of Mukamira Town as a location for resettlement and a focus for developing the private sector through the consolidation of commercial activities.

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. Most of the extreme poor (i.e. those falling into category 1 of the *Ubedehe* system of poverty classification) located in high risk zones are found in Jomba Sector and to a lesser extent Rurembo sector. Approximately 200 extreme poor households were identified in these sectors and have been prioritised for resettlement.

The project will support the resettlement process with further in depth consultation with target households prioritising the most vulnerable households that want to relocate and managing the relocation process in line with Rwandan law. The project will procure materials for house construction for 200 families. Each household will supply labour for construction to reduce the resettlement costs.

Five sites (Gasura, Kabyaza, Gisizi, Ngabo and Muremure) have been identified for the safe resettlement of vulnerable households from high-risk areas. Each site is in line with the Nyabihu Land Use Master plan and the District Development Plan. Details of each site are included in Table 8. An Environmental Impact Assessment has been carried out on 2 of these sites (Gasura in Jomba Sector and Kabyaza in Mukamira Sector) and there is capacity to resettle all 200 households on these two sites - an EIA certificate is attached at Annex 1. However, 3 further sites are included to allow target households greater choice of where they are relocated⁶⁸. If after consultation with the target households, it is decided to include Gisizi, Ngabo or Muremure sites for resettlement, a further EIA will be carried out.

Table 8: Five potential sites identified for resettlement

| Site | Description |
|---------|--|
| KABYAZA | This site is located in Kabyaza village, in Rurengeri cell, in Mukamira sector. Located at an average altitude of 2235 meters, this site is situated on the main Kigali- Rubavu road and |

⁶⁸ During the latter stages of the consultation process (which proceeded in parallel with the EIA) it became apparent that many of the stakeholders felt that Bigogwe sector should be excluded from the project area as there were already a number of other development interventions taking place in this sector and that Rambura had more households vulnerable to climate variability. By this stage the EIA had already included Bikingi Village in Bigogwe Sector. Further consultation with stakeholders strongly suggested that resettlement of vulnerable households should be within the same sector as where they are currently located as people have strong ties to their communities. For this reason, it was decided to propose the other 2 sites included in the EIA (Gasura in Jomba Sector and Kabyaza in Mukamira Sector) for resettlement as these sites could fully accommodate the 200 households. A further three sites were also included (Gisizi and Ngabo in Jomba sector and Muremure in Rurembo Sector) to allow for greater choice among target households. If any of the three additional sites are selected for resettlement, a further EIA would be carried out.

| Site | Description |
|-----------------|--|
| | <p>has approximately 80 plots available. It includes the following facilities:</p> <ul style="list-style-type: none"> • Electricity and water supply, • Access roads, • 2 primary schools • 2 secondary school • 1 church • Health post |
| GASURA | <p>This site is located in Gasura village in Gasura cell in Jomba sector and is located at an average altitude of 2320 meters. The site is located close to the main Musanze – Ngororero – Muhanga road and has approximately 120 plots available. The site is not very developed but has the following facilities:</p> <ul style="list-style-type: none"> • Water supply, • Access roads, • 1 primary school • 1 secondary school • 1 church |
| GISIZI | <p>This site is located in Gisizi cell, in Jomba Sector and is located at an average altitude of 1800. The site has 100 plots available and has the following facilities:</p> <ul style="list-style-type: none"> • Access Roads, • Primary School, • Water supply, and • a market |
| NGABO | <p>This site is located in Guriro cell, in Jomba Sector and is located at an average Altitude of 1700 and has 70 plots; It has the following facilities:</p> <ul style="list-style-type: none"> • Access Roads, • Water supply, • Churches. |
| MUREMURE | <p>This site is located in Murambi cell, in Rurembo Sector and has 50 plots available. The site the following facilities:</p> <ul style="list-style-type: none"> • Electricity • Water supply • Health Centre and • Market |

Under this output, the project will carry out the following activities:

- awareness building and consultation with communities and target beneficiaries,
- selection of 200 target households for resettlement from category 1 and 2 houses located in high risk zones, and
- resettlement of 200 vulnerable households in safe zones (includes expropriation and construction 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 diversify livelihoods, there needs to be a market for new 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:

- a needs assessment,
- 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
- creation of a Market Development Fund for financing 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.

Rwanda's Energy Policy (2012) commits the Government to supporting low cost, renewable energy technologies (hydropower, solar energy and biomass energy systems) through enabling frameworks. Biogas digesters in particular have been successfully introduced with Government support to provide lighting and cooking gas in many areas of the country (only 14% of the population have access to electricity – and most of these are living in urban areas).

The Government also promotes the construction of communal solar and biogas plants in *Imidugudu* in collaboration with Local Government. The roll-out of solar PV and solar water heating is also a key part of the Energy Strategy which aims to develop a market for solar home systems and small solar lighting products. Solar energy equipment is exempt from import duty while solar water heaters and energy efficient lights (LEDs) have also been exempted from VAT. Rwanda already has the first large-scale solar project in sub-Saharan Africa, Kigali Solaire project, established on the outskirts of Kigali, producing 250 kW of electricity for the grid.

This positive policy environment is increasing the uptake of renewable energy especially in rural areas and the technology is readily available at subsidised prices in country. Moreover, the Government has provided training for companies building, supplying and installing biogas digesters to increase the performance of installed systems. There has also been substantial investment in the biogas sector through the National Domestic Biogas Programme (2007-11)

which was established to develop a commercially viable domestic biogas sector. There are 42 active biogas companies operating in Rwanda.

The project will therefore aim to improve access to renewable energy (including solar and biogas). Use of biosolids from human waste (which contain phosphate) to produce plant fertiliser will also be promoted.

The most widely used type of biogas digester in Rwanda is the fixed dome variety which comes in two sizes, 6m³ and 8m³ and costs around Rwf 800,000 and Rwf 900,000 respectively (US\$ 1260 and US\$ 1410). Polyethylene tube digesters are cheaper and quicker to install (a few hours compared to one month) but not widely used (they have so far been piloted in two districts). The tube digesters do not last as long as the fixed dome designs (approx. 7 years compared to 15 years) due to the degradation of the plastic but the main polyethylene chamber is easy to replace. There are two digester sizes available, 6 and 16 m³, costing about \$500 and \$800 respectively (includes the stove, gas pipes, installation). These systems require two cows to operate and provide 5 hours of cooking gas (pressure is generally insufficient to providing gas lighting). A recent evaluation of the National Domestic Biogas Programme concluded that the high investment costs (and low purchasing power of rural communities) for fixed dome digesters was a significant constraining factor on uptake. The project will therefore review the outcome of the recent piloting of the cheaper tube digesters and if these are reliable and economically viable will actively support their uptake.

The Government already offers a Rwf 300,000 (US\$ 450) subsidy to encourage the uptake of biogas technology as well as subsidising solar water heating systems (a 30% subsidy is available on solar water heating systems supplied by six approved contractors). In addition to this, the project would offer concessional loans to enable households to finance biogas digesters (existing loans are available at 13% interest from Bank Populaire) - low cost loans as well as a subsidy are already available for solar water heating systems. Local SACCOs will host the loan accounts. Up to 3 digesters will be provided by the project at the resettlement sites. It is envisaged that 20 fixed dome (6m³) digesters (US\$ 25,200) and 50 tube digesters (16m³) (US\$ 40,000) will be installed throughout the project area during the project. Because the scheme largely operates on a concessional loan basis through local SACCO's the support or renewable energy generation in the target area will continue beyond the end of the project.

The project will also use other financial instruments such as contract guarantees to support lines of credit from suppliers to companies building and installing digesters as well as an insurance product to be included in the loan arrangement. This would ensure that the farmer or energy user group would be fully covered for the loan pay back period. Support in financial planning and budgeting will also be provided to farmers and Energy User Groups to promote sound financial planning and management in respect of installing, maintaining and using renewable energy sources. The investment in biogas digesters will also generate vocational skills development through established vocation training schemes and centres.

Activities planned under this output include:

- provision of concessional loans for installing renewable energy sources,
- creation and capacity building of Energy User Groups and

- 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

Output 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 and implementation at the local level is critical to guarantee 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 levels⁶⁹ as local authorities currently have limited capacity to support project beneficiaries. At the District level this will include: Agronomist Officers, Environment Officers and interns, Co-operative Officers, Infrastructure Officers, Land 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.

⁶⁹ The Institutional Structure in Rwanda divides into 5 Provinces, 30 Districts, 416 *Imirenge* (Sectors), 2148 *Akagari* (Cells) and 14,837 *Umdugudu* (Villages)

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 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 in gender sensitive adaptation planning
- Preparation of training and awareness materials
- Evaluation and revision of training materials

Output 3.2 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 were 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 results 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,
- provide updates on the progress and project activities,
- disseminate case studies and comments from the project participants, and
- communicate lessons learned from project activities.

The project will also introduce competitions to reward innovative approaches and enhance the uptake of effective adaptation practices.

Ultimately scaling up will require long-term financing. There will therefore be a need to develop an investment plan to secure additional finance during 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
- Development of a knowledge management strategy
- Preparation of guidelines and manuals
- Development of 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
- Competitions to reward innovative approaches to adaptation
- Business roundtables with private sector
- Website development (under existing site)
- Development of an investment plan

B Economic, social and environmental benefits

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.

For a fully developed proposal, the estimated benefits will have to be quantified, whenever possible. In addition, if there is any concern of negative development or maladaptation in any of these areas, relevant evidence would need to be referenced, with specific studies if necessary. In that case, based on an Impact Assessment, the proposal should describe how it addresses possible threats, risks of maladaptation or imbalances caused in a wider region, or upstream/downstream to other communities and ecosystems.

The main beneficiaries of the project are the 38,266 households located in the 8 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. 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.

B1 Environmental benefits

Component 1 (improved water and land management) is intended to restore ecosystem functions and services to reduce vulnerability to climate induced hydrological stresses such as flooding and landslides. The proposed habitat restoration activities (primarily soil and water conservation practices) will deliver a number of long-term environmental benefits including:

- reduced erosion and land degradation stabilising hillsides,
- improved in soil fertility,
- improvements in the overall hydrology of local watersheds,
- increased biodiversity,
- increased carbon sequestration,
- increased agricultural yields and sustainability,
- enhanced quality of fodder and
- improved freshwater supplies and
- reduced risk of flooding and landslides.

For example, constructing 80 ponds and 560 rainwater harvesting tanks to harvest surface water, increasing the perennial cover of steep slopes across 5600ha, introducing agro-forestry and other agro-ecological approaches will allow for more saturation and storage of surface water and as a result, will reduce the flood water volume, velocity and subsequent impacts. At the same time, integrated farming systems (growing different crops together with trees and livestock) will also increase productivity, improve biodiversity, increase the retention of nutrients and reduce erosion.

Capacity building of local communities and institutions will ensure that the benefits of agro-ecological approaches are widely understood and supported. The increased commitment to ecosystem-based approaches is likely to foster better stewardship of natural resources.

Component 2 will support more than 8000 target households to diversify and strengthen their livelihoods reducing the number of people reliant solely on farming especially on steep slopes and other ecologically sensitive areas. This will allow land to recover and be rehabilitated so that ecosystem services can be restored. As the rural economy develops, investment in renewable energy sources will reduce the need to use fossil fuels for energy so mitigating rises in carbon emissions.

Component 3 (capacity building) consolidates the positive environmental impacts of the project by building the capacity of local institutions to support community based adaptation through ecosystem based approaches as well as integrating the knowledge and lessons learned into communication materials disseminated through a website, mass media and briefing notes for decision makers.

The awareness raising and training of local leaders will increase understanding of climate threats more generally and enable them to incorporate measures to protect ecologically important resources and promote climate resilient farming methods into local development plans. This will help to mainstream climate change and promote the replication of environmentally beneficial activities in other parts of Rwanda.

B2 Economic Benefits

The project will directly benefit approximately 38,000 households living in the project area through reduced vulnerability to floods and landslides.

Component 1 (improved land and water management practices) will reduce the exposure of populations living downstream to flash flooding and landslides reducing expenditure on expensive response and rehabilitation measures as well reducing the need for costly maintenance of temporary drainage channels. Improving water flows in the hydrological network will also restore important economic services such as hydroelectricity and irrigation.

The farming community will directly benefit from reduced erosion, improved soil fertility, enhanced yields and increased profit margins deriving from integrated and adaptive farming practices and more resilient ecosystems and services. Crop losses due to climate-related hazards will also be reduced. The restoration of ecosystem services will therefore safeguard and sustain agricultural livelihoods in this important food production area of Rwanda improving national food security, reducing Rwanda's reliance on food imports and hence reducing the trade deficit. There will also be positive impacts for downstream communities who will benefit from the improved water quality and flows.

Regenerating eroded hillsides and riparian landscapes will also increase the area's potential for developing eco-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.

Component 2 (livelihood diversification) will expand livelihood opportunities and increase incomes for more than 8000 vulnerable households. This will generate growth in the rural economy, alleviate poverty levels in the project area and increase the diversity and resilience of rural livelihoods to climate change. Investment in market development will improve access to markets, enhance demand for existing and new products and services and more effectively link suppliers to buyers. This will foster increased trade and investment in existing and new value chains.

Investment in rural market infrastructure such as rural primary markets, assembly and retail markets and storage facilities will stimulate agriculture and rural development by strengthening urban-rural linkages, facilitating improved flows of produce, minimising post-harvest losses and reducing health risks. Investment in renewable energy generation (biogas, solar etc.) will provide much needed gas and electricity to support income generation.

Component 3 will build local capacity and reduce the need for financial resources from the national budget. The awareness building and promotion of good practices also has the potential to lead to the replication 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. Moreover, the development of an investment plan will leverage investment in follow on adaptation projects.

B3 Vulnerable groups

Around 28% of households in the project area fall into the poor or extreme poor category⁷⁰ as well as approximately 13,000 female-headed households⁷¹.

Component 1 specifically targets the most vulnerable households to improve their adaptive capacity through improved soil and water management practices and diversified crop production leading to improved yields and a regular supply of different crops and fodder for livestock (from integrated farming systems – livestock, crops and trees). This will improve cashflow, increase food security and household nutrition levels, reduce poverty and the dependence of these vulnerable households on humanitarian relief and state support (for example from the VUP).

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 further increase the resilience of vulnerable groups 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 vulnerable households 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 vulnerable households to adapt to climate change in future.

Component 2 will specifically target extreme poor and poor households decreasing their dependency on agriculture through the diversification of livelihood opportunities. This will alleviate poverty levels in the project area and increase the resilience of rural livelihoods to climate change. Financial support will also be available to 200 of the most vulnerable households situated in high-risk areas to enable them to relocate to safe areas.

B4 Gender considerations

Statistics indicate that between 37-53% of households in the project target area are headed by women, many of whom are in the ‘extreme poor’ category. Poor women will be the primary and most direct beneficiaries of the project due to the vulnerability of these households to climate change and their low adaptive capacity. Moreover the project will ensure gender parity in staff

⁷⁰ The two lowest categories of the *Ubudehe* socio-economic classification system

⁷¹ EICV

recruited to the project so that women and are equally represented in the project management structure.

Component 1 (improved land and water management) will improve the adaptive capacity of women headed households through improved soil and water management practices and diversified crop production. This will increase household incomes, increase food security and improve nutrition levels with positive generational outcomes as school attendance increases among these households. Water harvesting interventions will be specifically targeted to women as they have primary responsibility for fetching water both for domestic and farming purposes.

There is also expected to be an increased participation of women in community decision-making processes⁷² as women will gain the skills and exposure needed to increase their representation in community structures. Awareness of national policy, priorities and challenges in relation to gender equality at the local level will also increase as the project will include specific provisions to build awareness and ensure equitable participation of women in climate adaptation planning. This will enable women's concerns (water collection, firewood and fuel sourcing) to be placed firmly on the public agenda.

Component 2 (livelihood diversification) is expected to increase the number of poor women engaged in new livelihoods. It will also empower women economically by enhancing their skills and improving access to finance, business opportunities and training as well as by supporting women's savings groups, associations and cooperatives. This is expected to have a positive impact on intra-household gender relations as evidence suggests that men's perception of and behaviour towards their wives improves when they are able to contribute to household income. In particular, this is likely to lead to more equitable control over household expenditure and a reduction in household conflict and gender-based violence.

Component 3 will share lessons learned from the gender sensitive approaches adopted by the project widely with other stakeholders to promote uptake and replication in other parts of the country. It is also expected that key decision makers in local administrations and local leaders will have greater awareness of gender issues as key gender messages are incorporated into training courses and materials.

C Cost-effectiveness of the proposed project

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

C1 Cost effectiveness from a technical perspective

The project aims to reduce vulnerability to flooding and rainfall variation through the promotion of climate resilient production and post harvest systems, supporting livelihood diversification and capacity building to scale up successful climate adaptation strategies.

This contrasts with the current approach to flood risk management in Rwanda which is largely reactive, with interventions focusing mostly on costly response and rehabilitation. Investment in improved and integrated land and water management regimes provides a longer-term solution to managing the risks of flooding and landslides.

⁷² Although women are well represented in Parliament and national level organizations, they have a limited voice in community decision-making which is reflected in the very low levels of women in local leadership roles (6%)

The cost of each component against the number of beneficiaries is shown in the Table below.

Table 9: Cost of each component and number of beneficiaries

| Project component | Cost of interventions | No. of beneficiaries |
|---|-----------------------|---|
| 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. | US\$ 4,580,694 | 38,266 households |
| Component 2: Support for the transition from unsustainable settlement patterns and exploitative farming practices to sustainable, diversified livelihoods. | US\$ 3,818,516 | 8000 HHs targeted through livelihood development interventions including 7500 households already located in <i>imidugudus</i> and 2618 HH situated in high risk zones. Resettlement of 200 HH |
| 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. | US\$ 209,890 | 150 local government and NGO staff trained Project results shared through mass media to more than 1 million people |

Table 10 illustrates the cost comparison of different adaptation solutions and shows how alternative interventions would be much more expensive to implement in order to provide the expected benefits.

Table 10: Comparison of proposed interventions with alternative options

| 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. Expected Outcome: Reduced flooding and diversified and higher yields leading to enhanced food security and increased household incomes. Resource allocation: US\$ 4,580,694 | |
|--|---|
| <p>Proposed interventions:</p> <p>These centre around community level mobilisation and <u>climate adaptation planning</u> followed by investment in <u>integrated land and water management technologies</u> to restore the critical functions of the watershed emphasising erosion control (progressive terracing and re-planting of steep slopes with perennial grasses and shrubs) and improved soil management, installation of rainwater harvesting tanks, excavation of ponds to capture surface water with the formation and support of committees to manage small scale infrastructure, re-planting of riparian zones (with trees, shrubs, grasses) and small-scale drainage works.</p> <p>This component would promote climate resilient crop, livestock production and marketing systems and include support for <u>diversification and integration of crop and livestock production systems</u> to minimise the impact of variable rainfall on rural livelihoods (agro-sylvopastoral systems, integrated aquaculture etc.) as well as the introduction of climate-resilient crop and fodder varieties (short season crops, seasonal pastures etc.). The project would also introduce <u>climate resilient post-harvest processing and storage systems</u> for safe handling and storage of agricultural produce during extreme climate events (floods, rains).</p> | |
| BENEFITS OF PROPOSED INTERVENTION | ALTERNATIVE INTERVENTION AND REASON FOR NOT OPTING FOR THIS |
| <ul style="list-style-type: none"> The proposed interventions under Component 1 will benefit over 38,000 of the most vulnerable households across 400 km² in North West Rwanda. Over 10,000 hectares of hillsides and 840km of riparian zones will benefit from the protection and rehabilitation measures which are designed to enhance their ecological functions enabling them to withstand the effects of climate change while providing adaptation benefits to local communities. Approximately 8% of project costs will be contributed by communities in terms of voluntary labour and in kind contributions in site selection, planting and patching, mulching, boundary demarcation and weeding. Re-planting of 5600ha of steep slopes with perennial grasses and shrubs (ha), installation of 560 rainwater harvesting tanks serving 1120HH, excavation of 80 ponds to harvest surface water (120m³ pond), re-planting of 160km of channel, river and lake shores (trees, shrubs, grasses), drainage works on 350km of waterways, 960,000 agro-forestry trees made available from nurseries, 80,000 fruit trees made available from nurseries 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 in line with the Government's decentralisation policy. At the same time the project will learn lessons from and build on successful co-operatives such as the COARU Cooperative in Jomba. | <p>Introduce engineered solutions to flooding including the construction of physical structures such as dikes, major drainage systems, and weather-proofing of buildings to address the impacts of climate change. These are extremely costly and there are high recurrent costs associated with maintaining the infrastructure. Moreover, this type of intervention is not guaranteed to be a long-term solution to the risk of extreme flooding due to the inherent uncertainties with how climate change will alter hydrological regimes.</p> <p>Continue with the existing short term and reactive disaster response and rehabilitation measures which include significant costs related to:</p> <ul style="list-style-type: none"> providing food assistance and the relocation of people to non-flooded areas, reconstructing and repairing houses and the replacement of domestic items and utensils, restoring soils to their productive levels after prolonged and recurrent floods, and lost earnings from crops and livestock and their replacement. |

| | |
|--|---|
| <ul style="list-style-type: none"> • By incorporating adaptation planning and climate risk management considerations into the district planning process the project will provide long-term benefits for up to 612,628 people living in the two districts. • Erosion control, improved soil management and water conservation are low-input, high value activities that will deliver long-term environmental, social and economic benefits in terms of restoring watersheds, improving soil fertility, enhancing agricultural productivity and stabilising hillsides. • The restoration of ecosystem services will significantly enhance agricultural sustainability, improve freshwater supplies and reduce the risk of flooding and landslides. Restoring the water regulation functions to the watershed will help to prevent and control flooding in a sustainable manner as well as reduce the risk of failure of flood defence structures. This will help to reduce the recurrent expenditure associated with assistance provided during emergencies and disasters resulting from extreme rainfall. • Increasing the perennial cover of 5600 ha of steep slopes, introducing 960,000 agro-forestry trees and other agro-ecological approaches will allow for more saturation and storage of surface water and as a result, will reduce the flood water volume, velocity and subsequent impacts. This achieves greater resilience at a landscape level than structural defence options and minimises the exposure to and impacts of floods. • The use of harvested water for irrigation will increase yields, reduce water losses, and reduce chemical uses (herbicides, fertilisers) and labour. Having access to irrigation will also increase farmers' resilience to rainfall variability. Surface water storage is the most effective way of supplementing water for development (irrigation and drinking) and avoids the costs associated with maintaining and fuelling pumps. As the technology is simple and easy to install it is likely to be sustainable in the long term compared to more high tech interventions. • The building of capacity to diversify food production through adaptive agro-ecological practices such as agro-forestry, inter-cropping etc. will enhance agricultural productivity and create a regular flow of food and cash (from surpluses) for vulnerable households. These techniques will also reduce the need for inputs such as fertiliser and pesticides and hence reduce production costs. These methods will also mitigate against extreme climatic events and will farmers to better cope with future and possibly more frequent extreme climate events. • The participatory approach which involves local people in managing natural resources and adaptation planning will lower management costs and sustain outcomes over time. 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 farming communities. | <p>Under this scenario farmers will continue to be adversely affected by unpredictable extreme weather events and seasonal weather aberrations with reduced food and income security. Communities would also continue to be unprepared for these events and adversely affected through damage to infrastructure, loss of life etc. MININFRA and districts experts estimate that up to 40% of the roads budget is spent on rehabilitation and maintenance of infrastructures destroyed by water.</p> <p>The shocks and stresses caused by flooding in the affected areas are recognised as a contributing factor in the migration of people particularly male youth to cities where limited employment opportunities mean they are vulnerable to falling into a life of crime and/or substance abuse. These social costs are difficult to assign a cost to, but are recognised as high.</p> <p>The project could rehabilitate eroded lands with radical terraces⁷³. This was ruled out based on high costs of up to US\$3,492 per hectare (compared to US\$1,905 per ha for progressive terraces and much less for the other erosion control measures that will be promoted by the project), and the impact on household incomes during terrace construction when farmers cannot use their land.</p> <p>The project could intensify agricultural production through increased inputs of pesticides and fertiliser. However, this approach is expensive, has negative environmental impacts; and does not offer any protection against climate change hazards.</p> <p>The project could develop ground water sources to provide a continuous water supply for drinking water and irrigation. However, ground water development costs are generally much higher than surface water collection. Moreover, lift irrigation schemes for irrigation require energy for pumping and the cost of electricity or fuel (diesel/kerosene) is often prohibitive for many small farmers.</p> |
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⁷³ *Strategic Environmental Assessment of the Agricultural Sector in Rwanda, 2012.*

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| <ul style="list-style-type: none"> Strengthening the organisational capability of community groups and building their knowledge of issues related to climate change and variability also means that the beneficiaries will be able to adapt to new climate scenarios if needed and ultimately reduce their dependence on state interventions and humanitarian relief by the central government. In the long term, this is more cost-effective than using external organisations to deliver project outputs. The development of district administration capacities will build in sustainability and is a cost effective way of mainstreaming climate change adaptation in district development plans. By training local co-operatives the project also builds in sustainability reducing the need for further technical assistance and building the capacity for these organisations to replicate and scale up project experiences in other vulnerable districts of the North West. The project will provide the tools, the infrastructure works and the capacity building necessary to ensure communities are more resilient to climate change. Supporting farmer field trials is highly cost-effective compared to implementation by research institutions. This also improves skills and develops capacities for maintaining ecosystem resilience. The deployment of small-scale water infrastructure and development of local water user associations to operate and maintain these systems is a critical part of the project's exit strategy as it will allow farmers to be more self-reliant. The investment in weather resistant storage and marketing facilities will mean that critical agricultural infrastructure is better able to withstand extreme climatic events, that food security is increased and that rural communities are able to recover more quickly from climate shocks and stresses. | |
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| Component 2: Support for the transition from unsustainable settlement patterns and exploitative farming practices to sustainable, diversified livelihoods. Expected Outcome: Diversified and climate resilient livelihoods of vulnerable households in project area. | |
|---|--|
| Proposed interventions: The proposed interventions support the development of sustainable <u>alternative livelihoods</u> to enable vulnerable households to transition from unsustainable, subsistence farming to more productive jobs and businesses. A major part of this component includes developing <u>Rural Development Hubs</u> to promote and facilitate sustainable and market-linked, diversified livelihoods (agro-processing, eco-tourism, handicrafts etc. Linked to this would be measures to increase access to <u>credit and technical</u> support to help vulnerable groups, increase investment in <u>market development</u> (infrastructure, transport, storage, market research etc.) along with increased investment in and <u>access to renewable energy</u> (Biogas plants, solar etc.) for enterprise development. There is also provision for <u>resettling</u> 200 households living in high-risk zones to Rural Development Hubs. | |
| BENEFITS OF PROPOSED INTERVENTION | ALTERNATIVE INTERVENTION AND REASON FOR NOT OPTING FOR THIS |
| <ul style="list-style-type: none"> The proposed interventions under Component 2 will benefit over 8000 of the most vulnerable households in North West Rwanda. | Continue to resettle people from high risk areas in <i>imidigudus</i> without support for alternative livelihoods. This option would lead to increased |

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| <ul style="list-style-type: none"> • The project interventions create sustainable income generating opportunities in service provision, diversified agricultural production, and value addition. This will alleviate poverty levels in the project area and increase the diversity and resilience of rural livelihoods to climate change. • Creation of alternative livelihoods will reduce dependency on farming and alleviate pressure on fragile ecosystems allowing the restoration of essential ecosystem services. This will reduce the risk of flooding and landslides and the costs associated with disaster relief and rehabilitating affected areas. • The project will target existing <i>imidugudus</i> situated in the project area for the creation of sustainable, alternative livelihoods since they are planned clustered developments usually located in proximity to roads and other essential services. • Investment in market development will enable a better understanding of the demand for existing and new products and services and link suppliers to buyers more effectively. The analysis will inform investment and support for existing and new value chains and ensure that only the most viable sectors are developed. • The investment in rural market infrastructure will strengthen urban-rural linkages to facilitate improved flows of produce. It will also stimulate agriculture and rural development. Marketing infrastructure such as rural primary markets, assembly and retail markets and storage facilities is essential for cost-effective marketing, minimising post-harvest losses and reducing health risks. • Investment in renewable energy generation (biogas, solar etc.) will provide much needed gas and electricity to support income generation. This is important because fuel and electricity costs are very high in Rwanda and most households do not have access to electricity. Small-scale biogas plants have been successfully deployed in Rwanda on a number of projects and the technology is readily available, simple, easy to maintain and inexpensive. Likewise, there are also a number of companies in Rwanda offering cost effective solar power systems ranging from simple lamps to electrical supply systems. The technology is readily available, the Government authority responsible for electricity supply is already investing heavily in solar technology to supply 20% of homes in Rwanda | <p>levels of poverty and vulnerability to climate change. Many vulnerable people, particularly male youth will continue to migrate to urban outskirts in search of jobs yet without the necessary skills to secure employment.</p> <p>Leave people to continue farming steep slopes and sensitive riparian zones. This will continue the process of land degradation and increase the risk of flooding and landslides. Moreover, the ever-declining returns from farming unproductive soils will ultimately lead to degraded land being abandoned and increase the cost of habitat restoration.</p> <p>Target livelihood development services through smaller, scattered centres of development rather than through <i>imidugudus</i>. It would be more expensive to reach rural communities in this way compared to targeting these services and investment to clustered developments. Existing infrastructure at the village level is inadequate for these interventions.</p> <p>Limit investment in market development so that project resources can be deployed elsewhere. This will mean that local markets remain undeveloped and unconnected to higher value urban markets. Produce may perish if local demand is insufficient to meet the supply or if the produce is not stored properly. It will be difficult to create alternative livelihoods without market development since local demand for the additional products and services generated is likely to be insufficient to support these livelihoods.</p> <p>Invest in the provision of small generators as an alternative to renewable energy to provide electricity. Although the capital outlay would be lower, these would be costly to maintain and operate.</p> |
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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.
Expected Outcome: Enhanced capacity of local actors and Government to develop and implement risk reduction strategies for areas prone to flooding and landslides.

Proposed interventions:

This component builds 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. It will also share project results and lessons learned and mainstream new approaches in local and national planning.

| BENEFITS OF PROPOSED INTERVENTION | ALTERNATIVE INTERVENTION AND REASON FOR NOT OPTING FOR THIS |
|---|---|
| <ul style="list-style-type: none"> • The proposed interventions under Component 3 will potentially benefit over 4.1 million people living in North West Rwanda. • 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. This will contribute to minimising damage and losses associated with hazard events through increased awareness and capacity. • The training of technical experts and government officials in addressing climate change will help to mainstream climate change and enable them to incorporate adaptation planning into future activities and will enable the replication of activities in other parts of Rwanda. This will protect the AF's and other Government investments in building climate resilience. • Building local capacity reduces the need for financial resources and other support from national level organisations improving the self-sufficiency of local sectors and districts. • This component will increase secondary uptake and replication 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 development of an investment plan will leverage investment in follow on adaptation projects. | <p>The project could focus all the resources from this component on only national level awareness building. However, this would leave a gap in knowledge and understanding at the local level where key decisions are made and resources deployed.</p> <p>Considering the Government's emphasis on decentralisation, it is vital that local awareness and capacity is built so that appropriate measures can continue to be incorporated into district development and land use plans to ensure project outcomes are sustainable and communities continue to be supported to adapt to changing climatic conditions.</p> <p>The project could concentrate all funding resources entirely on the target households but this approach would fail to capitalise on the potential for secondary uptake of good practices that lead to wider climate resilience in and beyond the target communities.</p> |

C2 Cost effectiveness from a project management perspective

The Project Implementation Unit (including the co-ordinator) will be based in the project area. This will enable the best use of resources and reduce project management costs, as well as provide closer oversight of project activities and the progress of the project's technical components.

The project will also work in partnership with local institutions such as the NGO DRD which has specific expertise and a solid track record in key areas such as women's empowerment.

The recruitment and participation of community volunteers in project implementation will build local capacity, utilise local knowledge and deliver project outputs for a relatively small investment as well as enhance the sustainability of project interventions. It will also ensure that the majority of resources will go straight to the beneficiaries.

Poverty reduction projects and programs are heavily embedded into Rwanda's norms and traditions. This is known as the "Rwandan way"⁷⁴ and promotes a sense of ownership, ensures effective implementation of projects and their long term sustainability. An example of this is the monthly *umuganda* communal work days where all Rwandan citizens throughout the country provide free labour on the last Saturday in each month for community projects.

Employing field staff (1 Project Officer for each sector) to do the same work in various locations would have cost the project USD 265,620 compared to USD 35,391 for two volunteers (1 male and 1 female) in each sector.

There is expected to be a high demand for participation in the volunteer programme due to high unemployment in the project area (particularly among youths aged 18-24) and the associated benefits (bicycle, mobile phone etc. as well as ongoing training) which will enable income generation and increase employability of the volunteers.

The project has been conceived taking into account proposed and on-going interventions with a view to complimenting other investments and adding value by creating synergies. For example, the project will link in with Farmer Field Schools (supported through RAB), Village Savings and Loans Groups (promoted by NGOs such as CARE and its partner NGOs) and the national Girinka (One-Cow-per-Poor Family) programme⁷⁵ (agro-forestry interventions planned under this project have the potential to compliment this programme as they provide a source of fodder).

AF resources will be carefully managed to achieve effectiveness and value for money. MINIRENA's (and hence RNRA's⁷⁶) planning, budgeting, reporting, procurement and financial

⁷⁴ Dickson Malunda and Serge Musana (2012). Rwanda case study on economic transformation. Institute of Policy Analysis and Research – Rwanda (IPAR). Report for the African Centre for Economic Transformation (ACET).

⁷⁵ A presidential initiative aimed at fighting poverty through the distribution of cows to poor families and rooted in Rwanda's cattle culture. Poor families receive a cow and once that cow gives birth, the calf is given to a poor neighbour. Owning cattle improves nutrition through the milk, increases incomes from milk sales and improves soil fertility. Since 2006, more than 200,000 cows have been distributed to the poorest families.

⁷⁶ As an agency operating and executing national mandates under the oversight of MINIRENA, RNRA uses the same systems as MINIRENA for all aspects of project and financial management.

management systems will ensure the project is cost effective and provides value for money. The systems include measures to:

- ensure the required inputs have been identified and the procurement procedures are 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.

Competitive procurement procedures will also ensure value for money.

Given the importance GoR attaches to climate adaptation, the project will potentially be replicated and scaled up to increase the adaptive capacity of other areas in the country.

The project will make use of the lessons learned and best practices from projects that are being implemented related to climate change in the country (see section F). Moreover, the proposed project will be used by the GoR as a pilot initiative that will provide expertise in addressing climate change adaptation at a district level by integrating climate adaptation into decision-making, strengthening capacity of district administrations to address climate change and integrating lessons learned and knowledge in the development of adaptation measures in other parts of the country (promoted under Component 3).

The proposed project will therefore provide the foundation for the GoR to replicate and enhance interventions in other regions of the country based on the experience and results generated from this investment and to scale-up investments in the North West region.

Cost-effectiveness will be further analysed during project inception and implementation when actual and updated cost figures will be collected.

D Consistency with national or sub-national sustainable development strategies

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:

- Integrated Water Resource Management – IWRM;
- establishing early warning systems for hydro-agro meteorological events and rapid intervention mechanisms;
- promotion of non agricultural income generating activities;
- promotion of intensive agro-pastoral activities; and

- development of alternative sources of energy to firewood.

The development and strengthening of programs for integrated management of water resources includes 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 to reduce the pressure on water resources, given that agriculture accounts for nearly 70% of the total water use;
- developing human 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:

- 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.
- 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's Decentralised Governance and Service Delivery Policy and provides an opportunity to implement project activities at local level.

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

- the introduction of measures for managing water related disasters and stresses, arising from climate change, floods, droughts and demographic trends;
- the development 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 Policy also 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 2020⁷⁷ and reach 85% of the agro-forestry system of the national territory.

The National Land Policy ensures 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.

⁷⁷ 21% of the country is currently covered by forests.

The National Land Use Development Master Plan (NLUDMP) provides a general framework and guidance on land use planning in Rwanda. The Project is aligned 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 Policy is 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 project also aligns with the national programme on 'Women and Youth Access to Finance', a collaboration between MIGEPROF and MINICYOUTH/ICT. This is a three year national project to be implemented by the Business Development Fund during the lifetime of this project. The programme's aim is to increase the financial literacy of women and youth, including educating them about savings and loans, business plans, bank accounts and other aspects of basic finance.

The Technical and Vocational Education and Training (TVET) Policy exists to provide the economy with qualified and competitive workers and to train citizens able to participate in sustainable growth and poverty reduction by ensuring training opportunities to all social groups without discrimination.

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.

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.

Other supportive structures include the rolling out of a national programme 'Women and Youth Access to Finance', collaboration between MIGEPROF and MINICYOUTH/ICT. This is a three year national project to be implemented by the Business Development Fund during the lifetime of this project. The project's aim is to increase the financial literacy of women and youth, including educating them about savings and loans, business plans, bank accounts and other aspects of basic finance.

The establishment of the Vocational Training Centres in all Districts is helping youth to train and gain work in off-farm income opportunities.

The PSF initiative is encouraging people to shift out of farming and into new employment opportunities.

E Compliance with national technical standards

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. An EIA is required for the resettlement activities planned under Output 2.3 and has been duly carried out by an accredited assessor for two potential resettlement sites. These sites have space for the relocation of the 200 target households and an EIA certificate has been issued. The EIA includes an Environmental Management Plan for each site. A list of people consulted during the assessment is included in Annex 2.
- 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 *imidugudu* 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 house size in an *Imidugudu* should be 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 policies 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 /PCT⁷⁸, 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 Duplication of project with other funding sources

Describe if there is duplication of project / programme with other funding sources, if any. All relevant potentially overlapping projects / programmes need to be identified, and lack of overlap / complementarity stated in a logical manner. For a fully developed proposal, the linkages and synergies with all relevant potentially overlapping projects / programmes need to be clearly outlined, avoiding evasive wording, including areas of overlap and complementarity, drawing lessons from the earlier initiatives during the project design, learning from their problems/mistakes, and establishing a framework for coordination during implementation.

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 especially in the heavily populated North West Rwanda which has been identified as one of the most vulnerable areas to climate change. The proposed Project is fully aligned with and aimed at complementing and scaling up the on-going efforts by the Government of Rwanda. The project framework has been designed to mesh with other investments and add value by creating a more cohesive planning and management regime that brings climate adaption to the fore. Table 11 presents a summary of recently concluded, ongoing, and pipeline projects that are relevant to the proposed project.

⁷⁸ Resettlement Policy Framework and Process Framework for LVEMP II

Table 11: Summary of recently concluded, ongoing, and pipeline projects that are relevant to the proposed project

| Project | Description | Timing and Geographical coverage | Potential duplication and synergies |
|--|---|--|---|
| Gishwati Reforestation Project | Reforestation of public lands, reconversion of degraded public forests, and agro-forestry. Managed by MINIRENA in partnership with MINADEF through the Reserve Force. The project has restored over 3,000 hectares by planting trees as well as relocated 400 families. | 2012 ongoing Musanze, Nyabihu, and Rubavu as well as 12 other districts in Rwanda. | Proposed project will support 400 resettled families under the alternative livelihood component and draw lessons from the Reforestation Project. |
| Government resettlement programme | This is an ongoing national programme to resettle the rural population in planned developments (<i>imidugudus</i>) to consolidate and intensify agricultural production, promote reconciliation and facilitate cost-effective improved access to basic services (health, education, electricity, water etc.). | Ongoing | The 2792 households 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. |
| National and district land use master plans | An ongoing national programme by MINIRENA to develop a national land use master plan and local land use plans. | Ongoing | District land use maps are now available for the project area and will guide the land zoning process in the improved 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. |
| Gishwati Land and Water Management Project | Aimed at ensuring sustainable use of the Gishwati forest and implemented by MINAGRI ⁷⁹ and the Ministry of Local Government through the Rwanda Agricultural Board. The project has a budget of US\$26 million and aims to improve land productivity and reduce erosion (with bench terracing and improved land husbandry on 302ha) as well as increase forest cover (70ha) and ecosystem restoration in the Gishwati Forest Ecosystem. This includes rehabilitation 200 ha of new range land in Gishwati and construction of feeder roads in the area. | 2011-2014 Gishwati area in Nyabihu and Rubavu districts and in Nyabihu District (in Rambura, Bigogwe, Karago and Jenda Sectors) adjacent to Gishwati forest. | The project can learn from this intervention which will end in 2014 and consolidate the gains made under the erosion control measures introduced. The project can also link in with 42 self help groups (around 600 HH) that have been established by the project. |
| Reducing Vulnerability to Climate Change by Establishing Early Warning and Disaster | This project is funded by the LDCF (US\$1.25 million) through GEF/UNEP and implemented by the Rwanda Environment Management Authority in partnership with UNEP, UNDP, RAB (Rwanda Agriculture Board), MIDIMAR, MET RWANDA and the African Adaptation | 2010 to 2014 The project intervention area includes the four districts | There is a direct overlap with this project since it operates in 2 sectors of Nyabihu (Karago and Rambura) where the proposed project will operate. Even in these sectors, there has been a deliberate identification |

⁷⁹ key institution for soil and water conservation in agriculture at a policy level

| Project | Description | Timing and Geographical coverage | Potential duplication and synergies |
|---|---|---|---|
| Preparedness Systems / Support for Integrated Watershed Management in Flood Prone Areas | <p>Program (AAP).</p> <p>The project promotes soil conservation and improved resource management (reforestation, radical terracing, horticulture and agroforestry) including the restoration of ecosystem functions to Karago Lake. 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.</p> <p>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 capacity building. Predicting the climate is the first stage but follow on interventions are also needed to support mitigation and adaptation.</p> | <p>bordering the Gishwati forest including Rambura and Karago sectors in Nyabihu District.</p> <p>The project is piloting adaptation measures in the districts of Nyabihu, Ngororero, Rubavu, Rutsiro, Nyamagabe, Bugesera, Kayonza, Gatsibo, Kirche and Rulindo.</p> | <p>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.</p> <p>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.</p> <p>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 (which relate to developing an Early Warning system and a land use master plan).</p> |
| Landscape Approach to Forest Restoration and Conservation (LAFREC) | <p>This GEF/World Bank project will introduce and implement landscape restoration management plans and develop risk and vulnerability assessments for the Gishwati forest area. 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.</p> | <p>Pipeline project 4 districts including Nyabihu but the sectors have not yet been identified</p> | <p>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 with support from 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.</p> |
| Building resilience of communities living in degraded forests, savannahs and wetlands of | <p>This GEF project (funded under LDCF) will have 3 components: (1) local and national institutional capacity development for an ecosystem management approach to adaptation; (2) strengthening the policy and strategy environment to promote the up-scaling of an ecosystem management approach</p> | <p>The pipeline project targets 3 ecosystems: savannahs in East Rwanda and degraded forests and</p> | <p>The specific locations for project interventions have not yet been decided and if this project is approved, site selection will be co-ordinated with the design and implementation teams to avoid overlap in working intervention</p> |

| Project | Description | Timing and Geographical coverage | Potential duplication and synergies |
|--|---|--|--|
| Rwanda through an ecosystem management approach | <p>to adaptation in Rwanda; and (3) Interventions that reduce vulnerability and restore natural capital.</p> <p>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.</p> | wetlands in North West Rwanda. | areas. This will be relatively straight forward since the project comes under MINIRENA, REMA and MINAGRI. |
| Integrated Water Resources Management Development (IWRMD) | <p>The Government of Rwanda 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:</p> <ul style="list-style-type: none"> • 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 | 2013-2015 | <p>This project will complement the proposed project by providing hydrological data to inform the planned drainage works.</p> <p>The Results of the risk and vulnerability assessment are also complimentary as they will help to identify the most vulnerable communities and necessary interventions not only to manage disasters but also enhance adaptation capacities.</p> |
| Poverty and Environment Initiative (PEI) | <p>Led by the Rwanda Environment Management Authority (REMA) and the Ministry of Lands, Environment, Forests, Water and Mines (MINITERE) and funded by UNDP, the intended outcome of the PEI is the integration of environment into national policy and district planning, policy and budget processes to implement the Economic Development and Poverty Reduction Strategy (EDPRS II).</p> <p>The expected outcome for PEI Phase II is that environment is integrated at national and district planning, policy and budget processes to implement the EDPRS with the expected Output that six selected line ministries (selected on the basis of expenditure) and districts have fully mainstreamed environment in their sector policies, plans and strategies and capacity has been built for sustainable sector performance. The project works at the central, district and community levels and has been instrumental in mainstreaming climate change issues into the development agenda at all levels.</p> | 2009 – 2013 but a fourth phase 2014 – 2018 is under review | <p>This project compliments the proposed project particularly Component 3 which will build institutional capacity to plan and implement climate resilient development and scale adaption strategies at the national level.</p> <p>The PEI has already improved capacity within key ministries and institutions as well as district administrations to understand and analyse links between poverty and environment and to integrate environment into policymaking, planning and budgets. This is particularly relevant for climate change projects that target the poor.</p> <p>PEI has also been instrumental in increasing awareness and more effective participation of stakeholders in environmental policy and planning processes at both district and national level. This</p> |

| Project | Description | Timing and Geographical coverage | Potential duplication and synergies |
|---|--|---|--|
| | | | provides an ideal foundation for the proposed project to scale up adaptation strategies country-wide. |
| Lake Victoria Environmental Management Project (LVEMP) | <p>LVEMP II is a five year East African Community project under implementation in the five countries that share the Lake Victoria Basin: Burundi, Kenya, Rwanda, Tanzania and Uganda. It is funded through a US\$ 15 million IDA loan from the World bank. There are four components:</p> <ol style="list-style-type: none"> 1. Strengthening institutional capacity for managing shared water and fisheries resources; 2. Point source pollution control and prevention; 3. Watershed management with two sub-components: (i) Natural resource conservation and livelihoods improvement; and (ii) Community capacity building and participation; and 4. Project coordination and management. <p>In the Goma area, around 100 ha of radical terracing have been completed and 70ha of land planted with trees. The project also disburses small grants through SACCO branches to cooperatives through its Community Driven Development (CDD) sub-project initiative. This approach enables local communities to access project funds for sustainable enterprise development.</p> | <p>2012-2017</p> <p>So far the project has launched activities in two districts but is planning to roll out to a further 7 districts this year.</p> | <p>Under component 3 (watershed management), the project promotes similar interventions as those proposed in the new project design, hence there is good scope to learn from this project as it progresses. These include: rehabilitation of riparian buffer zones, sustainable land management, IPM, Farmer Field Schools and watershed management, training and awareness building on the Environmental Organic Law.</p> |
| Decentralisation and Environmental Management Project II (DEMP II) | <p>This, the second five year phase of the Project funded through UNDP was designed to build on and scale up the successes of the first phase (2005-8). The overall objective of DEM II is to integrate environment with development and promote sustainable livelihoods using decentralisation as a delivery mechanism. The project has 3 components:</p> <ol style="list-style-type: none"> 1) Enabling MINITERE to effectively implement environmental policies, and support the decentralisation and coordination of quality delivery of environmental services in the districts; 2) Strengthening district Capacity for environmental management – to enable districts to integrate environmental issues into the development process, through the District Development Plans (DDPs) and the budget process; | <p>2008-2013</p> <p>13 districts in the Western and Eastern Provinces</p> | <p>The ultimate aim of the project is to contribute to poverty reduction and economic development through sustainable use and management of natural resources. The project interventions have increased the districts' capacity to plan, manage and ultimately benefit from environmentally sound development activities. Although there is no geographic overlap with this project, the proposed project will link in with this project and draw lessons from it's district level interventions which are relevant to components 1 and 3.</p> |

| Project | Description | Timing and Geographical coverage | Potential duplication and synergies |
|----------------|---|----------------------------------|---|
| | 3) Assisting in the implementation of environmental priorities identified in the DDPs by using innovative practices (e.g. improved cooking stoves, soil conservation technologies etc.), and building public-private-civil society sectors in integrating conservation and development, targeting communities in/ around protected areas where degradation threatens livelihoods sustainability. | | |
| FONERWA | <p>FONERWA is a national climate fund which has recently been established in Rwanda with US\$ 23 million of support from DFID. The aim of FONERWA is to respond to Rwanda's current and future needs for environment and climate change related financing, to further support and accelerate goals of sustainable economic development.</p> <p>The outcome of the FONERWA Fund is to sustainably and equitably finance and further strengthen national programmes and private sector initiatives in the areas of current and future environment and climate change, and development related challenges and opportunities.</p> <p>The FONERWA Secretariat and Fund Management Team is housed in the Rwanda Environment Management Authority (REMA) and the Ministry of Environment and Natural Resources (MINIRENA) is responsible for Fund oversight.</p> | Ongoing (established 2013) | <p>FONERWA will enable the proposed project outcomes to become sustainable since it has the financial resources needed to scale up adaptation strategies on a country-wide basis.</p> <p>FONERWA has provided technical support for a large part of the design of the proposed project.</p> |

The fact that many of the interventions summarized in Table 11 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 sector 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 nationwide Farmer Field

School Programme which promotes Integrated Pest Management and is being implemented by the RAB. The lessons learned from some of these ongoing projects are included in Annex 3.

G Learning and knowledge management

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

One of the key activities built into every component 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 raising on 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 proposed project also has an output under Component 3 which specifically focuses on sharing project results and lessons learned and mainstreaming new approaches in local and national planning. The lessons will be disseminated through farmer-to-farmer fora (cross visits, community meetings etc.), enterprise development meetings, participatory videos made by farmers 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 project will also develop a knowledge management strategy to ensure that the project learns from the experience gained during implementation and that the knowledge is shared with other stakeholders as reference for future projects. The knowledge acquired under this project will enhance that of other projects or initiatives funded by the GEF/World Bank 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 the lessons learned and good practices from five other related projects and initiatives were compiled and incorporated into the project design. The main section of this report is attached at Annex 3. A summary of these lessons is shown below.

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| <p>Main findings from the lesson learning exercise</p> <p>It was evident from the study that community participation in the design and implementation was considered to be critical in promoting local ownership, ensuring interventions are appropriate to local conditions and sustaining outcomes beyond project phase out activities. This was recognised by all of the projects and there are many examples how projects are engaging effectively with local communities, associations, cooperatives etc. in project activities. However, some projects faced significant capacity issues when they tried to implement the project through local institutions and some lacked adequate resources for capacity building. It is recommended therefore to carry out capacity assessments of potential project partners and make provision for ongoing capacity building of these institutions where necessary.</p> <p>While the need for urgent action to tackle climate change is generally accepted at the national level, a number of respondents emphasised the need to raise awareness of climate change issues among practitioners at the sector and cell level in order to build support for climate adaptation planning and associated interventions. The projects appeared to be well versed in awareness raising and there are a number of avenues available to support awareness campaigns including REMA’s 15 minute weekly slots on radio and TV networks and existing human resources such as the Environment Interns who work in the two districts.</p> <p>Virtually all of the respondents emphasised the importance of integrating project activities with the District development plans, contracts, budgets, and procurement plans to create a strong commitment to project goals at district, sector and cell level and to sustain project outcomes beyond the lifetime of the project. However, it was highlighted that District staff are often involved with multiple projects and activities and cannot dedicate much time for implementation of specific projects.</p> <p>Some projects mentioned delays in disbursing funds through district authorities and emphasised the need for a dedicated, field based project team to ensure the timely delivery of project outputs. Outsourcing technical and social services to competent private companies and CSO’s was also suggested as an alternative to delivering all project services in-house although it was noted that CSO’s/NGO’s to date have not been that visibly involved in climate change projects and may lack capacity.</p> <p>A number of respondents highlighted the hardship experienced by households who were resettled or who owned land being restored or terraced under project interventions. These periods when farmers cannot cultivate crops create considerable hardship within the households. It is important therefore, to support farmers during this transition period with activities that generate sufficient income to sustain the household.</p> <p>Monitoring and evaluation was generally considered to be a weak point of the projects consulted.</p> |
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This was attributed to poor design of monitoring and evaluation systems, capacity issues at the field level, delayed baseline surveys and a low level of importance assigned to monitoring and evaluation. It is recommended that these problems are avoided in the current design by having a dedicated member of staff responsible for monitoring and evaluation activities, ensuring adequate resources are available to develop a sufficiently robust monitoring and evaluation system to ensure timely and responsive management and that the baseline survey is conducted during the early stages of project inception.

Most of the projects were well co-ordinated through the Special Project Implementation Unit (SPIU) and Senior Management Meetings. The RNRA SPIU will therefore be the primary co-ordinating body but beyond RNRA, there are opportunities to link in with other complimentary projects via the Thematic Working Groups and Joint Sector Reviews.

One project reported delays due to unexpected climatic events and others mentioned delays in fund disbursement from donor agencies. It is important therefore, that these risks are effectively mitigated against in project implementation.

H Consultative process

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

The implementation arrangement should include a framework allowing for stakeholders' views to be heard during project implementation. Whenever possible, a strategy and timetable for sharing information and consulting with each of the stakeholder groups during project implementation should be provided. Adequate facilitation measures (e.g. travel costs) should be budgeted to minimise barriers for involvement of key stakeholders where these impede their participation.

The documentation of the consultative process should at least contain a) the list of stakeholders already consulted (principles of choice, role ascription, date of consultation), b) a description of the consultation techniques (tailored specifically per target group), c) the key consultation findings (in particular suggestions and concerns raised).

H1 Description on the consultative process

H1.1 Consultation during project concept stage

A wide range of stakeholders, particularly local communities, have been consulted during preparation of the proposal. At the outset of the design process, 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, its 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 the design phase can be found in Annexes 4-7. These include representatives of all the relevant line Ministries (MINAGRI, MINRENA, REMA, RAB, RNRA, EWASA and MINALOC), community leaders, District, Sector and Cell level Government 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 implementation and monitoring and evaluation of the project.

H1.2 Consultation during project development stage

During the development of the full proposal four detailed consultations were carried out in Nyabihu district:

- 1) a stakeholder evaluation,
- 2) a vulnerability assessment,
- 3) a gender analysis and
- 4) an Environmental Impact Assessment.

These studies used a variety of techniques including: structured interviews and focus group discussions with vulnerable groups and other stakeholders, round table discussions, visits to sites where households had been directly affected by flooding, landslides and erosion and in depth discussions with men and women who had lost land, housing and crops including those who were living with friends or relatives or in temporary homes.

The **stakeholder evaluation** covered a wide range of stakeholder perceptions about the project, including: project planning and implementation; types of interventions; power relations; methods of engaging project beneficiaries; challenges to the project; and potential partners.

The objective of the study was to identify and understand the viewpoints of all stakeholders and actors in climate change adaptation at district and local levels with a specific focus on identifying the areas most affected by climate change (destructive rains, flooding) as well as critical ecosystems (important for climate resilience) that have been degraded. The field work focussed on three issues:

1. Vulnerability to climate change
2. Current response strategies
3. Views on the project

A summary of the study is included in Annex 9.

The **gender analysis** was undertaken as part of the design process to better understand gender roles, power relations and to disaggregate women's and men's specific interests, needs, and priorities as they relate to the proposed project. The study examined women's vulnerabilities to climate change in North West Rwanda and how gender relations determine adaptation strategies.

The analysis explained how climate change affects women and men in different ways and enabled gender sensitive approaches to be incorporated in the project design and gender disaggregated indicators integrated into the project framework to ensure gender parity in the distribution of project benefits. A summary of the study is included in Annex 10.

A **vulnerability analysis** was also undertaken to identify the most vulnerable groups within the seven targeted sectors in the two districts and understand what makes people vulnerable to climate change, how they use existing coping strategies to adapt to climate change and identify what their baseline adaptive capacities are. The study was also used to identify practical strategies, specifically alternative livelihoods to facilitate community-based adaptation to climate change. The alternative livelihoods recommended by this study are shown under Component 2.1 (identification of alternative livelihoods) in Part II of this proposal. A summary of the study is also included in Annex 11.

A profile of the key stakeholders identified during the consultation processes is shown in Table 12 below.

Table 12: Profile of key stakeholder groups

| Stakeholder | Role |
|----------------------------|--|
| District government | <p>The Mayor and Vice-Mayors are important in driving the District development agenda. Currently much effort is being devoted to the finalisation of the District Development Plan (DDP), which sets out development priorities for the next five years. As this comes into force later in 2013, this will have an important influence on the project. It will be crucial to engage them in project coordination.</p> <p>Key actors within the District Government Office include Officers in Environment, Agriculture, Forestry, Land and Planning. District government offices also host a number of special projects. The REMA project on decentralised environmental management of the Gishwati watershed and the WASH project (supported by UNICEF) are particularly relevant for the AF project.</p> |
| Sector government | <p>Important in identifying problems linked to climate change, especially high-risk households, and in communicating with project beneficiaries. Sector Agronomists and Cooperative Officers, and Cell level IDPs are important staff members to engage at these levels.</p> <p>Sectors (and Cells) serve as constituencies within Districts and hence provide an important vehicle for the citizens' voice. Sectors are headed by an Executive Secretary and include the Sector Council (with responsibilities in approving sector plans and monitoring their implementation) and the ten-member Sector Executive Committee, which supports the preparation and implementation of sector plans. Key actors within the Sector government office include:</p> <p>Cooperative Officer: helps to mobilise people to join cooperatives, provide management support and investment advice. Agronomy Officer: provides agriculture extension services to cell level agronomists and directly to farmers.</p> <p>Other important stakeholders at the Sector level are Umurenge Savings and Credit Cooperatives (SACCOs) and Business Development Centres. SACCOs have been developed to overcome the</p> |

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| | gap in financial service provision in rural areas due to a lack of banks and the inability of poorer members of society to access financial services. |
| Cell level government | <p>Important for identifying problems but they have little power or resources to solve these problems. Managed by technicians, with a small political team that serve as decision makers and advisors to those technicians. The most important of these is the ten-member Executive Committee to identify and prioritise needs, design development plans, mobilize development resources and implement the plans (they are supported by a technical committee). In practice, it seems that while the Cell is important for identifying problems and organising solutions, decisions are more likely to be made at the Sector level and resources also come from the Sector level.</p> <p>Cell IDP Officers are the most important stakeholders at Cell level, as they act as a two-way channel of information between citizens of the Cell and the Executive Committee.</p> |
| Cooperatives | Prevalent across the project area, but vary greatly in degree of organisation, size and resources – from small associations with ten members that meet in people’s houses, to large organisations with hundreds of members, permanent staff and offices. In some cases they appear to partially substitute for government structures such as agricultural extension services. |
| Local NGOs | Few in number – most active NGOs are linked to national level organisations. DRD, CARE and Farm Concern International appear to be the NGOs whose approaches align most with the project concept. |
| MINAGRI | Running the largest programmes in the project area in terms of financing, such as the Gishwati Water and Land Management project (GWLM), the Crop Intensification Programme (CIP) and the Rural Sector Support Programme (RSSP). |
| National Women’s Council | Plays a significant role in mobilising women and raising awareness of gender issues. The NWC have members in every district down to cell level with some staff at District level in selected Districts. |
| REMA | Responsible for environmental management and already has a project in the Gishwati Forest/Lake Karago watershed focussed on terracing, tree planting and riparian protection. |
| MINALOC | Responsible for resettlement policies, such as determining criteria for high-risk zones and how resettlement sites are chosen. |
| RDB | Responsible for promoting business development within Rwanda. BDCs are an important initiative that they have developed at the District level, aimed at supporting small and medium enterprise (SME) development. RDB can advise on off-farm employment creation and business development relevant to resettlement areas and rural development hubs. |
| CARE International | An international NGO that has been working on climate change in the Eastern Province. Their Climate Vulnerability and Capacity Assessment (CVCA) methodology could provide useful insights for the adaptation planning and the Village Savings and Loans Associations promoted by CARE could be a good entry point for alternative livelihood interventions of the project. |
| Farm Concern International | An international NGO that is working to connect farmers to markets, improve value chains and build ‘commercial villages’ at the local level that align with existing structures. Their main programme in Kinigi (Musanze District) could provide an approach for project activities focussed on improving agricultural income. |
| Private Sector Federation | An independent association with two full time staff in each district – they coordinate closely with Business Development Centres and District government, and mainly provide advisory services to businesses, try to link businesses to markets, and carry out some analytical work on local business opportunities. |
| Project beneficiaries | Poor farming households, typically farming small areas of land (~0.2-0.3Ha) which may be their own land but many also work as labourers on other farms in order to get income (~500 – 600 |

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| | RwF per day). Some also get work from government programmes such as VUP and special projects (e.g. terracing activities pay 1000 RwF per day). Often they have large families (4-11 children) and live in mud brick houses with iron or tile roofs. Many families are educated only to primary level, although with the introduction of free schooling, their children are often better educated. There are many women-headed households in the project area (36.9% in the Nyabihu District Profile and 53.2% in the Nyabihu District Development Plan) – these are often poorer. |
| DRD | A local environmental NGO working in Musanze District which is supporting a women's cooperative to produce bamboo. They are also scoping possible options for supporting tree planting in Nyabihu District. Currently operating in four Districts with a view to expanding into Nyabihu. DRD has a women's empowerment programme that focuses on helping women in existing savings groups and associations to develop a business plan. |
| ISAE | An agricultural research institute in Musanze town. Can provide technical advice on agricultural systems, although they may need to partner with other institutions on aspects linked to climate change impacts and on agricultural markets. ISAE has a tree nursery and is planning a second nursery (location tbc). |
| ICRAF | The World Agroforestry Centre (ICRAF) a global non-governmental organization has done some work in Mukamira Sector, planting trees to stabilize slopes. Could provide solid technical advice on tree nurseries and agroforestry systems, along with the Forestry Department of RNRA. |
| Aqua-Virunga | Aqua-Virunga is a private water supply company that is rehabilitating the Mutera Spring water supply. They also contract cooperatives to plant trees around water sources. |
| BAIR | A national NGO, Support Office for Rural Initiatives (BAIR) working in the project area to support the initiatives of agricultural producers in the areas of food security, environment and good governance. BAIR provides practical solutions to problems experienced by cooperatives, raises awareness of gender issues. |

The final part of the stakeholder consultation was a validation workshop which was held in Kigali towards the end of the design phase where more than 30 of the key stakeholders including the Mayor and Vice Mayors from the two districts gave their feedback on the project design.

H2 Key findings of the consultations (suggestions and concerns from stakeholders)

Project planning and implementation

- The project should use a participatory approach in both design and implementation. At the community level the project could learn from and build on standard approaches such as CARE's Climate Vulnerability Capacity Assessment approach in supporting community based adaptation planning.
- Build on existing infrastructure, especially government initiatives and existing cooperatives. The District Development Plan (DDP) is a key local planning process that the project needs to streamline with. This could be achieved by locating the project implementation unit at the project level and forming an advisory committee that includes members involved in District planning processes.
- Channel finance through existing structures, especially SACCOs although challenges in financial literacy and trust will need to be overcome.

Project interventions

- Resettlement is the priority issue and stakeholders welcomed the project's plans to resettle 200 of the poorest households. However, the project should focus on overcoming major challenges with existing resettlement sites, such as lack of off-farm employment for inhabitants.
- Rural Development Hubs should build on the infrastructure established by Business Development Centres. People encouraged the project to take a broad approach that both supports on-farm and off-farm livelihoods.
- Use existing cooperatives to implement project interventions, but not just as sub-contractors – programmes should be developed to build their capacity. Key areas of capacity development surround technical expertise (e.g. agronomy), business plan development, financial literacy and marketing.
- While community associations and cooperatives can provide an important supporting role during climate shocks, many poor people are unable to join these groups due to lack of financial resources and may need assistance to set up their own associations or to join those that are already established.
- There are many existing projects on tree planting and terracing that the project should build on. However, both types of interventions are facing challenges that should be carefully assessed by the project, so that they can be made more effective.
- Periods where new farming methods are being tested or land use changed (e.g. terracing, crop-rotation trials) can have a negative effect on household consumption and on women's workload as they are required to find alternative sources of food and income while the land is not in use. The project should include provisions for supporting vulnerable households during this period of transition particularly in terms of alternative employment or other forms of income generation.

Power relations

- Government bodies are powerful actors at the local level, with significant influence over decision-making by project beneficiaries. However, their capacity to support beneficiaries seems to be low.
- Currently, government seems to be a key force in private sector development at the local level.
- In some areas, cooperatives are sizeable and are likely to be powerful influencers of farmers' activities and information flows.
- While some structures exist to promote inclusion of poorer households, it is not clear how strong their voice is in decision-making (e.g. within cooperative groups). This could be further assessed by the project.
- Households have limited decision-making powers over what is planted due to the Crop Intensification Programme and this has had negative impacts for some including reduced availability and diversity of foodstuffs.

Gender

- Traditional gender roles remain entrenched with some differences between households and across generations. Changes evident in terms of the acceptability of women working outside the house and around a third of households are supported solely by women.
- Any interventions at a local level need to take account of the low representation of women in village management (6.3% in Nyabihu) and the low priority given to women's concerns. Efforts should include specific

measures to increase women's voice in decision making during adaptation planning to ensure that women's concerns are properly addressed.

- The division of housework and domestic tasks remain strongly gendered with women carrying out domestic work in addition to paid labour. In order for women to participate fully in the project there will need to be a shift in the division of labour. As long as women continue to have primary responsibility for domestic work they will have limited time to take part in training, paid work and economic activity outside the home.
- Within households women are required to defer to men over financial decisions. Female-headed households have greater autonomy but options are often limited due to increased levels of poverty. Joining a cooperative or association can provide additional income for women and a certain degree of autonomy over expenditure.
- Informal and formal groups play an important role in the community and are often the only source of immediate emergency assistance when floods and landslides occur. These groups can also provide women with greater autonomy over household expenditure.
- Women are active in informal savings groups but are reluctant to access formal financial services. The project will need to take account of women's reluctance to take loans from formal institutions especially in relation to supporting off-farm income generating activities.
- Women and youth are keen to develop off-farm livelihoods but need assistance to access skills and training opportunities.
- There is a lack of understanding about local planning processes. Women find it difficult to get their concerns on to the public agenda and are not supported by male leaders at a local level.
- Women bear the brunt of increased workload and responsibility for providing food for the family but are able to draw on a wider support network through membership of women's associations. Men, however, lack these support networks and can resort to destructive behaviours which can have adverse effects on family life.
- Men may be more vulnerable to the psychological effects of a loss of livelihood, land or property and that this can result in a greater chance of desertion, mental illness and alcohol abuse. This needs to be taken into account when considering how best to support communities or households who have been affected by severe weather events.
- Loss of land has particular implications for young men who are expected to have built a house on their own land before being able to marry. This problem may be amplified by interventions to change land use in high risk zones
- Women must continue to provide food for the family with fewer resources following extreme climate shocks such as flooding and landslides. These events lead to adverse impacts on food consumption (especially for women), distress sales of assets, and reduced school attendance for children. It is usually women who are required to make adjustments to household expenditure, consumption and the distribution of resources in order to meet basic needs.
- Channel consultation exercises through existing women's associations and networks as a vehicle to raising awareness of women's concerns during the adaptation process.

- Set targets for gender parity amongst staff recruited to the project
- Work with local leaders to get issues relevant to women on to local agenda – water collection, firewood and fuel sourcing.
- Ensure all stake-holders understand the purpose (i.e. end result) of gender awareness programmes or interventions targeted at women so that the benefit for the whole family and community is made clear.
- Ensure early sensitisation of all key decision-makers and communities to the need for and benefits of women's equal participation in all decision-making processes and representation at all levels of programme delivery.
- Set targets for appointing women in new posts and roles at all levels.
- Specify targets for male/female participation at meetings and consultation events in order for the meeting to be quorate. Target for women should be no less than 50%.
- Put in place mechanisms to identify and investigate low levels of participation and leadership amongst women.
- Develop and monitor appropriate targets for male/female participation in project activities, with a minimum expectation of 50% participation by women.
- Increase the awareness, abilities, self-confidence and motivation of women already working to address the issue of climate change.
- Initiate a consultation and training process that enables women to design and lead on project initiatives.

Engaging project beneficiaries

- Local government structures need to be involved but their capacity is low. Cooperatives are often more important than government, but their capacity is also very variable. It appears that the registration fee is a barrier to poorer stakeholders joining cooperatives.
- The high number of women headed households (between 37-53%) in the project area, most of which are poor and highly vulnerable to climate change means that the project will need to incorporate approaches that specifically address the needs of this target group.
- Poorer households have been identified but strategies to target them are not well developed. DRD, COARU, Farm Concern International and BDCs are using some interesting models for targeting poorer households, such as communal funds and financial incentives. However, their effectiveness is not clear and the project needs to assess this in order to develop robust approaches.
- Youth: work closely with TVET on strategies to engage youth. Also work closely with Hanga Umurimo (create jobs) programme that is focused on youth.

Challenges to the project by stakeholders

- Most stakeholders welcomed the project.
- There were differences in opinion about the best approaches to addressing climate change impacts. This problem could be overcome by

establishing a technical advisory committee and putting in place systems to coordinate between different initiatives.

- Resistance may arise from project beneficiaries because they lack understanding about the benefits of project interventions. This can be addressed by developing clear communications materials, training communicators (e.g. IDPs) and establishing demonstration sites.

Possible project partners

- District, sector and cell governments are crucial in terms of project implementation.
- RDB, BDCs and the PSF should be closely involved in designing and implementing interventions to create off-farm employment.
- DRD should be further researched as a potential NGO partner that can help in building the capacity of cooperatives involved in tree nurseries, off-farm activities and gender issues.
- Need for more ‘scientific’ partners with expertise on climate change impacts. Actors with more international experience (e.g. ICRAF) should also be involved in the project to ensure that new approaches are robust.
- There are few organisations that have experience with monitoring and evaluation, but ISAE and Farm Concern International have some technical expertise that could be used to assess specific interventions. The Single Projects Implementation Unit (SPIU) in RNRA will also include an expert in charge of M and E who can help guide the project.

H3 Proposed framework for enabling stakeholder’s views to be heard during project implementation

The proposed stakeholder engagement strategy comprises the following elements:

a) Clear rules of engagement

- Clear socio-economic profile of project beneficiaries (defined in Part II, Section A Component 1 and 2). This will be further defined once sites are identified, but will link into existing poverty categorisation and high-risk households.
- Clear statement of objectives of the project and the activities.
- Clear statement of what can and cannot be addressed by the project (i.e. boundaries).

b) Awareness-raising with beneficiaries throughout project cycle through:

- Inception meetings and workshops
- Training workshops
- Media strategy: e.g. targeted radio broadcasts

The project will strengthen engagement capacity of beneficiaries by covering costs of participation in project meetings

c) Delivery of project services through existing community structures

The project will work through local co-operatives and self-help groups to extend its community outreach building their capacity and strengthening their governance structures to promote inclusion, e.g. through recruiting a Community Animator. The project will work in partnership with government Cooperative Officers on these initiatives as this could also help to strengthen government capacity to support cooperatives and to share experience with cooperatives outside the project.

d) Development of a close working relationship with local Government

The project will engage Government staff through the various project management structures (Steering Committee etc.) and training staff so that they are more effective communicators on key adaptation issues. Sector and Cell level government bodies (Executive Secretaries, Agronomy Officers, Cooperative Officers and IDPs) will be important for planning specific interventions, identifying project beneficiaries and communicating with them throughout the course of the project. The project will also use existing communication channels between the Government and the community including the *Umudugudu* Committees and Cell Level IDPs, and sector level agronomist officers.

e) Use of tried and tested approaches and models based on best practice

The project will build on existing tools to promote the participation of weaker stakeholders in community decision making processes including the BAIR system on gender inclusion as well as testing other examples of best practice: e.g. CARE Cell level Adaptation Implementation Committees.

f) Development of feedback channels

A project grievance mechanism will be introduced at the district level with representatives at the local level to ensure that there is a mechanism for stakeholders to communicate any problems with implementation.

g) Review and refinement of approaches to interventions

The project will also incorporate regular progress reviews to assess progress and to build learning into the project. This is described in more detail in the Monitoring and Evaluation Section (Part III, C) but will include:

- Regular (quarterly) progress reviews
- Participatory monitoring and evaluation with beneficiary groups established to provide feedback on the project.
- Annual impact assessments of project progress

I Justification for funding requested

Provide justification for funding requested, focusing on the full cost of adaptation reasoning. For a fully developed proposal, the full cost of adaptation reasoning should be more detailed and demonstrated for each component of the project/programme. If necessary, a comparison of a baseline situation and a with-project scenario for each component of the project/programme can be undertaken (e.g. in the case of a proposal aiming at "climate-proofing" a specific sector).

North West Rwanda, with its mountainous topography, fragile soils, growing population and an economy highly dependent on agricultural production is highly vulnerable to changes in rainfall and temperature patterns.

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

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

Baseline: (without AF Proposal): Without the AF project, it is likely that the current interventions will be 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. Local communities have a low capacity to adapt due to poverty levels, their dependence on natural resources and a shortage of suitable land arising from over-populated rural areas.

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. This is likely to lead to increasing rural poverty and migration towards urban centres. The cost of addressing these climate threats will increase as time progresses due to the cumulative impacts of climate change and anthropogenic stressors (population growth, unsustainable farming practices etc.). Currently, most farmers don't have access to adequate post harvest storage or processing facilities which: (1) exposes harvests to losses during extreme climatic; and (2) limits farmers ability to market agricultural produce when prices are favourable.

Adaptation interventions (with AF funding): The AF funding will be used to invest in adaptation measures that are more resilient to long term climate change risks. Building adaptation capacity now will avoid future costs incurred from continued increasing pressure on natural resources and future climate variability. The financing from the Adaptation Fund would be used to ensure that farmers are equipped with the knowledge and resources necessary to adopt climate resilient cropping strategies that minimise their exposure to climate threats.

The improved management and retention of surface waters will increase natural drainage and increase storage capacity so that farming communities will have water to irrigate crops and women spend less time fetching water.

The empowerment of community groups, capacity building and the adoption of conservation agriculture and erosion control measures will restore ecosystem services and improve crop yields while the investment in weather proofed, post harvest facilities will mitigate against crop losses following climate shocks and enable farmers to sell produce when prices are favourable. This will provide for a more secure asset base so that farming communities are better able to withstand the effects of climate change.

Component 2: Support for the transition from exploitative farming practices to sustainable, diversified livelihoods

Baseline: (without AF Proposal): Without the AF project, rural communities in North West Rwanda will be left with little choice except to continue over-exploiting ever diminishing plots of farm land in increasingly marginal areas (steep slopes etc.). The under-developed markets for processed goods and non-agricultural goods, the lack of electricity and under-skilled workforce are major barriers to moving people out of marginal agriculture. This situation will worsen as the population density increases towards 1000 people per square kilometre. Erosion rates will increase, yields and household incomes will fall and poverty levels and food insecurity will rise. This will undermine long-term ecosystem resilience and adaptive capacity. The government will continue to draw on its annual budget allocation for flood prevention and response through short term structural measures and ongoing maintenance works which will be in constant need of revamping due to high sediment loads in waterways due to erosion. The Government has prioritised livelihood diversification out of agriculture in its NAPA but lacks the necessary resources to provide support (vocational training, credit, market development etc) on the required scale.

Adaptation interventions (with AF funding): The AF funding will increase the livelihood security of vulnerable households living in areas prone to erosion, flooding and landslides. The proposed interventions will support local communities who currently depend on farming to increase and diversify their economic activities by developing markets and building the capacity of target beneficiaries (skill development, access to credit etc.). By the end of the project, more than 8000 women and men will have a new source of income from non-crop production systems (such as livestock, bee keeping, and poultry) and high-value perennial cash crops such as tree tomatoes or from a new vocation (such as carpentry, metalwork, bricklaying etc.). Moreover, the investment in renewable energy sources will provide much needed power to drive enterprise development in rural areas.

The direct targeting of poor women will enable this otherwise impoverished group to diversify out of subsistence agriculture and obtain the skills and support needed to become economically productive and food secure. For instance, by the end of the project more than 3000 women headed households will have received a small loan to start a business. These interventions will significantly reduce the anthropogenic stresses on the upland ecosystems that exacerbate the impacts of climate change.

Component 3: 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

Baseline: (without AF Proposal): The relevant district authorities currently lack the capacity and expertise to support and scale up climate adaptation. Without the AF project, it is likely that the pace of adaptation planning will be slow, with limited development of community based approaches and dissemination of best practice. The most vulnerable communities engaged in agriculture are likely to continue unsustainable farming practices with increasing exposure to climate change risks while economic opportunities remain limited.

Adaptation interventions (with AF funding): With AF funding, community based adaptation planning and best practices piloted during project implementation can be effectively shared and communicated with key decision makers so that they can be replicated in other parts of the

country. Finally, building capacity of local institutions to plan and implement climate resilient land and water management regimes 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. Moreover, it is anticipated that Adaptation Fund resources will help to leverage additional resources from the donor community and the Government of Rwanda specifically through engagement at the national level (briefing notes, round tables, website etc.) and the development of an investment plan.

J Sustainability of the project

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.

Responding to flooding and landslides is also costly as it requires RAB to provide free seeds for maize and wheat to help people get back to planting after they suffer a shock; districts also provide affected people with money to rebuild homes and often food, clothing, and materials for their kitchen are also provided.

The proposed investment corresponds with Government Priorities set out in key national policy documents including the Vision 2020, EDPRS II and the NAPA. Alignment with national priorities ensures Government commitment to project objectives during and beyond implementation. The operation of the project out of the District Authority Headquarters will also ensure that District, Sector and Cell level governments play a central role in terms of project implementation and ensuring sustainability through the integration of adaptation plans into District Performance Contracts (*Imihigo*)⁸⁰ to institutionalise and sustain community interventions. The use of Community Animators to deliver project interventions will demonstrate the project's commitment to investing in local people and a recognition that community members are best placed to lead project implementation at the community level.

Investment in improved and integrated land and water management regimes and ecosystem based approaches (agro-forestry etc.) to reduce erosion is expected to significantly reduce sediment loads in waterways, improving natural drainage systems and reducing maintenance costs so lessening 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

⁸⁰ Local authorities are accountable to Government and the local population for reaching agreed EDPRS performance targets through Performance contracts. *Imihigo* seeks to promote self government and greater citizen engagement so that local communities come up with their own solutions to problems. Citizens actively participate in defining their preferences and priorities and are empowered to hold national government and the ministries accountable against commitments made.

creating local employment and enterprise development schemes, the project will empower and build capacity of local people to continue adapting to climate change risks. Community ownership will also ensure that the environmental gains are not reversed.

The allocation of resources to market research and analysis will ensure that the project only supports viable, market oriented enterprises and vocations while investment in the development of post harvest and market infrastructure will provide the communities with assets needed to sustain existing and new livelihoods in the long term. Moreover, the channelling of capital through existing finance institutions (SACCOs and VSLAs) enhances existing institutional capacity to provide credit for new micro-enterprises. The direct targeting of vulnerable women headed households and women's self-help groups and co-operatives is likely to have positive generational impacts given the role women play in securing sustenance and education for their children.

Awareness building features throughout all project components to ensure that knowledge and information are shared widely, building wider support for climate adaptation. The strong emphasis on monitoring and evaluation (including the use of participatory systems) will provide for continuous feedback on impacts and results at the community level. Moreover, the knowledge management system and communication strategy will support the mainstreaming and replication of successful approaches through key national and regional agencies as well as lesson learning and sharing of best practices.

To further ensure the sustainability of the project provision has been made in Year 3 to develop an investment plan to leverage additional finance for scaling up project outcomes. The recent establishment of a National Climate Fund (FONERWA) with the capability for raising climate finance is a positive development as well as a resource that can be accessed in Year 3 to leverage additional funding (it is worth noting that FONERWA has provided much of the technical assistance used to develop this design). FONERWA will be represented on the Project Steering Committee so will be closely involved in the oversight of project delivery. In Year 3, FONERWA capability in leveraging climate finance will play an important role in securing additional funds.

Finally, the project will active engage the private sector in the commercial elements of the project. Increasing private sector participation is envisaged under Component 2 where the project seeks to support the development of market oriented enterprises to reduce the dependence on agriculture for an income. These will be based on careful market research and centred on key value chains assessed to have potential for further development. This focus on value chain development is intended to foster private sector investment. These activities and private sector engagement will begin in Year 1 so by Year 4, the project should have an exit strategy that strongly features private sector participation. In addition, private sector companies would also be eligible to apply for a grant to support the continued development of climate resilient value chains as 20% of the funding available through FONERWA is set aside for private sector operators.

PART III: IMPLEMENTATION ARRANGEMENTS

A Arrangements for project implementation

Describe the arrangements for project / programme implementation.

Implementing Entity: The Ministry of Natural Resources (MINIRENA) is the National Implementing Entity that will endorse the proposed Adaptation Fund Project. MINIRENA 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 the monitoring and evaluation of the implementation of environment, climate change and natural resources management at the national level.

MINIRENA will be responsible for the overall management of the Project and financial, monitoring the achievement of the project outcomes/outputs, and reporting.

Procurement of Goods, Works and Services

All procurement of goods, works and services will be undertaken in accordance with National Implementing Entity's Rules of Procedure for the Procurement of Goods and Works (Law No 12/2007 of 29/03/2007 on public procurement, Ministerial order No 002/06/10 MIN of 7/08/2006 on the new procurement ceilings according to the level of the institution, Ministerial order No 001/08/10/MIN establishing regulations on public procurement and standard bidding documents). MINIRENA will submit to the secretariat, on an annual basis, a procurement audit report issued by the Auditor General's Office, or an independent auditor, on the Adaptation Fund project/s under implementation in relation to the effectiveness of its procurement systems and practice, as well as continuous availability of qualified resources in project cycle management. The report will correlate recommendations identified by the internal auditor of MINIRENA and any relevant review by the Ministry of Economy and Finance (MINECOFIN), taking also into account any issues raised by stakeholders.

Financial Management and Auditing Arrangements

Rwanda's recent Public External Finance Assessment reveals a significant improvement in public finance management (especially the quality of public external audit). This includes advancement in indicators related to public accounting and financial reporting. The National Implementing Entity's project auditing and the annual audit report will be submitted to the Adaptation Fund Secretariat.

To effectively ensure project accounting and budget monitoring, the project will be equipped with suitable management tools (Procedures Manual, accounting software configured for this project etc). Accounts will be kept in separate ledgers clearly showing all operations. The books and accounts will be incorporated into a computerized accounting management system suitable for producing financial statements that comply with international standards.

The annual financial statements, the special account and the functioning of the internal systems will be audited on an annual basis by the State finance General Auditor or a private auditing firm appointed by the General Auditor and fulfilling the Adaptation Fund's requirements. The auditor will be responsible for a posteriori evaluation and review of supporting documents. In addition, the Executing Entity, RNRA, will prepare interim financial statements to be included in project quarterly progress reports. On the whole, this administrative and financial arrangement will reduce the fiduciary risk and ensure the efficient, effective and economic use of resources.

Disbursement arrangements: Adaptation Fund resources will be disbursed in accordance with National Implementing Entity's Rules of Procedure and Operational Procedures. The following two disbursement methods will be used: (i) the direct payment method for works, goods and services

contracts; (ii) the special account or revolving fund (RF) method for goods and services contracts and for operating costs, project staff allowances and sundry management costs.

Adaptation Fund resources will be deposited into the special account opened by the project Executing Entity (RNRA) in a local bank deemed acceptable to the Adaptation Fund. The provisions set forth in the Adaptation Fund's Disbursement Manual will apply. Disbursements from the special account will be made as an advance, based on an annual work programme and budget approved. Every request for an advance will be submitted to the NIE for approval and will cover a maximum period of six months of operations. The special account will be replenished on the basis of requests by RNRA, backed by supporting documents for the use of at least 100% of the advance previously received.

MINIRENA will also provide effective co-ordination with other climate change projects in Rwanda creating linkages where necessary. MINIRENA will appoint a Programme Officer in Kigali to ensure the efficient disbursement and use of donor funds and timely delivery of project inputs and outputs. S(he) will also coordinate all other responsible parties for the purposes of forming the Steering Committee and Technical Advisory Group (see below) as well as support project implementation by assisting in recruiting and contracting of project personnel and consultant services, sub-contracting and procuring equipment in accordance with Government guidance and procedures (see above).

Executing Entity: The Rwanda Natural Resources Authority (RNRA) will execute the Project. RNRA⁸¹ is the authority under the Ministry of Natural Resources, charged with managing the promotion and protection of natural resources (comprising land, water, forests, mines and geology).

RNRA will implement the project in cooperation with the Ministry of Agriculture and Animal Resources⁸² (which will support Component 1), the Ministry of Local Government⁸³ (which will support Component 2) and the Rwanda Environment Management Authority⁸⁴ which will support Component 3). These three agencies have each appointed a Focal Person to serve on the Technical Advisory Group.

RNRA is responsible for implementing the project and will be ultimately responsible for the timely delivery of inputs and outputs and for coordination of all other responsible parties including other line ministries, relevant agencies, and local government authorities. RNRA will appoint a Project Co-ordinator who will be based in Nyabihu and will manage a Project Implementation Unit.

⁸¹ 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.

⁸² The Ministry of Agriculture and Animal Resources (MINAGRI) has a mandate to transform the agriculture sector from subsistence to a productive high value, market oriented farming that is environmentally friendly to ensure food security and contribute to economic growth.

⁸³ The Ministry of Local Government, Good Governance, Community Development and Social Affairs (MINALOC) is responsible for the Government's resettlement programme (in line with the National Human Settlement Policy and Strategy) and implements the Vision 202 Umerenge Programme, an integrated local development program to accelerate poverty eradication, rural growth, and social protection.

⁸⁴ REMA operates as an Agency under MINIRENA and is responsible for the implementation of policy and framework legislation relating to environment.

RNRA will also appoint a high level official (Co-ordinator of the Single Project Implementation Unit) who will serve as the Project Director (PD). The PD will be a member of the Steering Committee and will provide oversight and guidance to the Project Implementation Unit (see below).

Steering Committee: The PIU will be overseen by a Steering Committee that will serve as the project's coordination and decision-making body and will ensure the project delivers its outputs and achieves its outcomes. The Committee will periodically review project progress and evaluations, facilitate implementation (ensuring the necessary resources and support are provided in a timely manner) and provide guidance to the PIU.

The Steering Committee will also facilitate effective coordination between the key Governmental authorities at the national and district levels and ensure the project aligns with Government strategies and programs.

The Steering Committee will comprise senior-level representatives from the two districts (Vice Mayors Economic Affairs) and key ministries: Ministry of Finance and Economic Planning (MINECOFIN), Ministry of Local Government (MINALOC), FONERWA, Ministry of Agriculture and Animal Resources (MINAGRI), Rwanda Agriculture Board (RAB), Rwanda Natural Resources Authority (RNRA), Rwanda Environment Management Authority (REMA), Ministry of Infrastructure (MININFRA), Ministry of Trade and Industry (MINICOM), the Ministry of Disaster Management and Refugee Affairs (MIDIMAR) and CARE Rwanda.

The Steering Committee will be chaired by MINIRENA and will meet every 6 months to review progress and approve work plans, budgets and any major changes in implementation.

A **local steering committee** will also be established through the District Administration which will be responsible for quarterly review of progress, co-ordination of project with other ongoing district initiatives and sustainability of the project. The Committee will comprise: Vice Mayors Economic Affairs (Chair), Agricultural Officers, Environment Officers, Land Officers, Co-operative Officers, Crop Intensification Programme (CIP) officers, Executive Secretaries from each sector, Rural Sector Support Project (RSSP), GWLM project, WASH and RDB (representatives from the Business Development Centres).

Project Implementation Unit (PIU) based in Nyabihu: RNRA will establish a dedicated project implementation unit (PIU) based in Nyabihu with core technical and support staff comprising:

- **Project Co-ordinator** - responsible for ensuring that the project produces the results specified in the results framework to time and budget
- **Monitoring and Evaluation Officer** - responsible for all project monitoring and reporting including baseline and other field surveys, annual impact assessments, collection and collation of data for quarterly reporting, risk monitoring and reporting, capacity building of Government and co-operatives in M&E, participatory monitoring and evaluation with beneficiaries, knowledge management as well as co-ordination of mid-term and final evaluations.
- **Agronomist Officer** - to support Farmer Field Trials, surveys, tree nursery development, erosion control, water conservation, capacity building, drainage works, riparian restoration, training and extension, post harvest development and liaise/co-ordinate with MINAGRI and other service providers.
- **Community Development Officer** - to support community mobilisation, development of local adaptation plans, target group selection,

training, development and co-ordination of Community Animators, co-operative development, Self Help Groups, water management committees, works schemes, resettlement, promote farmer-to-farmer for a, and liaise with local NGOs.

- **Enterprise Development Officer** - to support vocational training, value chain development, agro-processing activities, capitalisation of financing facilities and monitoring flow of finance into viable enterprises, market development and renewable energy, facilitating better access to credit, liaise with financial institutions such as SACCOs and VSLAs, market research and development, renewable energy development, organise business round tables etc.
- **Communications Officer** - to develop and implement a communications strategy, support extension services, preparation and dissemination of updates, briefing notes, lessons learned and project results, develop communication and training materials, website, press releases and use mass media to influence policies and practices for scaling up, develop participatory videos etc.
- **Financial and Administrative Assistant** – responsible for procurement, book-keeping and day to day financial aspects of project implementation.

The PIU will carry out the day-to-day implementation of the project, and will be responsible for the operational and financial management and reporting. The PIU will liaise closely with the District Administrations in Musanze and Nyabihu districts to maximise opportunities to integrate the project within the district development planning processes.

The Project Co-ordinator (PC) will be a national professional responsible for ensuring that the project produces the results specified in the results framework to time and budget. S(he) will liaise and work closely with all partner institutions through the Technical Advisory Group. The PC is accountable to the Project Director for the quality, timeliness and effectiveness of all project activities as well as for the use of funds. The PC will also be responsible for keeping the Vice Mayors updated on progress and ensuring the project contributes to the District Development Plan (linking with District Planning Committees where appropriate). The PC will liaise with the Vice Mayor to ensure that project staff are part of the Joint Action Development Forum (JADF) to harmonise the project with the District Development Plan.

The PC will prepare quarterly progress reports, work plans and budgets which will be reviewed by the District Administration as well as the Project Director (from RNRA). All reporting will be in accordance with the Implementing Entity's (MINIRENA) rules and regulations with support from the Monitoring and Evaluation Officer and the Finance and Administrative Assistant.

In addition to the core technical team (the PIU), the project will recruit and train 16 volunteers (Community Animators) from communities across the project area who will be responsible for all community outreach activities. Each volunteer will receive:

- a bicycle (a highly valued asset in rural areas and shown to be an important incentive in voluntary work),
- a mobile phone plus recharge cards,
- a Sun King solar powered lamp with integral mobile phone charger,
- a pair of boots for use during the rainy season, and

- a tee shirt to identify the wearer as a Community Animator.

There will be a 50:50 ratio of women to men and at least 50% of the volunteers will be aged between 15 and 21⁸⁵. The project will provide inception and ongoing training for the volunteers to develop and improve their facilitation and motivational skills as well as familiarising them with the various technologies being promoted by the project.

There is a strong tradition of voluntary work in Rwanda and it is anticipated that there will be a high demand for places on the scheme. This approach is highly cost effective compared to hiring full time project staff

The Community Animators will lead participative processes at the community level working with local farmer groups, community- based organizations and NGOs. Together with the project staff they will support field implementation through direct involvement in planning and labour-related tasks.

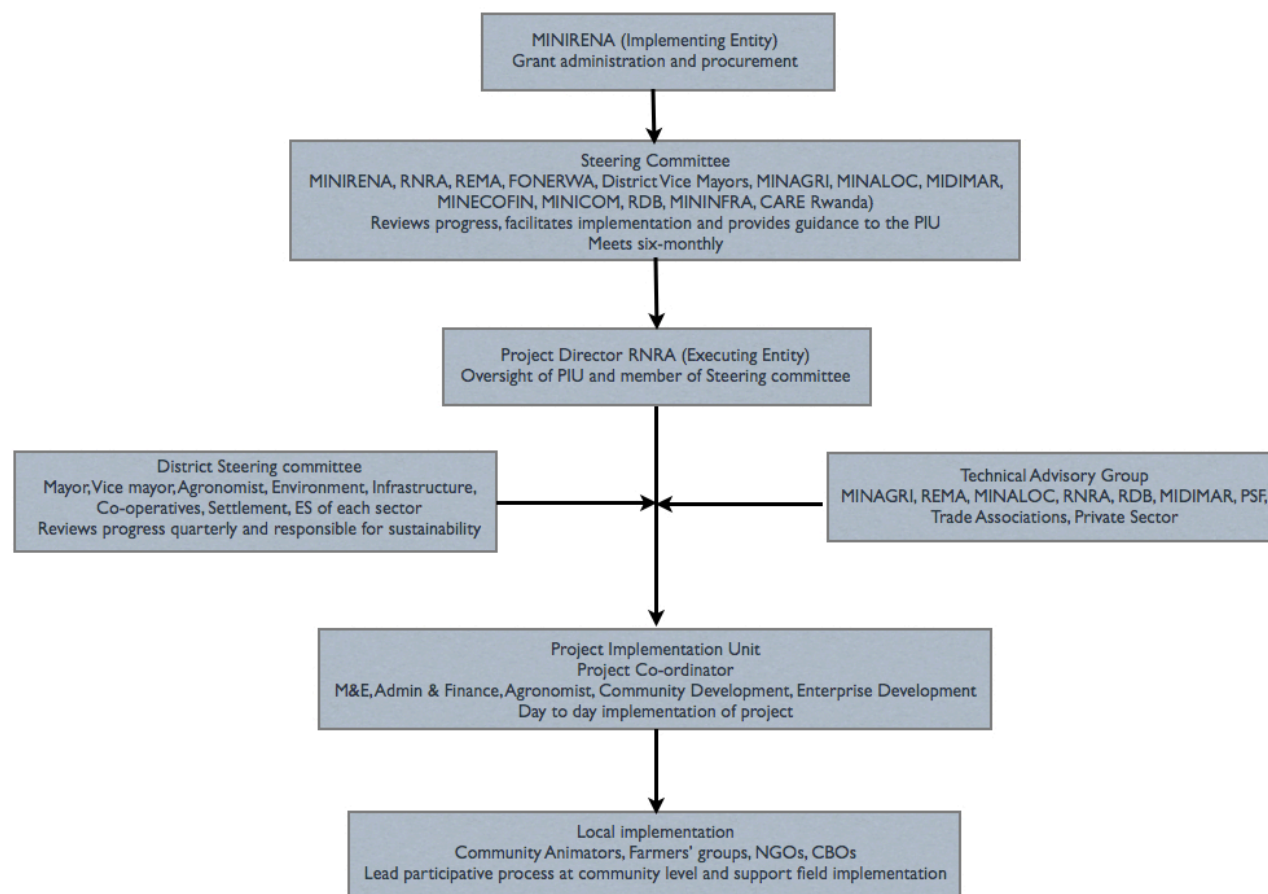
Technical Advisory Group: to assist on technical issues, a Technical Advisory Group (TAG) will be formed to provide guidance and advice on technical questions related to water management, agriculture, forestry, food security, enterprise development, renewable energy and climate risk information. This TAG will include representatives from local farmer organisations and NGOs, private sector actors as well as technical staff from research institutes (ISAE), RNRA, REMA⁸⁶, MIDIMAR, MINAGRI and MINALOC.

See organogram below for organisational structure

⁸⁵ Youth in this age range are considered of special concern as the majority are underemployed or employed in marginal work.

⁸⁶ REMA operates as an Agency under MINIRENA and is responsible for the implementation of policy and framework legislation relating to environment and climate change.

Organogram of proposed project



B Measures for financial and project risk management

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

Key risks underlying the project have been analysed during the design phase. The risks facing the project and the risk mitigation strategy (countermeasures) are summarised in Table 13.

Table 13: Risks identified and mitigation strategies

| RISK | RISK LEVEL | MITIGATION |
|--|------------|---|
| 1) Low awareness and acceptance of the need to tackle climate change among key practitioners limits the support for action on climate change within key sectors. | Medium | Project will undertake detailed stakeholder consultation and awareness raising during implementation and develop and effective advocacy strategy to win over influential stakeholders. Project will engage with co-operatives as they have been found to play an important role in creating awareness and advocating for changes in behaviour and practises locally. |
| 2) District administrations lack the resources and capacity to engage fully with the project and integrate project outputs with development plans. | Medium | Inclusion of project deliverables in the District Performance Contract where possible will help to ensure project activities become integrated and sustainable with ongoing development at the local level. Project implementation will be supported with a competent team of professionals that are dedicated full time to the project. |
| 3) Climatic conditions (destructive rains and unpredictable seasons) hamper project interventions (planting etc.) and could affect adaptation measures being implemented and undermine confidence of local communities in adaptation measures promoted by the project. | Medium | The project is seeking to reduce the effect of climatic hazards. However, the expected outcomes such as behavioural changes and the construction of infrastructure are at risk in the early phases of the programme. The EWS recently installed in the project area will enable appropriate actions to prepare for climatic hazards. The project will build in flexibility in terms of resource disbursement and management to enable communities to bring forward project interventions if necessary. Surveys and other key field work and construction to be scheduled to maximise favourable weather conditions. |
| 4) Limited capacity of partner organisations to deliver project outputs. | Medium | The project has a strong capacity building and training component. The project will carry out capacity assessments of community institutions (co-operatives etc.) during the inception phase and incorporate capacity building where necessary. |
| 5) Failure to create ownership of the project at the local level. | Medium | Project design team have already involved the key stakeholders in problem identification and project design. The project will also ensure that they are involved in implementation and phase out activities to create ownership at the community level and build in sustainability to project interventions. |
| 6) Price fluctuations which could a) affect the costs of implementation and lead to budgetary constraints b) affect costs and returns from enterprise development activities among project beneficiaries. | Low | a) Project will establish a financial risk management strategy and regularly monitor and audit accounts. b) Project will take account of fluctuations in its support functions for enterprise development. |
| 7) Delays in the disbursement of funds, procurement and Institutional inefficiencies (lengthy approval processes etc.) delay the resulting in delayed recruitment of project staff and hence project implementation. | Medium | At the national level MINRENA and RNRA will work closely to ensure optimum conditions for timely disbursement of funds. The district based PIU will be resourced with a competent Finance and Admin Officer who will ensure effective mobilisation of funds, contracting, monitoring, and financial reporting. The project will develop and regularly update a Procurement Plan in line with Government |

| RISK | RISK LEVEL | MITIGATION |
|---|------------|--|
| | | guidelines. |
| 8) High costs and insufficient supply of electricity impedes livelihood diversification (Rwanda is expensive compared to other countries in the region at \$0.24/kwh compared to Kenya's \$0.15/ kWh, Uganda's \$0.17/kwh, and Tanzania's \$0.05/kwh (EDPRS 2, 2013). | Medium | Project will invest in a range of livelihood opportunities with varying power requirements. |
| 9) Failure to adopt a holistic approach necessary for this type of project due to a lack of expertise within the project team or lead agency. | Low | Project team will be multi-disciplinary. Project will include provision for out-sourcing to competent third parties (NGOs, CSOs, specialised technical service providers, consultancy firms etc.) where necessary. |
| 10) Lack of co-ordination with other climate change projects in Rwanda limits the capacity of implementing agency to learn from and build on the experiences of related projects. | Low | The project reviewed lessons from other projects during the design phase. Project will be co-ordinated through an SPIU, Thematic Working groups and Joint Sector Reviews |
| 11) Weak capacity of coordination for concerned services in the optional choice of technical solutions and project planning. | Low | Project will allocate resources for effective co-ordination and Terms of Reference for key staff including the Project Co-ordinator will include responsibilities linked with effective co-ordination. |
| 12) Lack of transparency or political interference in allocation of project resources. | Low | Project will integrate interventions in District Development Plans and budgets. These plans are developed under conditions of high transparency and accountability. Project will be resourced with a team of professional staff who will ensure the project meets the highest fiduciary standards. |
| 13) Lack of capacity and commitment to project outcomes and resistance to adopting the proposed measures. | Medium | Planning adaptation and interventions will be decided through democratic community structures with technical advice from local experts. The project will only support interventions that have community backing. Project will raise awareness of the long term benefits of adaptation and advocate where necessary with stakeholders who may be resistant to agreed adaptation measures. |
| 14) Staff turnover in the Project Implementing Unit may hamper progress. | Low | Recruitment process will ensure Terms of Reference meet human resource requirements to deliver quality outputs as well as ensure that the package is competitive and that the posts are advertised widely to ensure a good selection of candidates. Particular attention will be given to the key role of Project Co-ordinator who will be required in the TOR to have exceptional team building and management skills. |
| 15) Local district administrations are unwilling to incorporate climate adaptation into district plans and budgets. | Low | District administrations have been involved in designing the project and local political support (from the Mayors of each district) for the project is high. The project will continue to work closely with the district administrations throughout implementation to ensure local ownership. |
| 16) Conflicting interests among stakeholders with respect to land use (e.g. Crop Intensification Programme which is focussed on maximising agricultural production by promoting mono-cropping and the use of chemical inputs) and access to and use of natural resources hampers erosion control and other adaptation measures. | Medium | Project will raise awareness and build consensus around adaptation planning through a carefully designed and paced community mobilization and adaptation planning process. The project will introduce measures to promote dialogue and build trust among stakeholders. Sector level Agronomy Officers and a number of cooperatives (e.g. COARU) are involved in the CIP, so the promotion of different approaches will be carefully worked through with them. The project will also engage with existing steering committees at national level (e.g. for the GWLM project) to resolve these potential challenges. |
| 17) Loss of livelihood for resettled | Low | Project will prioritise these families for immediate |

| RISK | RISK LEVEL | MITIGATION |
|--|------------|--|
| families. | | employment under project construction activities that require labour (erosion control, replanting, drainage, pond excavation etc.) as a short-term measure to ensure a flow of income into the households. As a longer term measure the project will target these households as part of it's livelihood support interventions under Component 2. |
| 18) Resistance to adoption of new livelihood for resettled households. | Medium | Project will sensitise the target households to the benefits of new livelihood strategies and the risks associated with not resettling. |
| 19) Delayed compensation to land owners affected by resettlement programme. | Medium | Project will ensure regular follow up with local authorities to expedite the valuation and compensation process. If compensation is delayed the project will provide households with immediate employment opportunities under the public works activities. Livelihood support services will also be available to affected households. |
| 20) Low awareness of benefits of resettlement results in community resistance. | Low | Project will invest in sensitisation and awareness building to explain the benefits of resettlement, the expropriation laws and associated entitlements including compensation arrangements. |
| 21) Crop destruction during resettlement. | Low | Project will ensure that all crops are harvested prior to commencement of construction activities. |
| 22) Refusal of some households to share their lands for construction of houses. | Medium | Project will ensure intensive and continuous sensitisation of local landowners with the assistance of the district, sector and cell authorities. Sensitisation of the communities to the project with landowners will be initiated by the local authorities (sector "Umurenge", cells "Akagari" and village "Umudugudu" leaders). The negotiation process will also be initiated by the local authorities and opinion leaders. |
| 23) Poor targeting of households for resettlement results in less vulnerable households being resettled. | Low | Project will ensure effective targeting of vulnerable households according to the <i>Ubedehe</i> categorisation process and identification of high risk zones so that the extreme poor households living in high risk zones are resettled. This process will be co-ordinated by the Community Development officer with regular monitoring by the M&E Officer. An external evaluation at the mid-term will include an appraisal of the targeting and resettlement activities. |
| 24) New settlements do not make adequate provisions for human waste management. | Low | Project will ensure proper management of human waste by connecting latrines to biogas digesters to provide a source of gas (for lighting and cooking) and fertiliser. |
| 25) Poor management of solid waste in new settlements results in pollution and disease risk. | Low | Project will sensitise local leaders on good practices for solid waste management including: waste segregation at source, recycling and re-use, composting of organic waste and use as organic fertilisers, along with collection and disposal of other wastes at official dump sites. |
| 26) Continued unplanned settlement and unsustainable farming practices hinder progress. | Low | Government resettlement policy effectively prohibits further unplanned settlement. Project will build awareness of the effects of unsustainable farming practices and will introduce advocacy measures to promote the adoption of improved climate resilient farming practices. |
| 27) Lack of incentives for local communities to participate and cooperate in interventions that do not yield immediate financial value or reduce incomes in the short term, but aim at longer-term resilience. This may reduce stakeholder engagement and participation. | Medium | The project incorporates activities that yield immediate benefits for communities in terms of skill development and income generation. The project will build awareness of these benefits during the inception phase. |
| 28) Religious belief systems (e.g. 7th day Adventism which is prevalent in the project area) preclude certain income | Medium | Project will take religious belief systems into account when promoting livelihood options and ensure a variety of options are available. For example 7th Day Adventist can raise beef and chickens. |

| RISK | RISK LEVEL | MITIGATION |
|--|------------|--|
| generating activities such as raising and eating rabbits, pigs or ducks. | | |
| 29) Cultural views of women may impede their ability to take up some of the identified livelihood opportunities especially in construction (e.g. carpentry and bricklaying). | Medium | Project will undertake research to determine the barriers to women's involvement in some of these livelihoods and ensure that these barriers are addressed by the project. Project will create awareness and advocate for equal opportunities in these fields. |

At the time of project design, there exists strong commitment from national and district authorities which will reduce some of the risks above. Throughout the project, the Monitoring and Evaluation Officer will be responsible for risk monitoring and reporting. Issues and risks will be discussed during project management meetings and appropriate mitigation measures will be discussed and approved by the Steering Committee.

C Monitoring and evaluation arrangements

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.

The monitoring and evaluating system will be based on the indicators and means of verification defined in the Results Framework. Overall responsibility for monitoring and evaluation will rest with the Executing Agency, RNRA. Outcomes and outputs will be monitored during project implementation by the Project Implementation Unit with data collected, compiled and analysed by the Monitoring and Evaluation Officer on a regular basis.

The monitoring and evaluation system will be linked to the results framework, annual work plans and budgets and impact assessments. The timely provision of results from Monitoring and Evaluation activities will enable the team to take corrective or enhancing measures as necessary.

The project will employ a variety of means for data collection including surveys, participatory methods and case studies with project beneficiaries. The data will be disaggregated by socio-economic group and gender.

Monitoring results will be disseminated in a user-friendly format and timely manner to project stakeholders by the Communications Officer to enable a responsive approach to implementation and allow for troubleshooting of any problems to ensure smooth implementation of project activities.

Six monthly **Progress Reports** will describe progress on implementation as well as lesson learning, a risk update and management and an ongoing assessment of sustainability and acceptance of project interventions by the stakeholders particularly the beneficiaries. The report will also include the expenditure report and a workplan and budget for the following reporting period. The bi-annual progress reports will be submitted to the Project Steering Committee for regular review and approval.

Quarterly Progress Reports will also be prepared by the Project Co-ordinator and submitted to the Project Director to ensure continuous monitoring of project activities and to allow for corrective measures in due time. These reports will provide an update on progress on the delivery of outputs, a quarterly expenditure report and a workplan for the next quarter. Where

a six-monthly report is being prepared, it shall subsume the quarterly report (i.e. there will not be double reporting at the six monthly stage).

At the end of each year an **Annual Impact Assessment** will be carried out by the Monitoring and Evaluation Officer to collect and collate indicator data and measure performance against the baseline and targets in the Results Framework. S(he) will work closely with the Communications Officer to ensure timely and effective communication of the results to all the key stakeholders. The assessment will include a field survey and case studies and will report on:

- progress made against the indicators and targets,
- delivery of project outputs, and
- lessons learned.

The assessment report will be incorporated into the end of year six monthly report.

The PIU staff including the Project Co-ordinator will be field based and therefore able to make regular visits to project sites. The Project Director and members of the Steering Group (none of these positions are funded through the project) will take part in an Annual field visit to familiarise themselves with the project interventions on the ground and validate the annual review.

The project will also establish a **Participatory Monitoring and Evaluation system** with beneficiary groups to enable beneficiaries to measure progress of project interventions.

In terms of financial monitoring, the PIU via the Project Director at RNRA will provide MINIRENA with certified periodic financial statements. In addition, the project will commission an annual audit (be conducted by an accredited auditor) of project accounts to ensure compliance with Government rules and procedures.

Table 14: Monitoring and evaluation plan

| Activity | Responsible person | Budget US\$ | Timeframe |
|--|--|-------------|---|
| Baseline survey | Monitoring and Evaluation Officer with support from Project Co-ordinator | 21,193 | Within 2 months of project starting |
| Inception and annual workshops | Project Co-ordinator | 23,548 | Within 2 months of project starting and yearly thereafter |
| Inception report | Project Co-ordinator | - | Within 2 months of project starting |
| Annual impact Assessment | Monitoring and Evaluation Officer and Communications Officer | - | Annual |
| Bi-annual Progress Reports | Project Co-ordinator | - | 6 monthly |
| Quarterly Progress Reports | Project Co-ordinator | - | Quarterly |
| Participatory Monitoring and Evaluation by beneficiaries | Monitoring and Evaluation Officer | - | Quarterly |
| Annual field visits by representatives of Steering Committee | Project Co-ordinator | 5651 | Annual |
| Minutes of Steering Group | Project Director | - | Quarterly |
| Technical Reports | External consultant | - | Periodic |
| Mid-term Evaluation with gender gap analysis ⁸⁷ | External consultant | 18,838 | Mid term |
| Final evaluation | External consultant | 23,548 | 3 months before end of project |
| Audits | External auditor | 6593 | In Years 2 and 4 |

⁸⁷ Includes a Gender Gap Analysis

An **Inception workshop** will be held within the first two months of project implementation to:

- introduce the project team,
- orientate key stakeholders on the objectives and results framework,
- provide an update on the project start up activities,
- agree roles and responsibilities of each institution,
- provide an overview of reporting, monitoring and evaluation requirements,
- present the financial reporting procedures and arrangements for audits,
- plan and schedule Steering Committee meetings.
- recheck assumptions and risks, and
- to plan project implementation.

The Project Co-ordinator will prepare and disseminate the Inception report with an overall workplan and budget for the four year period as well as a detailed workplan and budget for year one with milestones and progress indicators to guide implementation during the first year of the project. The Inception Report will also include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners.

An external **Mid-Term Evaluation** will be conducted mid-way through project implementation. The evaluation will review progress against milestones and assess progress made towards the delivery of outputs and achievement of objectives as well as identify corrective actions if needed. It will focus on the effectiveness of delivery, timelines and efficiency of implementation, and risk management. It will present the initial lessons of project design, implementation and management. The findings will be used to enhance implementation during the final half of the project's term.

A **Final Evaluation** will be conducted 3 months before project closure and will focus on the impact and sustainability of project results. The report will summarise the results achieved (objectives, outcomes, outputs), lessons learned, and make recommendations on any actions needed to ensure sustainability, replicability and scaling up.

Results and lessons learned from the project will be periodically disseminated within and beyond the project intervention zone using a variety of media (briefing notes, website as well as through existing information sharing networks and forums).

D Results framework

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 applicable⁸⁸.

The proposal should include a results framework with realistic, quantified expected results. Whenever possible, the indicators and targets should be disaggregated by sex. More guidelines on preparing the project/programme results framework, including a list of standard AF indicators, can be found in the "AF Results Framework and Baseline Guidance – Project level" document.

⁸⁸ 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].

A detailed results framework with Specific, Measurable, Achievable, Realistic and Time-based (SMART) indicators, their baseline and targets and assumptions is provided below. The Framework will be updated with more accurate baseline data and targets during project inception.

| | | | | | |
|---|--|--|---|---|---|
| Overall objective: to increase the adaptive capacity of natural systems and rural communities living in exposed areas of North Western Rwanda to climate change impacts. | Consumption levels in target HH | <Rwf 118,000 ⁸⁹ TBC in baseline. | 50% increase on baseline | Project annual impact assessment reports, Mid term evaluation, final report. | Political will exists at all levels to mainstream climate change considerations into planning and programming. |
| | Percentage of target population adopting risk reduction measures | <10% TBC in baseline | 60% practice at least 1 risk reduction measure. | | No major natural disasters impede progress of project and damage infrastructure. Food insecurity is linked to livelihood insecurity and risk exposure of rain-fed farm families. |
| Outcome 1: Reduced flooding and diversified and higher yields leading to enhanced food security and increased household incomes. | Number of victims killed and houses destroyed by flooding and landslides. | In 2012, 13 people died, 598 households completely destroyed, 748 households partially destroyed | 30% decrease on baseline | Project annual impact assessment reports, Mid term evaluation, final report, District data. | Timely disbursement of project funds. Rural communities actively engage in adaptation initiatives. |
| | Crop losses due to climate variability (potatoes, beans, maize, wheat, peas, tea, coffee, pyrethrum). | In 2012, 6114 ha of crop land destroyed. | 30% decrease | | Local authorities support conservation agriculture and ecosystem based approaches. Impact extends beyond target households. |
| Output 1.1 Community level mobilisation and climate adaptation planning. | No. of community based adaptation plans being implemented. | 0 - No community based adaptation planning. | 8 (1 for each sector) | Project annual impact assessment reports, Mid term evaluation, final report. | Demand for climate change awareness and adaptive strategies among communities |
| | No. of community groups formed and operationalised for adaptation planning. | 0 | 55 (1 for each cell) | | Community leaders support inclusion of women in decision making roles. |
| | Participation of women/men from target HH in adaptation planning processes and mobilised to participate in project activities. | 0 | 4000 women/4000 men | PME ⁹⁰ District plans and reports | Communities motivated to take part in adaptation planning. Local authorities supportive of community |

⁸⁹ Based on the EICV defined poverty line of Rwf 118,000 set with reference to a minimum food consumption basket, which is judged to offer the required number of calories required for a Rwandan who was likely to be involved in physically demanding work, along with an allowance for non-food consumption. An extreme poverty line of Rwf 83,000 was also set as the cost of buying the food consumption basket if nothing was spent on non-food items at all.

⁹⁰ Participatory Monitoring and Evaluation

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|---|--|--|-------------------|--|---|
| Output 1.2 Investment in integrated land and water management technologies. | Percentage of committee positions held by women/men from target HH in adaptation planning processes. | 0 | 50% women/50% men | Perception surveys | based adaptation planning processes. Selected interventions are complimentary to other development interventions. |
| | Hours per day (or year) women from target HH spend fetching water and collecting water. | 1 hr TBC in baseline | 30 minutes | Project annual impact assessment reports, Mid term evaluation, final report. | Erosion control measures are sufficient in scale and type to deliver reductions in erosion. |
| | Area (ha) rehabilitated with erosion control measures. | TBD in baseline | TBD | PME | Communities perceive the benefits and support replanting of steep slopes and riparian zones and agree not to cultivate these areas. |
| | Number of water user groups managing ponds and rainwater harvesting tanks with management plans in place. | Zero - TBC in baseline | 80 | | Land is made available for construction of ponds and water harvesting tanks. |
| | No. target HH using harvested rainwater for domestic use and irrigation. | Zero - TBC in baseline | 2000 | | Target HH motivated to establish water user groups for equitable sharing of water resources. |
| | Change in turbidity of rivers. | High levels of turbidity in all rivers due to erosion. Current turbidity levels TBD in baseline | 20% reduction | | Storage capacity installed will be adequate to cover periods of drought. Communities perceive benefits of drainage structures and motivated to properly maintain them. |
| Output 1.3 Diversification and integration of crop and livestock production systems to minimise the impact of variable rainfall on rural livelihoods (agro-sylvopastoral systems etc.). | No of target HH adopting climate resilient farming practices disaggregated by type (e.g. agro-forestry, agro-sylvopastoral etc). | Very low number of HH using these practices – exact numbers TBD in baseline | 5000 | PME | Local authorities support diversification and integration of crop and livestock production systems. |
| | Area of cultivated land (ha) under diversified cropping and integrated farming systems in target areas. | Diversified cropping and integrated farming are not practised widely in the target area – area TBD in baseline | 20% | | Farmers co-operatives are receptive to awareness campaign and are motivated to take part in project interventions. |
| | | | | | Diversification and integration increases resilience to climate change and delivers long term benefits to households. Markets available for new produce. |

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|---|---|---|---------------------------------------|--|--|
| Output 1.4 Introduction of climate-resilient crop/fodder varieties and agronomic practices (short season crops, seasonal pastures etc.). | Numbers of HH adopting at least 1 new climate-resilient crop or fodder variety or agronomic practices (disaggregated by male/female headed HH). | Farmers do not currently have access to this technology - nos TBD in baseline | 5000 | Project annual impact assessment reports, Mid term evaluation, final report. | Farmers are receptive to trying new varieties and are motivated to take part in farmer field trials. |
| | Participation of women/men in farmer field trials. | No field trials taking place in project area - TBC in baseline | 140 women/140 men | PME | Information available and appropriate to local conditions |
| | | | | | Flood resistant varieties thrive in local conditions. |
| Output 1.5 Introduction of climate resilient post-harvest processing and storage systems for safe handling and storage of agricultural produce during extreme climate events (floods, rains). | Number of post harvest storage systems established; number of HH using these. | Post harvest storage capacity extremely low - TBC in baseline | 7 storage facilities used by > 700 HH | Project annual impact assessment reports, Mid term evaluation, final report. | Demand exists for climate resilient post-harvest processing and storage systems. |
| | Percentage of target HH adding value by primary agro processing such as sorting, drying, threshing, grading. | <10% HHs engaged in 1 ^o processing - % TBC in baseline | 40% increase on baseline | | Farmers motivated to use and maintain new structures. |
| | Percentage of target HH adding value through transformative agro processing such as milling, shelling, grinding or packaging | <5% HHs engaged in 2 ^o processing - TBC in baseline | 20% increase on baseline | | Structures are built by competent contractors to be weather resistant. |
| | No of women/men from target HH engaged in post- harvest livelihoods | <50 women and <100 men - TBC in baseline | 1000 women/1000 men | | Adequate local production for post- harvest food processing available. |
| Outcome 2: Diversified and climate resilient livelihoods of vulnerable households in project area. | Share of target HH income from non-farm activities. | 12.4% ⁹¹ | 50% | Project annual impact assessment reports, Mid term evaluation, final report. | Marketing networks connected with new facilities. |
| | No. of women/men from target HH adopting alternative livelihood. | Target HH typically engaged in subsistence agriculture – existing livelihood strategies TBD in baseline | 50% increase on baseline | District profiles EICV data | Target HH can access credit facility. |
| | | | | | Target households perceive the benefits of livelihood diversification. |

⁹¹ EICV data

| | | | | | |
|---|--|---|---------------------|--|--|
| Output 2.1 Identification of viable alternative livelihood opportunities and constraints. | Number of women/men from target HH with a new source of income. | 0 | 4000 women/4000 men | Project annual impact assessment reports, Mid term evaluation, final report. | Market and technical information available. Adequate monitoring and fiscal control in place for effective oversight of cash for work schemes. |
| Output 2.2 Development of Rural Development Hubs within selected <i>imidugudus</i> to promote and facilitate productive and market-linked, alternative livelihoods (agro-processing, livestock, transport etc.). | % increase in annual HH income from diversified livelihoods (disaggregated by FHH/MHH). | <1,416,000 – exact amount TBD in baseline | 30% | Project annual impact assessment reports, Mid term evaluation, final report. | Sufficient demand exists for identified enterprises. |
| | Number of women/men from target HH in Self-help groups or co-operatives. | Membership levels low due to costs of entry - TBD in baseline | 4000 women/4000 men | PME | Local partners can be identified to support livelihood diversification. |
| | Number of women/men from target HH graduating from vocational training schemes. | Zero - TBC in baseline | 50 | EICV data | Local partners with expertise in social development support capacity building of project self-help groups. |
| | No. of hours spent on domestic duties by women/men aged over 16 years. | 20/8 hrs ⁹² | 16/12 hrs | | Local leaders and authorities supportive of women adopting new livelihoods. |
| | No. of FHH/MHH in receipt of small loans to start an enterprise. | Very low - TBD in baseline | 3000 | | Women from target households motivated to adopt new livelihoods. |
| | No. of women's associations/savings groups (comprising target HHs) investing in a new and profitable business opportunity. | Very low - TBD in baseline | 300 | | Local micro-finance institutions engage with and support project groups. |
| | No. of target beneficiaries (women/men) in VSLAs | TBD in baseline | 3500 women/3500 men | | Costs of joining a self-help groups and co-operatives are nil or minimal to enable access for the extreme poor. Continued support of Government for informal savings and loans groups. |
| Output 2.3 Resettlement of 200 households living in high-risk zones to | No. of extreme poor HH from high risk zone resettled in houses constructed in safe zone in compliance with national standards. | 0 | 200 | Project annual impact assessment reports, Mid term evaluation, final | Husbands perceive benefits of wives being economically productive and willing to assist with household chores. Vulnerable households willing to relocate to new developments. Raw materials available to construct houses in |

⁹² EICV data – domestic duties including foraging for firewood, fodder searching, water fetching, going to market, cooking and other household chores.

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|---|---|---|------------------------------|--|--|
| Rural Development Hubs. | | | | report. | safe areas. |
| | | | | PME | Competent contractor used to construct houses to national building standards to time and budget. |
| Output 2.4 Increased investment in market development (infrastructure, transport, storage, market research etc.). | Percentage of targeted HH selling produce through new markets. | Zero – markets currently used TBD in baseline | 20% | Project annual impact assessment reports, Mid term evaluation, final report. | Demand exists for market development (infrastructure, transport, storage, market research etc.). |
| | Percentage of farmers bulking produce for market and selling collectively. | <10% - TBC in baseline | 60% | | Market information and analysis is used by project beneficiaries. |
| | No of target HH using new market infrastructure. | Zero | 2000 HH | PME | Market development fund is made accessible to project beneficiaries. |
| Output 2.5 Increased investment in and access to renewable energy (Biogas plants, solar etc.) for enterprise development. | No. of HH using a renewable energy source for lighting or cooking. | Zero - TBC in baseline | 1000 | Project annual impact assessment reports, Mid term evaluation, final report. | Demand exists for renewable energy supplies. |
| | No. co-operatives or self help groups accessing a concessional loan for a renewable energy source. | Zero - TBC in baseline | 16 | | Quality and reliability of renewable energy supplies is sufficient to encourage uptake by users. |
| | | | | | Subsidies and technical support services widely communicated. |
| Outcome 3: Enhanced capacity of local actors and Government to develop and implement risk reduction strategies for areas prone to flooding and landslides. | No. of sectors outside project area replicating community based adaptation approaches. | 0 | 2 | Project annual impact assessment reports, Mid term evaluation, final report. | Willingness by decision-makers to incorporate community based adaptation processes into planning mechanisms and budgets. |
| | Gender sensitive climate adaptation approaches incorporated into X local and Y national planning documents. | No adaptation planning currently taking place | 5 local and 2 national level | | |
| Output 3.1 Training of government stakeholders: technical staff, civil society and Private Sector staff in climate risk management and flood and landslide | Budgets and staffing dedicated to climate change adaptation through district development plans. | No staff or budget currently assigned to DDPs | Integrated into 2 DDPs | Project annual impact assessment reports, Mid term evaluation, final report. | Institutions and individuals recognize the value of training and apply new skills. |
| | No. of stakeholders who have received gender sensitisation training as part of climate risk management. | 0 | 150 | | Local authorities receptive to key messages in training and have resources to incorporate learning into development plans. |
| | | | | Training evaluation reports | Government stakeholders cooperate and agree |

| | | | | | |
|---|---|---|-------|--|--|
| prevention measures for further scaling up. | | | | and materials. | on designing and implementing risk reduction measures. |
| Output 3.2 Sharing project results and lessons learned and mainstreaming new approaches in local and national planning. | Number of environmental/climate change policy briefs written and communicated to key decision makers. | 0 | 8 | Project annual impact assessment reports, Mid term evaluation, final report. | Communication materials are culturally relevant and targeted on the basis of gender, age, location and area norms. |
| | No of farmers making cross visits or viewing participatory videos by other farmers. | 0 | 8000 | Policy briefs | Lessons learned are identified and analysed in a timely manner, supporting the effective sharing of knowledge. |
| | No. of TV/radio broadcasts with key adaptation messages. | 0 | 10/16 | TV and radio broadcasts | Cross visits and participatory videos convince farmers to change farming practices and behaviours. |
| | No. of news reports in the local press and media that have covered climate adaptation initiatives. | 0 | 30 | Videos | Media interest in climate change stories. |
| | No. of potential donors/investors receiving the adaptation investment plan for North West Rwanda. | No investment plan for climate adaptation in NW Rwanda currently exists | 10 | Website News reports Investment report Cross visit reports. | |

Alignment with AF strategic outcomes

| AF Strategic outcomes | Project outcomes | Alignment assessment |
|--|--|---|
| Outcome 5: Increased ecosystem resilience in response to climate change and variability-induced stress | Outcome 1: Reduced flooding and diversified and higher yields leading to enhanced food security and increased household incomes. Resource allocation: US\$ 4,580,694 | Restoration of ecosystem services and improved management of natural resources will increase climate resilience. Physical, natural, and social natural resource assets strengthened in response to climate change impacts e.g. through investment in weather resistant post-harvest facilities will reduce impact of climate variability. |
| Outcome 6: Diversified and strengthened livelihoods and sources of income for vulnerable people in targeted areas. | Outcome 2: Diversified and climate resilient livelihoods of vulnerable households in project area. Resource allocation: US\$ 3,818,516 | Vulnerable households have more secure, climate-resilient livelihoods. Livelihood strategies strengthened to better withstand climate shocks and stresses. |
| Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses | Outcome 3: Enhanced capacity of local actors and Government to develop and implement risk reduction strategies for areas prone to flooding and landslides. Resource allocation: US\$ 209,890 | Capacity building of staff from local and national institutions will build support for allocation of resources for risk reduction. Lesson learning and effective communication of results will raise awareness more widely and help to mainstream climate change in development planning at national and local levels. |

E Budget

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.

The budget with a year-by-year breakdown is shown in Table 15. The overall cost of the project is US\$ 9,969,619 over 4 years.

Table 15: Budget for implementation of proposed project

| Project output/activity | 2014 | 2015 | 2016 | 2017 | Cost USD | Budget |
|---|----------------|------------------|----------------|----------------|------------------|--------|
| 1. Adaptation to changing rainfall patterns (intensity and duration) and increased food security through improved land and water management regimes. | | | | | | |
| <i>1.1 Community level mobilisation and climate adaptation planning</i> | | | | | | |
| Selection of target areas and target groups for support | 4,945 | 0 | 0 | 0 | 4,945 | 1 |
| Climate change vulnerability and capacity assessment | 56,515 | 0 | 0 | 0 | 56,515 | 2 |
| Awareness raising of climate change issues | 3,925 | 1,308 | 1,308 | 1,308 | 7,849 | 3 |
| Training of project staff and community animators | 15,699 | 31,397 | 15,699 | 0 | 62,794 | 4 |
| Community based survey of project area | 9,419 | 0 | 0 | 0 | 9,419 | 5 |
| Development of local adaptation plans | 52,747 | 0 | 0 | 0 | 52,747 | 6 |
| Community meetings and planning workshops | 15,071 | 15,071 | 15,071 | 15,071 | 60,283 | 7 |
| Subtotal | 158,320 | 47,776 | 32,077 | 16,379 | 254,553 | |
| <i>Percent expenditure per year</i> | <i>62%</i> | <i>19%</i> | <i>13%</i> | <i>6%</i> | | |
| <i>1.2 Introduction of integrated land and water management practices</i> | | | | | | |
| Consultation with MINAGRI and district agronomists | 1,413 | 0 | 0 | 0 | 1,413 | 8 |
| Awareness campaign on erosion control and improved soil management | 2,198 | 314 | 314 | 314 | 3,140 | 9 |
| Re-planting of steep slopes | 137,363 | 274,725 | 206,044 | 68,681 | 686,813 | 10 |
| Support for erosion control measures | 117,739 | 588,697 | 353,218 | 117,739 | 1,177,394 | 11 |
| Installation of rainwater harvesting tanks | 139,253 | 208,879 | 0 | 0 | 348,132 | 12 |
| Excavation of ponds to manage storm water | 68,320 | 273,281 | 0 | 0 | 341,601 | 13 |
| Capacity building of local authorities to support the committees | 0 | 1,413 | 0 | 0 | 1,413 | 14 |
| Re-planting on channel, river and lake shores | 52,991 | 264,956 | 158,974 | 52,991 | 529,913 | 15 |
| Establish and build capacity of water user groups | 3,061 | 3,061 | 0 | 0 | 6,122 | 16 |
| Feasibility study for long term solution to water logging of Mugogo lowlands in Busogo | 59,655 | 0 | 0 | 0 | 59,655 | 17 |
| Drainage works (check dams, water breaks, excavation etc.) | 110,440 | 147,253 | 110,440 | 0 | 368,132 | 18 |
| Subtotal | 692,432 | 1,762,580 | 828,990 | 239,726 | 3,523,727 | |
| <i>Percent expenditure per year</i> | <i>20%</i> | <i>50%</i> | <i>24%</i> | <i>7%</i> | | |
| <i>1.3 Diversification and integration of crop and livestock production systems to minimise the impact of variable rainfall on rural livelihoods</i> | | | | | | |
| Participatory survey of existing crop and livestock production systems | 3,532 | 0 | 0 | 0 | 3,532 | 19 |
| Field trials with researchers and farmers | 5,024 | 12,559 | 7,535 | 0 | 25,118 | 20 |
| Support for development of tree nurseries for agro-forestry | 7,312 | 29,246 | 0 | 0 | 36,558 | 21 |
| Support for development of tree nurseries for fruits | 2,512 | 10,047 | 0 | 0 | 12,559 | 22 |
| Support for vulnerable farmers' cooperatives | 6,279 | 9,419 | 9,419 | 6,279 | 31,397 | 23 |
| Facilitate inputs and extension support | 471 | 1,884 | 2,355 | 0 | 4,710 | 24 |
| Promotion and support for uptake of improved technologies | 0 | 1,570 | 942 | 628 | 3,140 | 25 |

| | | | | | | |
|--|------------------|------------------|------------------|----------------|------------------|----|
| Subtotal | 25,129 | 64,725 | 20,251 | 6,907 | 117,013 | |
| <i>Percent expenditure per year</i> | <i>21%</i> | <i>55%</i> | <i>17%</i> | <i>6%</i> | | |
| <i>1.4 Introduction of climate-resilient crop/fodder varieties and agronomic practices (short season crops, seasonal pastures etc.) in low-lying areas.</i> | | | | | | |
| Review of existing data and studies on flood-resilient varieties | 2,826 | 0 | 0 | 0 | 2,826 | 26 |
| Field trials with researchers and farmers to identify appropriate varieties | 7,535 | 5,024 | 0 | 0 | 12,559 | 27 |
| Establish and build capacity of community seed production groups | 1,413 | 1,413 | 942 | 942 | 4,710 | |
| Promotion and support for uptake of flood resilient varieties by farmers | 0 | 1,413 | 848 | 565 | 2,826 | 28 |
| Subtotal | 11,774 | 7,849 | 1,790 | 1,507 | 22,920 | |
| <i>Percent expenditure per year</i> | <i>51%</i> | <i>34%</i> | <i>8%</i> | <i>7%</i> | | |
| <i>1.5 Introduction of flood resilient post-harvest processing and storage systems for safe handling and storage of agricultural produce during extreme climate events</i> | | | | | | |
| Survey of existing post-harvest processing and storage systems | 5,887 | 0 | 0 | 0 | 5,887 | 29 |
| Technical support for improving processing and storage systems | 3,768 | 7,535 | 5,651 | 1,884 | 18,838 | 30 |
| Creation of and capitalisation of a financing facility | 62,794 | 251,177 | 251,177 | 62,794 | 627,943 | 31 |
| increase access to existing credit facilities | 3,532 | 0 | 0 | 0 | 3,532 | 32 |
| Promotion and support for uptake of credit and technical support | 1,884 | 1,884 | 1,256 | 1,256 | 6,279 | 33 |
| Subtotal | 77,865 | 260,597 | 258,085 | 65,934 | 662,480 | |
| <i>Percent expenditure per year</i> | <i>12%</i> | <i>39%</i> | <i>39%</i> | <i>10%</i> | | |
| Cost for Component 1 | 965,521 | 2,143,527 | 1,141,193 | 330,453 | 4,580,69 | |
| 2. Support for the transition from exploitative farming practices to sustainable, diversified livelihoods. | | | | | | |
| <i>2.1 Identification of alternative livelihood opportunities and constraints.</i> | | | | | | |
| Raise awareness of potential livelihood opportunities with communities and other | 3,140 | 6,279 | 4,710 | 1,570 | 15,699 | 34 |
| Inclusion and prioritisation of vulnerable groups in re-planting and other work schemes | 2,512 | 5,024 | 3,768 | 1,256 | 12,559 | 35 |
| Subtotal | 5,651 | 11,303 | 8,477 | 2,826 | 28,257 | |
| <i>Percent expenditure per year</i> | <i>20%</i> | <i>40%</i> | <i>30%</i> | <i>10%</i> | | |
| <i>2.2 Development of Rural Development Hubs within selected imidugudus to promote and facilitate sustainable, market-linked and diversified livelihoods</i> | | | | | | |
| Selection of target areas for support | 4,710 | 0 | 0 | 0 | 4,710 | 36 |
| Creation of and capitalisation of a credit facility for enterprise development | 150,706 | 301,413 | 226,060 | 75,353 | 753,532 | 37 |
| Provision of vocational training and linkages with existing Vocational Training Centres | 62,794 | 94,192 | 94,192 | 62,794 | 313,972 | 38 |
| Capacity building of co-operatives and Self Help Groups | 12,559 | 18,838 | 18,838 | 12,559 | 62,794 | 39 |
| Facilitate linkages to improved markets for inputs and produced products and services | 2,826 | 0 | 0 | 0 | 2,826 | 40 |
| Facilitate technical support for product and service delivery through value chains | 6,279 | 6,279 | 0 | 0 | 12,559 | 41 |
| Awareness and promotion of available support | 3,140 | 1,570 | 1,570 | 1,570 | 7,849 | 42 |
| Subtotal | 243,014 | 422,292 | 340,659 | 152,276 | 1,158,242 | |
| <i>Percent expenditure per year</i> | <i>21%</i> | <i>36%</i> | <i>29%</i> | <i>13%</i> | | |
| <i>2.3 Resettlement of households living in high-risk zones to Rural Development Hubs.</i> | | | | | | |
| Awareness raising, selection of target households with community and local authorities | 7,064 | 0 | 0 | 0 | 7,064 | 43 |
| Resettlement of 200 vulnerable HH to RDH | 1,363,893 | 340,973 | 0 | 0 | 1,704,867 | 44 |
| Subtotal | 1,370,958 | 340,973 | 0 | 0 | 1,711,931 | |
| <i>Percent expenditure per year</i> | <i>80%</i> | <i>20%</i> | <i>0%</i> | <i>0%</i> | | |

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

| | | | | | | |
|--|----------------|----------------|----------------|---------------|----------------|----|
| Needs assessment | 9,419 | 0 | 0 | 0 | 9,419 | 45 |
| Establish and operate a market research and information service | 14,129 | 14,129 | 9,419 | 9,419 | 47,096 | |
| Value chain analysis of selected market opportunities | 47,096 | 0 | 0 | 0 | 47,096 | 46 |
| Promote local products and services to high value markets | 4,710 | 18,838 | 14,129 | 9,419 | 47,096 | 47 |
| Create a Market Development Fund for financing market infrastructure | 138,148 | 276,295 | 207,221 | 69,074 | 690,738 | 48 |
| Subtotal | 213,501 | 309,262 | 230,769 | 87,912 | 841,444 | |
| <i>Percent expenditure per year</i> | <i>25%</i> | <i>37%</i> | <i>27%</i> | <i>10%</i> | | |

2.5 Increased investment in and access to renewable electricity (Biogas plants, solar etc.) for enterprise development.

| | | | | | | |
|---|---------------|---------------|---------------|--------------|---------------|----|
| Provision of concessional loans and subsidies for installing renewable energy sources | 13,374 | 26,747 | 20,060 | 6,687 | 66,868 | 49 |
| Creation and capacity building of Energy User Groups | 471 | 1,413 | 1,884 | 942 | 4,710 | 50 |
| Facilitation and/or provision of technical support | 1,413 | 2,826 | 1,413 | 1,413 | 7,064 | 51 |
| Subtotal | 15,257 | 30,986 | 23,357 | 9,042 | 78,642 | |
| <i>Percent expenditure per year</i> | <i>19%</i> | <i>39%</i> | <i>30%</i> | <i>11%</i> | | |

Cost for Component 2 **1,848,381** **1,114,816** **603,263** **252,056** **3,818,51**

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

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

| | | | | | | |
|---|---------------|---------------|---------------|---------------|----------------|----|
| Training needs assessment | 5,024 | 0 | 0 | 0 | 5,024 | 52 |
| Training workshops and short courses for Government and NGO staff | 10,047 | 30,141 | 30,141 | 30,141 | 100,471 | 53 |
| Preparation of training and awareness materials | 3,140 | 3,140 | 3,140 | 3,140 | 12,559 | 54 |
| Evaluation and revision of training materials | 628 | 628 | 628 | 628 | 2,512 | 55 |
| Subtotal | 18,838 | 33,909 | 33,909 | 33,909 | 120,565 | |
| <i>Percent expenditure per year</i> | <i>16%</i> | <i>28%</i> | <i>28%</i> | <i>28%</i> | | |

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

| | | | | | | |
|--|---------------|---------------|---------------|---------------|----------------|----|
| Preparation of briefing notes for local and national decision makers | 0 | 0 | 2,512 | 2,512 | 5,024 | 56 |
| Develop a communication strategy | 2,512 | 0 | 0 | 0 | 2,512 | 57 |
| Develop a knowledge management strategy | 2,512 | 0 | 0 | 0 | 2,512 | 58 |
| Preparation of guidelines and manuals | 0 | 12,559 | 0 | 0 | 12,559 | 59 |
| Farmer-to-farmer fora | 0 | 6,782 | 9,042 | 6,782 | 22,606 | 60 |
| Development of participatory videos | 1,256 | 0 | 0 | 0 | 1,256 | 61 |
| Competitions to reward innovative approaches to adaptation | 0 | 2,355 | 2,355 | 2,355 | 7,064 | 62 |
| Development of an investment plan | 0 | 0 | 0 | 12,559 | 12,559 | 63 |
| Media articles in newspapers, journals, newsletters, radio | 1,884 | 3,768 | 7,535 | 5,651 | 18,838 | |
| Business roundtables with private sector | 0 | 0 | 1,130 | 1,695 | 2,826 | |
| Website development and maintenance (under existing site) | 1,570 | 0 | 0 | 0 | 1,570 | |
| Subtotal | 9,733 | 25,463 | 22,575 | 31,554 | 89,325 | |
| <i>Percent expenditure per year</i> | <i>11%</i> | <i>29%</i> | <i>25%</i> | <i>35%</i> | | |
| Cost for Component 3 | 28,571 | 59,372 | 56,484 | 65,463 | 209,890 | |

Project Execution costs (9% of the total budget requested) before the NIE fees **256,786** **156,119** **168,486** **176,492** **757,883**

| | | | | | |
|--|------------------|------------------|------------------|----------------|-----------------|
| Total project cost (before the NIE fees) | 2,842,474 | 3,317,715 | 1,800,939 | 647,972 | 8,609,10 |
| Project cycle management fee (<8.5% of the total budget) | 150,659 | 150,659 | 150,659 | 150,659 | 602,637 |
| Total amount of financing requested | 3,249,919 | 3,624,493 | 2,120,084 | 975,123 | 9,969,61 |

Budget Notes:

| No. | Note |
|-----|---|
| 1 | 21 days local consultant or NGO |
| 2 | 15 days in each sector 2 local consultants @ US\$ 235 per day or NGO |
| 3 | Radio broadcasts, posters, events, community meetings etc. |
| 4 | in gender sensitive adaptation planning 40 days of training over 4 years includes venue, refreshments, travel, preparation and delivery of training |
| 5 | to prioritise interventions with communities, agricultural experts and other stakeholders 5 days in each sector local consultant or NGO @ US\$ 235 per day |
| 6 | 14 days per sector 2 local consultants or NGO @ US\$ 235 per day |
| 7 | quarterly over 4 yrs in 8 sectors |
| 8 | 6 days local consultant @ US\$ 235 per day to discuss zoning of land for agriculture, pasture, perennial crops/grasses etc. with community and agricultural experts |
| 9 | Radio broadcasts, posters, events, community meetings etc. |
| 10 | Re-planting of 5600 ha of steep slopes with perennial grasses and shrubs, wattling, brush layering |
| 11 | Low cost interventions have been prioritised over resource intense structural works: includes progressive terracing, introducing strips of permanent vegetation, planting |
| 12 | Tanks are 3m3 and shared between 2 HH - provision for 560 tanks |
| 13 | Ponds volume will be 120m3 - provision for 96 ponds |
| 14 | to support the committees and maintain records of functionality and utilisation of infrastructure - 5 days local consultant @ US\$ 200 per day |
| 15 | 160km planted with trees, shrubs, grasses |
| 16 | 26 days local consultant or NGO @ US\$ 235 per day |
| 17 | Lump sum for a team of consultants to assess options and recommend a long term solution, study will be used to leverage additional finance into project |
| 18 | Includes installation of check dams, water breaks, excavation etc. RWF1000 per 1.5m, 350km |
| 19 | 15 days local consultant @ US\$ 235 per day |
| 20 | to identify climate resilient integrated farming systems 16 field trials over 4 years |
| 21 | 120,000 agro-forestry trees in each sector |
| 22 | 10,000 fruit trees in each sector |
| 23 | 50 days per year local NGO @ US\$ 235 per day |
| 24 | Includes seeds, fertilisers and other inputs to operate through existing Government and Private Sector channels |
| 25 | Radio broadcasts, posters, events, community meetings etc. |
| 26 | Local consultant @ US\$ 235 per day for 12 days |
| 27 | 2 Field trials per sector |
| 28 | Radio broadcasts, posters, events, community meetings etc. |
| 29 | to prioritise interventions with communities, local authorities and other stakeholders 25 days local consultant @ US\$ 235 per day |
| 30 | International consultant 30 days @ US\$ 630 per day |
| 31 | For construction and operation of agro-processing and storage facilities. Funds disbursed through existing finance institutions in each sector eg SACCOs |
| 32 | Local consultant 15 days @ US\$ 235 per day |
| 33 | Radio broadcasts, posters, events, community meetings etc. |
| 34 | Radio broadcasts, posters, events, community meetings etc. |
| 35 | Provision for daily stipend to labourers |

36 20 days local consultant @ US\$ 235 per day
 37 Funds disbursed through existing finance institutions in each sector eg SACCOs
 38 Provision of vocational training and linkages with existing Vocational Training Centres
 39 100 days per year local NGO @ US\$ 158 per day
 40 12 days local consultant @ US\$ 235 per day
 41 20 days international consultant @ US\$ 630 per day
 42 Radio broadcasts, posters, events, community meetings etc.
 43 To prioritise households for resettlement 30 days local consultant @ US\$ 235 per day
 44 Includes house construction and expropriation costs
 45 15 days international consultant @ US\$ 630 per day
 46 50 days international consultant @ US\$ 630 per day
 47 meetings with buyers, promotional material, trade shows etc.
 48 For construction, operation and maintenance. Funds disbursed through existing finance institutions in each sector eg SACCOs
 49 Funds disbursed through existing finance institutions in each sector eg SACCOs. Budget for 1 biogas plant is US\$2000 based on technology feasible for small holders with
 50 20 days @ US\$ 235 per day from an NGO or other service provider
 51 30 days @ US\$ 235 per day from a service provider
 52 2 days per year international consultant @ US\$ 630 per day
 53 20 days of training over 4 years includes venue, refreshments, travel, preparation and delivery of training
 54 for gender sensitive adaptation planning, international consultant 5 days per year @ US\$630 per day
 55 international consultant 1 day per year @ US\$ 630 per day
 56 quarterly from mid term international consultant 8 days @ US\$ 630 per day
 57 international consultant 4 days @ US\$ 630 per day
 58 international consultant 4 days @ US\$ 630 per day
 59 international consultant 20 days @ US\$ 630 per day
 60 5 groups from each sector quarterly from Yr 2
 61 2 camcorders and tapes
 62 Competitions held annually from Yr 2
 63 international consultant 20 days @ US\$ 630 per day
 64 Hired at project inception, based in Nyabihu
 65 Hired at project inception, based in Nyabihu
 66 Hired 1 month after project inception to enable PM to participate in recruitment, based in Nyabihu
 67 Hired 1 month after project inception to enable PM to participate in recruitment, based in Nyabihu
 68 Hired 1 month after project inception to enable PM to participate in recruitment, based in Nyabihu
 69 Hired 1 month after project inception to enable PM to participate in recruitment, based in Nyabihu
 70 Hired 1 month after project inception to enable PM to participate in recruitment, based in Nyabihu
 71 2 Community Animators for each sector - phone cards, per diems and accommodation for training, refreshments
 72 Hired at project inception, based in Nyabihu
 73 To ensure Project Staff have good mobility in the field
 74 To ensure Community Animators have good mobility in the field
 75 for 16 Community Animators

A breakdown of project execution costs is shown in Table 16. These costs comprise the 8 staff within the Project Implementation Unit, project vehicles, motorcycles (for the project staff), bicycles and other items (boots, sun lamp etc.) for the Community Animators, office rent and furniture,

computers and IT equipment, per diems and accommodation for the community animators (during training), communication and monitoring and evaluation costs. These costs amount to USD\$ 757,883 which is 8.8% of the total project costs (before implementing entity fees).

Table 16: Project execution costs

| Project output/activity | 2014 | 2015 | 2016 | 2017 | Cost USD | Budget note |
|--|----------------|----------------|----------------|----------------|----------------|-------------|
| <i>Project execution costs (< 9.5% of the total budget requested, before the implementing entity fees) see Note 1</i> | | | | | | |
| Project manager (Nyabihu) gross salary pcm | 26,374 | 26,374 | 26,374 | 26,374 | 105,495 | 64 |
| Financial and administrative assistant | 11,962 | 11,962 | 11,962 | 11,962 | 47,849 | 65 |
| Monitoring and Evaluation Officer gross salary pcm | 14,592 | 15,918 | 15,918 | 15,918 | 62,347 | 66 |
| Agronomist Officer gross salary pcm | 8,634 | 9,419 | 9,419 | 9,419 | 36,892 | 67 |
| Community Development Officer gross salary pcm | 8,634 | 9,419 | 9,419 | 9,419 | 36,892 | 68 |
| Enterprise Development Officer gross salary pcm | 8,634 | 9,419 | 9,419 | 9,419 | 36,892 | 69 |
| Communications Officer gross salary pcm | 10,965 | 11,962 | 11,962 | 11,962 | 46,852 | 70 |
| Community Animators | 9,525 | 9,525 | 6,350 | 6,350 | 31,749 | 71 |
| Driver | 4,922 | 5,369 | 5,369 | 5,369 | 21,028 | 72 |
| Project vehicle (Toyota Prado) | 45,526 | 0 | 0 | 0 | 45,526 | |
| Motorcycles | 19,623 | 0 | 0 | 0 | 19,623 | 73 |
| Bicycles for community animators | 2,261 | 0 | 0 | 0 | 2,261 | 74 |
| Vehicle maintenance, insurance, tax etc. | 3,768 | 3,768 | 3,768 | 3,768 | 15,071 | |
| Fuel (vehicle and generator) | 15,071 | 15,071 | 15,071 | 15,071 | 60,283 | |
| Security | 4,980 | 4,980 | 4,980 | 4,980 | 19,922 | |
| Accommodation and per diem (Kigali travel PM) | 1,771 | 1,771 | 1,771 | 1,771 | 7,083 | |
| Office rent | 1,413 | 1,413 | 1,413 | 1,413 | 5,651 | |
| Office furniture | 4,710 | 0 | 0 | 0 | 4,710 | |
| Computers and IT equipment | 9,419 | 0 | 0 | 0 | 9,419 | |
| Internet connection | 942 | 942 | 942 | 942 | 3,768 | |
| Mobile phones (for 8 staff and 16 Community Animators) | 754 | 0 | 0 | 0 | 754 | |
| Phone cards | 754 | 754 | 754 | 754 | 3,014 | |
| Sun King Solar lamps with phone charger | 628 | 0 | 0 | 0 | 628 | 75 |
| Boots and tee shirts for community animators | 267 | 0 | 0 | 0 | 267 | |
| Stationary and supplies | 2,355 | 2,355 | 2,355 | 2,355 | 9,419 | |
| Management meetings (Steering Committees, TAG) etc | 6,279 | 6,279 | 6,279 | 6,279 | 25,118 | |
| Inception workshop and annual workshops | | 4,710 | 4,710 | 4,710 | 23,548 | |
| Annual field visit for representatives of the Steering Committee and TAG | 1,413 | 1,413 | 1,413 | 1,413 | 5,651 | |
| Baseline survey | 21,193 | 0 | 0 | 0 | 21,193 | |
| Mid term evaluation | 0 | 0 | 18,838 | 0 | 18,838 | |
| Final evaluation | 0 | 0 | 0 | 23,548 | 23,548 | |
| Audit | 0 | 3,297 | 0 | 3,297 | 6,593 | |
| Subtotal | 256,786 | 156,119 | 168,486 | 176,492 | 757,883 | |
| <i>Percent expenditure per year</i> | <i>34%</i> | <i>21%</i> | <i>22%</i> | <i>23%</i> | | |

Project management fee

The project management fee (7% of the total budget) will be utilised by MINIRENA, the National Implementing Entity, to cover the costs associated with the provision of general management support. Table 17 below provides a breakdown of the estimated costs of providing these services.

Table 17: Breakdown of costs for the project management fee

| Cost | Amount US\$ |
|----------------------------------|----------------|
| Finance, Budget and Treasury | 189,000 |
| Performance Management | 186,864 |
| Information and Telecoms Support | 10,000 |
| Legal Support | 9,000 |
| Programme Support | 207,773 |
| Total | 602,637 |

Notes:

1. **Finance, Budget and Treasury.** This covers general oversight, management and quality control. MINIRENA will:
 - a. ensure compliance with judiciary standards and internal control processes,
 - b. manage, monitor and track AF financial resources including allocating and monitoring expenditure based on agreed work plans, financial reporting to the AFB and the return of unspent funds to AF;
 - c. ensuring that financial management practices comply with AF requirements and support audits as required;
 - d. ensuring financial reporting complies with AF standards; and
 - e. ensure cost efficient procurement processes and compliance with Government procurement rules and provide support in the identification of suppliers.
2. **Performance Management.** This includes:
 - a. Providing oversight of the monitoring and evaluation function of the Executing Agency (RNRA);
 - b. providing technical support in the areas of risk management, screening of financial and risk criteria;
 - c. providing guidance in establishing performance measurement processes; and
 - d. technical support on methodologies, TOR validation, identification of experts, results validation, and quality assurance.
3. **Information & Telecoms.** This includes maintaining information management systems and specific project management databases to track and monitor project implementation.
4. **Legal.** This includes legal advice to assure conformity with Rwandan Law.
5. **Program Support.** This includes:
 - a. technical support, troubleshooting, and support missions as necessary;
 - b. policy, programming, and implementation support services;
 - c. supporting evaluation missions and participating in briefing / debriefing;
 - d. providing guidance on AF reporting requirements;

- e. managing the relationship with the AF and ensuring outputs and outcomes match with AF expectations;
- f. responding to information requests and arranging revisions;
- g. communication of technical findings and lessons learned within the country and the broader adaption community and
- h. advising on technical monitoring, progress monitoring, validation and quality assurance throughout.

F Disbursement schedule

Include a disbursement schedule with time-bound milestones.

| | On signing agreement | Year 2 | Year 3 | Year 4 | Total |
|---------------|----------------------|-----------|-----------|-----------|-----------|
| Date | 15 Dec 13 | 15 Dec 14 | 15 Dec 15 | 15 Dec 16 | |
| Project funds | 3,099,260 | 3,473,834 | 1,969,424 | 824,464 | 9,366,982 |
| NEI Fee | 150,659 | 150,659 | 150,659 | 150,659 | 602,637 |
| Total | 3,249,919 | 3,624,493 | 2,120,084 | 975,123 | 9,969,619 |

A detailed illustration of the disbursement for each output is shown in Table 18.

Table 18: Disbursement schedule for funds

| Project output/activity | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | |
|---|---|----|----|----|------|----|----|----|------|----|----|----|------|----|----|----|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| 1. Adaptation to changing rainfall patterns (intensity and duration) and increased food security through improved land and water management regimes. | | | | | | | | | | | | | | | | |
| 1.1 Community level mobilisation and climate adaptation planning | <div><div></div><div>62%</div><div>81%</div><div>94%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 1.2 Introduction of integrated land and water management practices | <div><div></div><div>19%</div><div>69%</div><div>93%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 1.3 Diversification and integration of crop and livestock production systems to minimise the impact of variable rainfall on rural livelihoods | <div><div></div><div>21%</div><div>77%</div><div>94%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 1.4 Introduction of climate-resilient crop/fodder varieties and agronomic practices (short season crops, seasonal pastures etc.) in low-lying areas. | <div><div></div><div>58%</div><div>93%</div><div>97%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 1.5 Introduction of flood resilient post-harvest processing and storage systems for safe handling and storage of agricultural produce during extreme climate events | <div><div></div><div>12%</div><div>51%</div><div>90%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 2. Support for the transition from exploitative farming practices to sustainable alternative, off-farm livelihoods. | | | | | | | | | | | | | | | | |
| 2.1 Identification of alternative livelihood opportunities and constraints. | <div><div></div><div>20%</div><div>60%</div><div>90%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 2.2 Development of Rural Development Hubs within selected imidugudus to promote and facilitate sustainable, market-linked and diversified livelihoods | <div><div></div><div>21%</div><div>57%</div><div>87%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 2.3 Resettlement of households living in high-risk zones to Rural Development Hubs. | <div><div></div><div>80%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 2.4 Increased investment in market development (infrastructure, transport, storage, market research etc.). | <div><div></div><div>20%</div><div>60%</div><div>90%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 2.5 Increased investment in and access to renewable electricity (Biogas plants, solar etc.) for enterprise development. | <div><div></div><div>20%</div><div>60%</div><div>90%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 3. Capacity building of local institutions to plan and implement climate resilient land and water management regimes and scale up effective adaptation | | | | | | | | | | | | | | | | |
| 3.1 Training of government technical staff in climate risk management and flood and landslide prevention measures for further scaling up. | <div><div></div><div>16%</div><div>44%</div><div>72%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| 3.2 Sharing project results and lessons learned and mainstreaming new approaches in local and national planning. | <div><div></div><div>15%</div><div>46%</div><div>69%</div><div>100%</div></div> | | | | | | | | | | | | | | | |
| Project execution and M&E | <div><div></div><div>34%</div><div>54%</div><div>77%</div><div>100%</div></div> | | | | | | | | | | | | | | | |

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


A Record of endorsement on behalf of the government⁹³

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:

| | |
|---|------------------------------------|
| Caroline KAYONGA, Permanent Secretary in Ministry of Natural Resources (MINIRENA) | Date: 21 st August 2013 |
|---|------------------------------------|

B Implementing Entity Certification

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

| | |
|---|--|
| I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (NAPA, VISION 2020, EDPRSII, Green Growth and Climate Change Resilience 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: August, 21, 2013 | Tel. and email: +250788304816, ckayonga@minirena.gov.rw |
| Project Contact Person: Innocent MUSABYIMANA | |
| Tel. And Email: +250788849234, musasebin2000@yahoo.fr | |

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.

Annex 1: EIA certificate



Application reference: No 0899/16.04
Certificate N° RDB/3/EC.DS/191/08/2013

CERTIFICATE OF APPROVAL OF ENVIRONMENTAL IMPACT ASSESSMENT*

This is to certify that the Environmental Impact Assessment Report (EIR) received from Ms Caroline KAYONGA, Permanent Secretary in the Ministry of Natural Resources (MINIRENA), of P.O. Box 3502 Kigali, Rwanda was submitted to Rwanda Development Board (RDB) in accordance with Article N° 67 of Environmental Law N° 04/2005 of 8/4/2005 with respect to the project named "Resettlement of 208 households from the high risk zone prone to flooding in Nyabihu District, namely at Bikingi Village, Kijote Cell, Bigogwe Sector; at Kabyaza Village, Rurengeri Cell, Mukamira Sector; and at Gasura Village, Gasura Cell, Jomba Sector, all located in Nyabihu District of Western Province". The objective of this project is to resettle the population of Nyabihu District located in foods prone areas by constructing 208 houses in three sites of Bikingi, Kabyaza and Gasura.

The Environmental Impact Assessment Report (EIR) was reviewed and found to have adequate mitigation measures related to the identified adverse environmental impacts of the envisaged activities of the project, and was therefore approved subject to the fulfilment of conditions attached.

Signed by:


Tony NSANGANIRA
Ag Chief Operating Officer
Rwanda Development Board (RDB)

Dated this 21st day of AUGUST 2013

**To be issued in Quadruplicate: original to Developer; copies to MIDMAR, REMA, RDB, Western Province and Nyabihu District*

Centre Blvd de l'Indépendance (Aéroport Rd) & Nyarutarama Road, P. O. Box 6278, Kigali, Rwanda. Email: info@rdb.rw
RDB Certificate for resettlement of 208 households located in Bikingi, Kabyaza and Gasura sites in Nyabihu District

CONDITIONS OF APPROVAL

- The developer shall, in addition to house standard requirements, conform to minimum basic safety, health, operational and environmental protection, and shall present her commitment to RDB undertaking to comply with the following conditions:

Pre-and Construction Phases:

- ✓ Intensive and continuous sensitization of the concerned population by the District, Sector and Cell authorities should be done;
- ✓ The local authorities at cell, sector and district levels are to ensure the process of compensation is done before resettlement ;
- ✓ Where applicable the crops shall be harvested by land owners prior to construction ;
- ✓ Intensive and continuous sensitization of the local big land owners by the District, Sector and Cell authorities is crucial ;
- ✓ The local authorities will ensure the communities that the categories under "Ubudehe" shall be followed and given high attention during resettlement ;
- ✓ An awareness campaign by the project sensitizing communities on the benefits of the project is essential in breaking any likely resistance to change brought by the project ;
- ✓ Ventilated pit latrines connected to a biogas plant shall be recommended to handle the human waste and at the same time generate energy for cooking and lighting and use the effluent as organic fertilizers to replace the use of chemical fertilizers which are harmful to the environment ;
- ✓ All construction materials and equipment should be within the perimeter of the construction site;
- ✓ Avoid by all means the emission of dust emanating from earth works on site or transportation of debris and excavated soil to dumping sites;
- ✓ All workers and visitors to the construction site shall be provided with personal protective equipments such as but not limited to face masks, gloves, gum boots, welding goggles etc;
- ✓ Carry out actions aiming at soil erosion control within and around the site;
- ✓ Potable water, temporal mobile toilets (VIP toilets) should be available on the construction site;
- ✓ Install appropriate drainage systems to direct water away from slopes;
- ✓ Excavations and vegetation clearances will be undertaken during the dry season to limit surface runoff due to precipitation;
- ✓ Construct a drainage channel between houses to facilitate drainage and avoid flooding and pooling by storm water ;
- ✓ Water from storm water discharges should be managed to minimize impacts of flooding and subsequent contamination of the ground water ;
- ✓ Develop a solid waste disposal plan within the sites.
- ✓ Making arrangements with a waste collecting and handling company approved by the District to regularly pick the generated waste.
- ✓ Separation of waste wherever possible ;

Corner Blvd de l'Umuganda (Airport Rd) & Nyarurama Road, P. O. Box 6278, Kigali, Rwanda. Email: info@rdb.rw
RDB Certificate for resettlement of 200 households located in Rukwavu, Kibeho and Gashyamba in Rubavu District

[Handwritten signatures]

- ☞ A regular sensitization program should be undertaken to prevent HIV/AIDS and other STDs; this applies also in the operation phase of the project;

Operation Phase:

- ☞ Sensitization by local leaders shall be recommended and shall implement good practices for solid waste management which are: waste segregation at source, recycling, re-use. Organic waste shall be composted and use as organic fertilizers while other wastes shall be collected and disposed of to official dump sites;
- ☞ The biogas domestic waste water treatment systems will be installed during the operation phases in all three sites and in accordance to the capacity of the project site;
- ☞ Solid wastes shall be managed by segregating the waste at their source of production and according to their type (biodegradable and non biodegradable) and each type of waste shall be disposed of at an appropriate and approved dumping site;
- ☞ Provision of dustbins on the sites that should be regularly cleaned.
- ☞ Surface runoff from areas or potential sources of contamination will be prevented.
- ☞ An agreement will be made between the inhabitants of the three sites and a private company for solid waste and sludge collection, transportation and disposal of at an approved site ;
- ☞ The roofs catchment water and runoff from the site compound shall be collected and harvested in water tanks or underground water reservoir in a way that does not cause erosion or constitute a potential of accidents;

The EIR is thus approved subject to the fulfillment of the conditions described above together with all mitigation measures proposed in the Environmental Management and Monitoring Plan.

N.B. Note that in case of non compliance of the conditions described above, RDB reserves the right to withdraw the certificate.


Signed by
Tony NSAMUKIRA
Ag Chief Operating Officer
Rwanda Development Board (RDB).


Caroline KAYONGA
Permanent Secretary
Ministry of Natural Resources

Annex 2: List of people consulted for the EIA

| S/N | Names | Position | Residence |
|-----|--------------------------------|--------------|------------------|
| 1 | MUKAMINANI Angele | V/M FED | Nyabihu district |
| 2 | MUKESHIMANA Charlotte | Land officer | Nyabihu district |
| 3 | NSENGIYUMVA Gilbert | SED officer | Gasura Cell |
| 4 | MUNYANSENGO Fred | Executive | Jomba cell |
| 5 | GASHEGU Justin | Executive | Kijote Cell |
| 6 | NTARE MUSAFIRI James | IDP | Rurengeri cell |
| 7 | UWIMANA Blandine | Agronomist | Mukamira Sector |
| 8 | AKIMANIZANYE Pasikaziya | Resident | Kibugazi |
| 9 | AKIMPAYE Christine | Resident | Rutovu |
| 10 | BABONAMPOZE Ephraïe | Resident | Gasura |
| 11 | BANGAYIKI Mathias | Resident | Gasura |
| 12 | BARAMUGENDEREYE Stephen | Resident | Rutovu |
| 13 | BARIRUSHA Maniragaba | Resident | Kibugazi |
| 14 | BAZIMENYERA Aloys | Resident | Kabyaza |
| 15 | BIMENYIMANA Jean Marie Viannet | Resident | Rugarambiro |
| 16 | BINWANGARI Feniya | Resident | Kabyaza |
| 17 | BUJOJWE Daniel | Resident | Rutovu |
| 18 | BUNANE Gaudence | Resident | Bikingi |
| 19 | DUSABIMANA Judith | Resident | Bikingi |
| 20 | DUSABIMANA Thabie | Resident | Kabyaza |
| 21 | HABIYAMBERE Charles | Resident | Kibugazi |
| 22 | HANYURWIMFURA Françoise | Resident | Kabyaza |
| 23 | HANYURWIMFURA Samuel | Resident | Rutovu |
| 24 | HAVUGIMANA Denis | Resident | Kibugazi |
| 25 | IMANIZIBOSE Philip | Resident | Kabyaza |
| 26 | INGABIRE Alexandre | Resident | Rugarambiro |
| 27 | IRAGUHA Jean marie viannet | Resident | Rugarambiro |
| 28 | IYAMUREMYE Thadee | Resident | Bikingi |
| 29 | KABARENZI Pulusikira | Resident | Rutovu |
| 30 | KAJERIJERI Angella | Resident | Rutovu |

| | | | |
|----|--------------------------|----------|-------------|
| 31 | KANKINDI Marthe | Resident | Rugarambiro |
| 32 | KANYARUHENGIERI Thadee | Resident | Kabyaza |
| 33 | KARIKUMUTIMA Eliphase | Resident | Maziba |
| 34 | MASENGESHO Odette | Resident | Kabyaza |
| 35 | MASENGESHO Odette | Resident | Kabyaza |
| 36 | MUGWIZA | Resident | Gasura |
| 37 | MUKANDEKEZI Beriya | Resident | Bikingi |
| 38 | MUKANDEKEZI Beriya | Resident | Rutovu |
| 39 | MUKANDORI Bonifride | Resident | Rwankeli |
| 40 | MUKANKUNSI Liberata | Resident | Gasura |
| 41 | MUKARUSAGARA Estherie | Resident | Rutovu |
| 42 | MUKATETERO Ruth | Resident | Rutovu |
| 43 | MUKESHIMANA Theodette | Resident | Rutovu |
| 44 | MUNYANEZA Ildephonse | Resident | Rugarambiro |
| 45 | MUNYANEZA Michel | Resident | Bikingi |
| 46 | MURWANASHYAKA Aimable | Resident | Gasura |
| 47 | MUSABYEMARIYA Yozoya | Resident | Gasura |
| 48 | MUSHIMIYIMANA Nzovu | Resident | Kibugazi |
| 49 | MVUKIYEHE Elaste | Resident | Bikingi |
| 50 | MWUNVIRA Jean Baptiste | Resident | Rutovu |
| 51 | NDAKARIRAHU Asinath | Resident | Rugarambiro |
| 52 | NDEZE Rubondo | Resident | Kibugazi |
| 53 | NEMEYIMANA Janvier | Resident | Rutovu |
| 54 | NGIZWENAYO Beatrice | Resident | Rugarambiro |
| 55 | NIBIZI Fabien | Resident | Rutovu |
| 56 | Nigena Pascal | Resident | Rutovu |
| 57 | NIRAGIRE Jean Pierre | Resident | Rugarambiro |
| 58 | NKUNDABABO Thomas | Resident | Rugarambiro |
| 59 | NSEKAMBABAYE Raheli | Resident | Rutovu |
| 60 | NSENGIYUMVA Faustin | Resident | Bikingi |
| 61 | NSENGIYUMVA Jean D'amour | Resident | Kabyaza |

| | | | |
|-----|---------------------------------|----------|-------------|
| 62 | NTAKIRUSHIMANIMBABAZI Guillaume | Resident | Nyirakigugo |
| 63 | NTAMIRINGIRO Beatrice | Resident | Kibugazi |
| 64 | NTAWUKICIRIWE Gaudence | Resident | Gasura |
| 65 | NTEZIYAREMYE Fidel | Resident | Rugarambiro |
| 66 | NTIBAHANANA Asinath | Resident | Kibugazi |
| 67 | NTIBARIKURE Beata | Resident | Rutovu |
| 68 | NTIBARIKURE Thomas | Resident | Rugarambiro |
| 69 | NTURANYENABO | Resident | Bikingi |
| 70 | NYIRABAPFAKURERA Gaudelive | Resident | Rutovu |
| 71 | NYIRABARABWIRIZA Venancie | Resident | Gasura |
| 72 | NYIRABAREKEZI Marie | Resident | Rutovu |
| 73 | NYIRABISHWI Lena | Resident | Kabyaza |
| 74 | NYIRABUKARA Tharie | Resident | Rugarambiro |
| 75 | NYIRABUKOBWA Asinath | Resident | Maziba |
| 76 | NYIRAHABIMANA Colette | Resident | Kabyaza |
| 77 | NYIRAHABIMANA Judithe | Resident | Kabyaza |
| 78 | NYIRAHIRWA Regine | Resident | Rwankeli |
| 79 | NYIRAKANYANA Lenie | Resident | Kibugazi |
| 80 | NYIRAKAYANZA Thabie | Resident | Kabyaza |
| 81 | NYIRAMAGAMBO Elira | Resident | Bikingi |
| 82 | NYIRAMANA Venancie | Resident | Gasura |
| 83 | NYIRAMPABANZI Lenie | Resident | Bikingi |
| 84 | NYIRANDIBANZI Penine | Resident | Kibugazi |
| 85 | NYIRANKIZA Elina | Resident | Rwankeli |
| 86 | NYIRANSABIMANA Perusi | Resident | Kibugazi |
| 87 | Nyiransengamariya Marie | Resident | Kibugazi |
| 88 | NYIRANZABANDORA Laurence | Resident | Bikingi |
| 89 | NYIRARUSISIRO Asinath | Resident | Kabyaza |
| 90 | NYIRASAFARI Felesita | Resident | Kibugazi |
| 91 | NYIRAZIBERA Efurata | Resident | Maziba |
| 92 | NZABANITA Augustin | Resident | Kibugazi |
| 93 | RUDAKEBAKEBA Faustin | Resident | Rwankeli |
| 94 | RUREMESHYA Gyomme | Resident | Kibugazi |
| 95 | RWAGASORE Jean Damascene | Resident | Gasura |
| 96 | SAFALI Fulgence | Resident | Gasura |
| 97 | SEBASORE Eliab | Resident | Rutovu |
| 98 | SEBUSATSI William | Resident | Bikingi |
| 99 | SEGAHUNGU Nteziyaremye | Resident | Gasura |
| 100 | SEMANZA Isaac | Resident | Rugarambiro |
| 101 | SERUGENDO FILS | Resident | Rwankeli |
| 102 | SHIRUBWIKO Elephas | Resident | Rutovu |
| 103 | TUMUSHIME Marie | Resident | Rutovu |
| 104 | TWAGIRAYESU Jean D'amour | Resident | Maziba |
| 105 | TWIZEYIMANA Mayimuna | Resident | Kabyaza |
| 106 | ZANINKA Jacqueline | Resident | Rugarambiro |

Annex 3: Lesson learning exercise

1. Introduction

This report summarises the findings from a 5 day lesson learning exercise with 5 ongoing projects in Rwanda. It was undertaken to inform the design mission for a proposed project in North West Rwanda which aims to increase the resilience of rural communities living in North West Rwanda to climate change impacts particularly variable rainfall and flooding.

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.

Over 4 years, the project will address factors that exacerbate the effects of intense rainfall and lead to flooding and landslides. The project aims to restore the ecosystem functions necessary to reduce the incidence and severity of flooding and landslides on local communities and resources through 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 be 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 two Districts (Nyabihu and Musanze).

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 main beneficiaries of the project are the 35,441 households located in 7 sectors of Nyabihu and Musanze. The Project is designed to target the most vulnerable communities that depend on subsistence agriculture for a livelihood.

This short study reviewed 5 ongoing projects in Rwanda that were considered to be relevant to the proposed projects. These included:

1. Lake Victoria Environmental Management Project (LVEMP)
2. Decentralisation and Environmental Management Project II
3. Reducing Vulnerability to Climate Change by Establishing Early Warning and Disaster Preparedness Systems and Support for Integrated Watershed Management in Flood Prone Areas
4. FONERWA
5. Poverty and Environment Initiative (PEI)

The research was conducted through structured interviews with project staff and a review of project documents where available. The format used to structure the interviews is attached at Appendix A and details of each discussion with individual projects at Appendix B.

2. Overview of each project

2.1 Lake Victoria Environmental Management Project (LVEMP)

The Lake Victoria Environmental Management Project Phase II (LVEMP II) is a five year East African Community project under implementation in the five countries that share the Lake Victoria Basin: Burundi, Kenya, Rwanda, Tanzania and Uganda. It is funded through a US\$ 15 million IDA loan from the World bank and is designed to achieve two development/global environmental objectives:

1. Improve collaborative management of the transboundary natural resources of LVB for the shared benefits of the EAC Partner States; and
2. Reduce environmental stress in targeted pollution hotspots and selected degraded sub-catchments to improve the livelihoods of communities, who depend on the natural resources of LVB.

There are four components:

5. Strengthening institutional capacity for managing shared water and fisheries resources;
6. Point source pollution control and prevention;
7. Watershed management with two sub-components: (i) Natural resource conservation and livelihoods improvement; and (ii) Community capacity building and participation; and
8. Project coordination and management.

Under component 3 (watershed management), the project promotes similar interventions as those proposed in the new project design, hence there is good scope to learn from this project as it progresses. These include: rehabilitation of riparian buffer zones, sustainable land management, IPM, Farmer Field Schools and watershed management, training and awareness building on the Environmental Organic Law.

So far the project has launched activities in two districts but is planning to roll out to a further 7 districts this year. In the Goma area, around 100 ha of radical terracing have been completed and 70ha of land planted with trees. The project also disburses small grants through SACCO branches to cooperatives through its Community Driven Development (CDD) sub-project initiative. This approach enables local communities to access project funds for sustainable enterprise development.

2.2 Decentralisation and Environmental Management Project II

This, the second five year phase of the Decentralisation and Environmental Management Project (DEMP) funded through UNDP was designed to build on and scale up the successes of the first phase (2005-8). The overall objective of DEMP II is to integrate environment with development and promote sustainable livelihoods using decentralisation as a delivery mechanism. The project operates in 13 districts in the Western and Eastern Provinces and has 3 components:

- (1) Enabling MINITERE to effectively implement environmental policies, and support the decentralisation and coordination of quality delivery of environmental services in the districts;
- (2) Strengthening district Capacity for environmental management – to enable districts to integrate environmental issues into the development process, through the District Development Plans (DDPs) and the budget process;
- (3) Assisting in the implementation of environmental priorities identified in the DDPs by using innovative practices (e.g. improved cooking stoves, soil conservation technologies etc.), and building public-private-civil society sectors in integrating conservation and development, targeting communities in/ around protected areas where degradation threatens livelihoods sustainability.

The ultimate aim is to contribute to poverty reduction and economic development through sustainable use and management of natural resources. It was envisaged that the project interventions would increase the districts' capacity to plan, manage and ultimately benefit from environmentally sound development activities. It will be important therefore for the proposed project to link in with this project at the district level.

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

The project funded through the LDCF and UNDP was intended to address two out of the six priorities identified under the NAPA: (i) Integrated Water Resource Management – IWRM, and (ii) establishing an early warning system for hydro-agro meteorological events and rapid intervention mechanisms.

The US\$ 3.48 million project runs from 2010 through to 2014 aims to reduce the vulnerability of the Gishwati ecosystems and its associated Nile-Congo crest watersheds, and the people that derive their livelihoods from it, to increased floods and droughts due to climate change. The proposed project intervention area includes regions (10 districts) within the crest area of Nile-Congo basins, also categorized as the Gishwati ecosystem, identified through the NAPA process as being among the most vulnerable to climate change. These regions are already being adversely affected by the increased frequency in floods and landslides.

The overall objective of the project is to reduce the vulnerability of the Gishwati ecosystems and its associated Nile-Congo crest watersheds, and the people that derive their livelihoods from it, to increased floods and droughts due to climate change.

The project is implemented by the Rwanda Environment Management Authority in partnership with UNEP, UNDP, RAB (Rwanda Agriculture Board), MIDIMAR, MET RWANDA and the African Adaptation Program (AAP).

There are 4 project components

1. Climate Risk Assessment and Forecasting
2. Climate change adaptation planning and response strategies
3. Demonstrations of adaptation practices in the Nile-Congo crest watersheds and Gishwati ecosystem
4. Knowledge Management, Public Awareness and dissemination of lessons learned and best practices

Component 3 supports the implementation of adaptation measures to manage the increased unpredictability of climate variability in severely affected areas of the country which are predicted to worsen. The project is piloting adaptation measures in the districts of Nyabihu, Ngororero, Rubavu, Rutsiro, Nyamagabe, Bugesera, Kayanza, Gatsibo, Kirche and Rulindo.

Adaptation activities are diverse in nature, depending on the pilot sites (districts). Some of these include: promotion of soil conservation and improved resource management (reforestation, radical terracing, horticulture and agroforestry, conservation of river banks, planting of water-entrapment trees, irrigation projects, and forest and land rejuvenation.) including the restoration of ecosystem functions to Karago Lake. These activities will be completed by 2014. Due to the overlap in the project area, the proposed project will be able to capitalise on the pilot adaptation practices piloted as well as utilise the Early Warning System that has been installed.

2.4 FONERWA

FONERWA is a national climate fund which has recently been established in Rwanda with US\$ 23 million of support from DFID. The aim of FONERWA is to respond to Rwanda's current and future needs for environment and climate change related financing, to further support and accelerate goals of sustainable economic development. This aim was established in the Organic Law No. 04/2005 calling for the establishment of the Fund.

FONERWA functions and responsibilities are to support activities aimed at conserving and protecting the environment, land, water, forestry mines and quarries, as well as managing climate change and its impacts. The Fund also supports promotion of using renewable energy in a sustainable manner, fighting causes of pollution, and awarding prizes for all the above to outstanding individuals, associations or institutions. Access to the Fund is open to public and private entities, including businesses, civil society and research institutions. It is worth pointing out that FONERWA has provided technical support for a large part of the design for the proposed project.

FONERWA has the overarching objective of contributing to sustainable wealth creation and poverty reduction in Rwanda, through sustainable management of natural resources, climate resilient and green economic growth.

The outcome of the FONERWA Fund is to sustainably and equitably finance and further strengthen national programmes and private sector initiatives in the areas of current and future environment and climate change, and development related challenges and opportunities. There are 3 financing windows or results pillars:

RESULTS PILLAR 1: Conservation & management of natural resources strengthened and sustained.

RESULTS PILLAR 2: R&D and technology transfer and implementation facilitated and utilised.

RESULTS PILLAR 3: Environment and climate change issues mainstreamed into policies, programmes, plans, budgets and activities for public and non-public agencies.

Sources of funds for FONERWA arise from: (1) Environmental fines and fees, (2) EIA fees (mentioned above), (3) Proceeds from Forestry and Water Funds, (4) Other environmental revenue and (5) Seed financing from domestic stakeholders (line ministries). The fund can also receive contributions from bilateral and multilateral development partners, international environment and climate funds as well as private sector contributions.

The FONERWA Secretariat and Fund Management Team is housed in the Rwanda Environment Management Authority (REMA) and the Ministry of Natural Resources (MINIRENA) is responsible for Fund oversight.

2.5 Poverty and Environment Initiative (PEI)

Led by the Rwanda Environment Management Authority (REMA) and the Ministry of Lands, Environment, Forests, Water and Mines (MINITERE), the intended outcome of the PEI is the integration of environment into national policy and district planning, policy and budget processes to implement the Economic Development and Poverty Reduction Strategy (EDPRS II).

The current third phase (2009 – 2013) funded by UNDP has five main outputs:

1. Improved capacity within key ministries and institutions to understand and analyse links between poverty and environment and to integrate environment into policymaking, planning and budgets;
2. Improved capacity at district level to understand and analyse links between poverty and environment and to integrate environment into development planning;
3. Increased awareness and more effective participation of stakeholders in environmental policy and planning processes at both district and national level;
4. Improved national funding levels for investing in environmental sustainability;
5. Improved capacity for monitoring poverty and environment linkages at both national and district level.

The expected outcome for PEI Phase II is that environment is integrated at national and district planning, policy and budget processes to implement the EDPRS with the expected Output that six selected line ministries (selected on the basis of expenditure) and districts have fully mainstreamed environment in their sector policies, plans and strategies and capacity has been built for sustainable sector performance. The project works at the central, district and community levels and has been instrumental in mainstreaming climate change issues into the development agenda at all levels.

3. Lessons learned

3.1 Community participation and capacity issues with local institutions

All of the respondents stressed the importance of engaging stakeholders early in the project cycle to promote ownership at the community level and build in sustainability to project interventions. Early and sustained efforts to ensure project interventions are community driven have been shown to generate positive outcomes in terms of local ownership, cost effectiveness, building local capacity, ensuring interventions are appropriate to local conditions and sustaining outcomes beyond project phase out activities.

The capacity of local communities and co-operatives to absorb funds and implement project interventions effectively, however, was reported to be highly variable from one area to another. It appears that it may be due with difficulties in measuring and reporting project results at the cooperative level. Efforts to build capacity have, however, generally been successful where resources were available to do this.

For example, the DEMP provided support to strengthen community based institutions and created local structures for natural resource management. This built solid support for project interventions. Under the Community Driven Development initiative, the project also supported a range of off-farm livelihoods including: poultry, horticulture, rainwater harvesting, pig rearing, handicrafts and fuel-efficient stoves. A key factor here was the steps taken to empower the target households and foster local ownership to ensure sustainability of project outcomes.

One respondent emphasised the need to build capacity of local communities and not to assume that they have the technical know-how to adopt improved land management/ soil conservation techniques. In the past, resources allocated in some project budgets have been insufficient to build this capacity effectively.

One example of where resources were channelled into technical support was found in the DEMP which developed a community outreach process and provided technical support to co-operatives to promote erosion control and sustainable land management practices. This resulted in a 3-5 fold increase in yields. To ensure outcomes were ongoing and sustainable, the project also built the capacity of district technical staff.

3.2 Awareness, advocacy and knowledge building

Despite the importance given to climate change in national policy documents and strategies, several respondents mentioned the low awareness of climate change among practitioners at the local level who regard environmental regulations and climate proofing initiatives as a burden rather than adding value to their programmes and the development process. This limits the support for action on climate change within key sectors. Most respondents emphasised the need to build greater awareness of the need to tackle climate change among practitioners at the sector and cell level.

Co-operatives were frequently mentioned as playing an important role in creating awareness and advocating for changes in behaviour and practises locally. However, some respondents felt that further research and analysis of the impacts of climate change at the sector level are required to build awareness and promote evidence based decision making within the various sectors (agriculture, health etc.).

There were good examples of awareness and advocacy achieving positive results. For example the LVEMP was able to get communities to agree to stop cultivating land within 20m of the lakeshore and 10m of riverbanks and to demarcate the buffer zone with progressive terracing. A critical factor in achieving this was the awareness and training and extensive community meetings which were used to sensitise local people to the need to protect riparian buffer zones in line with the Environment Organic Law. The project arranged study tours for community representatives to see how similar interventions were working in other parts of the country. These were considered to be very successful in terms of technology transfer and demonstrating the benefits of proposed interventions.

The DEMP also attributed the successful resettlement of 1100 households from high-risk zones adjacent to lakes and rivers (so that these riparian buffer zones could be rehabilitated) to an effective awareness campaign.

One of the respondents highlighted how the results from research and analysis can be an important lever in influencing key decision makers to develop evidence based policies and strategies as well as for mobilising resources from development partners.

For example, some of studies carried out following the national planning process were influential in persuading key policy makers and development partners to act on climate change especially the work by the Stockholm Environment Institute funded by DFID which quantified the impact of climate change on Rwanda's GDP. This was crucial in leveraging political support and resources into the FONERWA initiative.

3.3 Integration with district development planning

Nearly all of the respondents felt that it was important to integrate project activities with the District development process. Rwanda has emphasised decentralisation in many of its national policies and District Administrations are the key decision makers at the local level.

Embedding project deliverables in district development plans, contracts, budgets, and procurement plans combined with capacity building and financial support appears to create a strong commitment to project goals at district, sector and cell level. It also helps to ensure project activities become integrated and sustainable with ongoing development at the local level. The use of tripartite contracts between districts, sectors and beneficiaries was also considered to be an effective mechanism for integration.

3.4 Managing the transition from cultivating on marginal lands

Projects involved in resettling people from high risk zones or persuading them to stop cultivating in ecologically sensitive areas stressed the importance of supporting these households during the transition process. For example, the DEMP provided fishing equipment and cows (under the one cow per family policy) to the resettled households to strengthen their livelihoods during the transition period.

Once the households had been relocated, the project demarcated the buffer zone and supported the local communities to form co-operatives to be responsible for implementation of rehabilitation of the riparian buffer zones (tree and grass planting, fodder crops etc.). The participation of community groups in implementation resulted in the community gradually taking ownership of the project.

The project supported the relocated households to develop green villages on the new sites provided by the districts. According to the project manager, a key factor in the success of this intervention was a tripartite agreement between the project (which provided funds for the village construction), the beneficiaries (who provided labour for village construction) and the district (which provided the land).

3.5 Implementation arrangements

The implementation arrangements came up frequently during the discussions and were considered to be the most significant factor for project delivery. Some of the projects lacked sufficient outreach at the community level and relied heavily on local associations which lacked sufficient capacity to plan, implement and report on progress. It was therefore, considered important to allocate sufficient technical assistance at the community level to support community-based interventions.

A number of respondents mentioned the existing high workload found within District administrations, pointing out that District staff are often involved with multiple projects and activities and cannot dedicate much time for implementation. The respondents concluded that while it is important to integrate project activities with district development plans, there is limited capacity within District administrations to deliver additional projects in their areas. This has led to delays in disbursing funds to communities through district administrations and had in some cases impacted on project delivery. Most of the respondents stressed the importance of supporting project implementation with a competent team of professionals that are dedicated full time to the project to ensure the timely and effective delivery of outputs. Having a Project Implementation Unit based in the field was generally considered an effective way to ensure a responsive and closely managed implementation of interventions.

Some of the respondents felt that projects often relied too heavily on in-house expertise and lacked the holistic approach necessary for climate change projects where a diverse array of expertise is needed but may not be available within the project team or lead agency. Out-sourcing to third parties (NGOs, CSOs, specialised technical service providers, consultancy firms etc.) was not something that projects tended to do but was considered by some to be a more effective way of delivering certain outputs for future projects both in terms of quality, timeliness and cost.

More effective engagement with CSOs was considered to offer potential advantages in terms of implementing climate change projects at the community level given that district administrations are often overloaded. However, a number of respondents highlighted capacity issues with CSOs and the need to carry out capacity assessments of community institutions (co-operatives etc.) before finalising the implementation arrangements. It was noted by some that CSOs to date appear to have been absent in climate change projects in Rwanda despite their comparative advantage in working at the community level.

Effective communication between all stakeholders was considered vital to the effective implementation of the project.

3.6 Monitoring and evaluation

Some of the respondents felt that their projects lacked a sufficiently robust monitoring and evaluation system and that this had weakened project implementation. An effective and timely monitoring and reporting framework (with SMART indicators) in place from the start of the project cycle was considered crucial to ensuring flexible and responsive management of the project.

Two of the respondents mentioned the time required for baseline studies, site selection and target group selection can be quite long (around 6 months in general) and suggested that it would be preferable to complete these studies before project implementation.

3.7 Co-ordination with other projects

The Special Project Implementation Unit (SPIU) in each line agency (RNRA, REMA etc.) appears to play an important role in co-ordinating and supporting projects particularly during the inception stage. For example, the SPIU in REMA has been instrumental in: improving the co-ordination of environmental projects (projects meet weekly through the SPIU), monitoring progress with implementation and bringing projects back on track, sharing technical expertise, developing best practice, programme level monitoring, communicating results to policy makers, raising the profile of and integrating projects with policy and other areas of REMA's mandate through the Senior Management Meeting (held twice per month).

Very few projects reported co-ordinating their activities beyond their line Ministry, however, and some respondents felt that co-ordination with other projects is difficult because there is no forum or structure for sharing information on climate change. The exception was the PEI Project which in addition to co-ordinating its activities through REMA's SPIU and Senior Management Meetings, the project co-ordinates with other UNDP projects during quarterly retreats and with other Government projects through Thematic Working Groups and Joint Sector Reviews.

At least two projects felt that donors could co-ordinate more effectively to increase synergy particularly on reporting (financial and programmatic) on projects funded by multiple donors.

3.8 Mainstreaming climate change in development planning

According to the team Leader of the FONERWA Project, as a cross cutting issue climate change is best addressed through national planning processes such as the EDPRS. These national level exercises provide an important inter-disciplinary forum for discussing climate change, creating support for action and mobilising resources.

Effective advocacy particularly with powerful Government Ministries (carried out by the PEI Project) has also been shown to be an effective mechanism for mainstreaming environmental and climate change considerations in District development plans and budgets as well as key line Ministries (as evidenced by their inclusion for the first time in the Budget Call Circular in 2009). Several factors contributed to this including:

- Extensive TV and radio coverage (via REMA's 15 minute weekly slots on radio and TV networks)
- Internal lobbying by project staff working within the six key high spending line ministries
- Advice to Parliament through REMA

The placement of Environment Interns in every district was also considered to have been highly effective in promoting the inclusion of environment and climate change issues in DDPs.

Often mainstreaming of climate change has been shown to be a pre-requisite for the necessary policies and allocation of financial resources. For example, although FONERWA was first conceived in the Environment Organic Law in 2005, it was only when environment and climate change had become mainstreamed in all

Government policies and strategies that the FONERWA concept received the necessary political and development partner support to become a functioning entity.

The PEI project also demonstrates how pilot activities can serve to promote new technologies. The project piloted two green villages which included biogas, rainwater harvesting and other environmentally friendly waste management techniques. The concept has since been integrated into MINALOC's resettlement programme.

3.9 Risk management

Although some of the projects were designed to address climate change, some projects failed to plan and prepare adequately for adverse climatic conditions (destructive rains and unpredictable seasons etc.) which disrupted project interventions (planting etc.). Responding to these shocks and stresses required flexibility in terms of fund disbursement to enable communities to bring forward project interventions if necessary. It's important therefore to build these risks into the project design to enable mitigation where necessary.

A number of the respondents thought that donors could do more to ensure the timely disbursement of funds as this had created considerable delays in the past. It is important to factor in delays in fund disbursement and institutional inefficiencies to the risk assessment in project design and build in sufficient flexibility to manage these risks.

3.10 Sustainability and scaling up

Sustaining project outcomes beyond the life of the project is considered to be one of the major challenges for many of the projects. Respondents considered the best way to achieve sustainability was early engagement of beneficiaries in the project cycle to root ownership with the communities, and to develop linkages to ongoing Government extension services e.g. through MINAGRI. Some respondents reported that it can be difficult to establish ownership (and hence sustainability) if the key stakeholders are not involved in problem identification and project design as well as implementation and phase out activities.

Communication of project objectives, results, best practice, lessons learned etc. to a wider audience was also considered important for ensuring project sustainability and scaling up.

4. Recommendations

1. Meet with LVEMP, DEMP, FONERWA and PEI on a quarterly basis to continue the lesson learning process and cross sharing of ideas and best practices as well as to co-ordinate activities and maximise synergies.
2. Meet with the Early Warning System project before it ends in 2014 to draw lessons and explore opportunities to consolidate positive project outcomes in Nyabihu especially with regard to site selection.
3. Undertake capacity assessments of potential project partners including community institutions and local NGO's and ensure adequate resources are available for ongoing capacity building of these institutions where necessary. This should include both technical as well as managerial (including assistance with monitoring and evaluation) aspects of capacity building.
4. Launch an awareness campaign during project inception to build understanding of and support for climate adaptation among key practitioners at sector, cell and community level.
5. Commission an applied research study to analyse the impacts of climate change in the project area to build awareness and promote evidence based decision making at district level.
6. Ensure adequate resources are available for ongoing awareness and advocacy activities. These should build on successful approaches such as farmer study tours used by other projects as these have been shown to be critical in achieving positive cross fertilisation of innovative technologies and practices at the

community level. These should also make good use of existing media outlets such as REMA's 15 minute weekly slots on radio and TV networks as well as existing human resources such as the Environment Interns in the two districts.

7. Ensure project activities are integrated with the District development process and that where possible project deliverables are embedded in District Development Plans. Explore the use of tri-partite contracts with communities and district authorities where appropriate.
8. Include provision for supporting income generation for households who are resettled or no longer have access to their land during the transition to improved land management regimes.
9. Ensure that the project is adequately staffed with a full time team of dedicated professionals responsible solely for project implementation. The proposed team should be based in Nyabihu and should comprise: a Project Co-ordinator, Administration and Finance Assistant, a Monitoring and Evaluation Officer, an Enterprise Development Officer, a Community Development Officer and a Communications Officer.
10. Strengthen community outreach through a network of community volunteers as a cost effective means of delivering results, promoting community ownership, building local capacity and ensuring sustainability.
11. Outsource to private sector firms and CSO's where they have a comparative advantage (from a quality and financial standpoint) in delivering superior technical or social services.
12. Ensure adequate resources are available for a sufficiently robust monitoring and evaluation system to ensure timely and responsive management. This should be linked to the results framework, annual work plans and budgets and impact assessments. The project should employ a variety of means for data collection including surveys, participatory methods and case studies with project beneficiaries and ensure that the data are disaggregated by socio-economic group and gender.
13. Initiate a baseline study and selection of sites and target groups as early as possible during project inception.
14. Ensure effective co-ordination with other relevant initiatives through the RNRA Special Project Implementation Unit (SPIU), Senior Management Meetings, Thematic Working Groups and Joint Sector Reviews.
15. Ensure that the risks from unexpected climatic events and delays in fund disbursement are effectively mitigated against in managing risks to project implementation.

Annex 4: List of stakeholders consulted during project concept

Design team

1. Patrick NSABIMANA, Field Environmentalist, REMA / SPIU
2. Eng. Innocent Musabyimana, Director of Planning, M&E, Ministry of Natural Resources (MINIRENA) François-Xavier TETERO, MSc, Watersheds Management Coordinator, Rwanda Natural Resources Authority
3. Bizimana Jean 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-ordinator, Fund Management Team (FMT), Rwanda Environment and Climate Change Fund (FONERWA)
7. Immaculée Uwimana, Climate Change Mitigation Officer, Rwanda Environment Management Authority, Department of Climate Change and International Obligations
8. Debbie Caldwell, Consultant

List of stakeholders consulted during project concept

1. Meeting with 80 people from Busogo sector of Musanze District
2. Meeting with 90 people from 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. Martin Nsengiysmua, Civil Engineer, Focal Point for Disaster Management, MINALOC
11. Telesfor Ndabamyl, 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 5: List of stakeholders consulted during stakeholder analysis

| Level | Organisation | Name | Position | Contact details | Location of office |
|-----------------|-----------------------------|-------------------------|---|-----------------------|------------------------------------|
| National | MINAGRI | Mugabo Florian | Contract manager GWLM | 0788768817 | Kigali |
| | Farm Concern International | Kabanda Emmanuel | Senior Programme Officer | 0788459645 | Kigali |
| | RDB | Livingstone Nkuusi | BDC Manager | 0784714706 | Kigali |
| | CARE International Rwanda | Ruzibiza Emile | RIWSP | emiler.rw@co.care.org | |
| District | Nyabihu District government | MUKAMINANI Angele | Vice-Mayor | 0788459497 | Nyabihu |
| | | Ndayambaje William | District Land Officer (Musanze) | 0788884055 | Musanze |
| | | Assia Selemani | District Land Officer (Musanze) | 0788613670 | |
| | | | Urban Development Officer (Musanze) | | Musanze |
| | ISAE | Musoni Protais | Forest Officer (Musanze) | 0788448493 | Musanze |
| | | Ndagijimana Jean Pierre | District Environment Officer (Musanze) | 0788426438 | Musanze |
| | | | District Planning Officer (Musanze) | | Musanze |
| | | Nabimana Jean de Dieu | District Environment Officer (Nyabihu) | 0788696126 | Nyabihu |
| | | Muhirwa Boris | ISAE | 0785029630 | Musanze |
| | | JD Nabimana | REMA District Coordinator | 0788696126 | Nyabihu |
| | SACCO | Regis Habimana | SACCO inspector | | Mukamira Sector Office, Nyabihu |
| | DRD | Jacques Hakizimana | Director/Coordinator | 0788417646 | Ruhengeri |
| | DRD | Mathias | Agronomist | 0788864623 | Ruhengeri |
| | PSF | Edward Kamari | Director and Iso member of resettlement commission | 0788749718 | Nyabihu |
| | Aqua-Virunga | Jean-Claude | Chief of installation | 0788407725 | Busogo sector office |
| | ISAE | Parfait | Community outreach coordinator | 0788611531 | |
| | Busogo Sector Government | Pauline | Cooperative Officer | 0788684345 | Busogo |
| Sector | Jomba Sector Government | Fred Munyansengo | Executive Secretary | 0788479147 | Jomba |
| | Jomba Sector Government | | Agricultural Officer | | Jomba |
| | Private | Anistase | Private tree nursery owner | 0783287020 | Jomba |

| | | | | | |
|----------------------|---|----------------------------|----------------------------|------------|--|
| | SACCO | Rugema Daniel | Manager | 0787006260 | Jomba |
| | COARU | Uwamahoro Rose | Accountant | 0785404057 | Jomba |
| | COARU Mukamira Sector Government Turwanyisuri Nursery Cooperative | Tuzere Jean Bosco | Community outreach officer | 0785354556 | Jomba |
| | | Uwimana Brandine | Agronomy Officer | 0788654379 | Mukamira |
| | Soap cooperative | Jean Damascene Nsengiyumva | President | 078898758 | Rambura Sector |
| | Handcraft cooperative | Felician Munyakazi | President | 0788593568 | Mukamira |
| | Bamboo nursery | | President | 0783228543 | |
| Cell | | | | | |
| | Nyiracyigugu | Felicien Harwa Habumuremyi | IDP Officer | | Nyiracyigugu, Mukamira Sector |
| | Bigogwe Sector Government | | Umudugudu leader | | Bigogwe |
| Beneficiaries | | | | | |
| | HH | Jeanne Niyingenera | | | Gasura Cell, Jomba Sector |
| | HH | Group (7) | | | Near Mutera spring, Mukamira Sector |
| | HH | Group (3) | | | Kiraza Village, Rambura Sector |
| | HH - resettled village youth | Group (4) | | | Kimonyi Sector |

Annex 6: List of stakeholders consulted during vulnerability analysis

| Name | Position | Organization |
|-----------------------------|--|---|
| Angele Mukaminani | Vice Mayor FED | Nyabihu District |
| Jerome Mugenzi | Vice Mayor FED | Musanze District |
| Faith Abatoni | RAB/Fertilizer Distribution and Credit Recovery | RAB |
| Dr. Celestine M. Gatarayiha | Head of Coffee Division | NAEB |
| Dr. M. Ndambe Nzaramba | Deputy Director General Export and Market Operations | NAEB |
| Benjamin Karambizi | District Environmental Officer | Nyabihu District |
| Jean Baptiste Twahirwa | Land Survey Officer | Nyabihu District |
| Boris Muhirwa | Estate Manager | ISAE |
| Jean Pierre Nyirimanzi | Agronomist | Nyabihu District |
| R. Amani Nshutiyimana | Zone Coffee Extensionist | NAEB |
| Jean de Dieu Nabimana | District Environmental Facilitator | REMA |
| William Nbayambaje | Land Officer | Nyabihu District |
| Charlotte Mukeshimana | Community Settlement Urban Support | Nyabihu District |
| Sileman Assia | Community Settlement Urban Support | Musanze District |
| Jean Pierre Nbagimana | District Environmental Officer | Musanze District |
| Jean Claude Surwanwe | PSF Consultant | Private Sector Federation |
| Edouard Kaoiari | PSF Consultant | Private Sector Federation |
| Idelphonse Munyampamira | District Forest Officer | Nyabihu District |
| Protais Musoni | District Forest Officer | Musanze District |
| Eugene Shingiro | District Veterinarian | Nyabihu District |
| Theophile Nshuti | Horticulture Officer | Nyabihu District |
| Monique Mutoni | District Environmental Facilitator | REMA, Musanze District |
| Private Mushroom Grower | Private farmer | Jenda Sector, Nyabihu District |
| Private Tamarillo Grower | Private farmer | Jenda Sector, Nyabihu District |
| Women (2) | Two homes affected by flooding in 2013 | Mukamira Sector, Nyabihu District |
| Cooperative Members (2) | Fish Cooperative | Rambura Sector, Nyabihu District |
| Murihe Nsengiyumva | Director | Techi-milt-works Vocational Training Centre |
| Noel Kanamugire | Executive Secretary | Mukamira Sector, Nyabihu District |
| Community members (10) | Nyirabashenyi Modern Village | Mukamira Sector, Nyabihu District |
| Jerome Mureramanzi | Horizon Sopyra | Director of Production |
| Cooperative Members (5) | Soap Cooperative | Mukamira Sector, Nyabihu District |
| Alexis Museminali Nyamukeba | Director of VTC | Kilihekane Vocational Training Centre |
| James Ntare Musafiri | IDP | Mukamira Sector, Nyabihu District |
| Family members (2) | Imidugudu, Rurengeri Cell | Mukamira Sector, Nyabihu District |
| Women (3) | Imidugudu, Rurengeri Cell | Mukamira Sector, Nyabihu District |

| Name | Position | Organization |
|-------------------------------|---------------------------------------|---|
| Alice Mukamirezi | Accountant | ATECOM Rwanda, Bigogwe Sector, Nyabihu District |
| Dr. Wilson RUTAGANIRA | Project Coordinator | PAIGELAC, Ministry of Agriculture |
| Jean Paul | Manager | BN Producers |
| Glycerie Niyibizi | VLS Technical Advisor | CARE International |
| Jean-Marie Vianney Ndabarinze | Manager for One Egg | Musanze District |
| Brett Rings | Poultry Veterinary for Cobb (One Egg) | Musanze District |

Annex 7: List of stakeholders consulted during gender analysis

| Level of analysis | Stakeholders |
|-------------------------------------|--|
| Grass roots/community level (micro) | <p>Female farmers, primarily subsistence, some widows or de facto heads of household.</p> <p>Men, women and youth living in or on the edge of flooded areas</p> <p>Secondary school-aged female pupils – Apperel College, Jenda Sector.</p> <p>Local women – various ages</p> <p>Mixed groups – various ages</p> <p>President of a women’s savings group –Reconciliation Village, Kitabura, Musanze</p> <p>Female residents of the Reconciliation Village Kitabura, Musanze</p> <p>Female members of bamboo cooperative</p> <p>Tree nursery owner (male) – private sector</p> <p>Women’s weaving cooperative members</p> |
| Service delivery (meso) | <p>Mukaminani, Angele - Vice-Mayor for Economic Affairs, Niyabihu District</p> <p>Munyasengo, Fred - Executive Secretary – Jomba Sector</p> <p>Hakizimana Rwisebura, Jacques –Coordinator of Sustainable Rural Development (DRD)</p> <p>Dusabimana, Jean Claude. Head of Installation, AquaVirunga</p> <p>Sector and cell-level Agronomists</p> <p>IDP Officer – cell-level, Mukamira,</p> <p>COARU Cooperative committee members – Jomba Sector</p> <p>Manager – Umurenge SACCO</p> <p>Community Health Worker</p> |
| Political level (Macro) | <p>Nurse responsible for MCH – Rwankeri Health Centre</p> <p>Gakuba Murangira, Franklin, Women’s Economic Empowerment Technical Assistant - MIGEPROF</p> |

Annex 8: Some photographs of the stakeholder consultation





Annex 9: Summary of the stakeholder evaluation

This report summarises findings from an initial stakeholder evaluation carried out for a new Adaptation Fund (AF) supported project on climate change adaptation in northwest Rwanda (Nyabihu and Musanze Districts). The objectives of the study were to understand the viewpoints of all stakeholders and actors in climate change adaptation at district and local levels, and to identify the areas most affected by climate change.

Stakeholders were identified through initial conversations with the Rwanda Natural Resources Authority (RNRA) and project staff to create a list that was developed further through conversations with key informants. Government, NGO and private sector stakeholders were identified at National, District, Sector and Cell level, along with project beneficiaries (mainly vulnerable farmers). The study attempted to speak with as many of these different individuals and groups as possible.

Climate change impacts in the project area and potential project sites

Three distinct zones of climate change impacts were identified through fieldwork and stakeholder perceptions. These include:

- 1) Upland areas on the volcanoes, which have fragile volcanic soils and are suffering from severe soil erosion and associated reductions in agricultural productivity. This also causes damage to water distribution networks that serve the surrounding districts.
- 2) Upland areas in the South of the project area, where soil erosion is also severe but where there are also frequent landslides because of the steep slopes.
- 3) River valleys, which are suffering from flooding due to siltation of drainage systems.

Each zone requires tailored interventions, so they should be considered in project design. Stakeholders identified a number of specific sites in each zone that could be the focus of project interventions, based on their interpretation of the severity of impacts and how strategic interventions would be. These suggestions could be used as a guide to identifying specific sites, but some further mapping will be necessary in each of the zones. **MINAGRI has done some extensive zoning particularly in the south of the project area and they should be further consulted on specific sites.**

Stakeholders generally agreed with the 7 selected Sectors for the project, although REMA suggested that Rambura Sector should be swapped with Bigogwe Sector, as Bigogwe has already been the focus of many interventions.

Stakeholder evaluation

The stakeholder evaluation covered a wide range of stakeholder perceptions about the project, including: project planning and implementation; types of interventions; power relations; methods of engaging project beneficiaries; challenges to the project; and potential partners.

Project planning and implementation: Many stakeholders recommended that the project should try to build on existing infrastructure while taking a participatory approach. The District Development Plan (DDP) is the key process that the project needs to streamline with. This can be achieved by ensuring that the project is on the Vice Mayor's agenda and on various district-planning committees. **District government staff suggested that while the AF project should be integrated into existing plans, it should be careful not to add to the workload of government staff. There are some similar projects that are active in the region, such as REMA's project on the Gishwati watershed, which the project could both learn from and build on its implementation structures.**

Views on project interventions: Stakeholders suggested a range of potential interventions for the project, including both on-farm and off-farm activities, although no new interventions were suggested that are not already being implemented in some form in the area.

Resettlement was the priority issue mentioned by stakeholders and they welcomed the AF project's plans to develop model villages. No specific locations were suggested for model villages, although the District Government referred to the DDP, which sets a target of five sites and emphasises the development of Mukamira Town. However, **the AF project needs to overcome major challenges with existing resettlement sites, such as lack of employment opportunities for inhabitants.** This was both highlighted by a number of stakeholders and obvious during visits to the sites.

Few stakeholders had views on specific locations for the Rural Development Hubs proposed by the AF project, although some indicated that given the activities that the project is planning, they could build on existing infrastructure. This could include Sector centres, such as the one in Jomba Sector, where there are already some processing facilities. RDB also suggested that there are many similarities with the Business Development Centres (BDCs), so the project could build on those.

There are many existing projects on tree planting and terracing that the AF project should build on. However, both types of interventions are facing challenges that should be carefully assessed by the AF project, so that they can be made more effective. Stakeholders suggested some possible ways to do this, such as revising the contracting arrangements between projects and cooperatives, improved training for local project implementers etc. **Key areas of capacity development for cooperatives that the AF project should focus on surround technical expertise (e.g. agronomy), business plan development, financial literacy and marketing.**

Power relations: Power relations between public institutions at the national level need to be considered in project design, as different departments are running large programmes with different strategies in the same region. Institutional structures already exist to try to enhance coordination, and the AF project should tap into these.

Government bodies are powerful actors at the local level, with significant influence over decision-making by project beneficiaries and also in driving private sector development. However, their capacity to support beneficiaries seems to be low. In some cases cooperatives fill this gap in this capacity. Poorer households and women seem to be excluded from decision-making bodies at the local level, often because of a lack of resources to take part, although this needs to be further assessed.

Engaging project beneficiaries: Based on discussions with beneficiaries, communication channels between farmers and local government do not appear to be very strong. This may be partly to do with low government capacity to provide technical information. Cooperatives often seem to be more important channels than government, but their capacity is very variable and the registration fee is a barrier to poorer stakeholders joining cooperatives. To overcome these issues the project will need to have a strong communications strategy.

It is useful that poorer households have been identified through the Categorisation system, but strategies to target them are not well developed. **DRD, COARU, Farm Concern International and BDCs are using some interesting models for targeting poorer households, such as communal funds and financial incentives.** However, their effectiveness is not clear and the AF project needs to assess this in order to develop robust approaches.

The Private Sector Federation (PSF) was the only organisation that suggested that the **AF project should target youth. In order to do this the project should work closely with TVET and the Hanga Umurimo (create jobs) programme** on strategies to engage youth.

Challenges to the project by stakeholders: The overwhelming majority of stakeholders welcomed the project when it was explained to them. However, there were some differences in opinion about the best approaches for addressing climate change impacts, for example around the use of radical versus progressive terracing, given its impacts on those involved. Lack of understanding among beneficiaries about the benefits of certain interventions (e.g. terracing) was also found to be a problem that could compound such issues. This points to the need for the **AF project to produce communications materials, an awareness campaign and demonstration activities that clearly show the benefits of the interventions.**

Possible project partners: District, Sector and Cell level governments will be crucial in terms of project implementation and ensuring sustainability through the integration of the project into District plans. A number of stakeholders highlighted the issue of off-farm employment as being one of the key issues to overcome in the project and there appears to be a division between those working on 'adaptation' projects and those trying to promote off-farm employment. **The project should work closely with RDB, Business Development Centres and the Private Sector Federation on this issue, especially as there is already an existing infrastructure.**

Despite there being a long list of NGOs present in Nyabihu District, local NGOs do not appear to be very prevalent in the project area. **DRD (in Musanze District) is the main NGO working on themes closest to those of the AF project and it should be further researched as a potential project partner.** The lack of NGOs may be partly compensated for by the large number of local cooperatives that exist in the project area. **There is also a deficit of organisations in the project area with scientific expertise on climate change, although some of these exist nationally and they should be brought in to the project.**

Recommendations on implementation arrangements and the stakeholder engagement strategy

The project should use a tiered structure, with management at national level overseen by MINIRENA and executed by RNRA's new Single Projects Implementation Unit (SPIU), which should be running by the time the project starts. A seven-member project implementation unit headed by a Project Coordinator, should be established at the District Level in order to avoid over-burdening District staff. **Coordination structures, such as steering committees and expert advisory groups should be established to ensure harmonisation with existing plans at national and district levels. A number of these groups already exist at national and district levels and the project should consider how it could link into/build on/strengthen existing in order to avoid too much duplication and to ensure that they are effective.**

In order to build an effective stakeholder engagement strategy, there is a need to establish an institutional structure for stakeholder engagement as part of a District level management unit. At least one staff member should be responsible for communications/stakeholder engagement, backed up by staff specialising in community development. A key role for the Communications Officer at the start of the project will be to develop a communications and stakeholder engagement strategy. This will require a more thorough stakeholder evaluation once the interventions and sites are more clearly defined. This study has highlighted that further research is needed in the following areas:

- Communications networks at local level and how effective these are
- Impact evaluation of proposed interventions based on regional experience
- Comparative analysis of existing institutional structures used by other projects and by potential project partners (e.g. strategies to engage specific groups)
- Use of more robust methodologies to solicit views (e.g. random selection)

Annex 10: Summary of the gender analysis

This report documents the approach and the key findings of a Gender Analysis carried out on behalf of MINIRENA in June 2013. The specific objectives of the study were to:

1. Improve understanding of men and women's vulnerabilities to climate change and explain how gender relations determine adaptation strategies in the target area,
2. Provide recommendations on how women can participate equally and actively alongside men
3. Develop appropriate gender disaggregated indicators that can be integrated into the project framework.

The data was collected during a five-day field visit to the project area where meetings, interviews, focus groups and informal discussions were conducted with community members, local government staff, NGO staff, business representatives and savings group and cooperative members. Site visits were carried out to areas affected by flooding and erosion and to a number of businesses and cooperatives as well as a school and a health centre. The majority of discussions held at community level were with female subsistence farmers, many of them heads of household from *Ubudehe* categories 1 and 2 (extreme poor and poor).

The qualitative data was informed by quantitative data from three key studies: Nyabihu District Profile; Nyabihu District Development Plan; and the Project Concept.

The findings of the Gender Analysis indicate that normative gender roles and an inequitable division of labour remain entrenched in Rwandan society and are particularly evident amongst the rural poor communities in the project target area. While differences were evident between households and across generations and socio-economic groups, the findings show widespread acceptance of women's subordination to men, persistent inequalities in terms of the division of labour in the home, decision-making and control over assets and resources. These inequalities are compounded by incidences of polygamy, intra-household conflict including gender based violence (GBV), migration and desertion. Statistics indicate that between 37-53%⁹⁴ of households in the project target area are headed by women, many of whom are in the 'extreme poor' category, making this a particularly important factor in project design.

Women have a limited voice in community decision-making which is reflected in the very low levels of women in local leadership roles (6%)⁹⁵. This includes deciding what to plant on their land, which is decided at community level through the Crop Intensification Programme (CIP). Evidence suggested that in some cases, adapting to the CIP had led to a decrease in the amount and diversity of foodstuffs available in the home and increased the workload of women who were required to source food from elsewhere.

Findings indicate that agricultural labour is divided more equitably, although certain lower status tasks were reserved for women. For subsistence farmers, any interruption to land use either through climate shocks or planned interventions such as terracing, adds to women's workload as they must continue to provide food and meet basic needs with fewer resources. Evidence suggests that the stresses associated with climate shocks can also increase the incidences of destructive behaviours amongst men. Examples given included substance misuse and gender based violence (GBV). Loss of land due to climate shocks can have a particular impact on young men, who may need access to land in order to marry.

Savings groups, associations and cooperatives provide women with increased decision-making powers and serve as an important social safety net in the event of climate shocks. They can also provide women with an additional income which can help to reduce their financial dependence on men. There is evidence of a positive impact on men's perception of, and behaviour towards, their wives when they are able to contribute to

⁹⁴ The figures for female headed households including de facto female headed households is 36.9% in the Nyabihu District Profile and 53.2% in the Nyabihu District Development Plan.

⁹⁵ Nyabihu District Development Plan, page 27

household income. By focusing on increasing the economic opportunities for women the project could help to improve intra-household gender relations.

However, the additional income and assets generated through women's participation in savings groups and cooperatives are often controlled by men. As women's groups become more successful and therefore desirable, they often expand to accept male members. **More research is needed to assess the impact of this expansion on female members and the community as a whole.** Increased fees and payment commitments also become a barrier to those women who do not have the resources to join.

Women and men respond differently to the effects of climate change and women bear a disproportionate burden due to their responsibility for domestic work and the high proportion of female headed households. While women are adept at coping with the effects of extreme weather events, this comes at the cost of a significantly increased workload. Project interventions need to ensure that they do not add to women's existing workload or take for granted their capacity to support each other and to cope and adapt in periods of crisis.

Findings suggest that successful approaches to gender sensitisation with men can lead to a more equitable distribution of labour in the house and reduce intra-household conflict. This can increase women's autonomy in the house and free up time for women to take part in income-generating activities and participate more fully in local decision-making. Examples of good practice included:

1. The joint reflection and planning sessions with husbands and wives used by the cooperative 'COARU' (Jomba Sector) as a result of training by the national NGO 'BAIR'.
2. The sensitisation meetings held by the national NGO DRD with the husbands of women in savings groups starting new businesses to outline the economic benefits for households and communities of women's economic empowerment.

Approaches that have been shown to be successful should be supported and rolled out as part of project implementation.

There is a supportive national and district-level policy framework to address the gender issues related to climate change. The National Gender Policy, Vision 2020 and the DDP for Nyabihu all recognise the marginalisation of women in decision-making, the lower status attributed to women's work and the need to empower women economically by enhancing their skills and improving access to finance, business opportunities and training.

Challenges identified include: the persistence of traditional gender roles and patriarchal attitudes towards women; misunderstandings about the meaning of gender, gender equality and women's empowerment; a lack of knowledge and awareness of national and local policy and priorities; and the perceptions of key decision-makers.

The key recommendations formulated to strengthen the capacity of the project to address gender issues related to climate change are as follows:

- i) Ensure that women and men's different needs and priorities are identified and that where needs and priorities are different they are addressed through local issues identified by communities rather than as issues in themselves.
- ii) Support, develop and integrate accessible tools and models of good practice into all project activities to raise the awareness and understanding of gender issues and terminology amongst men and women, project staff, local staff and key decision-makers.
- iii) Support women's groups/associations to increase capacity and diversify their activities so they can act as mentors for new groups, particularly with vulnerable women and youth.
- iv) Set targets for women's participation at all levels, including in planning, consultation and decision-making processes and interventions such as training and business orientated activities.

- v) Ensure all project data is disaggregated by sex and that mechanisms are in place to identify and respond to low participation levels amongst women.

The results framework specifies gender-specific outputs, indicators and targets relating to women's participation in programme planning and initiatives and the incorporation of gender sensitisation tools and approaches to all aspects of programme implementation. Suggested gender-specific outputs include:

1.6 Consultation processes involve women and men and inform the planning and implementation of Climate Change Adaptation initiatives.

2.7 Targeted support provided to existing women's associations to increase capacity, diversify their activities and identify markets and business opportunities.

3.1 Successful models of integrated, couples or community-based gender sensitisation training identified, supported and rolled out to increase women's participation in climate change adaptation activities.

Annex 11: Summary of the vulnerability assessment

The Government of Rwanda commissioned a Vulnerability Analysis as part of the design for a proposed project in North West Rwanda, in the Districts of Nyabihu and Musanze. The project aims to increase the resilience of rural communities living in North West Rwanda to climate change impacts particularly variable rainfall and flooding.

The research determined there are differences in how disasters affect cells within the targeted sectors; the research identified which cells within each of the sectors have been the most affected by climate change disasters as well as the types of disaster affecting them.

In general the following populations are the most vulnerable to climate change disasters:

- **Households living on slopes.** Landslides and soil erosion affect households living on slopes.
- **Households living in valleys or near lakes and rivers.** This leads to flooding and new lakes forming, which can destroy houses and crops.
- **Households relying on agriculture.** Irregular rain and periods of drought and heavy rainfall are affecting anyone that relies on agriculture for survival, leading to reduced productivity and sometimes abandonment of specific crops.

The research looked at whether specific social groups within these sectors were more vulnerable to climate change disasters and concluded that while everyone is vulnerable to climate change, anyone living on the sides of hills or in the valleys or reliant on agriculture, it is more whether people have the economic means to adjust and minimize the impact of these catastrophes on their lives. This is reflective of the Ubudehe categories: it is therefore mostly those in the Ubudehe categories 1 – 3 who have limited financial, human, social, political and physical assets that struggle to adapt after a disaster. While people adapt in a variety of ways, those that have a stronger asset base can **adapt more positively**, such as relying on savings, support from family and friends, relying on alternative sources of income, while those with limited asset base **adapt more negatively**: eating less foods or a less diverse diet, doing day labour instead of working on their own farms, or pulling children out of school.

The research also identified a number of ways the government both locally and nationally is supporting communities to mitigate their risks and adapt post events. The government is very active in a number of strategies, **agricultural policy and initiatives** that are helping communities to increase productivity and reduce erosion; **emergency funds** post events that help community members rebuild houses and replant their fields; **resettlement programs** that shift the most vulnerable, most high risk people into low risk areas; the focus on building human capacity through **education and health services** such as policies on 9 years of primary education and Mutuelle de Santé; **infrastructure development** such as the construction of markets to sell goods, establishment of collection centres to facilitate sales of agricultural products, as well as the formation of cooperatives; and finally the focus on promoting **off-farm income opportunities** through vocational programs, the initiative of PSF and access to finance from Umurenge SACCOs.

The research also explored how the project can support vulnerable households to reduce their exposure to risk and improve their ability to recover from climate change impacts by developing climate-resilient livelihoods strategies. A variety of different livelihoods opportunities was looked at: cash crops such as coffee, tea and pyrethrum;

livestock such as cows, sheep, pigs, chickens and rabbits; other IGAs such as mushrooms, beekeeping, fisheries brickmaking; and handicrafts such leather, soap and basket making.

Each of these was analyzed based on the local and regional demand, i.e. whether there was a market; whether it was feasible or not to do with the targeted participants of the AF Project, taking into account land limitations; and what the resulting income would be. To this end the following alternative livelihoods were recommended:

| Recommended Livelihoods | Key Opportunities |
|-------------------------|---|
| Rabbits | <ul style="list-style-type: none"> - High reproductive ability. - Local market. - Regular income throughout the year. |
| Chickens: Eggs | <ul style="list-style-type: none"> - Regular income, even daily income. - The feasibility of this will be dependent on whether there is an adequate local market for eggs. |
| Chickens: Meat | <ul style="list-style-type: none"> - Taste would be similar to local chickens, therefore a strong local market. - Income every 5 months. |
| Bricks | <ul style="list-style-type: none"> - Regular income. - Strong competition. |
| Mushrooms | <ul style="list-style-type: none"> - Local and international market needs to be determined. - Good regular income throughout the year. |
| Tree tomatoes | <ul style="list-style-type: none"> - Good for those with limited land. - High income per annum. - Could lead to other added value products, such as juice. |
| Honey | <ul style="list-style-type: none"> - Income three times a year. - Good for people with limited land. - Could lead to other added value opportunities such as packaging and selling directly to Kigali. |
| Pigs | <ul style="list-style-type: none"> - Income every 5 months if selling piglets. - Would need to determine market for piglets both locally and regionally. - Need minimal land for production. |
| Cows | <ul style="list-style-type: none"> - Ongoing regular income. - Market available with Mukamira Dairy. |

The research also looked at markets for vocational school graduates. It was recommended that the vocational programming for youth be focused on the construction industries: carpentry, metalwork, construction, brick making, and to a lesser extent on vocations with a lower demand such as electricity, plumbing, mechanics and sewing. Furthermore, assistance may need to be provided to help these young people start up their own businesses post training. Access to credit and training on entrepreneurship should be part of a wider package of vocational programming for youth.

The research also examined other opportunities to shift people into small businesses by offering credit and savings to community members. It was concluded that there are a myriad of other small business opportunities that people can be doing such as buying and selling goods at the market, small processing such as making bread, juice, beer, donuts, etc. In order to encourage AF participants into focusing on these business opportunities, it would be best to encourage participants into informal financial services, that is, savings and loan groups that focus specifically on poorer populations and can help shift people into more productive activities. These groups are a motivating force and can also improve financial literacy and eventually shift people into formal financial services, which is also a key target for the AF Project.

In conclusion, the research has helped to clearly identify the target group: the poorer populations in targeted cells within the seven sectors in Musanze and Nyabihu Districts, helped to better understand how these people are adapting to climate change, how the GoR is assisting them to adapt, and has provided some key recommendations on the types of livelihoods people should be focused on in order to improve their adaptive capacity. It is hoped the results of this study will help to feed into project objectives and strategies to promote sustainable climate adaptation interventions within the targeted districts of Musanze and Nyabihu within Rwanda.

Annex 12: List of participants taking part in the validation workshop

| NO | Names | Designation | Institution |
|----|------------------------|---|-----------------------|
| 1 | Debbie Caldwell | Consultant | FONERWA |
| 2 | TWAGIRIMANA Cyriaque | DAF/MINIRENA | MINIRENA |
| 3 | KATANISA Peter | SWAP Coordinator | MINIRENA |
| 4 | ZINGIRO Ariane | ENR Sector Focal Point | MINECOFIN |
| 5 | MIHIGO August | RNRA/DFNC | RNRA |
| 6 | MULISA Alex | National Coordinator | FONERWA |
| 7 | JON MACARTNEY | CDKN support Project Manager | FONERWA |
| 8 | KAGABO Joseph | Mines Inspection | RNRA /GMD |
| 9 | SEMANA Jean | Land project Manger | RNRA/Land and Mapping |
| 10 | NTIVUGURUZA Telesphore | Export Crops professional | MINAGRI |
| 11 | NYITEGEKA JMV | Agro meteorologist | METEO Rwanda |
| 12 | TETERO Francois Xavier | Watersheds Mgt Coordinator | RNRA |
| 13 | TUYISHIME Modeste | Statistician | MINIRENA |
| 14 | BIZIMANA J.Dieu | M&E | MINIRENA |
| 15 | MUSABYIMANA Innocent | Director Planning M&E | MINIREMA |
| 16 | UWIMANA Immaculee | Climate change Mitigation Officer | REMA |
| 17 | KARANGANWA Papias | Carbon Market | MINIRENA |
| 18 | RUZINDANA Charles | Director of Planning | Musanze District |
| 19 | NDAGIJIMANA J.Pierre | District Environment Officer | Musanze District |
| 20 | MUGENZI Jerome | Vice-Mayor FED | Musanze District |
| 21 | UMUTONI Monique | District Environment Facilitator | MUSANZE District |
| 22 | NIRINGIRE Gustave | Environmental Facilitator | REMA-PEI/MINECOFIN |
| 23 | UWIZEYIMANA Emmanuel | Director of PME | NYABIHU Distict |
| 24 | MUKAMINANI Angele | Vie Mayor Fed | NYABIHU Distict |
| 25 | TWAHIRWA Abdoulatif | Mayor | NYABIHU Distict |
| 26 | ABATONI Faith | RAB/Fertilizer Distribution&Credit Recovery | Nyabihu District |
| 27 | KARAMBIZI Benjamin | Environment | Nyabihu District |
| 28 | NYIRIMANZI J.Pierre | Agronomist | Nyabihu District |
| 29 | NABIMANA J.Dieu | District Envir. Facilitator | REMA/Nyabihu |
| 30 | MUKESHIMANA Charlotte | Urban Development | Nyabihu District |
| 31 | SELEMANI Asia | C.S & Urban Development | Musanze District |
| 32 | SURWUMWE J.Claude | PSF Consultant | Nyabihu District |
| 33 | KAMALI Edouard | PSF Consultant | Nyabihu District |

| | | | |
|----|-------------------------|-------------------------|------------------|
| 34 | MUNYAMPAMIRA Ildephonse | DFO | Nyabihu District |
| 35 | MUSONI Protais | DFO | Musanze District |
| 36 | NYANDWI Elyse | Assistant DPME | MINIRENA |
| 37 | MUNYANDATWA Augustin | Land Survey and GIS | MUSANZE District |
| 38 | UMUHOZA Jeanne d'Arc | Public Relation Officer | MINIRENA |