



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Naoko Ishii
CEO and Chairperson

November 12, 2014

Dear LDCF/SCCF Council Member:

UNDP as the Implementing Agency for the project entitled: ***Burundi: Community Disaster Risk Management in Burundi***, has submitted the attached proposed project document for CEO endorsement prior to final approval of the project document in accordance with UNDP procedures.

The Secretariat has reviewed the project document. It is consistent with the proposal approved by LDCF/SCCF Council in November 2012 and the proposed project remains consistent with the Instrument and LDCF/SCCF policies and procedures. The attached explanation prepared by UNDP satisfactorily details how Council's comments have been addressed. I am, therefore, endorsing the project document.

We have today posted the proposed project document on the GEF website at www.TheGEF.org. If you do not have access to the Web, you may request the local field office of UNDP or the World Bank to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Naoko Ishii
Chief Executive Officer and Chairperson

Attachment: GEFSEC Project Review Document
Copy to: Country Operational Focal Point, GEF Agencies, STAP, Trustee



REQUEST FOR CEO ENDORSEMENT
PROJECT TYPE: FULL-SIZED PROJECT
TYPE OF TRUST FUND: LDCF

For more information about GEF, visit TheGEF.org

PART I: PROJECT INFORMATION

Project Title: Community based climate change related disaster risk management in Burundi			
Country:	Burundi	GEF Project ID: ¹	4990
GEF Agency:	UNDP	GEF Agency Project ID:	4922
Other Executing Partner(s):	IGEBU	Submission Date:	May, 2014
		Resubmission Date:	Oct. 20, 2014
GEF Focal Area (s):	Climate change	Project Duration (Months)	48
Name of Parent Program (if applicable):	n/a	Agency Fee (\$):	871,500

A. FOCAL AREA STRATEGY FRAMEWORK²

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (\$)	Co-financing (\$)
CCA-1	<u>Outcome 1.1:</u> Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas	<u>Output 1.1.1:</u> Adaptation measures and necessary budget allocations included in relevant framework	LDCF	700,000	1,000,000
	<u>Outcome 1.2:</u> Reduce vulnerability in development sectors	<u>Output 1.2.1:</u> Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including <u>variability</u>	LDCF	4,000,000	6,000,000
CCA-2	<u>Outcome 2.1:</u> Increased knowledge and understanding of climate variability and change-induced risks at country level and in targeted vulnerable areas	<u>Output 2.1.1:</u> Risk and vulnerability assessments conducted and updated	LDCF	2,300,000	11,000,000
CCA-3	<u>Outcome 3.1:</u> Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas	<u>Output 3.1.1:</u> Relevant adaptation technology transferred to targeted groups	LDCF	1,300,000	8,000,000
Subtotal				8,300,000	26,000,000
Project Management cost			LDCF	415,000	1,000,000
Total project costs				8,715,000	27,000,000

¹ Project ID number will be assigned by GEFSEC.

² Refer to the [Focal Area/LDCF/SCCF Results Framework](#) when completing Table A.

PROJECT FRAMEWORK

Project Objective: Provincial, communal services and local communities capacitated on disaster risks preparedness and responses management to ensure long term and sustainable emergency and reconstruction phase in Bugasera, Mumirwa and Imbo Lowlands' regions, Republic of Burundi

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (\$)	Confirmed Co-financing (\$)
1. Strengthening communities preparedness in face to climate related disaster risks	TA	A community-based early warning system established and operationalized as a platform for climate-related disaster risk reduction and for guiding the implementation of climate change adaptation activities	1.1. Set up the functional structure of the Community Based Early Warning System on climate change related risks in Bujumbura Rural, Kirundo and Makamba Provinces	LDCF	1,839,450	11,000,000
	INV		1.2. Upgrading the hydro meteorological network and improving capacity to generate real-time information weather and data series for information dissemination to target communities			
	TA		1.3. Set up an effective and efficient communication and dissemination system to reach all end users			
2. Resilience and response capacity of local communities strengthened	TA	Communal services, technical staff departments integrate cost-effective adaptation investments and options into sectoral and local development planning instruments, taking into account weather variability and climate change projections	2.1. Gender and climate vulnerability assessment to guide the development of a local climate change response	LDCF	1,460,207	1,000,000
			2.2. Local government decision makers, technical staffs and communities assisted with training on proper use of climate risks tools and sensitized on climate changes impacts to support the identification of cost-effective adaptation investments options and adjust plans, programmes and projects given new climatic experiences			
			1.1. Provincial & Municipal development plans and annual budgets reviewed and updated to integrate effective climate risk management to support more climate-smart investments			

Project Objective: Provincial, communal services and local communities capacitated on disaster risks preparedness and responses management to ensure long term and sustainable emergency and reconstruction phase in Bugasera, Mumirwa and Imbo Lowlands' regions, Republic of Burundi

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (\$)	Confirmed Co-financing (\$)
3. Effective response to climate risk within a programme of community resilience	INV	Provide necessary investments to protect infrastructures and local livelihoods from climate impacts and build the socio-economic resilience of crisis-affected population	3.1. Realization of 300 ha of vegetated ditches erosion control in Bugabira, Busoni and Kirundo-rural to protect and preserve communities lands from higher risk of pluvial top soil erosion	LDCF	5,000,343	14,000,000
			3.2. Stabilization works undertaken in Ntakangwa and Gaseyni Rivers to reduce the risks of flooding landslides in Bujumbura City			
			3.3. Accompanying measure to strengthen the food security of vulnerable households facing to recurrent droughts			
Subtotal					8,300,000	26,000,000
Project management Cost (PMC) ³					415,000	1,000,000
Total project costs				LDCF	8,715,000	27,000,000

B. SOURCES OF CONFIRMED CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Please include letters confirming co-financing for the project with this form

SOURCES OF CO-FINANCING	NAME OF CO-FINANCIER	TYPE OF CO-FINANCING	CO-FINANCING AMOUNT (\$)
Recipient Government	IGEBU through the Ministry of Finance	In-kind	500,000
Recipient Government	Ministry of Finance	Grant	14,500,000
Other Multilateral agency	World Bank through the Ministry of Finance	Grant	4,000,000
GEF Agency	UNDP	Grant	8,000,000
Total Co-financing			27,000,000

³ PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

C. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY¹

GEF Agency	Type of Trust Fund	Focal Area	Country Name/ Global	(In \$)		
				Grant Amount (a)	Agency Fee (b) ²	Total c=a+b
UNDP	LDCF	Climate change	Burundi	8,715,000	871,500	9,586,500
Total Grant Resources				8,715,000	871,500	9,586,500

¹In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

² Indicate fees related to this project.

E. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount (\$)	Co-financing (\$)	Project Total (\$)
International Consultants	272,300	500,000	772,300
National/Local Consultants & experts	520,000	700,000	1,220,000

F. DOES THE PROJECT INCLUDE A “NON-GRANT” INSTRUMENT? No

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

PART II: PROJECT JUSTIFICATION

A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF⁴

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc. N/A

A.2: GEF focal area and/or fund(s) strategies, eligibility criteria and priorities. N/A

A.3 The GEF Agency’s comparative advantage: N/A

A.4: The baseline project and the problem that it seeks to address:

I.1. Country background information

Located in Central Africa, Burundi is a landlocked country extended on an area of 27,834 km². In the 2008 census more than 8,053,574 inhabitants were recorded, the majority living in rural areas, with a population growth rate of 2.4% per year. The country is divided into 17 Provinces: Bubanza, Bujumbura Rural, Bujumbura Mairie, Bururi, Cankuzo, Cibitoke, Gitega, Karuzi, Kayanza, Kirundo, Makamba, Muramvya Musinga Mwaro, Ngozi, Rutana and Ruyigi; there are overall 129 communes. From West to East, there are five different areas in the topography of Burundi: Imbo lowlands corresponding to the Western part of Rift Valley, the region Muringwa with steep slopes, the mountain area, the central plateaus and the lowland of East and Northeast (Figure 1).



⁴ For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter “NA” after the respective question

Principally based on smallholdings, agriculture is the main sector and accounts for 43% of GDP and employs about 90% of the workforce. Most farmers are women. The main staple crops in Burundi are: beans, cassava, sweet potato, banana, and sorghum. Cash crops include coffee, tea plant, and cotton. Agricultural exports (mostly coffee, tea, cotton) represent 70-85% of external revenue. Services account for 32% of GDP, with a growth rate of 5.1% in 2010, mainly from the transport and telecommunications sectors (6.9% and 8.8% in 2009 and 2010, respectively). The industrial sector also recorded better growth (5% in 2010, against 3.7% in 2007), mainly from construction, the mining industry and the energy sector. Burundi has considerable mineral deposits, but the exploitation of these resources is hampered by the lack of road, rail and energy infrastructure.

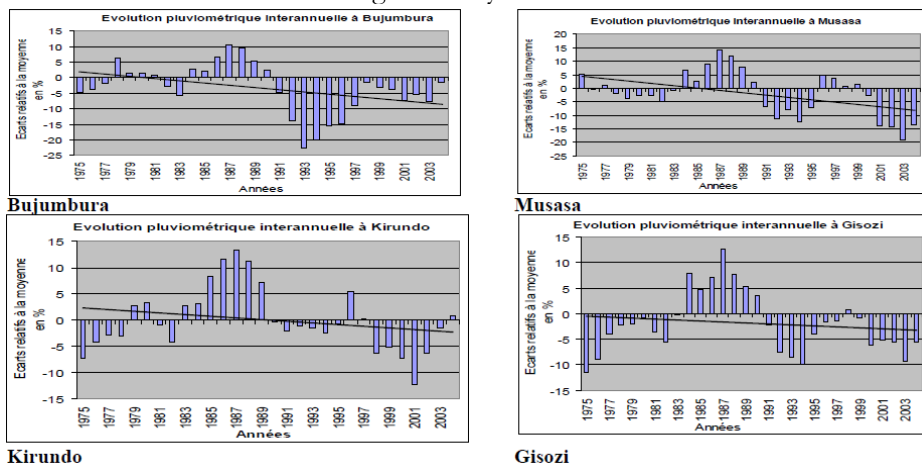
Burundi has emerged from an extremely damaging civil war that lasted more than 12 years. From December 2008, steady progress has been made to restore critical institutions and the country is now overseeing the resettlement and reintegration of thousands of returning refugees and about 150,000 internally displaced persons (IDPs) distributed among 160 camps in the country. The proposed project builds on a number of baseline projects implemented by the Government in the context of disaster risks management and to support the reconstruction phase of Burundi.

Since 2008 Burundi has embarked on extensive economic and social reforms to stimulate growth and regional integration; resulting in progress - albeit slow - in modernizing its economy and administration. According to the World Bank statistics, Burundi's gross domestic product (GDP) is 4% en 2012, with growth estimated to improve to 4.5 percent in 2014. Political stability and the end of the civil war have allowed more aid flows and economic activity has increased. However, despite these achievements, the country remains fragile, particularly in the security domain. It is characterized by an inadequate infrastructure network, a very low human development index, a general lack of capacity, weak governance and high vulnerability to external shocks. The Burundi remains heavily dependent on aid from external donors.

1.2. Climate change - induced problem

Climate models predict extreme weather events in correspondence with an increase in temperature of 1°C and 2°C, combined with alternating 10 years cycle (dry – rainy – dry) rainy sometimes more cyclical episodes of 10 years, from 2010 to 2050. Fluctuations within the same year as we observe them now are expected to continue and even increase. If we consider projection of monthly rain, it appears that variability is very high in October and November and from February to April in Bujumbura and Kirundo, and then it will affect only the high altitude region, Gisozi and Musasa.

Fig. 2: Yearly Rainfall



Change in climate patterns are felt differently in the different natural regions of the country and had diverse impact on anthropic environment. Drought is more prevalent in the northern provinces, especially Kirundo and Muyinga where the situation has been worsening starting in 2000. Drought was so heavy to become a national

disaster as it counted several deaths and environmental refugees because of starvation. Municipalities severely hit are Bugabira, Busoni, Bwambarangwe and Gitobe. According to the Early Warning System and Food Security Monitoring in Burundi (SAP-SSA) managed by FAO, to the Burundi Comprehensive Food Security & Vulnerability Analysis (CFSVA) of WFP⁵, and to the Food Security Monitoring System of WFP⁶, insecurity still exists today in some parts of the country following the rainfall deficits of the growing season A (i.e.: in 2007, between October and January, a person was dying every day of hunger in Kirundo and Muyinga, despite those regions were considered the country breadbasket before the drought).

Devastating floods remain frequent nowadays especially after excessive rainfall. In the plains of Imbo, some rivers like Kajeke, Dama, Murembwe, Rwaba cause flooding associated with heavy rainfall in the highlands of the Congo-Nile basin. In January 2010 a flood invaded Bujumbura International Airport and blocked the National Road 5 (Figure 3). The rivers Muha and Kanyosha cause regularly flooding, with growing impacts. Floods worsen riverbanks erosion, and their progressive dramatic effects are visible in the town of Bujumbura, especially along main drainage channels crossing from East to West. The riverbanks are in some point devastated, especially along the urban traits of Ntahangwa, Muha and Kanyosha, with impressive damage to private and public infrastructures.

Most of the socio-economic activities are already affected by observed climate change impacts:

- **Agriculture:** The impacts identified on the agricultural sector are the following:
 - A decrease in yield per hectare in both growing seasons A and B on all food crops (except rice) between 1995 and 2001. The most extreme case was the typical wheat whose production has dropped significantly from 1995 to 2005. Yields from season B are overall lower than from season A, as rain season has started earlier in April for more than a decade.
 - A rapid decline in productivity of plantations can also be ascribed to climate variations.
 - Degradation of soil fertility in Bugasera and in the Imbo plain following the rapid deforestation and the prolonged drought 1998-2004.
 - Genetic erosion of traditional species and varieties of sorghum, beans and potato seed observed in several locations because of the disappearance of some cultivars.
- **Livestock:** Analysis carried out on pasture in the Bugasera region indicate that due to reduced rainfall herders were forced to have transhumance and regroup their animals in areas around rivers. In the areas of Imbo Centre and Kumoso early completion of rainy season at the end of April no longer allows forage crops and natural pastures to reach full maturity. Similarly, extreme drought has killed nearly 35% of the animal population between 1998 and 2005, producing a fodder deficit and widespread food crisis for the livestock.
- **Public infrastructure and transportation:** In 1983, 1986, 2006 and 2009 Bujumbura experienced severe flooding due to Ntahangwa river overflow. Those floods have caused enormous losses estimated at about 3 billion BFI, among which the destruction of houses which left many homeless in the Buyenzi neighborhoods in 1983, or the deterioration of equipment of the industrial area, included the destruction of stocks of companies with warehouses in the flooded areas (COGERCO, RAFINA, BRARUDI SEP), and the demolition of the port of Bujumbura.

⁵ VAM (2008) *CFSVA Burundi*. World Food Programme. (<http://www.wfp.org/content/burundi-comprehensive-food-security-and-vulnerability-analysis-2008>)

⁶ VAM (2013): *Burundi. Système de suivi de la sécurité alimentaire*. World Food Programme. (<http://www.wfp.org/content/burundi-systeme-de-suivi-de-la-securite-alimentaire-2013>)

Fig 3: Climate change related events in Burundi



Photo 1: Drought in Kirundo, 2005



Photo 2: Water level of Rwegura basin, 2004



Photo 3: Water level of Rwegura basin, 2004



Photo 4: Bujumbura Airport and national road flooded, 11 January 2010



Photo 5: Land slide on the Nyabagere river, 30 March 2011



Photo 6: Land slide on the Ntahangwa river, 27 September 2013

- **Health:** Increases in average temperatures during the rainy season create conditions relatively more favourable to the cycle of transmission and survival of vectors of certain diseases, including malaria, meningitis, measles and cardio-respiratory diseases. Floods cause displacement while destroying infrastructure and reducing the availability of drinking water. The effect of climate change on public health is a direct negative impact.
- **Vulnerable groups:** The impacts of climate change are especially severe on vulnerable groups such as women, youth and the elderly. Women play a very significant role in the country's agro-silvo-pastoral production (97% of the labour force) in Burundi. They take part in farm work and are responsible for market-gardening production and small-scale livestock activities. As regards to forestry production, they take part, as well as men, in production of seedlings, in planting and maintenance of the crops. Women constitute the segment of the population who suffered the most from the interethnic clashes and the socio-political crisis ensued. Mass exodus of men and young people are a common coping strategy which produces social changes and also results in increase of divorces: women become head of household and the only ones to support the needs of the family. Women are consequently likely to suffer more damages from climate risks and have a lower capacity to adapt. Women and children are also largely responsible for collecting water and wood, and other natural resources for use by the household. In the context of Burundi, where only a small percentage of the population has direct access to drinking water, an additional impact of drought is the increased distance to walk for fetching safe drinking water, which in turn limits time and energy for productive – vs. reproductive - activities.

It is anticipated that these impacts will be exacerbated in the near future. Examples of current and possible future impacts and vulnerabilities associated with climate variability and climate change are provided in IPCC WG2

report (2007),⁷ which mentions impacts on crops and possible agricultural GDP losses. The report adds that additional risks that could be exacerbated by climate change include greater erosion and deficiencies in yields from rain-fed agriculture, with small-scale farmers being the most severely affected. These impacts will likely cause, among others: loss of incomes, decrease in the quality of life, population displacement and decrease in agricultural production.

Baseline Projects/initiatives

Baseline for Component 1

Co-financing projects

The LDCF funded project builds on the efforts led by the Government of Burundi to operationalize the Strategy of Disaster Risk Reduction through the establishment of Platforms at national provincial and municipal levels. At the national level, the platform is a permanent forum for coordination, management, implementation and support through programs and activities relating to risk reduction, preparedness and emergency response. It maintains a permanent coordination with all relevant stakeholders, as technical committees established within different ministries, public institutions, provincial and communal platforms, agencies of the United Nations, private sector, civil society and NGOs. In the project target areas, three communal platforms are established in following areas: Busoni and Bugabira (Province Kirundo) and Rumonge (Province of Bururi). These levels report to the provincial level, on its turn coordinated by the national level. The communal platforms are well structured and meet, as needed depending on emergencies and other priorities. Contribution from these platforms to the LDCF financed project is related to the mobilisation of key stakeholders to enable the operationalization of the planned early warning system. **This contribution is estimated to be USD500k** during the 5 years cycle of the project. The LDCF investment will be a perfect complement: it will focus on creating the capacity at community level, as the core element of a civil protection system that is not yet developed and lack roots in the communities (*colline* level). Indeed, it shall be noted that currently the existence of grassroots activities for risk prevention, disaster management and adaptation to climate change is very low.

UNDP/BCPR is supporting the implementation of the Action Plan on Disaster Risk Reduction, Preparedness and Response to Emergencies through a “*Project support to build national capacities*” (2014-2016). The project team is under establishment; and among key activities, it is planned to

- Strengthen the operation and coordination mechanisms of the Provincial Platforms and support the establishment of local committees at collines/hills levels linked to existing communal platforms. Where possible, these local committees will be the vehicle of the community based early warning system to be established under LDCF funding;
- Develop support services to analysis and risk assessment tools: database (DESINVENTAR, DEVINFO, etc.), Geographic Information System and Mapping Systems, strengthening national capacities on methodologies for the evaluation, analysis and mapping of natural hazards. Once establish, this support services will contribute in the climate risks mapping exercise to be undertaken at communes and provincial levels.

Expected contribution from **UNDP: USD500,000.**

LDCF financed project will take advantage of IGEBU’s exiting capacities to collect, analyze and disseminate weather and hydrological forecast services. Under the hydrometeorology and agro-meteorology Departments, IGEBU is assuming the management of meteorological and hydrological networks (data collection); centralization, control, processing and publication of data from different observation networks (data management); research and analysis (data analysis). The oldest hydrological station in Burundi is established since 1960. A network of 54 stations was established in 1974 but most of them were destroyed during the civil war (1993-2004). In 2008 a program for reconstructing the network started and currently there are 35 working

stations, of which 5 automatic. Data transmission is done through regular mail by IGEBU focal points or transmitted directly by the automatic stations. All data are stored in an electronic database (Access 2000) at IGEBU. An internal communication system is established for the collection of climate data, and a regional communication system for exchanging data from and outside Burundi (e.g. with the World Meteorological Organization under the "Global Telecommunications System (GTS)". The existing warning system at the IGEBU is based particularly on the daily and seasonal forecasts, as well as assistance to aviation forecasts. The expected co-financing associated with **IGEBU activities is USD 10 Millions** during the 5 years cycle of the project, taking into account all investments related to hydro meteorological and agro-meteorological observation network, maintenance, and functional operations (see attached co-financing letter from the General Director of IGEBU).

However, IGEBU weather forecast service has much room for improvement to support effectively a community-based early warning system:

- ✓ The current coverage of weather, climate and hydrological stations requires improvements, specifically in project target sites where sufficient accurate and relevant information on the potential impacts of natural disasters and climate change information are lacking. The existing warning system at the IGEBU does not show sufficiently harmonized or updated regularly. The weather information system is concentrated around the airport infrastructure (Bujumbura), but neglected the agro-climatic zones risks or major watersheds. Coverage in weather, climate and hydrological stations country is low and most of the existing obsolete;
- ✓ The system of meteorological data collection and diffusion is currently not appropriate to support disaster risks preparedness (incomplete data collection, weak analysis and diffusion). IGEBU has no systems to automatically detect and alert forecasters to severe weather events. These include the algorithms to detect downbursts from radar data, or expert systems, which can alert forecasters to the likelihood of severe weather events based on observational or forecast data;
- ✓ There is a weak communications system that provide information to emergency management authorities (platforms) and local communities with lead times that allow adequate response time for emergency managers to complete preparedness action. IGEBU is lacking sound scientific basis for predicting and forecasting hazards and reliable forecasting and warning systems that operate 24 hours a day;
- ✓ Relevant information on the dynamic nature of hazards and vulnerabilities that arise from processes such as urbanization, rural land-use change, environmental degradation and climate change are not analyzed and made available to local decision-makers, grassroots communities and communal technical services to better plan and sustainably manage the risk of natural disasters.

Other relevant initiatives (non part to the co-financing)

1. The **Burundi branch of the Red Cross** is also a key partner of the different platforms on DRR. The organization has developed – at least in the provinces identified as main target of the present project, Bujumbura rural and Bugasera – an impressive structure with high capillary presence at hill level (around 150 volunteers each hill) and locally-based consistent response mechanisms to assist the most vulnerable families with food and other basic items. The Croix Rouge made available warning system, a megaphone, used to alert population in case of fast onset heavy meteorological events, and ask to households living in areas exposed and vulnerable (for position, type of surroundings, and type of housing) to evacuate. Challenges for the Croix Rouge are currently mainly in communication among the lower levels (colline to commune and vice versa). This powerful and community rooted local capacity shall be supported and reinforced while included in the CB EWS to be set up in the project.
2. In the **Food Security Early Warning System** (Système d'Alerte Précoce et Suivi de Sécurité Alimentaire - SAPSSA) of FAO, panel data are collected in each province, but on only 50/60 families ("ménages repères") across the country. Data collection is conducted with the support of NGOs present in the area, normally CARE and CRS. Data are collected on paper questionnaires, then scanned and sent by email to FAO where data are inserted in database. The instrument is sufficient to provide an orientation, but is not fully reliable

due to the sample size. Some of the indicators can be used as early warning, but mostly with a focus on agriculture (i.e.: pests) or generic danger (i.e.: loosen dogs). In the committee to manage the system, together with FAO stand the Ministry of Agriculture, UNICEF, PAM, CARE, CRS.

3. The **Food Security Monitoring Systems (FSMS)** set up by WFP in collaboration with Ministry of Agriculture has an almost national coverage with data collected in provinces. After beginning data collection with the support of NGOs, capacity building of the Statistic Center as well as of provincial officers (DPAE) of the Ministry has been developed to make the system sustainable. The sample is derived from the Comprehensive Food Security and Vulnerability assessment (6000 families) and reduced to about 3000. The provincial officers twice a year collect data through mobile telephones (Samsung GT-S55701) on which a questionnaire developed through a simple interface (open source software) is loaded via internet, and can be updated in case of change. The telephone, with a GPS, is traceable, even if the SIM card is changed. Interviews are conducted with same households to develop panel data. The data from each filled questionnaire can be saved and sent via Internet (at the cost of 200FBU), they are stored into a database; the service to handle and store data is provided by Google Inc. for an un-pricy sum (less than 50USD per year).
4. It is a good instrument for monitoring food system, aligned to sense indicators observed by WFP globally, as food consumption index, but it would not be effective in early warning. The FSMS is mainly an instrument to gauge indicators as household consumption, which is more capable of registering impact of crisis then alerting on their arrival or immediately registering their occurrence. It is a current project of the FSMS to expand the system to use it for the agricultural surveys that are conducted twice a year, making production data more reliable on a scientific sample and immediately available once collected.

Baseline for component 2

Co-financing projects

Component 2 builds on the efforts made by the Government of Burundi to strengthen local development and urban planning. Planning tools have been developed locally, such as:

- (i) *The Master Plan And Development Plan Of The City Of Bujumbura 2025*. Following the civil crisis, the city of Bujumbura, capital of Burundi, was subject to significant demographic pressure, and must have an adequate and updated document of urban planning to organize and guide the urban expansion, and anticipate major infrastructure shortfalls in order to promote a sustainable development. The natural site of the city, the environment and status of land, erosion areas, conflicts with the agricultural world, equipment in outlying areas, the economic role of Bujumbura in the sub-region, are challenges that the planning and programming documents for 2025 must address. The Master Plan is under development and following analysis are undertaken: Urban diagnosis, organizational and financial audits, demographic and socio-economic analysis of the mode of production of land for building, economic analysis. development prospects, infrastructure needs. and its explanatory report. Population p
h Strategic guid
Development
- (ii) *The Provincial Land Use Management Plans (SPAT in French)* are developed under the support of the World Bank and European Union. They materialize the National Strategy for the sustainable use at Province level and address three key issues (i) national integration, (ii) economic and social development and (iii) protection of natural resources. The SPAT of Kirundo, Bujumbura Rural are under validation by national authorities. Institutional set
up
- (iii) *The Communal Development Plans (PCDC in French)* is a framework reference for both national and international organizations involved in development, which keeps into consideration environmental strengths and social features of the population involved.

This policy baseline provide a good basis from which to plan for climate change at the local level and will contribute to strengthening the overall capacity of local decision makers and targeted rural communities to

understand climate change risks and their impacts on local development. However, local decision-makers have limited knowledge of climate change impacts or adaptation responses and will not address specifically climate variability and climate change projections in the local development plans. Information, including inventory and mapping, is inadequate and staffs from local councils have limited expertise to internalize climate changes into existing local development plan and budgeting framework. Finally, proper gender analysis of risk is not conducted. This will make less chance to include broadly the concrete risks faced by the population, but also its effectiveness will be hampered, since women are the key agents of integrate communication and informal training in families and communities. The additional funding from LDCF will help facilitate the integration of climate change risk management in the local development plans and in the SPAT by providing skills, support of technical expertise and tools to municipal and provincial officials.

Under the UNDP “Public Administration Reform Project”, the establishment of “single access point” is initiated in the first 5 Provinces, followed by the signature of memoranda of agreements between several ministries, to build synergy around the Governor. The single access points will be operationalized in 2014. In addition, negotiations are underway on the adoption of management strategy performance. The UNDP baseline is relevant to the project funded by the LDCF since it provides the mechanism for better coordination and well prepared administration that facilitates the integration of climate risk management into local development processes. The resources allocated to the improvement of public administration are estimated at **1,000,000 USD**, which can be considered a co-financing of the project.

Baseline for component 3

Co-financing projects

After several years of devastating civil war (1993-2000) that had a destructive effect on the economy and infrastructures of the country, Burundi is still a very fragile country. The civil war resulted in the destruction or deterioration of existing facilities; combined with a lack of adequate investment, negatively impact service delivery. As of December 2008, steady progress has been made to restore critical institutions and the country is now in the process of overseeing the resettlement and reintegration of thousands of returning refugees and internally displaced about 150,000 people (IDPs) are distributed in 160 camps in the country.

The development baseline initiatives are contributing to the response of challenges posed by the recovery in Burundi, including climate resilience.

- Current investments from the Government of Burundi made available to target communities a number of plots of lands (about 11.321 plot of land produced in 2013 in 10 different sites in the provinces of Bururi, Bubanza, Kayanza Karusi, Makamba, Muramvya) and granting them with cement and steel panels for the construction of houses. The government will continue to support the Villagisation programme under sectoral budget **and the co-financing from the national budget over the 5 years of this LDCF financed Project will be 4 millions** (see Letter from the Ministry of Finances).
- The UN agencies (FAO, UNDP, WFP, UNICEF) support Programme built, from 2011 to 2013, eight incorporated villages to resettle 5,000 returnees, IDPs and vulnerable residents. The Programme allowed the creation of local coordinating committees for the implementation of the National Strategy, and the strengthening of the capacity of communities to prevent and resolve conflicts. The program improved the delivery of basic social services through training of health personnel and the provision of 12 ambulances. The integrated program also helped 244 women to establish food-processing companies to small scale, which allowed them to generate income. Other activities included 89 labor-intensive projects, which temporarily employed 6530 people, including more than 4,000 ex-combatants. A follow up Programme is under design ("*Assistance to internally displaced persons in Burundi*", **(planned 13 Millions USD-expected co-financing to this GEF funded project 6 millions)**) and will focus on socio-economic reintegration and income diversification of IDPs in general and women in particular, gathered in associations, small and medium enterprises and pre-cooperative producers movements, through the development of agricultural and non-agricultural sectors.

However, the current reintegration Programme is no longer specifically taking into account climate change issues. This will be a limiting factor for the sustainability of the resettlement strategy. In addition, most of reintegration programmes are intervening in most vulnerable areas. For example, Rumonge and Nyanza Lac Provinces are bordering the Lake Tanganyika where water level varied between 772 - 777 m of altitude since 1929 to date because of the variability of precipitations in the catchment's area. The receding of waters lead to shortages in water available for domestic and agricultural uses affecting crop and livestock production. Between 1998 and 2005, drought caused 35% livestock mortality and a widespread food crisis. These Provinces are also located in Mumirwa natural region's where erosion is felt by the population as being the principal factor of the fall in soil fertility, and consequently of the fall in crop productivity. In this primarily agricultural and strongly populated area, the economic survival of the population is related to the preservation of soil productivity capacity. In this region, any land subjected to precipitations undergoes the phenomenon of erosion, i.e. a degradation of the relief, a modification of the chemical composition of the soil and its structure and loss of the outer soil surface that is wiped off by run-off waters. The loss of the outer soil surface impoverishes the farmed lands, making it less fertile and less productive. Erosion control and soil fertility restoration are urgent needs that require adequate circumscribing both in its form (manifestation) and its content (causes) in order to propose strategies adapted to the real land situation. There is a need to establish structural, systemic, and sustainable support that meaningfully recognizes and addresses climate change challenges into integrated village programme in Burundi.

- The LDCF financed project is also designed to take opportunities of current support provided by multilateral partners (e.g. World Bank, AfDB and the European Union) to address the lack of basic infrastructures in key cities. These investments will greatly improved access to socio-economic infrastructure in urban centers and strengthened existing municipal management systems. ***The co-financing associated to the infrastructure Programme is 4 millions*** (see Letter from the Ministry of Finance). As April 2012, the World Bank Project "Public Works and Urban Management" (targeting Bujumbura, Gitega and Ngozi) supported the completion of at least 27 subprojects. These include: (i) 27 km of urban paved roads, (ii) 10 new covered markets, (iii) 54 classrooms for primary schools and 30 classrooms for secondary schools, (iv) 7 health centers, and (v) 40 kilometers of urban drainage systems. An extension phase of this project (2012-2015) is underway and aims to: (i) the implementation of additional work (14 million U.S. dollars equivalent) that intensify the impact of the project, and (ii) continue to support institutional reforms and municipal management practices and policies that affect the sustainability of investments (1 million U.S. dollars equivalent). However, the effects of climate change will threaten the sustainability of these infrastructures. Bujumbura is located in the lowlands of Imbo, especially identified by NAPA as vulnerable sites. This area gets a lot of torrents arising on the Congo - Nile Mumirwa, which are highly watered and steep. Very disastrous situations erosion characterized by landslides and colluvium and alluvium deposits in the lowlands are constantly observed and are likely to be accentuated by the heavy rainfall due to climate change. This type of destructive erosion particularly affects urban areas, particularly the city of Bujumbura. Torrential rains in the years 1937, 1941, 1950, 1960, 1961-1964, 1983, 1986, 1989 and 1991 have caused regular cuts combined roads landslides and huge damage to infrastructure and flooding the population of the city of Bujumbura. During the night of 9 Feb 2014 torrential rains fell for around 10 hours and caused flooding, mudslides and landslides in five communes of Burundi's capital, Bujumbura. As of 12 Feb two more areas, Bujumbura rural province has been affected: 64 people have been reported dead, of which many were children. There is a concern that more people may have been buried. Over 940 homes have been destroyed and nearly 12,500 people are estimated to be homeless.

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regular cuts combined roads landslides and huge damage to infrastructure and flooding the population of the city of Bujumbura. In April 2009, the floodwaters reached the previously unaffected areas, "even moving on a road leading to Bujumbura International Airport.

During the night of 9 Feb 2014 torrential rains fell for around 10 hours and caused flooding, mudslides and landslides in five communes of Burundi's capital, Bujumbura. As of 12 Feb two more areas, Bujumbura rural province has been affected: 64 people have been reported dead, of which many were children. There is a concern that more people may have been buried. Over 940 homes have been destroyed and nearly 12,500 people are estimated to be homeless. Most families have lost everything

These floods affect public and private infrastructures of national economic importance such as the companies BRARUDI, COGERCO, RAFINA SEP, and the Port of Bujumbura at the delta of the Ntahangwa. In the natural region of Mumirwa, where Bujumbura is also located, one can observe the events of climate change manifesting as prolonged drought, heavy rains and flooding, and landslides. The vulnerability of this region is also due to its topography with permanent long and steep slopes as well as the abundance hydrological network of rivers that cross the city of Bujumbura and the Imbo Plain lowlands. Landslides change magnitude in case of increased precipitation, and result in destruction of both public (infrastructures, roads, schools, health centers, etc.) and private (houses, fields of populations, etc.). In case of heavy rain, rainfall increases, and rivers and ravines increase their dynamics. Riverbeds are collapsing and riverbanks are crumbling in many places. Rocks and ground eroded torn along rivers and ravines course as a consequence of lateral and vertical erosion, are deposited in areas of low slope and make stream shallow increasing flooding of lowland in the Plain of Imbo.

Long-term solution and key barriers

Despite the strategies, policies and measures in place, development in Burundi is strongly negatively affected by climate change. As described above, the sources of income for communities, which are mainly based on agriculture and livestock, will be increasingly affected by climate change. The latter will have negative impacts on agro-pastoral productivity, causing difficult socio-economic situations in villages, facilitating the increase of poverty and undermining national development efforts. The country's aspiration as made explicit in Vision 2025 which aims to: (i) influence the negative trends of GDP by pass it 137 USD in 2008 to 720 USD in 2025; (ii) reducing poverty rate by half (estimated at 67% of population today). The cost of climate change impacts could jeopardize the efforts for advancing development and growth as well.

The long-term solution would be to better manage climatic factors contributing to the deterioration of livelihoods of communities by reducing climate risk and preventing disasters. This requires good command of information, the establishment of an early warning system and of an adequate risk management system, the implementation of measures of protection and restoration, as well as policies to ensure communities, means and guidance promoting better resilience. However, the implementation of such measures in a context of economic and social reconstruction and little operational decentralization poses challenges that may limit the development of effective local governance for climate change adaptation. Some of the barriers to overcome have been identified, among which:

Key Barriers to overcome

Barrier #1: Lack of an operational system for community based climate related disaster risk management

A National Platform for Disaster Risk Reduction (DRR) was established in 2007. It is composed of representatives from various ministries and agencies of the United Nations, the Red Cross, and other civil society actors. Regular meetings are organized among members to exchange and share information with partners and to coordinate responses of large disasters within the country. Provincial platforms of DRR are also established to conduct rapid field assessments and support DRR activities. However, the national and local platforms are not fully functioning due to lack of technical and financial resources. For this reason, communities leaving in areas of high risk of extreme weather events are not sufficiently reached in term of prevention and response mechanisms. In addition, the system for collecting, analyzing and disseminating information relating to early warning and

climate risk vulnerability is not yet established at local level. The only existing and functional warning systems are: the “*Système d’Alerte Précoce et de Surveillance de la Sécurité Alimentaire*” (SAPSSA), managed by FAO and the Food Security Monitoring System (FSMS) managed by World Food Programme (WFP). These two systems are more concentrated on food availability and accessibility. Climate related changes and its impacts into livelihoods activities are poorly covered.

Barrier # 2: Weak capacity of national services to generate hydro-meteorological information for a real-time alert to population.

The National Geographic Institute (IGEUBU) is managing the network of weather and hydrological stations. This network used to be dense, and covered all the national territory; but with the socio-political crisis of 1993, it was disrupted and now reduced. From 169 stations before the crisis, the network has now only 20 weather stations still functioning, while hydrological stations passed from 53 to 37. Among the three automatic weather stations at IGEUBU, only one is properly functioning. There is a very limited observation network in rivers affected by frequent floods and the hydro-meteorological Department lack of available and historical data to produce and disseminate reliable information on flood forecasting in the context of management of recurrent floods in the city of Bujumbura and elsewhere.

Data collection remains a crucial problem: data are mainly collected by IGEUBU focal points and stored in an external disk. This methodology seems to be less effective and more expensive. Automatic weather stations with Internet data transmission are required to solve this problem. Flood forecasting should be developed on the basis of a strengthening of the hydrological observation network through automatic hydrological stations connected to a server (at least to cover the project areas) and through training on forecasting analysis and dissemination of information through means appropriate to report flood event.

The Hydrometeorology and Agro-meteorology Departments, which shall provide reliable climate information, are still far from having qualified personnel equipped with necessary tools for analysis, production of information, and dissemination on climate risk. The technical skills of its managers and technicians are not sustained by update and retraining, so they cannot fully exploit even the equipment currently available to them, which would enable them to produce some basic weather information.

Barrier # 3 Limited capacity (technical and financial) to protect local communities and public infrastructures from climate risk and disaster

Despite the magnitude of disasters related to climate events (floods, droughts), local authorities have limited financial resources and means to cope with disasters. This ultimately depends on lack of human resources and of experience on impact of climate change. Local authorities have very limited information on the risks and opportunities associated with climate change and the potential benefits for development activities potentially proceeding from knowledge related to climate change adaptation. Most policy makers and local communities have little capacity to integrate climate change into development programs in key economic sectors and social development strategies in general. Around the Lake Tanganyika, climate risk management is not always integrated into local development and municipalities are still allocating plots of land in the buffer zone frequently affected by floods.

Policies and strategies alone cannot have concrete results if there is no training and awareness raising among policy makers on the actual risk and evolution of climate change, particularly of its impact on the livelihoods of communities. Operational and developing needs of municipalities go far beyond financial resources available. The socio-political crisis experienced over the past decades has significantly increased the level of poverty of Municipalities, which have very low contributive capacity.

A.5. Incremental / Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

Additional Cost Reasoning of the Proposed Project

Without, LDCF support, the capacity of communities, local governments, and national government to respond effectively to climate change risks remains limited due to the non-availability of relevant data and management tools, the lack of local technical expertise, and the low contributions in financial resources. There is insufficient indigenous knowledge on weather forecasting indicators and skills in the future. In addition, climate change risks and climate resilient activities are not considered into the planning and budgeting systems at the local government and community levels.

The challenge is to prepare communities and local decision-makers to adapt. The on-going reconstruction in Burundi presents an opportunity to ensure that climate change related risks are integrated into on-going government-led efforts. Resources from LDCF will strengthen local response to climate disaster risks through the application of relevant disaster management tools and the promotion of adaptation technologies in urban and rural areas to ensure the socio-economic resilience and wellbeing of vulnerable communities. Climate change induced disaster risks will have to be taken into account in capacity- and vulnerability assessments and a new development model is needed now – not just based on emergency activities which save lives but also that on process allowing to boost development. New partnerships will have to be forged, not only with governments, NGOs and UN partners but also with local decision-makers and vulnerable communities, particularly when it comes to early warning.

The Long term Transformative Impact is to improve local communities’ capacities on climate disaster risks preparedness and responses management to ensure long term and sustainable emergency and reconstruction phase in Bugasera, Mumirwa and Imbo Lowlands’ regions. This will be achieved through following mid term catalytic Outcomes:

1. An operational Community Based Early Warning system established capable to engage and reach out target communities for climate change disasters risks prevention and guiding the implementation of adaptation activities ;
2. Communal services, relevant ministry support services and Provincial disaster risks platforms trained to use climate risks management tools for long term planning under climate change variability and projections;
3. Investment on relevant early warning systems and adaptation technologies to protect infrastructures and local livelihoods from climate impacts.

As a result of the consultative process, the project will intervene in following Provinces and Communes (FIG 4)

- **Kirundo:** the municipalities of Bugabira, Busoni affected by the severity of drought and water shortages that impact agricultural production, livestock and timber, as well as deteriorating living conditions of populations, and decrease of water levels of the lakes in the North;
- **Bujumbura Rural:** the municipalities of Isare, Mugongo-Manga, Kanyosha and Nyabiraba present serious soil erosion provoked by runoff from Ntakangwa River. In case of heavy rainfall, large runoffs from the watershed induced flooding in the low areas of Bujumbura City;
- **Makamba,** municipality of Nyanza-Lac highly affected by runoff and flooding of Rwaba river;
- **Bururi,** municipality of Rumonge affected by the runoff of water coming from highlands.

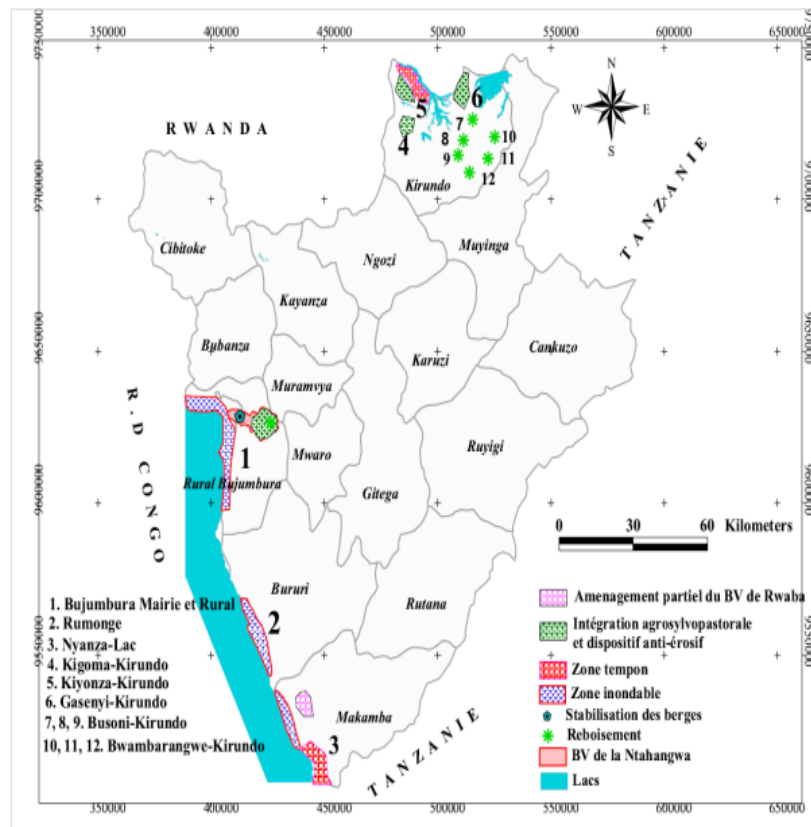


FIG 4: Intervention sites

Project Outputs/Activities

Component 1: Strengthening communities' preparedness in face to climate related disaster risks

In the baseline, Burundi has developed a corps of texts for DRR that encompass laws and plan but very little operational capacity, included equipment, communication infrastructure and know-how, can be observed for the key stakeholders in terms of preparedness, risk prevention and response. While literature mapping risks, planning for contingencies, identifying possible solutions or sketching mitigation plans for Burundi is abundant, very limited are practical mechanisms for early warning, measures for risk reduction and response.

Without LDCF intervention, the overall capacity of existing mandated institutions is very restricted by lack of resources, skilled personnel and equipment, but also hampered from a crucial missing link, which is connection with the broader population. A recent Interagency Evaluation of capacity in Disaster Risk Reduction (DRR)⁸ has been conducted, with very clear-cut judgment on current situation, synthetically re-proposed. Without the involvement of local authorities and communities at risk, government and institutional interventions and responses to hazard events are likely to be inadequate. The active participation of the population in climate risk prevention and management remains a challenge. During the field visits, it has been found much interest and support for a community based early warning. It seems a priority to invest resources to develop this service and capacity.

With LDCF intervention, a community-based early warning system established and operationalized as a platform for climate-related disaster risk reduction and for guiding the implementation of climate change adaptation. The local communities will have a well decentralize, reliable and functioning organizational system for managing

⁸ UNDP BCPR : Rapport D'évaluation Des Capacites Nationales Pour La Reduction Des Risques Au Burundi (July 2013).

climate risk and disaster and coordinate response, not just as receiver but also as stakeholders' part taking in the system. A people centred Early Warning System will be test out as a system capable of involving and reaching communities, putting them in relations to the national level, and also connect it to sensitization activities as well as to infrastructural work to work as a connecting ring between climate changes adaptation measure and DRR interventions. The system will be top down as well as Bottom Up approaches to generate and disseminate climate information effectively. The intervention is oriented at mitigating the low attention to preparedness at local level, and as such it intends to contribute as response to the lack of articulation (and effectiveness) between national and lower levels, highlighted by the Interagency Evaluation of National Capacity for risk reduction in Burundi. It will be based on raising awareness and building capacity of local authorities and the general public on the type of risks lived and experienced by the population itself (by gender and social strata).

The IGEBU information system will be improved by structurally involving the population in the system of data collection, monitoring and alert, whenever possible. As far as the IGEBU systems are concerned, the CB EWS can help reinforce the data collection in the target areas, while also involving and sensitizing population to disaster risks factors. The information system will produce data / primary information to be transmitted up at central (national) level, while also being able to elaborate and disseminate down (even to colline level) weather forecast and information for the public and the interested communities.

The proposed CB EWS is based on existing systems and capacity already developed under the National Platform on Disaster Risks Reduction and management, supported by UNDP-BCPR. The existing data collection systems, particularly hydromet and food security database from IGEBU, WFP FSMS, can provide some elements of an organizational model, together with some technical solutions to replicate and integrate in the CB EWS. Coordination with the existing systems and corresponding organizations can help guaranteeing that information from the CB EWS to be will feed into - and also take from - the other two systems, as relevant, improving chances of better information development and sharing and of coordinated response.

Outputs and Activities

5. According to UNISDR (2009), an early warning system is defined as a set of capabilities to produce and disseminate relevant and timely information and alert of a danger to allow individuals, communities, companies, organizations and institutions threatened to be prepared and act appropriately and effectively in a timely manner to reduce the probability of risk and damages. The Community Based EWS here proposed is a multi-level structure that attempts to respect these principles, in order to convey real time climate information to target communities and individuals to effectively anticipate, respond to, and recover from, the impacts of climate changes (drought and flood).
6. The system will be established in priority areas defined during the preparatory phase. This consist of:
 - Province of Kirundo, affected by the severity of drought and water shortages. The intervention will be focused on Bugabira and Busoni Communes and will target at least 12 collines;
 - Province of Bujumbura Rural, the Communes along the Ntakangwa River affected by landslides and flooding during heavy rains. Target communes will be Nyabiraba, Kanyosha, Isale, Gatunguru and Mugongo Manga (total 24 collines targeted);
 - Province of Makamba. Nyanza Lac commune, surrounding the Lake Tanganyika, will host the community-based early warning system.

Four major outputs will contribute to attaining this outcome. They consist of:

Output 1.1: Set up the functional structure of the Community Based Early Warning System on climate change related risks in Bujumbura Rural, Kirundo and Makamba Provinces.

The structure will support the production of primary data from that level to be transferred up to national level, while also being capable of disseminating on large population at colline level information and alerts proceeding from advanced data analysis and meteorological forecasts. Following activities will be undertaken:

Activity 1.1.1. During the project inception phase, a *Participatory Situational Analysis* will be undertaken to ensure successful outcome of the mapping, analysis and effectiveness of the early warning system. This will be done through: (i) the capacity assessment to identify existing capacities in the community on which the early warning system and existing coping (warning) mechanism can be built; (ii) the institution and stakeholder analysis where target communities will identify the organizations and institutions which can support for and be a part of early warning systems; and (iii) the analyze of the organizational, technical, and financial sustainability of the system to set up in place. The Participatory analysis will help also to identify existing communication and dissemination systems and the mechanism and medium for communication and dissemination based on the information and level of risk.

Activity 1.1.2. *Establishment of CB EWS focal points at colline, communal, provincial and national level*

- *At Colline level*, the appointment of focal points (two or three persons per hill) will be done through meetings held with associations and local communities during the phase of participatory analysis (Activity 1.1.1.). The people identified, together with the Chef de colline, will constitute the Colline Committee. Coordination will be developed with IGEBU and Burundi Red Cross to include their focal points for better coherence of intervention, specifically when collecting hydro met data. Half of the focal points coordinators established in the target areas shall be women;
- *at Commune and Province levels*, the establishment of CB EWS focal points will based on existing DRR platforms: (i) Provincial platforms of Kirundo, Bujumbura Rural and Makamba; (ii) Communal platforms of Busoni, Bugabira and Kanyosha. Ongoing discussions with UNDP BCPR project and the National Platform are held to establish in priority communal platforms in other project target sites. In each platform at least two people will be identified as focal points.
- *At the National Platform*, two people will be identified as liaison members with local elements of the CB EWS. They shall be equipped with the same type of phone that provincial coordinators will have. They are responsible for regularly accessing the central database, monitor data quality (according to the SOP be established), and to prepare reports from bottom up data for the Committee of the National Platform on data from bottom to top, as well as monitoring reports on the interaction among focal points and coordinators.

The potential responsibilities of the EWS FPs are presented in below. It will be refined during the project inception phase after the Participatory Situational Analysis.

Table 3: Responsibilities of the CB EWS FPs

Colline level	Commune level
<ul style="list-style-type: none"> - Measure and communicate through sms (feeding an automatic system) the value of waterfall (in newly established pluviometric station) or height of water, in those selected collines and in sites along the river (Ntahangwa, Kanyosha, Muha, in Bujumbura area) or lake (in province of Kirundo) where pluviometric and hydrologic station will be set up; - Monitor other indicators (or signs) as will be defined in the participated design phase - Facilitate collective identification and alert on emerging 	<ul style="list-style-type: none"> - Organize in collaboration with project staff training and retraining for the focal points. - Monitor the focal points - Assist focal points when asked for conveying appropriate messages - Bring to the DRR Committee request for urgent assistance and in agreement with the rest of the Committee organize the response - Guarantee harmonization of indicators

<ul style="list-style-type: none"> risks (early signs of appearance of ravines, etc.) - Rapid identification and communication to the Communal committee for DRR of extent and type of needs in the aftermath of a destructive climate event – or of other disasters - Communicate results of sensitization process at the communal committee for DRR by participating in the planned mtgs - Sensitize population on how severe climate aleas – excessive rain, drought – can have a stronger impact and be related to deforestation - Organize community hearing sessions of project radio programme - Sensitize on the importance of land management measures to prevent soil erosion, and to explain the risk caused by wrong interventions (deforestation, uncontrolled fire, path opened perpendicularly to the hillside with no containing interventions, etc.) 	<ul style="list-style-type: none"> used at colline level - Transmit to <i>colline</i> level information concerning response plans - Organize regular meetings with focal points (at least twice a year) and maintain good communications - Provide to the digital system and to Provincial and Central level of the Platform for DRR additional information, included pictures and exact locations, in case of a sensitive change on some key indicators (level of water, incipit of new erosions, etc.) - Guarantee timely communication of emerging issues or difficulties in the system to the Project Staff.
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Activity 1.1.3. Equip focal points. The focal points will operate on a volunteer basis and will be equipped with: - mobile phones with credit for phone calls and text messages (SMS); - solar powered radio (or at least powered by rechargeable batteries, and a charger fitted to be connected to the solar panel to be installed at the school of the municipality); - boots (1 pair per each focal point) and office equipment; - 1 megaphone by hill. Sustainability concern shall not remove the incentives and considered here, which are needed as basic equipment to start a system, and which also impose requirements in terms of time and commitment of its volunteer members.

Activity 1.1.4. Trainings for CB-EWS focal points and the members of the National Platform, provincial and municipal will be organized to enable them to become familiar with CB EWS, understanding indicators and functioning of the CB EWS, its information transmission systems (including SMS updates bottom up and top down) and understanding SOPs of the CB EWS and learning to use it. In addition, they will be engaged to identify; (i) the type of response to natural disasters that can be provided or improved with existing resources (ii) the actions and measures to improve coordination of mitigation and adaptation interventions through existing measures, projects and active partners (iii) the gaps and plan for future interventions to reduce risk, strengthen preparedness and improve responses. Following steps are planned: (i) assessment of training needs; development of the training materials; organization of at least 2 training a year; and monitoring and evaluation of trainings.

Output 1.2: Upgrading the hydro meteorological network and improving capacity to generate real-time information weather and data series for information dissemination to target communities:

Insufficient hydro meteorological forecasting as well as response capacity is a urgent problem addressed in this project. The development of a Community Base Early Warning System (CBEWS) to reinforce the hydro meteorological observation network is a very important part to complete. The process will take time, and for this reasons it shall begin in the early implementation steps. Beside generating bottom up information through primary data collection, the CB EWS shall also be used –from its initial steps- to disseminate top down reliable and place specific weather forecast on a weekly basis (or more frequently as needed) initiated in the initial phase of the project to disseminate simple and reliable weather forecasts to population. Following activities are planned:

Activity 1.2.1. Need assessment: A joint assessment team with representatives from the, EWS taskforce at colline levels, project staff and government staff (members of the Platforms and IGEBU) will assess the stations to determine whether they can provide relevant information for an early warning system. The assessment team will identify the relationship between the observer stations and downstream communities. The team will look into quantity and quality of the monitoring devices, human resources available, need for capacity building, and possibilities for communication, additional equipment and necessary maintenance.

Activity 1.2.2. Upgrading the existing hydro meteorological network

Although this project financed under LDCF cannot rehabilitate the entire data collection network of IGEBU, many stations will be added through the set up of CBEWS: many new or to-be-restored rainfall and water level measuring stations will become operational as they will be entrusted to CBEWS local focal points. The recorded data will be transmitted daily via SMS by a group of focal points living near the stations. To strengthen the technical capacity of the IGEBU, the following equipment will be purchased and actions implemented:

- ✓ At least two new differential GPS (with training for intended responsible users in IGEBU staff);
 - ✓ At least three automatic hydrological stations (with ADCP server) rivers Ntahangwa, Muha and Kanyosha, for automating recording of water level, and 2 limnimetric scales for Cohoha lake;
 - ✓ Installation of 1 synoptic station, 9 automatic meteorological stations with servers in line with WMO standards in target provinces, municipalities (Bujumbura Mairie, Bugabira, Busoni, Kirundo province rural, Isale, Mugongo-Manga, Kanyosha, Nyabiraba, Nyanza-Lac and Rumonge), and of 200 rain gauges in target collines (5 gauges/colline);
 - ✓ At least 3 new computers (and proper training for the intended users among IGEBU staff).

This list will be updated and refined taking in account recommendations from the need assessment (Activity 1.2.1) and the EWS focal point will select the most feasible location for the monitoring water level and rainfall devices with external technical advice.

Activity 1.2.3. Trainings for the collection, processing and analysis of data and of messages top down

While installing monitoring devices, it will be important to ensure that people operating the system have relevant knowledge and skills required for the collection, processing and analysis of data and of messages top down. Main target audience for the capacity building should be IGEBU staffs, gauge/rainfall observers, CB EWS focal points. Suggested content for capacity building is:

- a. A series of courses will be organized for the IGEBU staff to develop and produce accurate meteorological and hydrological forecasts, and also to develop capacity and methodology to analyze, test and improve information from CB EWS. This include:
 - ✓ An advanced remote sensing and satellite image interpretation for 8 people for a period of at least two months possibly spread over the four years of project training;
 - ✓ An advanced training on meteorological and hydrological analysis, with scholarships for 2 or 3 IGEBU staff (keep quota male/female even, and at least one male/female on 3 posts), in regional institutions like the African School of Meteorology and Civil Aviation in Niamey or at IMTR Nairobi Hydrology.
 - ✓ Advance training on: (i) how to conduct regular maintenance and integration of database (ii) how to add new indicators coded and to be updated with coded SMS strings, (iii) how to create report with preformatted quest, (iv) how to write and run query functions, also extracting the data by geographic parameters.
- b. The CB-EWS focal points will be trained and regularly re-trained. The content of sessions will include:
 - ✓ Measure and communicate through sms (feeding an automatic system) the value of waterfall (in newly established pluviometric station) or height of water, in those selected collines and in sites along the river (Nahangwa in Bujumbura area) or lake (in Bugasera province) where pluviometric and hydrologic station will be set up;
 - ✓ Identification and alert on emerging risks (early signs of appearance of ravines, etc.) and monitoring other indicators (or signs) as will be defined in the participated design phase
 - ✓ Communicating results of sensitization process at the communal committee for DRR by participating in the planned meetings
 - ✓ Introduction to climate risk and to vulnerability in a gender sensitive way to better sensitizing target communities on (i) how severe climate aleas – excessive rain, drought – can have a stronger impact and be related to deforestation, addressing with proper communication also young people (ii) the importance of land management measures to prevent soil erosion, and to explain the risk caused by wrong interventions (deforestation, uncontrolled fire, path opened perpendicularly to the hillside with no

- containing interventions, etc.)
- ✓ Organize community hearing sessions of project radio programme
 - The CB EWS focal points shall also be prepared for transferring information in the aftermath of disasters. Training shall be developed, the automatic system prepared, and SOPs defined to guide the CB EWS focal point to transfer basic but key information for response:
 - Number of people injured and in need of evacuation
 - Number of people dead
 - Type of losses observed
 - Situation of crops

Output 1.3: Set up an effective and efficient communication and dissemination system to reach all end users

This step will focus on transferring the information gathered during observation and monitoring of hazard to target communities on risks. A reliable and well-organized dissemination system will be in place for on time information dissemination. It is therefore essential to develop and agree on a flow of information that needs to be well understood by all stakeholders. The communication and dissemination system should offer alternative methods in case of failures of one or more communication channels. Communication between the different level of CBEWS will operate in both directions: - bottom up, from hill level (colline) up towards the municipal level and then towards the central level; - top down, from the central or municipal to the hill level. Besides voice communication, an automated system will be implemented (in collaboration with telecommunications providers), who will read and store coded message strings bringing update values on the different indicators. The following activities are planned:

Activity 1.3.1: Develop the functional database to analyze and produce relevant information and linked to existing information systems (FAO, WFP, IGEBU)

The data to be collected through the CB EWS will be handled by software interfacing with a central database established at IGEBU. The software to be developed could be preferentially open source, and among requirements needs to include the capacity to:

- ✓ Handle and recognize the telephone numbers of the CB EWS focal point and allow those numbers to input data in database through SMS
- ✓ Predefine a list of choices for the users to be able to categorize the information they need to send (i.e.: rainfall data: ID of rainfall station; level of water at a given time (date and hour); or geological data: new ravine just opened) or to be able to send free text messages in case the information is new and uncategorized yet
- ✓ Properly store the data obtained by SMS in different categories/tables with clear connection with the ID and geographical location (colline of residence) of the focal point who has sent the info
- ✓ Re-send immediately to key members of the organization within the system (i.e.: communal coordinator, national coordinator, project coordinator, etc.) the critical SMSs which are classed with alert code (i.e.: #111# could mean: “we need immediate assistance for evacuation”, or #112# “we need assistance for shelter/food”; or #112:85# number of households in immediate need of shelter or food in a given colline). Those messages will precede bottom up from the CB EWS focal points and need an immediate response. A document with Standard Operating Procedures (SOPs) will define what are the possibilities that can be handled and answered.

The database will be designed in a way to maximize compatibility with the already existing database supporting the WFP FSMS system, so that data from both sources could be periodically merged and cumulatively analyzed. The database system will include data set, containing indicators significantly more on the early warning and emergency side than the ones inscribed in the FSMS, and will allow to trigger targeted response on short time lag. While messages classed as highest alert can reach key resource persons in real time, regular reports shall be produced on a weekly basis and response action called within a maximum of ten days. To facilitate the preparation of weekly reports, the structure of a news report with minimum content will be identified, and the basic queries prepared and developed on the database itself to be used (and possibly

customized) in a user friendly fashion, so to enlarge the basis of the IGEBU staff who potentially can – if authorized - operate on it.

Activity 1.3.2. Develop Standard Operating Procedures (SOPs)

Resources will be allocated for the development of SOPs for correct, consistent and durable functioning of the CBEWS. The SOPs will specify time intervals of data collection and transmission. The preparation of SOPs will be participative, involving *colline* Focal Points and other members of the Municipal Committee, as well as the National and Provincial Disaster Risk Reduction platform, the IGEBU and the humanitarian and development agencies (Red Cross, WFP, FAO, UNDP, international NGOs, etc.). Under this framework, a set of indicators will be developed as a key moment in the work of awareness rising that the project also entails. The indicators will be easy to monitor but also capable to inform on the factors influencing different risk to which not only different communities, depending on land use and level of land degradation, but even different type of people (for sex, age, social class as well as for house location, mobility patterns and livelihoods) are exposed. The work on indicators will start in parallel to the gender sensitive risk analysis (Outcome 2) and will be as participative and inclusive as possible.

Activity 1.3.3: Information transfer and dissemination system

Communication and dissemination of messages will be conducted according to the SOP and depending on the type of information and the urgency. Different communication and dissemination systems can be applied to communicate information from gauge station to CB-EWS focal points, and stakeholders; and to disseminate the information to all the members of the community. Options for communication flows from bottom up and top down are proposed under the EWS rapports (PPG Report 2).

Messages and alerts will be communicated:

- Either through the automated path, through a software handling mobile text messages coded in categories of indicators and users (closed string messages)
- Or relying on direct person-to-person communication, via voice or text message, between member of the same level or of different level of the CBEWS.

Moreover, an existing public building will be identified, in each target *colline*, as a basis for the activities of the CB EWS, where also storing equipment for focal points. An agreement with the Ministry of Education will be developed to use primary school at hill level, given the level of funding required for the construction of structures ex novo, and difficulties in many areas to find a common / federal land readily available. Schools exist on every *colline*, and the buildings are relatively solid. The school will be available for the CB EWS focal points to organize outreach activities including public sessions. Minimum equipment will be installed in schools to facilitate the organization of SAP (photovoltaic panel, external board with few key indicators to be update in writing) activities.

During the Project inception phase, these options and propositions will be refined according to the recommendations from the participatory assessment (Activity 1.1.1) that identify the mechanism and medium for communication and dissemination based on the information and level of risk.

Component 2: Resilience and response capacity of local communities strenghtened

This second component will provide relevant information and skills to local government decision makers and community leaders for defining their adaptation priorities and planning necessary budget for their implementation. The results provide a solid foundation for the identification of practical strategies to facilitate community-based adaptation to climate change.

Without LDCF support, local institutions do not yet have enough technical capacity (included on the equipment side) that would allow mapping, measuring, and monitoring and timely communicating the risks associated with climate change. This gap is also visible at the level of governmental institutions involved in the Platform for disaster risk management platform and IGEBU limiting their ability to respond to rapid assessment when disaster strikes.

With the LDCF funding will also help to strengthen the skills of national technical experts committed to supporting decentralization thorough understanding of risk associated with climate change, the ability to analyze it in gender sensitive ways, and how to use knowledge on risk in in planning.

A gender sensitive climate risk assessment is needed and shall be conducted in a participatory fashion and with significant attention to gender analysis in the first step of the implementation of the CB EWS. This preparatory phase is needed to ground the actions in in-depth local knowledge, beyond illusion of gender-neutral description, and to set up and root at community level the whole project. A gendered analysis of risk shall be conducted with the use of participatory tools as well as with existing risk assessment frameworks to mainstream gender in climate disaster preparedness are an absolute necessity.

Without GEF intervention, the communities will not access to relevant information on climate changes and it's impacts, adaptation opportunities and will not have the capacity to participate in the integration process of climate change aspects into development planning. In Burundi there is one national radio (RTN) which has nation wide coverage, plus several private radios, some of them thematic (as the CCIB with information relevant for commercial activities and investments) others, as RPA (which has national coverage), treating same variety of themes but considered less oriented and monitored by government. Community radios do not exist, and in the rural areas people mostly listen to national radio, also by the use of radio receiver on mobile phone. None of them has meteorological services information. IGEBU could not disseminate Meteo info through them since airing messages and communication requires a budget that IGEBU does not have. The creation of a specific radio emissions dedicated to environment has been proposed as a key action to be a component of the early warning system but also the main instrument to carry on a cost effective information and training initiative at different level, from the institutional one down to communities in collines.

Three major outputs will contribute to attaining this outcome. They consist of:

Output 2.1: Gender and climate vulnerability assessment to guide the development of a local climate change response

Vulnerability and adaptation assessments are a critical first step in developing the climate change profile at Provincial and Communal levels. The integration of gender sensitive climate risk management in Municipal Development Plans and financing for adaptation need to have first an analysis of the impact that climate change is having and will have on the country and its activities. The results provide a solid foundation for the identification of practical strategies to facilitate community-based adaptation to climate change.

Activity 2.1.1: Climate changes and vulnerability assessment for target Provinces and municipalities

This activity will provide a framework for analyzing vulnerability and capacity to adapt to climate change at the community level. By combining local knowledge with scientific data, the process builds people's understanding about climate risks and adaptation strategies. The main steps concern:

- ✓ **Step 1:** General organization of vulnerability diagnostics: This step aims to prepare diagnostic for defining the scope of actions (geographical and sector development), resources (consultants, teams and organization) planning interventions, mobilizing stakeholders and budgets. An international consultant will facilitate and organize a series of meetings with public beneficiaries.
- ✓ **Step 2:** Analysis of exposure and sensitivity to climate in the past: identification of exposure (weather conditions that have been suffered in a certain area) and sensitivity (the socio-economic impacts that these hazards have had on the municipality, on infrastructure and on population, according to gender, age, class) to past climatic events (period of ten, twenty or even a hundred years). Three sources of information will be used: (i) data records of climate observation from local weather stations, to provide information on actual local changes on long term weather patterns; (ii) archive documents, including press, municipal and institutional documents, literature; (iii) consultation of collective knowledge for formalizing collective memory and letting different demographic and social profiles of vulnerability emerge: interviews and focus group discussions with different leaders of the communities and with population groups of different sex, age and social level to understand how gender patterns, age and class interplay in defining individual vulnerability to climate change and determine different severity of impact.

- ✓ **Step 3:** Analysis of current and of future sensitivity. This step has the overall goal of understanding climate change scenarios in the future (2030, 2050 or 2100) and estimating the impact, in different geographic areas as well as on different socio-economical profiles. There are three sub-steps: (i) description and selection of scenarios; (ii) Projection of the future sensitivity; (iii) Consultation of collective knowledge;
- ✓ **Step 4:** Hierarchy of levels of vulnerability. The outcome of diagnosis is to identify the levels of vulnerability of public services – in relation to their intended users - and of the different activity sectors of the municipality against a disturbance or shock on elements of the environment and population by a given time;
- ✓ **Step 5:** Identification of adaptation actions: it will be based on (i) Research; (ii) detailed analysis on adaptation paths that take into account the different climate scenarios and the connected impacts on different geographical areas and social groups; (iii) costs-benefits analysis of different adaptation options to control whether these measures are effective and efficient;
- ✓ **Step 6:** Setting up a mechanism for monitoring and evaluation feeding in an adaptive management approach;
- ✓ **Step 7:** Presentation and communication of results to stakeholders and communities.

Activity 2.1.2: Gender sensitive risk analysis

The gender sensitive risk analysis shall be conducted with the involvement of population. The objective is to understand how men and women (but also youth, elderly, disabled people) in the region of intervention of the project experience disaster differently and can differently benefit of preventative measures or of interventions, due to their gendered identities (and also their age and ability) that define in a variety of different ways their primary roles and responsibilities, opportunities, capabilities, access to resources, coping strategies, decision making power in household and community. This understanding, in the form of a document output, will underpin the implementation of all the project to make sure the measures implemented reinforce resilience of the entire population and reduce gender and age gap. The objective is not only to conduct a qualitative analysis, but also to engage the communities in a reflection on the existing risk, on the identification of indicators to monitor the risk, on possible preventative measures, and on the type of response that community itself can either provide or request outside in case of lack of internal resources. The design and conduction of gender sensitive risk assessment component needs to include:

- ✓ Review of relevant documents, national laws and international laws and conventions signed by the Burundi government
- ✓ Gender audit of the institutions to involve in risks analysis and management;
- ✓ Interview with key informants operating at National, Provincial, Communal and *colline* level
- ✓ Organization of focus group discussions inclusive of different groups
- ✓ Participative workshops at *colline* level, providing several meetings in each *colline*, with very robust interactive facilitation, to collectively identify risk and risk determinants, areas at risk, indicators, preventative measure, possible responses, possible actors involved in response.

During conduction of the gender analysis of risk project staff shall all be involved, obtaining hands-on training on gender analysis technique, and getting involved in community sensitization and mobilization.

The completion of the gender sensitive risk analysis shall be followed by a:

- Proper diffusion of results (as a stakeholder workshop with working groups to start suggest possible transformations in the different domain touched upon);
- Solid incorporation in project staff training as well as in all project components design and implementation of the analysis finding (with explanation of methodology and dissemination of reference texts);
- Readjustment of CB EWS initial design to the gender sensitive risk analysis finding to make the CB EWS as well, as any disaster preparedness and disaster response measures, structurally gender-sensitive and gender-inclusive;

- Review of all project components to adjust approach and work plan according to the finding of the analysis;
- Full integration of the gender risk analysis into the climate risk study and vulnerability assessment, and their dissemination.

Output 2.2: Local government decision makers, technical staffs and communities assisted with training on proper use of climate risks tools and sensitisation on climate changes impacts to support the identification of cost-effective adaptation investments options and adjust plans, programmes and projects given new climatic experiences

Activity 2.2.1: Train 50 members of Provincial and Communes councils on climate change planning tools.

Provincial and Communal council members will be trained on the proper use of probabilistic modeling concepts, weather forecasts and predictions, climate change projections and relevant environmental and socio-economic data to adjust urban, watershed, infrastructures management plans, programmes and projects given new climatic conditions. Specific activities include:

- Identifying needs and developing training modules;
- Organizing 3 training sessions, assuring the participation of women;
- Monitoring and evaluation of trainings to assure their usefulness.

Two national consultants with expertise in local planning and climate change will be recruited to facilitate the development of tools and to organize training workshops. They will help develop monitoring and evaluation tools in partnership with local agents in charge of planning within targeted Provinces and Communes.

Activity 2.2.2: Training 150 technicians of decentralized services (agriculture, health, environment and water, livestock, etc.) on integrating climate risk management into socio-economic planning.

Training sessions for about 150 officers (respecting equal quotas for male and female officers) proceeding from Provincial level teams of: the General Directorate of Agricultural Extension, the Agency for Water Management in Rural Area, the Directorate General of the Public Health Department, The Directorate General of Forests and Environment and the Directorate General of Planning and Protection of land. The curriculum will include: (i) in depth information on variety of climate risks; (ii) gender sensitive tools to assess the variety of sectoral socio-economic vulnerability; (iii) management of climate risks and adaptation strategies in different response sector (agriculture, etc.) highlighting gender impacts of different choices. The skills and tools developed during climate risk mapping and vulnerability assessment will be largely used, and integrated as needed (gender sensitive vulnerability assessment, map development from spatial and geo-referenced data, understanding weather information, understanding functioning of alert systems, etc.). Applications will be developed to demonstrate the impact that climate change may have on socio-economic activities, and the variation of impact according to existing gender patterns, and how to consider the potential impact in planning and management. Specific modules on adaptation technologies will also be developed. Specific activities include:

- ✓ Identifying specific training needs and preparation of training materials;
- ✓ The development of a detailed training program on the use of tools for gender sensitive climate risk management in the planning and management of socio-economic activities across provinces;
- ✓ The organization of at least four thematic training ensuring equal participation of men and women;
- ✓ Monitoring and evaluation of training activities, focusing on actual knowledge developed for its application in a proper climate risk responsive and gender sensitive planning and management of socio-economic activities.

Development of tools and mentoring of beneficiaries in the implementation will be conducted by consultants.

Activity 2.2.3. Interventions for government, public officials and administrators

During consultations in Rumonge and also in Bujumbura town both interviews and field visits clarified how some issues related to excess water and damages provoked by water during heavy rains are more dependent on the way infrastructures were designed, implemented and managed than on the intensity of water itself. In

Rumonge, the enormous ravines developed along the road seems to be significantly connected with the lack of proper water canalization, with insufficient length of reinforced channels, which leave water falling and generating waterfalls on fragile soil even inside the town. In Bujumbura town, many areas seem to flood because the water channels are clogged (mostly by plastic and organic waste, also by mud and other debris) and do not evacuate water properly.

A helpful intervention can be organizing three seminars, inviting staff and political representative of relevant ministries, as well as technical services of the different municipalities in the country, and members of the platform:

- Seminar 1 – Lessons learnt in public works. Objective of the seminar is to develop - with the contribution of all participants – shared knowledge of negative impact resulting from public works, especially those conducted without a preliminary evaluation of environmental impact. The case will be presented with photos and possibly recorded interviews of people impacted, and brief technical assessment of the features and causes producing the unintended effects. Output of the seminar will be a compilation of the cases and a checklist of sensitive features in projecting and implementing public works that shall be particularly thought through, monitored, and adjusted as needed.
- Seminar 2 – Maintaining and managing water systems in the fast-growing Capital of Bujumbura. Objective of the seminar is identifying urgent and structural measures to improve the management of water in the town, highlighting the critical points (lack of funds for maintenance, development in areas that are not fit for hosting large number of people, etc.) and suggesting practical governance measures (i.e.: water company paying a percentage to Municipal Technical Services to maintain rain water collectors clean, etc.) to be considered by the legislators. Expected output of the seminar is a list of critical issues accompanied by a list of possible mitigation measures or suggested solutions to the issues highlighted.
- Seminar 3 - Gender, population growth and natural resources under the pressure of climate change. The demographic issues and population growth is a very sensitive ground, and societies with strong patriarchal legacies where gender equality is not achieved (which are still the vast majority at a global level) are particularly at risk of unethical drift of policy solutions. As a contribution to inspire ethical policy measures that are complying with current understanding of human rights and reproductive rights (as for example: increase of girls level of education, not only school attendance but also increase of school retention over years as it is proven to correspond to a reduction in fertility rates), it is important to foreseen in the project a dedicated high level seminar, focused on gender, population growth and natural resources under the pressure of climate change. The seminar will be open to political and administrative decision makers, but also to representative of civil society, and will have as objective the revision of existing policies and initiatives for the promotion of family planning, by keeping in focus a non-discrimination and women empowerment approach that only UN promoted projects and programme can effectively sustain. The workshop will also be an opportunity to disseminate the results of the gender sensitive risk analysis.

Activity 2.2.4: Awareness-raising and targeted messaging on climate change, human interactions with the environment, as well as on extreme hydro meteorological factors.

During consultations, all stakeholders stressed the need to work with the population to develop greater awareness and solid information on human interactions with the environment, including extreme meteorological and hydrological events patterns. Messages received during consultations could have an impact on specific content tailored to different categories of public. Two main activities have been identified to articulate and convey the messages across the project:

- Organization of awareness campaigns: All the work developed at community level shall be seen as intervention to reinforce awareness and understanding of basic environmental dynamics of the population leaving in the target areas. In particular, each phase of the project will bring about participatory work focused on a variety of topics: risk reduction, risk management, and response encompassing: sessions, animation with youth, distribution of materials, common hearing session of radio programmes with debate following, etc. Exchange information will be organized among each

other's, across same communes and among different communes, and will organize visit of groups of population in other collines if good results emerge out of land management interventions.

- **Radio Programmes:** This specific action in the project could aim at creating radio programmes in at least 20 transmissions (but more could be realized if partnership with interested actors – as GIZ - are developed) focused on articulating and disseminating ecology and climate change notions, adaptive and mitigation measures, and also serving as part of the early warning system. The expected results will be a-production radio programmes (with at least 20 issues) in Kirundi conveying:
 - Essential terms, the cause and effect of climate change, particularly in different region of the country
 - Local practical behaviors towards natural environment contribute to worsen or mitigate the effect of climate change (ex: protection of soil vs. extreme exploitation of forests, river borders and soil as construction material; indiscriminate use of wood vs. controlled exploitation of forest together with reforestation or afforestation – which plants – and use of devices as high efficiency stove and solar ovens)
 - Descriptions of type of interventions and infrastructures conducted within the project (reforestation, plantation of appropriate species of plants, conducive to rearing livestock as well, construction of small artificial water reserves and small scale irrigation plant, etc) with interview to local people who have been involved in the development of the project as workers and beneficiaries. This information can be conveyed with transmission developed in situ, with the involvement of population who has been engaged in the realization of the project
 - Explanation of soil conservation techniques and the different interaction with the environment of different species of plants, and why certain plants are not appropriate in drought prone areas (i.e., plantation of palms, which are increasing and being pursued by local rich investors for the high economic revenues that they guaranteed)
 - Explanation and vulgarization of key existing norms as Code de l'eau, establishing clear boundaries and thresholds (i.e. in terms of minimum distance from lakes' or rivers' banks for constructions or agriculture
 - Key early warning messages in accord to the CB EWS established in the project (see CB EWS paragraph)
 - Meteorological information proceeding from a reinforced IGEBU to guide the agriculturalists in taking actions at appropriate moments (if rains are expected, when, intensity).

Output 2.3: Provincial & Municipal development plans and annual budgets reviewed and updated to integrate effective climate risk management to support more climate-smart investments.

Based on skills acquired through trainings conducted as part of Output 2.2, climate information collected as part of Output 2.1, the SPAT, PCDC, Bujumbura City Master Plan, and their annual budgets will be reviewed and updated to include risks and opportunities associated with long-term climate change and to make community investments more resilient. Following activities are planned:

- ✓ ***Activity 2.3.1:*** A preparation phase, consisting of: (i) coordination of decision makers and the service provider team selected to revisit the local planning instrument; and (ii) sharing tools for mainstreaming climate changes issues;
- ✓ ***Activity 2.3.2:*** Updating local development plans and SPAT. The different steps for this phase will include: (i) Development of a plan of priority actions using the results of vulnerability analysis; and (ii) Consensus among key actors.
- ✓ ***Activity 2.3.3:*** Plan adoption and compliance control: developed or revised document will be adopted in accordance with prescribed procedures. The document adopted by the Provincial or Municipal board is subject to the control of conformity according to prescribed procedures
- ✓ ***Activity 2.3.4:*** identify funding mechanisms for adaptation measures and early warning system at the community level.
- ✓ ***Activity 2.3.5:*** Dissemination of revised local development plans and SPAT

Component 3: Effective response to climate risk within a programme of community resilience

Without LDCF intervention, the lowlands of the Imbo and Mumirwa regions will continue to be threatened by the impacts of increased precipitation that result in the amplification of linear erosion along watercourses that are causing destruction and/or damage to many public and private infrastructure located in different districts of Bujumbura. If river bed corrections of the multiple streams and protection works are not carried out, Bujumbura will continue to experience heavy flooding. These events have very negative impacts on the national economy and on people's health because they are the basis of: contraction in agricultural and livestock production, malnutrition of populations, and the contraction of water level in the North Lake. The protection of natural resources in an environment with high density population, appalling level of poverty and problematic governance needs to be conducted while keeping human rights and particularly right to food in focus, and with careful understanding of local vulnerabilities and power patterns.

LDCF funded project will come in additionality to these on-going efforts of resettlement and urbanization by providing necessary investments to protect infrastructures and local livelihoods from climate impacts and build the socio-economic resilience of crisis-affected population. The funded LDCF project seeks to implement measures that could simultaneously reduce risk, enhance ecosystems and vulnerable households through strengthening livelihoods. LDCF resources will complement these efforts during relocation and improvement of urban infrastructures by reducing local causes of climate change through reforestation. While increasing adaptation level by strengthening the collines with the appropriate land management and plant use, and while also keeping the safety of people as a pivot value, it is important that the livelihoods of people are not affected negatively.

Outputs and activities

Three key outputs will contribute to this result:

Output 3.1: Realization of 300 ha of vegetated ditches erosion control in Bugabira, Busoni and Kirundo-rural to protect and preserve communities lands from higher risk of pluvial top soil erosion

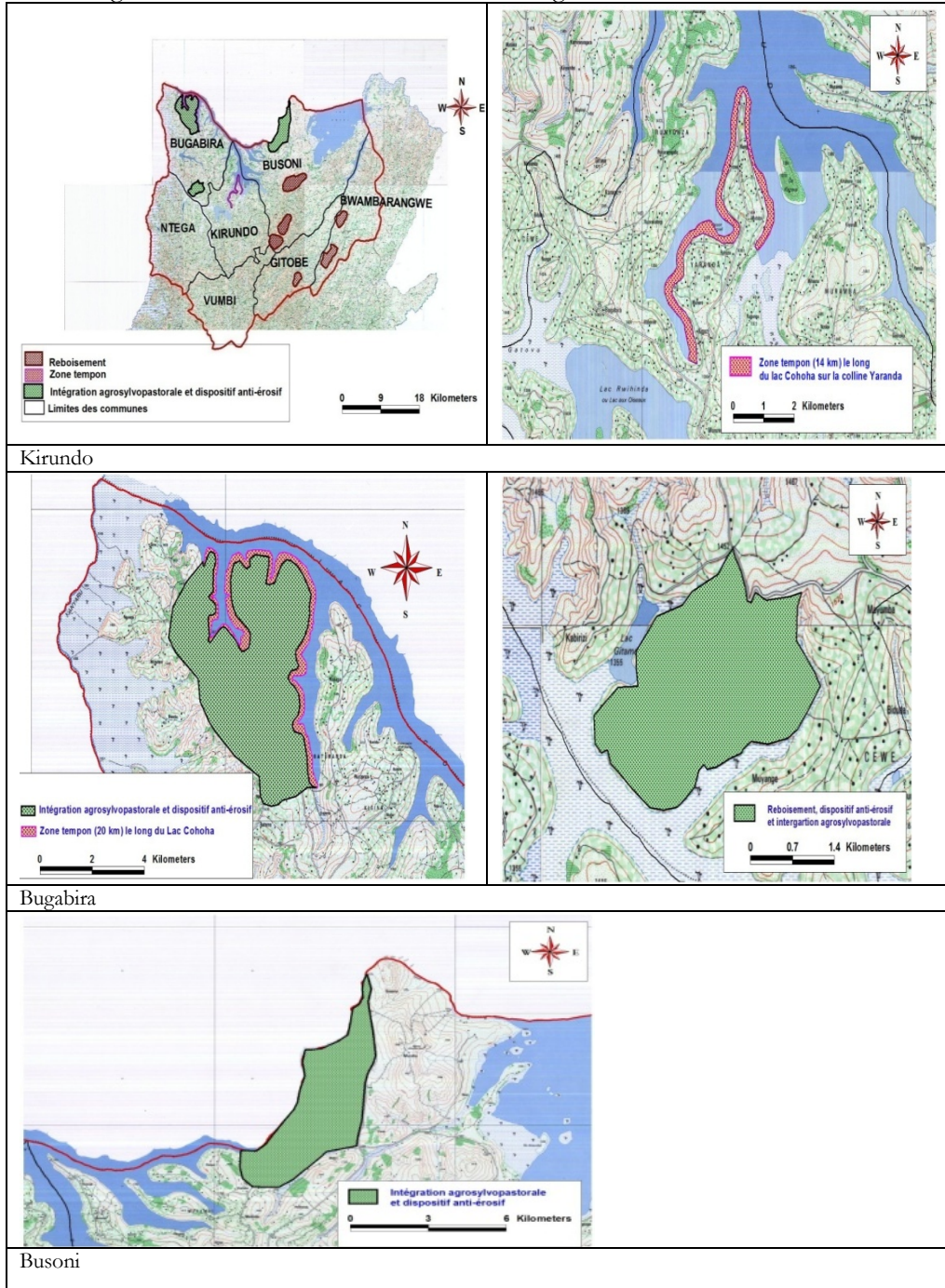
Well maintained vegetated ditches is a technology providing three main advantages: the preservation of soil fertility through prevention – and interruption - of erosion; the possibility of feeding livestock with forage grasses; and the possibility of introducing plant species for agroforestry, or improved banana trees. Following activities in target sites are planned. The implementation of anti-erosion vegetated ditches will enable agroforestry-pastoral integration and protection of Lake Cohoha. The following activities will be performed:

Activity 3.1.1: Production of plant nurseries (i) 3million of agroforestry plants and 3,000 fruit plants to be planted in agricultural plots in the of Communes of Bugabira and Busoni plants, (ii) 500,000 plants fodder shrubs, purchase of 1,250,000 tufts of stabilizing plants to be planted in hedges on slopes and along roads to control erosion, retain water, and reclaim ground by improving its quality and preparing it for re-vegetation. Target communities, specifically women groups, will do the multiplication of plants and the seedling.

Activity 3.1.2: Realization of protection works: Communities, supervised by technical services, will undertake the reforestation of 300 ha in following hills: Kirerama (54ha), Kagirasoni (60 ha), Mukerwa (34ha) Mutarishwa (45ha), Budahunga (50ha) and Nyarukeza (57ha). They will be also realized the digging ditches for erosion control on 500 km in the farm communities of the municipality of Bugabira (Kiyonza and Kigoma areas);

Activity 3.1.3: Facilitate the engagement of communities: at least 2 workshops per year will be organized to sensitize communities on the maintenance of plantations established and on the work for erosion control. The Colline Management Committee (50/50 male/female) will be set up for the maintenance of the system.

FIG 5: Target sites and interventions in Kirundo, Bugabira and Busoni



Output 3.2: Stabilization works undertaken in Ntangwa and Gaseyni Rivers to reduce the risk of flooding landslides in Bujumbura City

From February 9-10, 2014, Burundi experienced heavy rainfall that generated intense runoff in the watersheds, together with landslides and the outburst of a small-unplanned reservoir on the Gaseyni River. The main road RN1 and the populated un-serviced neighborhood of Gatunguru in Kinama, downstream Gaseyni River, were

washed away by a violent flash flood, responsible for the majority of the casualties. After the catastrophe, the agencies and programs of the United Nations (UNDP, UNICEF, WFP, FAO, IOM), the European Union, the African Development Bank and the World Bank have been working closely to support the government in the development of this rapid assessment. Among the priority activities, the joint team identified the protection of infrastructure weakened by the disaster, to prevent further damage or collapse, which is imminent in some cases with erosion due to the rainy season. As medium Crosscutting disaster risks management activities, like sustainable lands and water management are also identified. The Resources from LDCF will support the government of Burundi to realize urgent, medium and long-term activities identified by the assessment. Under the component 1, the financed LDCF project will establish a community early warning system in communes already affected by the disaster (e.g. Isale, Gatunguru). Under the component 3, stabilization works will be undertaken in catchment upstream of Bujumbura (Ntakangwa & Gaseyni Rivers) to protect Bujumbura city against the risk of ravinement, landslide, mudslide, and to gradually reduce runoff.

Activity 3.2.1: Preliminary slope stabilization works in watershed upstream of Bujumbura (Ntakangwa & Gaseyni Rivers)

It will be undertaken:

- The Production of plant nurseries and consequent planting of 800.000 agroforestry plant, and of 3,000 fruit plant in Isale, Mugongo-Manga, Nyabiraba, Kanyosha (Ntakangwa watershed) and Kinama (Gaseyni watershed)
- The production of plant nurseries and the seedlings of 800.000 fodder shrubs; purchase of 1,250,000 tufts of stabilizing plants to be planted in hedges.
- The reforestation of the top of hills on 300ha in the area of haute Mumirwa in the Municipality of Isale, Mugongo-Manga, Nyabiraba, Kanyosha and Kinama.
- Digging erosion control ditches for 800 km according to location and nature of the soil on the farm in the Municipalities above mentioned;
- Organization of workshops to sensitize communities on the maintenance of planted vegetation and erosion control works
- Implementation of the Colline Management Committee for system maintenance.

Activity 3.2.2. Advanced slope stabilization works in Ntakangwa River

It will undertaken:



- The feasibility studies with complementary assessments to finalize the cost-effectiveness and due-diligence with respect to socio-environmental and other standards. Identification of measures will be based on current and future vulnerability using different climate scenarios through the downscaling of available climate data and coupling with matching socio-economic information;
- The construction of 8 gabion small dams and 200m of gabion retaining walls to reinforce banks upstream of the Ntakangwa bridge's
- The construction of 2 reinforced retaining walls under vulnerable public infrastructures and houses;

FIG 7: Planned interventions in Ntakangwa River

- The completion of sloping banks works through the inclination of the slope gradient to 60degree to make them more stable;
- The stabilization works of the Ntakangwa Bridge at Boulevard du 28 November through the construction of assign on reinforced concrete for the reduction of hydropower that erodes the foot of the bridge;
- The redirection of hydraulic flow over 800m.

Output 3.3: Accompanying measures to strengthen the food security of vulnerable households

During the PPG field mission, communities have expressed their needs to develop adaptation measures that could simultaneously reduce risk, enhance ecosystems and target vulnerable households through strengthening livelihoods. This is why a number of accompanying measure have been identified and here proposed, so that environment protection measures and land management interventions do not result in losses of access to natural resources for vulnerable households, nor interested populations are set as passive spectators of interventions developed with top down approach.

Activity 3.3.2: At least 100 households around the lake Cohoha supported to undertake climate resilient IGA

The Lake Cohoha is facing persistent drought by climatic changes resulting from unfriendly human practices—over-cultivation, deforestation and unregulated livestock farming methods. Due to human activities such as farming and grazing, at least 30 meters of Lake Cohoha's shores have been lost so far. The Burundi code on protection of water resources states that: “50 meters from the lake should be a buffer zone, unfarmed or affected by any human activities”. Many families have already been enforced to regress and leave the land closer to the lake (around 50m belt) but had no support for this. In the testimony of some women interviewed, this measure has caused severe food insecurity and increased poverty (due to high prices of food in the area) since the land by the lake was much more productive even in case of insufficient rain and drought. Means and capacities will be provided to women groups to identify and select relevant and profitable alternative livelihoods to reinforce food security considering the loss of access (not of property) to more productive land. Following actions will be undertaken;

- Rapid Assessment of potential opportunities to diversify women incomes during the project inception phase. Also, as the Ministry of Agriculture (Center for Planning and Research) is exploring, consider promoting apiculture as a more sustainable breeding activity to reinforce household food security, also very important to increase plant pollination and fruit production.
- Distribution of goats and poultry with proper sensitization and direction. Consider proposing ranching over free range as the appropriate way to raise the goats in high population density zone, with collection of manure and distribution on field.
- Facilitate the access of climate resilient seeds for horticulture and use of collective pump (or hand or foot operated) every 500 meters to 100 meters from the lake, to maintain the small family garden. This activity will be done in coordination with FAO, that shown its interest in adding funds to install two pilot solar pumps (300m from the lake) and the local irrigation system.
- Tutorial and accompanying extension sustainable agriculture and farming techniques. Training will be organized on the maintenance of irrigation schemes.

Activity 3.3.2: Demonstrating the benefits of water collection from the watershed, in combination with set up of vegetable gardens (for communities leaving in the hills)

These measures must be implemented on the hills where people will show greater participation and good results on the CB EWS and in protection of created infrastructure. On houses with tin roof simple solution for water collection can be applied on a number of about 100 households to start. The sequence shall encompass:

- Sensitization and direct observation of the effects on the ground of un-catched water proceeding from roofs
- Self targeting of households who accept to participate in the initiative (explaining what is required and what will be given)
- Set up of gutters in tin roofs of houses of the participating families
- Distribution and positioning of 100 liter small tanks / container in position for water collection
- Set up of kitchen garden for each household participating in the programme. Identify best design according to average available size (consider option of small vertical terraced tower scheme)
- Distribute climate resilient seeds for horticulture to be used in the kitchen garden and provide direction on watering (min and max per day according to available water and season)

- Consider exploring apiculture as direct enhancement of food security and natural improvement of plant pollination (and fruit production)
- Regular monitoring and tutoring
- When plants begin to bear fruits, organize visit of other collines on the pilot place.

Activity 3.3.3- At least 50 households supported with climate resilient cooking technology to reduce wood consumption

As many intervention of reforestations, according to local authorities, were hampered in their effectiveness due to high level of exploitation of trees, included young plants providing very little biomass for charcoal, rethinking the approach to replanting trees seems needed. On one side, it might be important to opt for indigenous variety, slower in growth, but more appropriate for soil and for climate, and less demanding in terms of water needs than the mainstreamed eucalyptus, commercially valuable and difficult to protect. On the other side, the very level of consumption of wood at least of population living in target areas need to be addressed and reduced with interventions on improving available cooking technologies. The project therefore will envisage:

- Training of women organization to build high efficiency stoves⁹
- Distribution of high efficiency stoves to the very vulnerable or labor constrained families
- Assess the potential for developing briquette from vegetable waste with minimal technology requirement. Environmental and social impacts assessment will be conduct to avoid generating excessive pressure on available biomass, which could be negatively impacting availability of natural fertilizer for soil degraded areas.

A.6. Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

The proposed project indicator framework follows the GEF-5 Adaptation Monitoring and Assessment Tool (AMAT) and is aligned with the UNDP M&E Framework for Adaptation. Objective level indicators and outcome level indicators are specified according to the UNDP nomenclature of Results Based Management (RBM). The project design further foresees the development of more specific M&E tools, especially at the local implementation level. Participatory local level M&E can be a powerful management and communication tool, especially for tracking and demonstrating project results in demonstration sites. It is foreseen that a more detailed M&E project framework will be developed during the project inception phase for national management purposes. An overall project M&E plan has been devised and is included in the respective section of the project document below. It foresees regular progress reports, as well as audits, a mid-term evaluation and an end-of-project evaluation.

Most risks are organizational or strategic in nature, and mainly relate to relatively low current institutional and individual capacities of the public service structure in terms of adaptation. In summary, the following key risks were identified:

- Social conflict
- Political instability
- Insufficient institutional support and political commitment
- Low Institutional/ Execution Capacity
- Duplication and lack of coordination with other initiatives, resulting in inefficient use of resources, and a loss Unavailability of requisite human resources and data
- Duplication and lack of coordination with other initiatives, resulting in inefficient use of resources, and a loss of opportunity for building climate change resilience
- s of opportunity for building climate change resilience
- Lack financial sustainability
- Unavailability of requisite human resources and data
- Sustainability of investment due to low capacity of communities to maintain infrastructures

⁹ Example from a SGEF fund in Ivory coast, as a measure to reduce wood consumption and as income generating for women.

- Potential Environmental and social risks mainly linked to activities
- Impacts of climate change far greater than predicted
- Insufficient institutional support and political commitment
- Target communities in collines do not see the benefit of new practices or social conflicts hinder taking up the practices.

From an environmental and social safeguard point of view, the project is rated as a Category 3a, with small scale, site-specific and manageable environmental and social impacts. No adverse long-term impacts are anticipated. Under Component 1 (Community Based Early Warning system), the project will enhance communities understanding of climate risks to prepare them to cope with the impact of climate disaster risks by facilitating information access and data resources, disseminate project-generated data and information, and foster public awareness about the potential impacts of climate change. Under Component 2, the project expect to have positive impact in the planning process at subnational levels by strengthening national capacities in climate risks management by providing necessary knowledge and tools for development decision-making in the selected Provinces and Communes. National Government technical staffs and subnational decision makers will be provided with appropriate training, policy/legal tools and integrated coordination mechanisms to improve /support policy design and implementation in dealing with current and long-term climate challenges. Under component 3: The net social and environmental effect of the project is expected to be highly positive. By providing better protection against floods in urban and rural areas reduces risk of losing livelihoods and assets, such as housing and crops. The project is also expected to improve the food security status of households, as crops will not be as susceptible to losses due to floods and drought.

The anticipated negative environmental and social impacts of the project would result mainly from civil works associated with (i) the realization of vegetated ditches erosion control and (ii) the stabilization works undertaken in Ntahangwa and Gaseyni Rivers to reduce the risk of flooding landslides in Bujumbura City. The Government undertakes an Environmental and Social Management Framework (ESMF) that will provide guidance and measures with clear roles and responsibilities, a long with capacity strengthening measures for effective implementation and monitoring. The document will provide key steps for screening all project components, outlines procedures for preparing, reviewing, clearing, disclosing and monitoring subproject-specific Environmental and Social Impact Assessments (ESIAs)/Environmental and Social Management Plan (ESMPs). The document will be validated during the LPAC meeting.

Coordination and implementation of the Project’s environmental and social safeguards will be carried out by the PCU, which has recruited an M & E expert to be responsible for overseeing Project compliance with the environmental and social guidelines established under the ESMF. An MOU will be developed with the Burundi Association for Environmental Impact Assessment (ABEIE) for external monitoring and evaluation of safeguards. Finally, UNDP will develop key guidelines to ensure that during overseeing missions, the UNDP GEF RTA will report on the progress of the safeguards.

A.7. Coordination with other relevant GEF financed initiatives

This second LDCF funded project will complement other programmes and projects being implemented in the same region but with different objectives and priorities. The National Steering Committee (NSC), to be chaired by the Minister of Water, Environment and land Management (MEEATU), and composed of representatives of key ministries, Provinces and Municipalities, will ensure coherence between the Project and other UNDP-supported projects in Burundi, as well as with relevant projects and activities funded or implemented by other development partners (included African Development Bank and GIZ). The project will harness results and outputs of these initiatives will use their lessons learned, the tools developed, and will cooperate with the local partners who proved more reliable. It will generate information on cost effectiveness of intervention in each project area.

B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:

B.1 Describe how the stakeholders will be engaged in project implementation.

The success of project intervention requires the active involvement and participation of the different stakeholders. Key stakeholders for the project include (i) ministries, local governments and other public institutions implementing the project and/or benefiting from it, (ii) cooperating partners, NGOs, and Civil Society Organizations (CSOs) involved in direct support, and (iii) communities that are living in the targeted rural areas, including the participation of potentially vulnerable groups such as women. The present Plan was designed based on the series of meetings organized with stakeholders during the project inception, for agreeing on project content and operationalization (situation analysis, priority sites for intervention, priority criteria, management arrangements).

Table 2: Stakeholder Participation Plan

Outputs	Lead institution & role	Stakeholders & roles
1.1. Set up the functional structure of the Community Based Early Warning System on climate change related risks in Bujumbura Rural, Kirundo and Makamba Provinces	Direction of the Civil Protection/National platform on DRR Establish the Community Based Early Warning System	Local committee DRR /community organization groups) in target Provinces & Communes Contribute to the designing and establishment of the structure of the Community Based Early Warning System on climate change related risks
1.2. Upgrading the hydro meteorological network and improving capacity to generate real-time information weather and data series for information dissemination to target communities	IGEBU Assessment of infrastructure and capacity need; Establishment of the hydro meteorological network and running the system	Local committee DRR /community organization groups) in target Provinces & Communes Participate to assessment and capacity need
1.3. Set up an effective and efficient communication and dissemination system to reach all end users	National platform on DRR: participate in the (i) Standard Operating Procedures and (ii) communication and dissemination of messages & IGEBU Develop the functional database to analyze and produce relevant information	Local committee DRR /community organization groups) in target Provinces & Communes: participate in the (i) Standard Operating Procedures and (ii) communication and dissemination of messages Other partners: FAO, WFP, Red Cross: participate in the (i) Standard Operating Procedures
2.1. Gender and climate vulnerability assessment to guide the development of a local climate change response	Local government: General organization of vulnerability diagnostics; IGEBU: develop TOR for the assessment and provide necessary financial and technical support under the project budget	Province and Municipal council staffs, community organization, research centers: – Analysis of exposure and sensitivity to climate in the past; – Analysis of and of future sensitivity – Hierarchy of levels of vulnerability – Identification of adaptation actions – Setting up a mechanism for monitoring and evaluation
2.2. Local government decision makers, technical staffs and communities assisted with training on proper use of climate risks tools and sensitization on climate changes impacts to support the identification of cost-effective adaptation investments options and adjust plans, programmes and	Local government and target Ministries: General organization of the training IGEBU: develop TOR for the training and provide necessary financial and technical support under the project budget; monitoring of trainings	Province and Municipal council staffs, community organizations: Identification of training needs; Beneficiaries of trainings

Outputs	Lead institution & role	Stakeholders & roles
projects given new climatic experiences		
2.3. Provincial & Municipal development plans and annual budgets reviewed and updated to integrate effective climate risk management to support more climate-smart investments	Local government: organization of policy review	Province and Municipal council staffs, community organization: validation of the review policy
3.1. Realization of 300 ha of vegetated ditches erosion control in Bugabira, Busoni and Kirundo-rural to protect and preserve communities lands from higher risk of pluvial top soil erosion (AMAT 3.1.1.2)	Ministries of Water, Environment, Land Management and Urban Development: planning and supervision of works	Local government & community organization: Extension services: technical supports to communities
3.2. Stabilization works undertaken in Ntahangwa and Gaseyni Rivers to reduce the risk of flooding landslides in Bujumbura City	Municipality of Bujumbura Mairie: planning and supervision of works	Local government & community organization: beneficiaries of adaptations activities
3.3. Accompanying measure to strengthen the food security of vulnerable households	Local government: Planning and supervision of activities	Community organization: beneficiaries of adaptations activities Extension services: technical supports to communities

B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCF/SCCF):

The incorporation of climate change risk management principles into urban and rural policy processes is done with the expectation that it will incentivize and lead to the identification of new development priorities, revised strategies, evolution of supportive by-laws, and law enforcement mechanisms, as well as monitoring and evaluation frameworks. Burundi will address important investment gaps in adaptation related technologies focused on floods and erosion by installing biological devices such as herbaceous and shrubby quickset hedges to fix the unstable grounds and the slopes; and popularising anti-erosion physical devices such as ditches, radical terraces and stone alignments. Bujumbura inhabitants will also be supported to undertake work of correction and stabilization on these rivers.

The project will ensure that all key outputs take account of the specific gender related concerns, such as the linkages between women and children and natural disasters and differences in access to key infrastructure between men and women. Specifically, the implementing partner and communities will mainstream gender concerns when designing soft and hard adaptation measure that will be implemented. Gender and the specific role of women in the use and maintenance of village and household level infrastructure, specifically water provisioning infrastructure and measures to mitigate disaster risk, is a critical element that the proposed initiative will promote. Information about climate change and adaptation measures will be designed and disseminated to ensure that women and girls – especially those who are poor or have been denied the right to an education – can easily have access to and absorb the necessary information. During the project formulation phase, a gender expert will systematically analyse and address in all outputs the specific needs of both women and men; and targeted interventions to enable women and men to participate in – and benefit equally from – development efforts.

Gender considerations have been part of the formulation process. In the consultation phase, efforts were done to reach out to individual women and to women's group – as civil society active member, farmers, and institutional leaders – as allowed by the time and budget available. Key issues have been identified in the process, included the need to inform of gender knowledge the DRR tools and mechanisms. For this reason in

Component 2 it is planned to conduct a gender risk analysis (Output 2.2) for better tailoring adaptation intervention, early warning indicators and mechanism, planning policies. Moreover, the outputs and outcomes of the project will contribute to understand how adaptation measures to increase resilience and response mechanisms in emergencies can allow progress towards gender equality. The project aims at implementing adaptation measures in a very participative fashion, through the inclusion of all social groups, included marginalized, to guarantee maximum coverage of impact and structural consideration in planning adaptation intervention and early warning of the most vulnerable (and exposed to the impact of climate change) in the group receiving beneficial effects

B.3. Explain how cost-effectiveness is reflected in the project design:

The Burundi is facing recurrent floods that resulted in substantial damages to infrastructure and economic losses. On February 2014, up to 182 persons have been injured, with 84 of them seriously injured. Over 940 homes have been completely destroyed and nearly 12,500 people are estimated to be homeless. Infrastructures have been destroyed, including roads, power supplies, as well as crops and livelihoods.

The proposed LDCF financed projects will the Government of BURUNDI to overcome key barriers identified as major issues that contributed to the climate disaster. These are: (i) denuded vegetation and land degradation in upstream areas, including watersheds; (ii) People settled close to lake edges or near lowlands and marshes are likely to be flooded; (iii) lack of early warning communication, preparedness and evacuation of affected communities; and (viii) limited capacity of local deciders to protect communities and infrastructures from climate disasters. The development of medium to long-term activities is needed to better cope with the underlying causes of drought, floods and landslides in Burundi. Using techniques such as the mapping of risks, improved early warning systems and urban planning, it is hoped future landslides and floods can be prevented. It also addresses the priorities 1,6 & 10 that have been identified in the NAPA as urgent and immediate adaptation priorities. These priorities have been weighed for cost-effectiveness and sustainability before the proposed project components were selected and elaborated.

The project is designed to strengthen local response to climate disaster risks through the application of relevant climate disaster management tools and the promotion of adaptation technologies in urban and rural areas to ensure the socio-economic resilience and wellbeing of vulnerable communities. The total project cost is estimated at US\$8,75 million over the period of five years. The project area includes the Provinces of Bujumbura Rural, Kirundo, Makamba and Bururi (total: 36 collines).

During the project design, a number of adaption priorities have been assessed through documentation review, consultations at the national, provincial municipal and local levels, and sites visit. After initial consultations conducted as part of the PPG, prioritized pilot adaptation activities identified by stakeholders were the following:

- Continuation of water canalization path with solid materials, including stone cages and cement to prevent further erosion, and water barriers to reduce water speed and prevent debris to flow into the lake, accompanied by regular and intense maintenance and cleaning measures;
- Reinforcing ravines borders and reducing access borders of bamboo;
- Support household or neighborhood based solutions to manage organic waste with controlled areas for goats to roam and pasture on organic fraction of kitchen waste (to avoid bamboo plantation along Ravine borders to be destructed, and for reducing waste in water channels);
- Organize sensitization of effects of households solid waste not properly discharged;
- Explore organizing association/cooperatives for recuperation and sale of plastic to industry;
- Creation of Risk reduction and disaster management committees at lowest possible level, inclusive of at least 50% of women, including members of different ages, economic classes and capabilities (at least 1 physically disabled person). In the work of the committees, include discussions on avoidance of buildings and possibly cultivations in risk areas, with the focus on finding agreed solutions for land tenure of those with essential (not redundant) property in risky areas;
- Consider compensation of those in risky areas with concomitant relocation in anticipatively agreed lots, and exclusion of dangerous areas from available lots;

- Increase IGEBU capacity on weather forecast included wind strengths and patterns;
- Reinforce communication aiming at weekly and then daily exchange with all field civil protection officer of easy to understand weather forecast by zones;
- Consider installation of wind measurement stations in critical points (fisherman main docks, up hills);
- Develop civil protection officers (not only managers) capacity in weather forecasts understanding, and in collecting data for IGEBU from newly established stations.

After careful and in-depth analysis, it has been decided to focus on 3 specific options: (i) the establishment of an operational Community Based Early Warning system (1,817,560 USD); (ii) the training of communal services, relevant ministry support services and Provincial disaster risks platforms on to use climate risks management tools (1,119,720 USD); and (iii) the financial support on relevant early warning systems and adaptation technologies to protect infrastructures and local livelihoods from climate impacts (5,362,720). These options have been selected on the basis of significant direct and indirect economic impacts on the economy of the project areas.

Given the nature of this project, it is difficult to quantify the potential project benefits and estimate the economic rate of return to project investments. First, the project has only a few revenue generating activities that can be used to quantify the benefits. Second, the project has allocated almost 12% of the project cost to strengthen the disaster risk management capacity of local government and civil society organizations and the potential benefits, while very large, are difficult to quantify.

The project has other direct and indirect potential benefits that are briefly summarized below:

- Involving population in the analysis, design and functioning will make the system structurally relevant and more effective in providing relevant and timely information in emergency to the vulnerable ones;
- Based at the community level the system can generate granular highly relevant real time bottom up information, accurate and useful for alerting all those concerned by an event and to activate well targeted response;
- Developed in a gender sensitive way can provide operable information to national and international levels for designing more relevant interventions oriented at strengthening resilience and at filling gender gap in vulnerability;
- The development and functioning of the system requires an investment on community mobilisation that will pay off in terms of improved awareness on good practices (and negative ones) of land management and use vis a vis climate change, and as preparedness to minimize the toll of disastrous events.
- Involvement of communities in monitoring climate and the territory can build the engagement of the populations living on the land for the protection of the natural habitat and resources, including a better and more informed use of forests and of other natural resources;
- Increasing public managers' as well as population's knowledge of dynamics involved in climate change, included deforestation, land use change and water management, can increase good governance (better information for more sustainable decision) while also obtaining an increase of the accountability standard (better informed population can exercise better control on public decision on land management).

The project has allocated almost 12% of the project resources to strengthening technical and institutional capacity in the urban and rural areas. The likely impact of the project on capacity strengthening is summarized as follows: - First, the project interventions will strengthen IGEBU capacity to generate real-time warnings information for vulnerable areas. - Second, technical experts engaged in decentralization process will be provided with skills on climate risks concepts, analysis and use of information for planning purpose. - Third, communities engaged in CB EWS will be harnessed to improve response mechanism; and finally, staff and political representative of relevant ministries, as well as technical services of the different municipalities in the country, and members of the platform will received information on maintaining and managing water systems in the fast-growing under climate variability and changes. The advantages of this approach are manifold, in particular: (i) a good level of knowledge from all categories of staff and local population enables a common understanding of

the problems generated by climate change as well as the adaptation options responding to local needs; and (ii) community involvement in the various activities will ensure buy-in of promoted activities and scaling-up to a broader audience of the promoted measures.

The LDCF financed project intervention's will not only strengthen technical and institutional capacity but will also improve alignment with and implementation of various Government initiatives that deal with DRR, DRM and climate change. These initiatives include (i) National Platform for DRR (ii) National Strategy and plan for Disaster Risk Prevention and Reduction; (iii) National Adaptation Program for Action (NAPA) under the UN Framework Convention on Climate Change (UNFCCC).

The project will have a positive impact on agricultural growth due to several project interventions. With the installation of 300 ha of erosion control and reforestation of 300 ha in hills, it is expected that at least 2,000 ha of agricultural land will be protected from floods and landslide through erosion control in the Bugasera and Mumirwa regions. This would be added to the total irrigable area to enhance food security in the target regions. In term of environmental benefits, the erosion control works will help slow down runoff and consequently curb soil erosion, favor sedimentation of fine particles to increase water retention and improve water infiltration and consequently the refilling of the water table. The combination of woodlots with these works and the planting of binding grass will protect farmlands against erosion and improve their fertility.

The cost effectiveness of the project is demonstrated by using examples of the impact of project investments in protecting infrastructures and local livelihoods from climate impacts (Component 3). The project will help mitigate the impact of future climate disasters and increase Burundi's overall resilience capability. If the project investments in flood protection (Component 3) and disaster risk management (Component 1) are made, as proposed, and properly maintained over a period of 25 years, the project will have substantial economic impact by avoiding the damages and losses due to future floods in the absence of this project. According to the history of the last 50 years, Burundi experiences floods 11 times and the estimated value of the damage and some economic losses due to the flood on January 2014 was US\$ 3 million.

The project interventions will not only improve capacity but will also protect urban infrastructure through river stabilization in order to improve efficient delivery of critical public urban services. As the share of urban population in the country is likely to increase to at least 50% by 2050, the protection of critical public urban facilities/services is absolutely essential. This will have a major impact for improving the quality of life in Bujumbura Rural and Mairie. This will also reduce any interruptions of urban public services due to any future disasters like these floods.

Finally, the project will induce 16,424 temporary jobs (with at least 40% of women) in community erosion control works and infrastructure protection and income generating activities. This situation will lead to an improvement of the socio-economic indicators and a significant reduction of the incidence of poverty. Income-generating activities such as bee keeping, market gardening and fruit growing will contribute to economic growth, and notably to the wellbeing of women and children. This increase in incomes will relieve the poorest populations of the project area who will then be able to bear certain expenditures on food, health and education.

Sustainability

Overall sustainability of the project relies on the full commitment of the Government of Burundi in coordinating and providing guidance on climate changes and disaster risks management.

- The mainstreaming of adaptive measures to address additional risks posed by climate change within the local and regional development strategies of the targets Provinces and Communes (target: 2 SPAT and 3 PCDC) will ensure institutional sustainability. This project will effectively mainstream climate change into relevant planning mechanisms such as the local development plans and budgets, thus ensuring sustainability of the intervention.
- Critical factors for project institutional sustainability will be also addressed through a full collaboration with institutions at national and local levels and adequate M&E procedures carried out by different national agencies. The project will provide support to the entities to strengthen their capacities in line with their role

in the project. The project team will be based in close proximity to the municipalities - within provincial administration services - and a number of civil servants will be identified, equipped and trained at the provincial municipal and collines levels in order to work with the project team and closely monitor project activities and results. Along the same line of ensuring the project's sustainability, a strategy for replicating site-level interventions will be developed.

- The long-term project viability and sustainability will depend greatly on its 'ownership' and on the 'institutionalization' of capacity built by the project. All capacity building activities foreseen in the project have been planned so as to have a lasting impact, both at the local and national levels, e.g. training components will be planned based on needs assessments. At the local level, the project will be associated with local NGOs and community organizations and the private sector, building their capacities and thus ensuring long-term buy-in. Empowering all local-level stakeholders, including the dissemination of timely and meaningful climate & warning information and erosion control techniques to the communities and through a whole range of capacity building activities tailored to their specific needs and defining and implementing an efficient knowledge management and sharing system to efficiently capitalize lessons learned will also contribute to institutional sustainability.
- The beneficiaries will directly take part in early warning system and implementing activities related to erosion control. Such involvement of the populations and their role in the implementation of project activities is likely to guarantee the sustainability of the actions, enhance their capacities to prevent and management climate disaster risks and obtain additional resources. The envisaged training of the population and extension services will build their capacities and will create the conditions for sustainable resilience and local development, by fostering the emergence of community groups capable to act appropriately and in sufficient time to reduce the possibility of harm or loss. The developments, which will be carried out at the request of beneficiaries, will use simple techniques that are adapted and easily grasped by the populations.
- Finally, lessons learned from the implementation of this project will be compiled and diffused to a broad range of stakeholders, using a systemic framework, and the project will make use of the ALM to ensure that the lessons learnt from the project contribute to, and benefit from, experiences in adapting to climate change across the entire LDCF portfolio.

Replicability

The project is designed to scale up effective and efficient community-based adaptation measures and practices. It is designed to ensure a wide adoption and diffusion of these practices. Such an approach will ensure the sustainability and replicability of the results achieved. Furthermore, by organizing exchange visits between farmers from other Prefectures, it is expected that other communities will replicate community-based adaptation initiatives. The **replication mechanism** is embedded in project components.

- Potential for organizational scaling up is developed under the Component 2 in the view that training activities will increase organizational strength of selected extension institutions on climate changes risks management and vulnerability assessment, allowing them to adjust regulations and policies governing development sectors (such as water, infrastructures, environment, etc.) and disaster risks reduction strategies at national and local level (Provincial & local development plans). From the baseline, individual and institutional capacities on climate changes adaptation do not exist. At the end of the project at least 4 ministerial & decentralized institutions, 36 collines DRR committees' representatives (all estimated to be at least 300 people) will increase their capacity on climate risks management and assessment (output 2.1).
- In term of political scaling up, it will be facilitated the integration of climate changes adaptation concerns into the political agenda at Provincial and communes levels and foster local government engagement to adjust local policies and inclusion and the provision of climate smart finance (output 2.2).
- Documenting adaptation practices and technologies constitutes a precondition and point of departure for the process of scaling up and out (quantitative scaling up). Under Output 1.e, project lessons learned will be generating, sharing, capturing, and disseminating among current stakeholders but also future stakeholders who want to promote and implement effective, sustainable, large-scale climate resilient

water infrastructure and management practices. The participatory processes and other collaborative planning approaches to be developed at local level by the project will enable multiple stakeholders to share knowledge, develop awareness, and improve learning and foster replication in other sites. In addition, the skilling communities members in appropriate climate resilient adaptation techniques (Output 2.3) will facilitate further upscale the application of these technologies. Finally, a functional knowledge management documents (adaptation guides on CB EWS, planning, gender, etc.) will be developed under each component to ensure that the outcomes find their way into national development planning and negotiation with investment partners.

C. DESCRIBE THE BUDGETED M & E PLAN:

The project will be monitored through the following M& E activities. The M&E budget is provided in the table below. The M&E framework set out in the Project Results Framework in Part III of this project document is aligned with the AMAT and UNDP M&E frameworks.

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

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

Assist all partners to fully understand and take ownership of the project: detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis-à-vis the project team; discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms; discuss the Terms of Reference for project staff again as needed.

Based on the project results framework and the LDCF related AMAT set out in the Project Results Framework in Section III of this project document; finalize the first annual work plan; review and agree on the indicators, targets and their means of verification; and recheck assumptions and risks.

Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements: agree on and schedule the Monitoring and Evaluation work plan and budget.

Discuss financial reporting procedures, obligations, and arrangements for annual audits.

Plan and schedule PB meetings: clarify the roles and responsibilities of all individuals in the project organisation structure and plan meetings; preferably hold the first PB meeting within the first 12 months following the inception workshop.

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

Quarterly:

Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.

Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP/GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies a classification as critical).

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

Other ATLAS logs will be used to monitor issues and lessons learned. The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

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

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

Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative);

Project outputs delivered per project outcome (annual);
Lessons learned/good practices;
AWP and other expenditure reports;
Risk and adaptive management;
ATLAS QPR.

Periodic Monitoring through site visits: UNDP CO and the UNDP-GEF regionally-based staff will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated to the project team and Project Board members no less than one month after the visit.

Mid-term of project cycle: The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (expected to be in October 2015). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; highlight issues requiring decisions and actions; and present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties of the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Centre (ERC). The LD/FC/SCCF AMAT as set out in the Project Results Framework in Section III of this project document) will also be completed during the mid-term evaluation cycle.

End of Project: An independent Terminal Evaluation will take place three months prior to the final PB meeting and will be undertaken in accordance with UNDP-GEF guidance. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term evaluation, if any such correction took place). The Terminal evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF.

The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response, which should be uploaded to PIMS and to the UNDP ERC.

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

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

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

Audit: Project will be audited in accordance with UNDP Financial Regulations and Rules and applicable audit policies.

Table 3: Project Monitoring and Evaluation

Type of M&E activity	Responsible Parties	Budget USD <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	Project Manager (PIU) Project Director (CNEDD) UNDP CO, UNDP GEF	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. PIU, esp. M&E expert	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	Oversight by Project Manager PIU, esp. M&E expert Implementation teams	To be determined as part of the Annual Work Plan's preparation. Indicative cost is 25,000	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	Project manager (PIU) UNDP CO UNDP RTA UNDP EEG	None	Annually
Periodic status/ progress reports	Project manager and team	None	Quarterly
Mid-term Review	Project manager (PIU) UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost: 30,000	At the mid-point of project implementation.
Terminal Evaluation	Project manager (PIU) UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost : 45,000	At least three months before the end of project implementation
Audit	UNDP CO Project manager (PIU)	Indicative cost per year: 3,000 (12,000 total)	Yearly
Visits to field sites	UNDP CO UNDP RCU (as appropriate) Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly for UNDP CO, as required by UNDP RCU
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		USD 122,000 (+/- 3.2% of total LDCF budget)	


PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this form. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Murengerantiwan Epimaque	GEF Focal Point	MINISTRY OF WATER, ENVIRONMENT AND URBAN PLANNING	APRIL 23, 2012

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Adriana Dinu Executive Coordinator, UNDP/GEF		Oct. 20, 2014	Mame Diop RTS, GLECRDS	+25191939 6499	mame.diop@undp.org

ANNEX A: PROJECT RESULTS FRAMEWORK

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP 2014-2016:

Outcome 2.1.6: The institutional, organisational and technical capacities at national, local and community levels for the management of the environment, natural resources et climate changes adaptation are strengthened

Outcome 2.2.1: The institutional, organisational and technical capacities at national, local and community levels for the prevention, preparation of disasters risks, including natural, are strengthened

Country Programme Outcome Indicators:

Number of mechanisms and tools for the regulation, coordination, management and expertise of the environment and natural resources, climate change and disaster risk revitalized and / or established, and operational.

Number of techniques, technologies and infrastructure for the preservation of the environment and resources, and the resilience to the impacts of climate change and natural disasters

Existence of an integrated and functional information, evaluation and supervision system on Climate change & disasters risks and reduction

Existence of technical tools, technical expertise and appropriate equipment

Existence of a climate risks adaptation program

Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):

3. Promote climate change adaptation

Applicable GEF Strategic Objective and Program:

CCA-1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level

CCA-2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level

CCA-3: Promote transfer and adoption of adaptation technology

Applicable GEF Expected Outcomes:

Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas

Outcome 2.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level

Outcome 3.1: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas

Applicable GEF Outcome Indicators: (following AMAT tool)

Indicator 1.1.1. Adaptation actions implemented in national/sub-regional development frameworks

Indicator 2.3.1. % of targeted population awareness of predicted adverse impacts of climate change and appropriate responses

Indicator 3.1.2. Type of relevant climate change adaptation technology implemented in selected areas by participatory stakeholders

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
<p>Project Objective¹⁰ <i>Provincial, communal services and local communities capacitated on disaster risks preparedness and responses management to ensure long term and sustainable emergency and reconstruction phase in Bugesera, Mumirwa and Imbo Lowlands' regions (equivalent to output in ATLAS)</i></p>	<p>No. and type of actors in Kirundo, Makamba, Bururi and Bujumbura Provinces with increased adaptive capacity to reduce risks of and response to climate variability (AMAT indicator 2.2.1.)</p>	<p>Type and level: 0 The capacity of communities, local governments, and national government to respond effectively to climate change risks remains limited due to the non-availability of relevant data and management tools, the lack of local technical expertise, and the low contributions in financial resources. There is insufficient indigenous knowledge on weather forecasting indicators and skills in the future. In addition, climate change risks and climate resilient activities are not considered into the planning and budgeting systems at the local government and community levels.</p>	<p>At least, 150 technical staffs from extension services, municipalities, 50 members of DRR platforms and 1000 households (with a gender balance) implement adaptive and more resilient measures to climate change impacts</p>	<p>Survey Interviews APRs/PIR</p>	<p><u>Assumptions</u></p> <ul style="list-style-type: none"> ➤ Good coordination and better coherence of disaster risks management ➤ Participation and commitment of target communities <p><u>Risks</u></p> <ul style="list-style-type: none"> ➤ Social conflict ➤ Political instability ➤ Insufficient institutional support and political commitment ➤ Low Institutional/ Execution Capacity ➤ Duplication and lack of coordination with other initiatives, resulting in inefficient use of resources, and a loss of opportunity for building climate change resilience
<p>Outcome 1¹¹ <i>An operational Community Based Early Warning system established capable to engage and reach out target communities for climate change disasters risks prevention and guiding the implementation of adaptation activities. (Equivalent to activity in ATLAS)</i></p>	<p>No. and type of stakeholders targeted in target collines with access to information and alerts proceeding from advanced data analysis and hydro meteorological forecasts (gender disaggregated) (AMAT indicator 2.1.1.)</p>	<p>No. and type: at least 500 households received alert messages from Civil Protection officers and the Burundi branch of the Croix Rouge. Civil protection officers use megaphone to encourage evacuation in case of strong rains and floods.</p> <p>The Burundi branch of the Croix Rouge has developed – at least in the provinces identified as main target of the present project, Bujumbura rural and Bugesera – an impressive structure with high</p>	<p>At least 2000 households in the 36 target collines have access frequently to climate risks information and alerts proceeding from advanced data analysis and hydro meteorological forecasts</p>	<p>Survey Reports; Monitoring reports from DRR platforms IGEBU annual reports APRs/PIR</p>	<p><u>Assumptions</u></p> <ul style="list-style-type: none"> ➤ Existence of an operational Disaster Risks platforms at different levels ; ➤ Participation and commitment of target communities <p><u>Risks</u></p> <ul style="list-style-type: none"> ➤ Unavailability of requisite human resources and data ➤ Duplication and lack of

¹⁰ Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR

¹¹ All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
		capillary presence at hill level (around 150 volunteers each hill) and locally-based consistent response mechanisms to assist the most vulnerable families with food and other basic items.			coordination with other initiatives, resulting in inefficient use of resources, and a loss of opportunity for building climate change resilience
	Type and No. of information systems in place to support community based early warning system in target collines (<i>AMAT indicator 2.1.2</i>)	Type and No.: 2 FAO and WFP, have developed nation wide monitoring systems: the “ <i>Système d’Alerte Précoce et Suivi de Sécurité Alimentaire</i> ” (SAPSSA). But, the FAO’s system is more focused on agricultural production and animal husbandry, while WFP FSMS more on food security and access to food.	At least 10 community based Early Warning systems established to convey down accurate hydro-meteorological previsions messages & climate risks alerts to population		
Outcome 2 <i>Communal services, relevant ministry support services and Provincial disaster risks platforms trained to use climate risks management tools for long term planning under climate change variability and projections (equivalent to activity in ATLAS)</i>	No. and types of staffs trained on adaptation and climate risks management themes and tools (gender disaggregated) (<i>AMAT indicator 2.2.1.1</i>)	No and types: 0 No climate risks tools available to extension services and DRR Platform to support communities on climate disaster risks management Low capacity of staffs from IGEBU to produce real-time information on weather forecasts, climatic and agro-climatic	At least 50 staffs from extension services and 100 members from DRR Platforms trained on climate changes themes including climate risks management, and functioning of CB EWS At least 15 staffs from IGEBU trained on Geographic Information System tools and software, remote sensing and satellite image interpretation, meteorological analysis, climate disaster risks information management	Training evaluation and monitoring Reports; APRs/PIR	<u>Assumption</u> ➤ Commitment of national institutions, local government, civil society, and research institutions; ➤ Effective intersectoral collaboration <u>Risks</u> ➤ Lack financial sustainability ➤ Unavailability of requisite human resources and data
	Number of SPAT & PLDC including specific actions and budget for climate change adaptation (<i>AMAT indicator 1.1.1.1</i>)	Num. 0 Most of local deciders and communities have limited ability to integrate climate change in all relevant sectoral activities and in development strategies in general.	At least 2 SPAT et 3 PCDC are updated to include climate risks and climate change issues (including budget), and to support the implementation of adaptation actions		

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
	% of community groups sensitized on predicted adverse impacts of climate change, risk reduction, risk management, and appropriate adaptation responses (gender disaggregated) (AMAT indicator 2.3.1)	Low (<15%) : the civil protection officers operating megaphones in case of violent weather phenomenon arrives, for requesting households in risky areas (as those along ravines) to evacuate. There is a limited understanding of the risks and opportunities related to climate change and the potential development benefits of climate change related activities	High>75% of targeted population aware of predicted impacts of climate change and appropriate adaptation responses, including at least 50% of women.		
Outcome 3 <i>Investment on relevant early warning systems and adaptation technologies to protect infrastructures and local livelihoods from climate impacts</i> (Equivalent to activity in ATLAS)	Type of relevant climate change adaptation technology implemented in selected areas by participatory stakeholders (AMAT Indicator 3.1.1.2)	The lowlands of the Imbo and Mumirwa regions are threatened by the impacts of increased precipitation that result in the amplification of linear erosion along watercourses that are causing destruction and/or damage to many public and private infrastructure located in different districts of Bujumbura. Most of current investments (e.g. roads, schools, urban drainage systems) are addressing the lack of basic infrastructures in key cities such as Bujumbura, Gitega and Ngozi. Very little and scattered investments are underway in target sites to mitigate erosion impacts.	At most 300 ha of vegetated ditches erosion control in Imbo and Mumirwa and 300ha of reforestation undertaken to stabilize watershed upstream of Bujumbura; And slope stabilization works realized to correct the Ntahangwa riverbed	Survey Reports; Service providers execution reports APRs/PIR	<u>Assumptions</u> <ul style="list-style-type: none"> ➤ Participation and commitment of target communities ➤ Effective intersectoral collaboration <u>Risks</u> <ul style="list-style-type: none"> ➤ Sustainability of investment due to low capacity of communities to maintain infrastructures ➤ Potential Environmental and social risks mainly linked to activities ➤ Impacts of climate change far greater than predicted ➤ Insufficient institutional support and political commitment ➤ Target communities in collines do not see the benefit of new practices or social conflicts hinder taking up the practices
	Number of targeted households that have adopted resilient livelihoods under existing and projected climate change (AMAT indicator 1.3.1.1)	<u>Baseline:</u> At least 25 households are involved in livelihoods activities such as fisheries. Many families have already been enforced to regress and leave the land closer to the lake Cohoha (around 50m belt) much more productive even in case of insufficient rain and drought. However, they had no alternative	<u>Target:</u> At least 100 households, including at least 25% of female headed households, have access to relevant climate resilient livelihood measures (e.g. IGA, water collection and associated vegetable gardens, cooking technology) to strengthen the food security of vulnerable households		

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
		support causing severe food insecurity and increased poverty (due to high prices of food in the area). In addition, communities hamper reforestations activities in their effectiveness due to high level of exploitation of trees.			

ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

<p>10. Does the proposal clearly articulate how the capacities developed, if any, will contribute to the sustainability of project outcomes?</p>	<p>By CEO Endorsement, please present a comprehensive strategy to ensure the sustainability of the investments proposed under Component 2, including adequate institutional capacity building, regulatory measures, and incentive structures.</p>	<p>Overall sustainability of the project relies on the full commitment of the Government of Burundi in coordinating and providing guidance on climate changes and disaster risks management.</p> <p>The mainstreaming of adaptive measures to address additional risks posed by climate change within the local and regional development strategies of the targets Provinces and Communes (target: 2 SPAT and 3 PCDC) will ensure institutional sustainability. This project will effectively mainstream climate change into relevant planning mechanisms such as the local development plans and budgets, thus ensuring sustainability of the intervention. Critical factors for project institutional sustainability will be also addressed through a full collaboration with institutions at national and local levels and adequate M&E procedures carried out by different national agencies. The project will provide support to the entities to strengthen their capacities in line with their role in the project. The project team will be based in close proximity to the municipalities - within provincial administration services - and a number of civil servants will be identified, equipped and trained at the provincial municipal and collines levels in order to work with the project team and closely monitor project activities and results. Along the same line of ensuring the project’s sustainability, a strategy for replicating site-level interventions will be developed.</p> <p>The long-term project viability and sustainability will depend greatly on its ‘ownership’ and on the ‘institutionalization’ of capacity built by the project. All capacity building activities foreseen in the project have been planned so as to have a lasting impact, both at the local and national levels, e.g. training components will be planned based on needs assessments. At the local level, the project will be associated with local NGOs and community organizations and the private sector, building their capacities and thus ensuring long-term buy-in. Empowering all local-level stakeholders, including the dissemination of timely and meaningful climate & warning information and erosion control techniques to the communities and through a whole range of capacity building activities tailored to their specific needs and defining and implementing an efficient knowledge management and sharing system to efficiently capitalize lessons learned will also contribute to institutional sustainability.</p> <p>The beneficiaries will directly take part in early warning system and implementing activities related to erosion control. Such involvement of the populations and their role in the implementation of project activities is likely to guarantee the sustainability of the actions, enhance their capacities to prevent and management climate disaster risks and obtain additional resources. The envisaged training of the population and extension services will build their capacities and will create the conditions for sustainable resilience and local development, by fostering the emergence of community groups capable to act appropriately and in sufficient time to reduce the possibility of harm or loss. The developments, which will be carried out at the request of beneficiaries, will use simple techniques that are adapted and easily grasped by the populations.</p>
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<p>18. Does the project take into account potential major risks, including the consequences of climate change and provides sufficient risk mitigation measures? (i.e., climate resilience)</p>	<p>By CEO Endorsement, please provide a more detailed analysis of the political and financial risks associated with the investments proposed under Component 2.</p>	<p>A complete risk log, including mitigation measures, is annexed to the UNDP Project Document. It describes all risks identified, their type/impact, and identified management measure.</p> <p><u>Political instability</u> The fragility of the peace process both at the domestic and sub regional level constitutes a major risk that could, in general hamper, the proper implementation of and limit project impact. While there has been significant progress in terms of consolidation of the democratic process, internal peace remains fragile. The implementation of the Poverty Reduction and Growth Facility in 2004, in spite of the political context and strong social pressure, constitutes a mark of the determination by the Government to restore the fundamental balances of the economy. The will of the Government to consolidate peace as well as the support envisaged by the international community should make it possible to create the conditions for satisfactory implementation in Burundi. Today The International Community is engaged to support Burundi in the process of internal reconciliation and democratization within all the states of the region to promote a stable, democratic community of nations that will work toward mutual social, economic, and security interests.</p> <p><u>Lack financial sustainability</u> UNDP and the World Bank are working with national and local government to ensure coordination mechanisms on aid, leveraging of financial resources at national and international levels. In addition, the project will develop framework for investment with the revision of local plan to introduce adaptation options and investments. Analysis of the financing of adaptation measures and early warning system will be undertaken as part of the revision of Local Development Plan (Component 2). The outcome will be a financing strategies developed and discussed with the government and development actors involved in the disaster management in Burundi.</p>
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Responses to US Comments

US Comments	UNDP Response at CEO Endorsement submission stage
<p>1. We ask UNDP to provide more information regarding how component 1, “Developing disaster risks preparedness capacities for local development that is robust in the face of climate uncertainty”, and 2, “Effective disaster risk responses for long term and climate resilient emergency and reconstruction programme”, will be integrated. Will component 1 inform actions under component 2</p>	<p>The Component 1 on the Community early warning system and the component 3 on practical adaptation measures for climate disaster risks are complementary The first component will generate and disseminate climate information to target communities for managing climate risk and disaster and coordinate response, not just as receiver but as stakeholders part taking in the system. While the third component will support the appropriate land management and plant use, and while also keeping the safety of people as a pivot value, it is important that the livelihoods of people are not affected negatively.</p>
<p>2. We note the importance of conducting risk assessments for livelihoods and infrastructure. However environmental concerns should also be accounted for, especially given the issues with erosion. As such, we request that UNDP take into consideration risks to the</p>	<p>Under UNDP support, the Government undertake an Environmental and Social Management Framework (ESMF) that will provide guidance and measures with clear roles and responsibilities, a long with capacity strengthening measures for effective implementation and monitoring. The document</p>

US Comments	UNDP Response at CEO Endorsement submission stage
<p>natural environment and ecosystem services (page 11).</p>	<p>will provide key steps for screening all project components, outlines procedures for preparing, reviewing, clearing, disclosing and monitoring subproject-specific Environmental and Social Impact Assessments (ESIAs)/Environmental and Social Management Plan (ESMPs).</p> <p>Coordination and implementation of the Project's environmental and social safeguards will be carried out by the PCU, which has recruited an M & E expert to be responsible for overseeing Project compliance with the environmental and social guidelines established under the ESMF. An MOU will be developed with the Burundi Association for Environmental Impact Assessment (ABEIE) for external monitoring and evaluation of safeguards. Finally, UNDP will develop key guidelines to ensure that during overseeing missions, the UNDP GEF RTA will report on the progress of the safeguards.</p>
<p>3. We understand that comprehensively designing and disseminating information about climate change and adaptation measures is critical to ensure that even the poorest, most isolated populations have access to and absorb the necessary information. We request that UNDP in developing activities in output 1.1 articulate how it will ensure that early warning systems will be people-centered, e.g., will activities include capacity building for communities on what to do when early warnings are received, such as simulation drills?</p>	<p>The component 1 is dedicated to the Community early warning system. The local communities in the 40 target collines will have a well decentralized, reliable and functioning organisational system for managing climate risk and disaster and coordinate response, not just as receiver but also as stakeholders' part taking in the system. A people centred Early Warning System will be test out as a system capable of involving and reaching communities, putting them in relations to the national level, and also connect it to sensitization activities as well as to infrastructural work to work as a connecting ring between climate changes adaptation measure and DRR interventions. The system will be top down as well as Bottom Up approaches to generate and disseminate climate information effectively.</p>
<p>4. With regard to output 2.1, we request that UNDP consider how the infrastructure described in the baseline projects themselves could be made more climate-resilient (for example, could they be built above the flood plain?).</p>	<p>The stabilization works will be undertaken in catchment upstream of Bujumbura (Ntahangwa & Gaseyni Rivers) to protect Bujumbura city against the risk of ravinement, landslide, mudslide, and to gradually reduce runoff. Identification of measures will be based on current and future vulnerability using different climate scenarios through the downscaling of available climate data and coupling with matching socio-economic information</p> <p>The vegetated ditches of vegetated ditches erosion control will allow: the preservation of soil fertility through prevention – and interruption - of erosion; the possibility of feeding livestock with forage grasses; and the possibility of introducing plant species for agroforestry, or improved banana trees</p>
<p>5. We note that under section B.5, the PIF does not include the African Centre for Meteorological Application for Development (ACMAD) and the Global Climate Observing System (GCOS) for the climate data and modelling components. We strongly request that UNDP consider including ACMAD and GCOS, given the nature of the PIF.</p>	<p>An advanced training on meteorological and hydrological analysis, will be organized with scholarships for 2 or 3 IGEBU staff (keep quota male/female even, and at least one male/female on 3 posts), in regional institutions like the African School of Meteorology and Civil Aviation in Niamey or at IMTR Nairobi Hydrology.</p> <p>IGEBU, the Project manager is already working with GEO (Group on Earth Observations), AfriGEOSS and the WMO-Global Framework for Climate Services in to transmit and received regionally and globally information</p>

US Comments	UNDP Response at CEO Endorsement submission stage
	and data enabling forecasting and downscale operations. This capacity will be use for the designing of the Community based early warning system.
6. Given that UNDP country office level operations are supported by regional advisory capacity based in the UNDP/GEF Regional Centre in Pretoria, we recommend that UNDP explain how it could scale-up or mainstream adaptation into regional policy-making apparatuses, in addition to the mentioned national mechanisms.	UNDP will capitalize lessons learned from the project, specifically the component 2 dedicated to the integration of cost-effective adaptation investments and options into local development planning and budgeting instruments, taking into account weather variability and climate change projections. UNDP is running with UNEP the Global NAP Programme to assisting LDCs to mainstream climate change adaptation into medium and long-term national planning processes. The lessons learned from Burundi will be share with the platform created and best practices duplicated.

ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS¹²

A. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:

B. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

PPG Grant Approved at PIF:			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF/NPIF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>
Activity 1: Needs assessment and technical feasibility of adaptation options and measures	40,000	0	12,500
Activity 2: Project Development	7,500	18,595	16,197
Activity 3: Stakeholders Consultation		2,981	10,727
Activity 4: Develop a financial plan and co-funding scheme	22,500		9,000
Total	<u>70,000</u>	<u>21,576</u>	48,424

¹² If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)

Provide a calendar of expected refloWS to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)



**United Nations Development Programme
Country: Republic of Burundi
PROJECT DOCUMENT¹**

Project Title: Community based climate change related disaster risk management

UNDP Strategic Plan 2014-2017

Outcome 1.4: Scaled up action on climate change adaptation and mitigation across sectors which is funded and implemented

Output 1.4.1: Number of countries with systems in place to access, deliver, monitor, report on and verify use of climate finance

Output 1.4.2: Number of countries with comprehensive measures - plans, strategies, policies, programmes and budgets - implemented to achieve low-emission and climate-resilient development objectives.

Output (s) UNDAF 2012-2016

Outcome 2.1.5. New ICT tools for environment management and climate change adaptation are designed, implemented and accessible at all levels

Outcome 2.2.2. The Early Warning System and Emergency Response mechanism to counteract natural catastrophes is improved and equipped with appropriate technology

Country Programme Outcome as defined in CPAP 2014-2016:

Outcome 2.1.6: The institutional, organisational and technical capacities at national, local and community levels for the management of the environment, natural resources et climate changes adaptation are strengthened

Outcome 2.2.1: The institutional, organisational and technical capacities at national, local and community levels for the prevention, preparation of disasters risks, including natural, are strengthened

Executing Agency: IGEBU

Implementing Agency: UNDP

Programme Period:	2014 – 2018	Total resources required:	USD 35,515,000
Atlas Award ID:	TBD	Total allocated resources:	
Project ID:	TBD	Regular (LDCAF)	USD 8,715,000
PIMS:	4922	• Other:	
Start date:	Sept. 2014	Government (in-kind/parallel):	USD 18,500,000
End Date:	Sept. 2018	UNDP (parallel):	USD 7,300,000
Management Arrangements	NIM	UNDP (Trac):	USD 500,000
PAC Meeting Date	Aug. 2014		

¹ For UNDP-supported GEF-funded projects as this includes GEF-specific requirements

Executive Summary

Located in Central Africa, Burundi is a landlocked country extended on an area of 27,834 km². In the 2008 census more than 8,053,574 inhabitants were recorded, the majority living in rural areas, with a population growth rate of 2.4% per year. The National Adaptation Programmes of Action (NAPA) reported that Burundi is subjected to the adverse effects of climate change. Reduction in agricultural production, losses in human lives, increased risks of diseases, loss of biodiversity, etc. are among the consequences following climate induced flooding and landslides in Burundi. Under a weak socio economic context, these climate-induced events have worsened poverty and food security. In recent years, extreme weather conditions have created humanitarian disasters. In 2007, almost 25% of the population of Burundi have been hit by floods and needed assistance. With over 90% of the population depending on agriculture, these extreme climate events have serious consequences for food and livelihood opportunities. Lack of rainfall has also been a contributing factor to the decrease of water in many lakes in Burundi. The country is also affected by devastating floods frequent till nowadays especially after excessive rainfall. In the plains of Imbo, some rivers like Kajeke, Dama, Murembwe, Rwaba cause flooding associated with heavy rainfall in the highlands of the Congo-Nile basin. The challenge is to prepare communities and local decision-makers to adapt. The on-going post-conflict reconstruction in Burundi presents an opportunity to ensure that climate change related risks are integrated into ongoing government-led efforts

In alignment with the National Disaster Risk Management Strategy and the NAPA, and under emergency and reconstruction phase, the proposed financed LDCF project “*Community based climate change related disaster risk management*” will build the capacity of provincial, communal services and local communities on disaster risks management from preparedness to response to ensure a relevant and sustainable emergency and reconstruction phase in Bugesera, Mumirwa and Imbo Lowlands’ regions. Barriers to meeting this objective include: (i) lack of operational systems of disaster risk management to reduce the vulnerability of communities to the impacts of climate change; (ii) weak capacity to generate real-time hydrometeorological information alert and weak weather forecasting capacity to support with reliable information effective preparedness and response to climate change impacts; (iii) limited technical and financial capacity to protect local communities and public infrastructures from climate risk and disaster.

Contributions to overcome these barriers and reduce the level of vulnerabilities to climate change will be achieved through the pursuit of specific outcomes including: (i) monitoring tools including Community Based Early Warning System (CB EWS) are implemented and operational; (ii) adaptation to climate change is incorporated into communal plans for development; (iii) the meteorological information / forecast is produced and broadcast in real time; (iv) the response capacity of communities is strengthened; (v) watershed land management interventions are implemented.

Agreed by (Government):

Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

Date/Month/Year

Agreed by (UNDP):

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ACRONYMS

AfDB	African Development Bank
ALM	Adaptation Learning Mechanism
AMAT	Adaptation Monitoring Assessment Tool
CB EWS	Community Based Early Warning System
CFSVA	Comprehensive Food Security & Vulnerability Analysis
CPAP	Country Programme Action Plan
DRR	Disaster Risk Reduction
DRRM	Disaster Risk Reduction Management
FAO	Food and Agriculture Organisation
FSMS	Food Security Monitoring System
FSP	Full-Seized Project
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GoB	Government of Burundi
IGEBU	Institut Geographique du Burundi
LDCF	Least Developed Countries Fund
MDG	Millenium Development Goal
MEEATU	Ministere de l'Eau, l'Environnement, l' Aménagement du Territoire et de l'Urbanisme
M&E	Monitoring & Evaluation
MoU	Memorandum of Understanding
NAPA	National Action Plan for Adaptation
PRODOC	Project document (UNDP template)
RTA	Regional Technical Advisor

SAPSSA	Système d'Alerte Précoce- Surveillance de la Sécurité Alimentaire
SFPR II	Second Strategic Framework for Poverty Reduction
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
VAM	Vulnerability Analysis and Mapping Unit of WFP
WFP	World Food Programme

I. SITUATION ANALYSIS

I.1. Country background information



FIG 1: Map of Burundi

1. Located in Central Africa, Burundi is a landlocked country extended on an area of 27,834 km². In the 2008 census more than 8,053,574 inhabitants were recorded, the majority living in rural areas, with a population growth rate of 2.4% per year. The country is divided into 17 Provinces: Bubanza, Bujumbura Rural, Bujumbura Mairie, Bururi, Cankuzo, Cibitoke, Gitega, Karuzi, Kayanza, Kirundo, Makamba, Muramvya Muyinga Mwaro, Ngozi, Rutana and Ruyigi; there are overall 129 communes. From West to East, there are 5 different areas in the topography of Burundi: Imbo lowlands corresponding to the Western part of Rift Valley, the region Mumirwa with steep slopes, the mountain area, the central plateaus and the lowland of East and Northeast (Figure 1).

2. Principally based on smallholdings, agriculture is the main sector and accounts for 43% of GDP and employs about 90% of the workforce. Most farmers are women. The main staple crops in Burundi are: beans, cassava, sweet potato,

banana, and sorghum. Cash crops include coffee, tea plant, and cotton. Agricultural exports (mostly coffee, tea, cotton) represent 70-85% of external revenue. Services account for 32% of GDP, with a growth rate of 5.1% in 2010, mainly from the transport and telecommunications sectors (6.9% and 8.8% in 2009 and 2010, respectively). The industrial sector also recorded better growth (5% in 2010, against 3.7% in 2007), mainly from construction, the mining industry and the energy sector. Burundi has considerable mineral deposits, but the exploitation of these resources is hampered by the lack of road, rail and energy infrastructure.

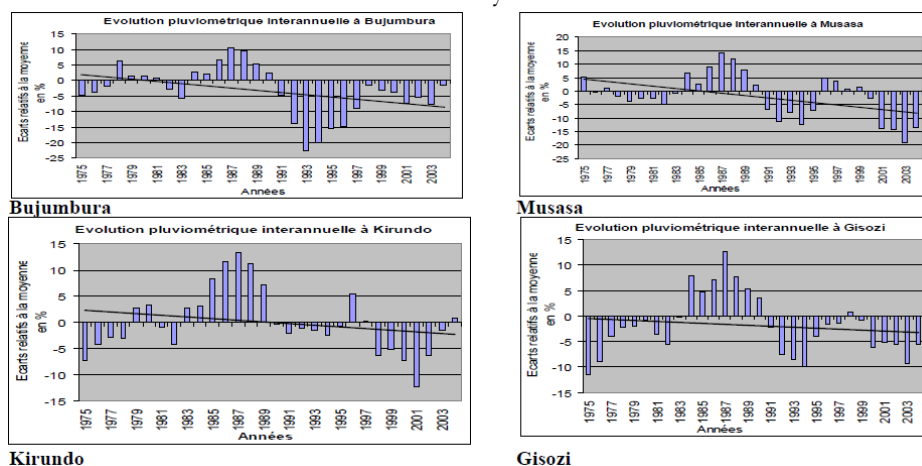
3. Burundi has emerged from an extremely damaging civil war that lasted more than 12 years. From December 2008, steady progress has been made to restore critical institutions and the country is now overseeing the resettlement and reintegration of thousands of returning refugees and about 150,000 internally displaced persons (IDPs) distributed among 160 camps in the country. The proposed project builds on a number of baseline projects implemented by the Government in the context of disaster risks management and to support the reconstruction phase of Burundi.
4. Since 2008 Burundi has embarked on extensive economic and social reforms to stimulate growth and regional integration; resulting in progress - albeit slow - in modernizing its economy and administration. According to the World Bank statistics, Burundi's gross domestic product (GDP) is 4% in 2012, with growth estimated to improve to 4.5 percent in 2014. Political stability and the end of the civil war have allowed more aid flows and economic activity has increased. However, despite these achievements, the country remains fragile, particularly in the security domain. It is characterized by an inadequate infrastructure network, a very low human development index, a general lack of capacity, weak governance and high vulnerability to external shocks. The Burundi remains heavily dependent on aid from external donors.

I.2. Climate change - induced problem

5. According to the NAPA, Burundi is negatively affected by climate change. The analysis of climate data for the past thirty years shows: - significant irregularities in the temporal and spatial distribution of rainfall early and late in the rainy seasons; - high frequency of extreme weather events and increasing frequency

of low rainfall especially in the Bugesera region (Figure 2). Climate models predict extreme weather events in correspondance with an increase in temperature of 1°C and 2°C, combined with alternating 10 years cycle (dry – rainy – dry) from 2010 to 2050. Fluctuations within the same year as we observe them now are expected to continue and even increase. If we consider projection of montly rain, it appears that variability is very high in October and November and from February to April in Bujumbura and Kirundo, when it will affect the high altitude region, Gisozi and Musasa.

FIG 2: Yearly Rainfall



6. Change in climate patterns are felt differently in the different natural regions of the country and had diverse impact on anthropic environment. Drought is more prevalent in the northern provinces, especially Kirundo and Muyinga where the situation has been worsening since 2000. Drought was so intense that the state of national disaster was proclaimed as it counted several deaths and refugees because of starvation. Municipalities severely hit are: Bugabira, Busoni, Bwambarangwe and Gitobe. According to the Early Warning System and Food Security Monitoring in Burundi (SAPSSA) managed by FAO, and to the Burundi Comprehensive Food Security & Vulnerability Analysis (CFSVA) of WFP², and to the Food Security Monitoring System (FSMS) of WFP³, insecurity still exists today in some parts of the country following the rainfall deficits of the growing season A (i.e.: in 2007, between October and January, a person was dying every day of hunger in Kirundo and Muyinga, despite those regions were considered the country breadbasket before the drought).
7. Devastating floods remain frequent nowadays especially after excessive rainfall. In the plains of Imbo, some rivers like Kajeke, Dama, Murembwe, Rwaba cause flooding associated with heavy rainfall in the highlands of the Congo-Nile basin. In January 2010 a flood invaded Bujumbura International Airport and blocked the National Road 5 (Figure 3). The rivers Muha and Kanyosha cause regularly flooding, with growing impacts. Floods worsen riverbanks erosion, and their progressive dramatic effects are visible in the town of Bujumbura, especially along main drainage channels crossing from East to West. The riverbanks are in some point devastated, especially along the urban traits of Ntangwa, Muha and Kanyosha, with impressive damage to private and public infrastructures.
8. Most of the socio-economic activities are already affected by observed climate change impacts:
 - **Agriculture.** The impacts identified on the agricultural sector are the following:
 - A decrease in yield per hectare in both growing seasons A and B on all food crops (except rice) between 1995 and 2001. The most extreme case was the typical wheat whose production has dropped significantly

² VAM (2008) : *CFSVA Burundi*. World Food Programme. (<http://www.wfp.org/content/burundi-comprehensive-food-security-and-vulnerability-analysis-2008>)

³ VAM (2013): *Burundi. Système de suivi de la sécurité alimentaire*. World Food Programme. (<http://www.wfp.org/content/burundi-système-de-suivi-de-la-sécurité-alimentaire-2013>)

from 1995 to 2005. Yields from season B are overall lower than from season A, as rain season has started earlier in April for more than a decade.

- A rapid decline in productivity of plantations can also be ascribed to climate variations.
 - Degradation of soil fertility in Bugesera and in the Imbo plain following the rapid deforestation and the prolonged drought 1998-2004.
 - Genetic erosion of traditional species and varieties of sorghum, beans and potato seeds observed in several locations because of the disappearance of some cultivars.
- **Livestock:** Analyses carried out on pasture in the Bugesera region indicate that, due to reduced rainfall, herders were forced to have transhumance and regroup their animals in areas around rivers. In the areas of Imbo Centre and Kumoso early completion of rainy season at the end of April no longer allows forage crops and natural pastures to reach full maturity. Similarly, extreme drought has killed nearly 35% of the animal population between 1998 and 2005, producing a fodder deficit and widespread food crisis for the livestock.
 - **Public infrastructure and transportation:** In 1983, 1986, 2006 and 2009 Bujumbura experienced severe flooding due to Ntakangwa river overflow. Those floods have caused enormous losses estimated at about 3 billion BFI, among which the destruction of houses which left many homeless in the Buyenzi neighborhoods in 1983, or the deterioration of equipment of the industrial area, included the destruction of stocks of companies with warehouses in the flooded areas (COGERCO, RAFINA, BRARUDI SEP), and the demolition of the port of Bujumbura.

Fig 3: Climate change related events in Burundi



Photo 1: Drought in Kirundo, 2005



Photo 2: Water level of Rwegura basin, 2004



Photo 3: Water level of Rwegura basin, 2004



Photo 4: Bujumbura Airport and national road flooded, 11 January 2010



Photo 5: Land slide on the Nyabagere river, 30 March 2011



Photo 6: Land slide on the Ntakangwa river, 27 September 2013

- **Health:** Increase in average temperatures during the rainy season creates conditions relatively more favorable to the cycle of transmission and survival of vectors of certain diseases, including malaria, meningitis, measles and cardio-respiratory diseases. Floods cause displacement while destroying

infrastructure and reducing the availability of drinking water. The effect of climate change on public health is a direct negative impact.

- **Vulnerable groups:** The impacts of climate change are especially severe on vulnerable groups such as women, youth and the elderly. Women play a very significant role in the country's agro-silvo-pastoral production (97% of the labour force) in Burundi. They take part in farmwork and are responsible for market-gardening production and small-scale livestock activities. As regards to forestry production, they take part, as well as men, in production of seedlings, in planting and maintenance of the crops. Women constitute the segment of the population who suffered the most from the interethnic clashes and the socio-political crisis ensued. Mass exodus of men and young people are a common coping strategy which produces social changes and also results in increase of divorces: women become head of household and the only ones to support the needs of the family. Women are consequently likely to suffer more damages from climate risks and have a lower capacity to adapt. Women and children are also largely responsible for collecting water and wood, and other natural resources for use by the household. In the context of Burundi, where only a small percentage of the population has direct access to drinking water, an additional impact of drought is the increased distance to walk for fetching safe drinking water, which in turn limits time and energy for productive – vs.reproductive - activities.
9. It is anticipated that these impacts will be exacerbated in the near future. Examples of current and possible future impacts and vulnerabilities associated with climate variability and climate change are provided in IPCC WG2 report (2007),⁴ which mentions impacts on crops and possible agricultural GDP losses. The report adds that additional risks that could be exacerbated by climate change include greater erosion and deficiencies in yields from rain-fed agriculture, with small-scale farmers being the most severely affected. These impacts will likely cause, among others: loss of incomes, decrease in the quality of life, population displacement and decrease in agricultural production.

I.3 Long-term solution and barriers to achieving the solution

10. Despite the strategies, policies and measures in place, development in Burundi is strongly negatively affected by climate change. As described above, the sources of income for communities, which are mainly based on agriculture and livestock, will be increasingly affected by climate change. The latter will have negative impacts on agro-pastoral productivity, causing difficult socio-economic situations in villages, facilitating the increase of poverty and undermining national development efforts. The country's aspiration as made explicit in Vision 2025 which aims to: (i) influence the negative trends of GDP by pass it 137 USD in 2008 to 720 USD in 2025; (ii) reducing poverty rate by half (estimated at 67% of population today). The cost of climate change impacts could jeopardize the efforts for advancing development and growth as well.
11. The long-term solution would be to better manage climatic factors contributing to the deterioration of livelihoods of communities by reducing climate risk and preventing disasters. This requires good command of information, the establishment of an early warning system and of an adequate risk management system, the implementation of measures of protection and restoration, as well as policies to ensure communities, means and guidance promoting better resilience. However, the implementation of such measures in a context of economic and social reconstruction and little operational decentralization poses challenges that may limit the development of effective local governance for climate change adaptation. Some of the barriers to overcome have been identified, among which:

Barrier #1: Lack of an operational system for community based climate related disaster risk management

A National Platform for Disaster Risk Reduction (DRR) was established in 2007. It is composed of representatives from various ministries and agencies of the United Nations, the Red Cross, and other civil society actors. Regular meetings are organised among members to exchange and share information with partners and to coordinate responses of large disasters within the country. Provincial platforms of DRR are also established to conduct rapid field assessments and support DRR activities. However, the national and local platforms are not fully functioning due to lack of technical and financial resources. For this reason, communities living in areas of high risk of extreme weather events are not sufficiently reached in terms of prevention and response mechanisms. In addition, the system for collecting, analyzing and disseminating information relating to early warning and climate risk vulnerability is not yet established at local level. The only existing and functional warning systems are: the “*Système d’Alerte Précoce et de Surveillance de la Sécurité Alimentaire*” (SAPSSA), managed by FAO and the Food Security Monitoring System (FSMS) managed by World Food Programme (WFP). These two systems are more concentrated on food availability and accessibility. Climate related changes and its impacts into livelihoods activities are poorly covered.

Barrier # 2: Weak capacity of national services to generate hydro-meteorological information for a real-time alert to population.

The National Geographic Institute (IGEBU) is managing the network of weather and hydrological stations. This network used to be dense, and covered all the national territory; but with the socio-political crisis of 1993, it was disrupted and now reduced. From 169 stations before the crisis, the network has now only 20 weather stations still functioning, while hydrological stations passed from 53 to 37. Among the three automatic weather stations at IGEBU, only one is properly functioning. There is a very limited observation network in rivers affected by frequent floods and the hydro-meteorological Department lack of available and historical data to produce and disseminate reliable information on flood forecasting in the context of management of recurrent floods in the city of Bujumbura and elsewhere.

Data collection remains a crucial problem: data are mainly collected by IGEBU focal points and stored in an external disk. This methodology seems to be less effective and more expensive. Automatic weather stations with Internet data transmission are required to solve this problem. Flood forecasting should be developed on the basis of a strengthening of the hydrological observation network through automatic hydrological stations connected to a server (at least to cover the project areas) and through training on forecasting analysis and dissemination of information through means appropriate to report flood event.

The Hydrometeorology and Agrometeorology Departments, which shall provide reliable climate information, are still far from having qualified personnel equipped with necessary tools for analysis, production of information, and dissemination on climate risk. The technical skills of its managers and technicians are not sustained by update and retraining, so they cannot fully exploit even the equipment currently available to them, which would enable them to produce some basic weather information.

Barrier # 3 Limited capacity (technical and financial) to protect local communities and public infrastructures from climate risk and disaster

Despite the magnitude of disasters related to climate events (floods, droughts), local authorities have limited financial resources and means to cope with disasters. This ultimately depends on lack of human resources and of experience on impact of climate change. Local authorities have very limited information on the risks and opportunities associated with climate change and the potential benefits for development activities potentially proceeding from knowledge related to climate change adaptation. Most policy makers and local communities have little capacity to integrate climate change into development programs in key economic sectors and social development strategies in general. Around the Lake Tanganyika, climate risk management is not always integrated into local development and municipalities are still allocating plots of land in the buffer zone frequently affected by floods.

Policies and strategies alone cannot have concrete results if there is no training and awareness raising among policy makers on the actual risk and evolution of climate change, particularly of its impact on the livelihoods of communities. Operational and developing needs of municipalities go far beyond financial resources available. The socio-political crisis experienced over the past decades has significantly increased the level of poverty of Municipalities, which have very low contributive capacity.

II. PROJECT STRATEGY

II.1. Country ownership: country eligibility and country drivenness

12. As a Least Developed Country (LDC), Burundi is eligible for the [Least Developed Countries Fund \(LDCF\)](#) managed by GEF. Burundi ratified the UNFCCC in 1995 and the Kyoto Protocol in 2004. The country has elaborated a National Adaptation Plan of Action (NAPA), which was submitted to UNFCCC in July 2006. Burundi is therefore eligible for the support of LDCF to implement its NAP. The proposed project constitutes a response to urgent and immediate adaptation needs. It is designed to address the additional costs of priority adaptation measures identified in the NAPA and it will also create the necessary capacity to continue to do so even after project completion (sustainability). The ratio of LDCF funds to co-financing is consistent with the sliding scale⁵.
13. The project is also in conformity with a variety of other initiatives aimed at furthering the development of Burundi. This LDCF financed project is aligned with Vision 2025 of Burundi, which supports “the search for solutions to climate change and the development of appropriate technology.” Operating within the Second Strategic Framework for Poverty Reduction, Area 1 “Improving governance and security”, the project will allow the improvement of local climate governance by the means of capacity building of key stakeholders and providing tools to manage climate risk (i.e.: early warning system). The project also proposes to promote sustainable and inclusive economic growth, consistently with SFPR II Area 2, through adaptation technology aiming at protection of climate change vulnerable communities. Although probabilities to reach MDG7 for Burundi are quite scarce, the proposed project can contribute to reverse the natural resource degradation trends caused by climate change through erosion control works to preserve land and forest from erosion.
14. The project will contribute to Result 2 of UNDAF (2010-2014): “Local communities, state institutions and civil society organisations take responsibility for socio-economic recovery, and they effectively take part in the process of peace and democracy consolidation”. UNDP will support: analysis of local development plan (output 2.1.1), improvement of participation mechanisms (Output 2.1.4); creating services and capacity for sustainable reintegration (output 2.1.6); mobilization of national and international capacity for supporting recovery (output 2.2.5); local communities are supported to foster entrepreneurship and realize income generation activities; capacity for risk and disaster management and emergency response are reinforced (output 2.3.4).
15. This project is elaborated through a participative process. Key stakeholders and a selection of direct beneficiaries have been involved in priority settings and project design. The National Geographic Institute (IGEBU) has led project formulation. The process of elaboration of the project document is on 6 steps:
 - i. Working sessions within IGEBU, UNDP, and the consultants team allowed to: (1) develop a common understanding of the project; (2) create consensus on information to be covered by each sectorial project (socio-economic, early warning, hydrogeology; climatology and land management) and also on targeting criteria; (3) define calendar for stakeholders consultation.
 - ii. Organisation of a series of meetings with stakeholders for agreeing on project content and operationalization (situation analysis, priority sites for intervention, priority criteria). The Table 1, in

⁵ GEF/LDCF, 2006, Articles 18 and 19

below, identified key institutions and organisations that contributed to the project design. The Consultation Report (PPG Report 1) highlight findings of fields mission. The stakeholders participation plan in ANNEX E identify the key stakeholders and their interests relative to the project and describe how stakeholders will be involved in the implementation of each project outcome.

Table 1: Stakeholders involvement during the preparatory phase

Stakeholder	Specific contribution
Ministries of Water, Environment, Land Management and Urban Development (MEEATU), including IGEBU	Guidelines on the project strategy Coordination of partners (identification of key partners, contact partners, organised meetings) Identification of project sites; Facilitate local meetings Contribute in the Project document (review and inputs); Contribute to the need assessments on climate information, community supports Recruit international & national consultants
Ministry of Agriculture and Environment (MAE, included DPAAE)	Guidelines on the project strategy Participate in consultations meetings Contribute in the Project document (review & and inputs), specifically contributed on the identification and designing of on Accompanying measures , identify capacity needs to support communities based on Adaptation measures
SETEMU (Public municipal services),	Guidelines on the project strategy (specifically works in Bujumbura) Participate in consultations meetings Contribute in the Project document (review & and inputs)- Specifically, Contributions in identifying hydraulic works to be undertaken in Bujumbura; identify capacity needs to support actions in Bujumbura
Administrators and counselors of Municipalities of Rumonge, Nyanza Lac, Isare (Bujumbura Rural), Busoni (Kirundo),	Guidelines on the project strategy Facilitate and participate in local consultations meetings Contribute in the Project document (review & and inputs)- Specifically , community based early warning systems and accompanying measures
Governor and counselors of the Province of Kirundo	Guidelines on the project strategy Facilitate and participate in local consultations meetings Contribute in the Project document (review & and inputs)- Specifically, community based early warning systems and accompanying measures
Representatives of fisherman's organisations, women's groups in Kirundo and Nyanza Lac and other population groups (youth in Isare, women in Bugasera)	Participate in local consultations meetings Contribute the Project strategy, specifically, community based early warning systems and accompanying measures
International partners (UNHabitat, WFP, FAO, UN Peacebuilding Fund, Red Cross (HQ coordinator and field volunteers), GIZ	Guidelines on the project strategy Identification coordination mechanisms with existing initiatives

- iii. Organisation of a public consultation with all institutional stakeholders for validating different options proposed in the design stage (places of intervention, adaptation schemes, etc.). The consultation was held in Bujumbura on the 23 September 2013, and had good response in participation, as local institutions, local elected, municipal and ministerial technical sectors as well as national decision

- makers and UN partners were present. Key results of the field assessment were presented and validated. Extreme weather patterns related to climate change produce different impacts in different zones, as summarized in Table 2.
- iv. The project strategy, the logical framework, the budget and institutional machinery have been presented and validated during a full day national workshop, held in Bujumbura in March 2014.
 - v. To conclude, the draft project document was finalized and validated by UNDP on April 2014.

Table 2: Climate impacts in target Provinces/ Commune identified during stakeholders consultation meetings

	Bujumbura rural	Bujumbura ville	Rumonge	Nyanza Lac	Kirundo
<i>Land slides and gully erosion</i>	X	X	X		
<i>Destruction of made houses</i>	X	X	X	X	
<i>Destruction of masons/ beton houses</i>	X	X			X
<i>Crop failures/ destruction</i>	X				X
<i>Seeds loss</i>	X				X
<i>Floods on agricultural fields</i>			X		
<i>Stagnating water in fields</i>			X	X	
<i>Floods in urban areas</i>		X	X		
<i>Water level reduction</i>					X
<i>Increase in bushfires</i>	X			X	X
<i>Termites</i>				X	X
<i>Increase in plant diseases</i>	X		X		

II.2. Project rationale and policy conformity

16. The Government of Burundi demanded the support of the LDCF to prepare a Full-Seized Project (FSP) responsive to priority 1, 6 and 10 of the NAPA.
 - **Priority#1: Strengthening Weather Forecast Capacity.** This is since its very inception phase a Country led initiative. The project provides a road map for setting up and running a community based early warning system, and capacity building intervention to develop staff knowledge and technical equipment for obtaining a reliable national weather forecast service.
 - **Priority #6: Protection of the buffer zone around lake Tanganika and Bugasera.** The proposed project intends develop local capacity for managing climate related risks in the flooding area around Tanganika Lake, particularly in the surrounding of Bujumbura, Rumonge and Nyanza Lac. The resources from LDCF will be used to set, disseminate and train on relevant standard for the management of vital natural resources, keeping into consideration variation of water level in relation to precipitation patterns.
 - **Priority #10: Protection of riparian buffer zone along rivers and stabilization of stream banks in Mirwa and Imbo.** The objective is to protect landscape and public and private infrastructure built along the drainage axis in Mirwa and low land of Imbo. The areas are particularly vulnerable to the erosion during heavy rains. Consistently with LDCF priorities, appropriate technology will be used for managing climate related risks impacting on infrastructures and vulnerable lands.
17. The project will contribute to the implementation of the National Strategy for Disaster Risk Reduction and Management (DRRM) and its action plan. Efforts will be made especially following areas:
 - ✓ *Encourage decision makers and other stakeholders to consider the DRRM as a national priority for community resilience:* The project will provide to target municipalities the relevant tools for climate risk

management (including vulnerability maps, options for adaptation) easing the introduction of the climate change considerations into the local development plans.

- ✓ *Identify, assess and monitor disaster risks and enhance early warning system:* in the target municipalities the project will evaluate the vulnerability and risks associated with climate change trends (2050/2100) and with IGEBU participation it will put in place necessary surveillance systems.
- ✓ *Use knowledge, innovation and education to build a culture of risk:* awareness sessions on climate change and its risks, including in the schools, will be held in the 7 target municipalities.
- ✓ *Reducing underlying factors:* investments will be made to reduce the risks related to land erosion and flooding in the target areas (excavations of trenches for erosion-control, stream banks reinforcement, river management, etc.);
- ✓ *Strengthen disaster preparedness for effective emergency response at all levels:* in the target areas the project will improve the existing coordination and response mechanisms in relation to climate change related risk reduction and disaster management (network of focal points for data collection, dissemination of information, production of e-mail alerts, strengthening of rainfall and hydrological monitoring system);

18. This project is coherent with the guidelines defined by the LDCF. It is developed along the lines of the « *Programming Paper for Funding the Implementation of NAPAs under the LDC Trust Fund* »⁶ and its formulation has followed the guidelines of UNDP/GEF « *Adaptation Policy Framework for Climate Change* ». ⁷ The project is consistent with LDCF criteria, notably: (1) follow a country led participative approach; (2) operationalize NAPA priority; (3) support hands-on approach (learning by doing); (4) adopt a multidisciplinary approach; (5) promote gender equity; (6) follow complementarity. More specifically:

- *Follow a country led participative approach:* Project design was informed by a series of consultations with different actors. National stakeholders were consulted in Bujumbura; Interviews and consultations with prospective beneficiaries and provincial and municipal authorities have been held in several areas by the consulting team accompanied by IGEBU. Field visits have permitted to analyse different type and level of vulnerability to climate change, depending on geographical position and on socio-economic factors, to define priorities and local adaptation strategies while identifying institutional arrangements. Field visits report in Annex E provides an overview of key points proceeding from meetings. These key points and a provisional project strategy were presented to a large number of stakeholders during a national workshop in March 2014 in Bujumbura. Observations and suggestions shared during the workshop have been integrated in the PRODOC.
- *Support hands-on approach:* this project provides local activities to realize a community based early warning and climate monitoring systems, demarcation of lakeside buffer zones, stabilization of Ntakangwa riverbanks and land management intervention on sites identified as vulnerables. Measures to strengthen resilience will be adapted to local needs expressed by the communities. Cost-benefits analysis will be realized in the frame of the M&E activities, and will inform good practices on strategic issues included land use.
- *Promote gender equity:* gender considerations have been part of the formulation process. In the consultation phase, efforts were done to reach out to individual women and to women's group – as civil society active member, farmers, and institutional leaders – as allowed by the time and budget available. Key issues have been identified in the process, included the need to inform of gender knowledge the DRR tools and mechanisms. For this reason in Component 2 it is planned to conduct a gender risk analysis (Output 2.2) for better tailoring adaptation intervention, early warning indicators and mechanism, planning policies. Moreover, the outputs and outcomes of the project will contribute to understand how adaptation measures to increase resilience and response mechanisms in emergencies can allow progress towards gender equality. The project aims at implementing adaptation measures in a very participative fashion, through the inclusion of all social groups, included marginalized, to guarantee maximum coverage of impact and structural consideration in

⁶ GEF/LDCF, 2006

⁷ UNDP/GEF 2005

planning adaptation intervention and early warning of the most vulnerables (and exposed to the impact of climate change) in the group receiving beneficial effects

- *Follow a complementary approach:* This initiative will complement other programmes and projects being implemented in the same region but with different objectives and priorities. The National Steering Committee (NSC), to be chaired by the Minister of Water, Environment and Land Management (MEEATU), and composed of representatives of key ministries, Provinces and Municipalities, will ensure coherence between the Project and other UNDP-supported projects in Burundi, as well as with relevant projects and activities funded or implemented by other development partners (included African Development Bank and GIZ). The project will harness results and outputs of these initiatives will use their lessons learned, the tools developed, and will cooperate with the local partners who proved more reliable. It will generate information on cost effectiveness of intervention in each project area.

19. The project was designed to be compliant with general GEF requirements for formulation and operationalization. The following criteria have been considered and incorporated:

- ✓ *Sustainability:* The project was designed to have sustainable impact at both community and national level (see also below the sustainability section). The overall project sustainability is ensured through a strong GoB ownership and commitment to a successful implementation of this project. The institutional sustainability is expected to remain high: capacity will be strengthened to promote transparency, coordination, efficiency, partnerships, and to develop community involvement. The technical sustainability for this project is expected to be high as best practices and technologies that will be used in the project have been successfully tested and used by UNDP.
- ✓ *Monitoring and Evaluation (M&E):* Project implementation will include an effective M&E plan (see below M&E section). Lessons learned will be developed as the project is being implemented and will then be shared to become a reference and a learning opportunity for other similar initiatives.
- ✓ *Replication:* The project has a demonstrative character, as it focuses on setting up tailored integrated interventions in the communes of Bugabira, Nyanza Lac, Rumonge, Municipality of Bujumbura, Isare, Kirundo rurale, Busoni. This will facilitate the replication of the project in other parts of the same municipalities and in other parts of the country with similar characteristics.
- ✓ *Involvement of actors:* The project will facilitate coordination and participation of different stakeholders, included those involved in environment management and development planning. Annex E presents the stakeholders' analysis and their involvement in implementation of the project.

20. This project supports national development goals and plans to achieve Millennium Development Goals (MDGs) 1, 3 and 7.

- *MDG 1: Eradicate extreme poverty and hunger* – at least 100 households will be supported to develop climate resilient livelihoods activities to reduce risk, enhance ecosystems and target vulnerable households. Useful climate information such as seasonal forecasts will be provided to more than 10,000 people located in 36 *collines* to support poor communities threatened by climate and prone to disaster to be prepared and act appropriately and effectively in a timely manner, reducing risk and disaster impact. Seasonal forecasts can enable the rural population to take adaptive farming measures to protect productivity;
- *MDG 3: Promote gender equality and empower women* – Community based early warning systems and relevant associated training will be tailored to end-user needs, in particular the needs of women who have little access to climate information. Women's group and association will become partners in the implementation of climate resilient adaptation and awareness activities. As highlighted in section II.2, the project aims at implementing adaptation measures in a very participative fashion, through the inclusion of all social groups, also the marginalised, to guarantee maximum coverage of impact and structural consideration of the most vulnerables (and exposed to the impact of climate change) in planning adaptation interventions and early warning in the areas receiving beneficial effects.

- *MDG 7: Ensure environmental sustainability* – The foundation of this project is to ensure environmental sustainability by integrating climate and disaster risk management into local policies, planning and decision-making. This approach can assist in the sustainable use of natural resources through good land- and watershed-management practices.

II.3. The design principles and strategic considerations

Ongoing relevant national initiatives

21. The project is built on a number of initiatives undertaken by the Government of Burundi and its partners in the context of food security, disaster risks reduction (included disaster management) and economic recovery.

Government of Burundi: “Village Level based Programme”

This Programme is an emergency response to those affected by decades of crisis and who were left without land. The operationalization of relevant domestic policies through this initiative will help the GoB to manage and respond to the challenge posed by the tension between emergency response and long-term development objectives. The objectives are (i) to provide a permanent source of income, (ii) to create services and necessary businesses to improve agricultural productivity and living conditions of households and (iii) to begin a process of self-development (empowerment) at the village level. The hope is that this programme will gradually help to transform a subsistence economy into one that is more market economy orientated, to diversify sources of household income, thereby reducing the structural causes of poverty. This Programme lays the foundation of long-term community development on which the LDCF project will build the socio-economic resilience of populations affected by the war.

UNDP “Assistance to Burundi internal displaced persons Project”

The overall objective the support to sustainable solutions in the hosting community for the most vulnerable IDPs, so to increase stability, social cohesion and pacific coexistence for peace consolidation and the creation of an environment conducive to development. The targets sites are the Provinces of Kirundo and Muyinga. This baseline project will support the proposed LDCF project by providing a platform for coordinating of efforts at the communal levels and for ensuring effective participation of targets communities. In addition, the baseline project will seek to improve the availability, quality and service/maintenance of critical infrastructure. It will support the reintegration of targeted populations and the reduction of poverty by catalysing productive activities including the promotion of local entrepreneurship.

UNDP/BCPR “Implementation of the Action Plan on Disaster Risk Reduction, Preparedness and Response to Emergencies: Project support to build national capacities”

The main objective of the project is to strengthen national capacity in the field of natural disaster risk prevention, preparedness and response to emergencies. To achieve this, the program focuses on three priority areas: (i) strengthening institutional capacity for disaster risk reduction (ii) establish an integrated disaster risk information system; (iii) enhance the operational capabilities of preparing for and responding to emergencies. LDCF resources will come in additionality at local level by strengthening community preparedness on climate related disaster risks.

UNDP “*The National Reform Programme of Public Administration (PNRA) Project*” seeks to strengthen management capacity of the Government by restoring governance principles in the management of the public services and improving the performance of public service to be more oriented to citizens. In the framework, the project will consider is the reform of the management of human resources, the establishment of pools of competence, the implementation of one-stop administrative formalities at the provincial level and capacity development human in the information Technology and Communication (ICT).

African Development Bank (AfDB) “The watershed management project” (PABV)

The sector goal of the project is to contribute to food security by restoring the soil, which is the productive capital. More specifically, the project aims at protecting the watersheds, increasing forestry and agro-livestock production and increasing rural incomes in the project area, by planting forests (state, community and private), promoting agroforestry in order to improve soil fertility and diversifying production, training and sensitizing the populations, organizing and involving producer groups and associations in activities, as well as building the institutional capacities of the department of forestry. Climate database developed will be used to establish EWS at local level and adaptation experiences shared. Complementary actions on early warning systems will be developed at community level with GEF LDCF support.

GIZ “Climate change adaptation to protect water and soil”

The project has a three-pronged strategy to reduce the vulnerability of the population of Burundi: (i) mainstreaming climate change and adaptation into the political framework. Inter-sectoral user groups as well as public education and training of civil servants, will help improve coordination and efficiency; (ii) implementing specific adaptation measures in particularly vulnerable catchment areas. This part involves public education, training user groups as facilitators, agricultural extension, and set-up of local pilot projects in infrastructure; (iii) supporting the set-up of a country-wide early warning and information system for daily and seasonal weather forecasts and extreme events. This entails improving coordination between IGEBU and PNPRGC, and training both information providers and users in disseminating and using weather and climate information. Existing disaster management infrastructure is either included and improved upon or built from scratch together with local colline authorities (smallest administration unit). GIZ, AfDB and UNDP set up consultation mechanisms under the MAEETU to better coordinate actions on adaptation and foster synergy and complementarity.⁸

National and local benefits

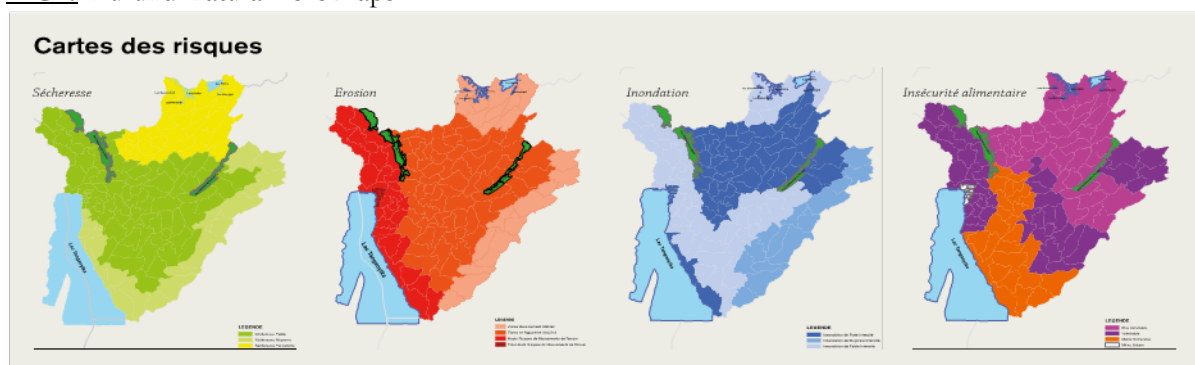
22. The incorporation of climate change risk management principles into urban and rural policy processes is conducted with the expectation that it will incentivize and lead to the identification of new development priorities, revised strategies, evolution of legal framework and of law enforcement mechanisms, as well as monitoring and evaluation frameworks. Burundi will address important investment gaps in adaptation technologies to counter floods and erosion by installing biological devices such as herbaceous and shrubby quickset hedges to fix the unstable grounds and the slopes, and by popularising anti-erosion physical devices such as ditches, radical terraces and stone alignments. Bujumbura inhabitants will also be supported to undertake work of correction and stabilization on riverbanks.
23. The project will ensure that all key outputs take into account specific declination of gender, such as the linkages between gender and vulnerability to natural disasters, as well as differences in access to key technologies between men and women. Specifically, the implementing partner and communities will mainstream gender concerns when designing soft and hard adaptation measure that will be implemented. Awareness of gender patterns and of the specific roles of women in the use and maintenance of village and household level infrastructure, specifically water provisioning infrastructure and measures to reduce disaster risk, is a critical element that the proposed initiative will promote. Information about climate change and adaptation measures will be designed and disseminated to ensure that women and girls – especially those who are poor or have been denied the right to an education – can easily have access to and absorb the necessary information. During the project formulation phase, a gender expert will systematically analyse and address in all outputs the specific needs of both women and men; and targeted interventions to enable women and men to participate in – and benefit equally from – development efforts.

⁸ GIZ (Jan 2013): Rapport de l'atelier d'échange sur les projets « climat » planifiés par la BAD, le PNUD et la GIZ

UNDP comparative advantage

24. Project implementation is conducted with the technical support of UNDP, which has the comparative advantage of being long experienced and with continuity in accompanying the GoB in climate risk and disaster management capacitation. UNDP has supported the formulation of a National Strategy for Disaster Risk Reduction (in French: SNPGRG, 2007) by promoting a participatory process, which has involved several relevant actors, and in alignment with the Hyogo Framework, then the setting up of the National Platform for coordination (provided by the Strategy), as well as the preparation of the National Contingency Plan. UNDP has also supported the elaboration of the PANA, which has been the occasion for an appraisal of country vulnerability to climate change, while also directing the attention towards the most urgent adaptation options. With the support of UNDP/GEF Burundi has completed its second national communication encompassing greenhouse gases (GHGs) emissions inventory, supplementary policy measures for mitigation and adaptation, identification of gaps and hindrances as well as needed financial and technical capacities. In its Country Programme 2014-2016 UNDP will sustain the country in integrating climate change adaptation strategy within development strategies, including through promotion of use of renewable sources of energy, elaboration of tools and mechanisms to prevent land conflict and risks related to natural resources management. All previous history of support of UNDP to GoB is a clear indication of the solid human capacity that the UNDP Country Office will bring in the realization of the proposed project. UNDP's comparative advantage in implementing this project is underpinned by the expected role of UNDP outlined in its Country Programme Documents. During the period 2005-2009, main efforts are developed to support Community recovery in Burundi. UNDP programme on "Rebuilding Community Service (CRS)" assisted communities to improve living conditions and promote their rehabilitation. Labour-intensive Works (HIMO) was engaged for the reconstruction of community infrastructure (rural roads, sanitation, manufacturing of bricks for vulnerable populations and reforestation). A total of 29,148 persons including 12,265 women benefited from the Community Reconstruction Service, which injected into their families a total income of US\$5,106,219. Through the Integrated Operational Plans Reintegration (PEARS), UNDP has supported the planning and coordination of all partners in the resettlement of repatriated refugees in 13 provinces. Priority is also given to the development of a sound environmental management, prevention and management of natural disasters. In 2007, UNDP supported the development of the National Strategy for Prevention and Disaster Risk Management (SNPGRG). It was an active process involving the participation of multi stakeholders having relevant responsibilities on risk and vulnerability. The SNPGRG is linked with priorities developed by the Hyogo Framework for Action. In September 2008, UNDP assisted the Government to build national capacities on prevention and risk management and disaster (PGRC). This project aimed to strengthen the capacity of the Government, civil society and citizens in natural disasters risk management and prevention, with a specific objective on the establishment of a coordination system among all partners. UNDP developed also natural risks maps (FIG 4) in Burundi that served to develop Contingency Plans in vulnerable Provinces (Ngozi, Kayanza, Muyinga and Kirundo).

FIG 4: Burundi natural risks maps



25. UNDP's comparative advantage for the proposed project lies in its long-standing experience working with different government entities to advance adaptation and resilience capacities. In Burundi, UNDP

supported the development of the NAPA, which was an opportunity to better assess the country's vulnerability to climate change and focus on adaptation options. With support from UNDP/GEF, Burundi recently completed its Second National Communication, which includes: a comprehensive inventory on GHG and additional measures and policies to mitigate or adapt and identifies gaps and constraints as well as financial resources and technical capabilities needed. UNDP/GEF supported the elaboration of the National Strategy together with a national Action Plan to respond to the challenge and reduce impact of land degradation in Burundi. It is currently supporting a national investment strategy and a Funding Plan to bust actions against land degradation. Under this framework, Burundi completed in 2011 a comprehensive study on the costs on inertias (= not taking actions) against land degradation, which reveals lack of appropriate measures against land degradation and erosion are costing a total of US\$1,342,354,000/year.

26. Country office level operations are supported by regional advisory capacity based in the UNDP/GEF Regional Centre in Addis Ababa and HQ. UNDP has dedicated Regional Technical Advisers focusing on supporting adaptation programming and implementation in a range of technical areas relevant to this project including disaster management, infrastructure development, and ecosystem based adaptation, capacity development, and local governance reform. Our network of Global Senior Technical Advisors provide additional technical oversight and leadership helping to ensure that programmes on the ground achieve maximum policy impact.

II.4. Project goal, objectives and activities

27. The capacity of communities, local governments, and national government to respond effectively to climate change risks remains limited due to the non-availability of relevant data and management tools, the lack of local technical expertise, and the low contributions in financial resources. There is insufficient indigenous knowledge on weather forecasting indicators and skills in the future. In addition, climate change risks and climate resilient activities are not considered into the planning and budgeting systems at the local government and community levels. The challenge is to prepare communities and local decision-makers to adapt. The on-going reconstruction in Burundi presents an opportunity to ensure that climate change related risks are integrated into ongoing government-led efforts. Resources from LDCF will strengthen local response to climate disaster risks through the application of relevant disaster management tools and the promotion of adaptation technologies in urban and rural areas to ensure the socio-economic resilience and wellbeing of vulnerable communities. Climate change induced disaster risks will have to be taken into account in capacity- and vulnerability assessments and a new development model is needed now – not just based on emergency activities which save lives but also that on process allowing to boost development. New partnerships will have to be forged, not only with governments, NGOs and UN partners but also with local decision-makers and vulnerable communities, particularly when it comes to early warning.
28. The Long term Transformative Impact is to improve local communities capacities on climate disaster risks preparedness and responses management to ensure long term and sustainable emergency and reconstruction phase in Bugesera, Mumirwa and Imbo Lowlands' regions. This will be achieved through following mid terme catalytic Outcomes:
 1. An operational Community Based Early Warning system established capable to engage and reach out target communities for climate change disasters risks prevention and guiding the implementation of adaptation activities;
 2. Communal services, relevant ministry support services and Provincial disaster risks platforms trained to use climate risks management tools for long term planning under climate change variability and projections;
 3. Investment on relevant early warning systems and adaptation technologies to protect infrastructures and local livelihoods from climate impacts.

29. As a result of the consultative process, the project will intervene in following Provinces and Communes (FIG 5):

- **Kirundo:** the municipalities of Bugabira, Busoni affected by the severity of drought and water shortages that impact agricultural production, livestock and timber, as well as deteriorating living conditions of populations, and decrease of water levels of the lakes in the North;
- **Bujumbura Rural:** the municipalities of Isare, Mugongo-Manga, Kanyosha and Nyabiraba present serious soil erosion provoked by runoff from Ntahangwa River. In case of heavy rainfall, large runoffs from the watershed induced flooding in the low areas of Bujumbura City;
- **Makamba,** municipality of Nyanza-Lac highly affected by runoff and flooding of Rwaba river;
- **Bururi,** municipality of Rumonge affected by the runoff of water coming from highlands.

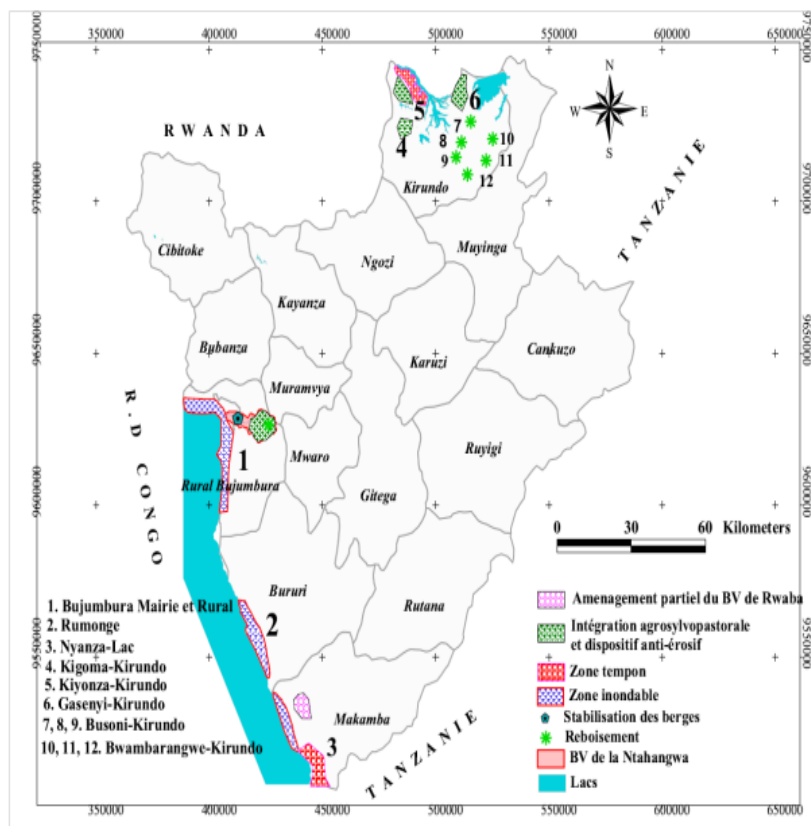


FIG 5: Intervention sites

Component 1: Strengthening communities preparedness in face to climate related disaster risks

Outcome 1: An operational Community Based Early Warning system established capable to engage and reach out target communities for climate change disasters risks prevention and guiding the implementation of adaptation activities

Baseline Cofinancing initiatives/projects

30. The LDCF funded project builds on the efforts led by the Government of Burundi to operationalise the Strategie of Disaster Risk Reduction through the establishment of Platforms at national provincial and municipal levels. At the national level, the platform is a permanent forum for coordination, management, implementation and support through programs and activities relating to risk reduction, preparedness and emergency response. It maintains a permanent coordination with all relevant stakeholders, as technical committees established within different ministries, public institutions, provincial and communal platforms, agencies of the United Nations, private sector, civil society and NGOs. In the project target

areas, three communal platforms are established in following areas: Busoni and Bugabira (Province Kirundo) and Rumonge (Province of Bururi). These levels report to the provincial level, on its turn coordinated by the national level. The communal platforms are well structured and meet, as needed depending on emergencies and other priorities. Contribution from these platforms to the LDCF financed project is related to the mobilisation of key stakeholders to enable the operationalisation of the planned early warning system. This contribution is estimated to be USD500k during the 5 years cycle of the project. The LDCF investment will be a perfect complement: it will focus on creating the capacity at community level, as the core element of a civil protection system that is not yet developed and lack roots in the communities (*colline* level). Indeed, it shall be noted that currently the existance of grassroots activities for risk prevention, disaster management and adaptation to climate change is very low.

31. UNDP/BCPR is supporting the implementation of the Action Plan on Disaster Risk Reduction, Preparedness and Response to Emergencies through a “*Project support to build national capacities*” (2014-2016). The project team is under establishment; and amongs key activities, it is planned to
 - Strengthen the operation and coordination mechanisms of the Provincial Platforms and support the establishment of local committees at collines/hills levels linked to existing communal platforms. Where possible, these local committees will be the vehicle of the community based early warning system to be established under LDCF funding;
 - Develop support services to analysis and risk assessment tools: database (DESINVENTAR, DEVINFO, etc.), Geographic Information System and Mapping Systems, strengthening national capacities on methodologies for the evaluation, analysis and mapping of natural hazards. Once establish, this support services will contribute in the climate risks mapping exercise to be undertaken at communes and provincila levels.

Expected contribution from **UNDP is to be USD300K.**
32. LDCF finaced project will take advantage of IGEBU’s exiting capacities to collect, analyse and disseminate weather and hydrological forecast services. Under the hydrometeorology and agrometeorology Departments, IGEBU is assuming the management of meteorological and hydrological networks (data collection); centralization, control, processing and publication of data from different observation networks (data management); research and analysis (data analysis). The oldest hydrological station in Burundi is established since 1960. A network of 54 stations was established in 1974 but most of them were destroyed during the civil war (1993-2004). In 2008 a program for reconstructing the network started and currently there are 35 working stations, of which 5 automatic. Data transmission is done though regular mail by IGEBU focal points or transmitted directly by the automatic stations. All data are stored in an electronic database (Access 2000) at IGEBU. An internal communication system is established for the collection of climate data, and a regional communication system for exchanging data from and outside Burundi (e.g. with the World Metereological Organisation under the "Global Telecommunications System (GTS)". The existing warning system at the IGEBU is based particularly on the daily and seasonal forecasts, as well as assistance to aviation forecasts. The expected co-financing associated with IGEBU activities is USD 10 Millions during the 5 years cycle of the project, taking into account all investments related to hydrometeorological and agrometerological observation network, maintenance, and functional operations (see attached co-financing letter from the General Director of IGEBU).
33. However, IGEBU weather forecast service has much room for improvement to support effefively a community-based early warning system:
 - ✓ The current coverage of weather, climate and hydrological stations requires improvements, specifically in project target sites where sufficient accurate and relevant information on the potential impacts of natural disasters and climate change information are lacking. The existing warning system at the IGEBU does not show sufficiently harmonized or updated regularly. The weather information system is concentrated around the airport infrastructure (Bujumbura), but neglected the agro-

climatic zones risks or major watersheds. Coverage in weather, climate and hydrological stations country is low and most of the existing obsolete;

- ✓ The system of meteorological data collection and diffusion is currently not appropriate to support disaster risks preparedness (incomplete data collection, weak analysis and diffusion). IGEBU has no systems to automatically detect and alert forecasters to severe weather events. These include the algorithms to detect downbursts from radar data, or expert systems, which can alert forecasters to the likelihood of severe weather events based on observational or forecast data;
- ✓ There is a weak communications system that provide information to emergency management authorities (platforms) and local communities with lead times that allow adequate response time for emergency managers to complete preparedness action. IGEBU is lacking sound scientific basis for predicting and forecasting hazards and reliable forecasting and warning systems that operate 24 hours a day;
- ✓ Relevant information on the dynamic nature of hazards and vulnerabilities that arise from processes such as urbanization, rural land-use change, environmental degradation and climate change are not analysed and made available to local decision-makers, grassroots communities and communal technical services to better plan and sustainably manage the risk of natural disasters.

Other relevant initiatives (non part to the co-financing)

34. The **Burundi branch of the Red Cross** is also a key partner of the different platforms on DRR. The organisation has developed – at least in the provinces identified as main target of the present project, Bujumbura rural and Bugasera – an impressive structure with high capillary presence at hill level (around 150 volunteers each hill) and locally-based consistent response mechanisms to assist the most vulnerable families with food and other basic items. The Croix Rouge made available warning system, a megaphone, used to alert population in case of fast onset heavy meteorological events, and ask to households living in areas exposed and vulnerable (for position, type of surroundings, and type of housing) to evacuate. Challenges for the Croix Rouge are currently mainly in communication among the lower levels (colline to commune and viceversa). This powerful and community rooted local capacity shall be supported and reinforced while included in the CB EWS to be set up in the project.
35. In the **Food Security Early Warning System** (Système d'Alerte Précoce et Suivi de Sécurité Alimentaire -SAPSSA) of FAO, panel data are collected in each province, but on only 50/60 families ("ménages repères") across the country. Data collection is conducted with the support of NGOs present in the area, normally CARE and CRS. Data are collected on paper questionnaires, then scanned and sent by email to FAO where data are inserted in database. The instrument is sufficient to provide an orientation, but is not fully reliable due to the sample size. Some of the indicators can be used as early warning, but mostly with a focus on agriculture (i.e.: pests) or generic danger (i.e.: loose dogs). In the committee to manage the system, together with FAO stand the Ministry of Agriculture, Unicef, PAM, CARE, CRS.
36. The **Food Security Monitoring Systems** (FSMS) set up by WFP in collaboration with Ministry of Agriculture has an almost national coverage with data collected in provinces. After beginning data collection with the support of NGOs, capacity building of the Statistic Center as well as of provincial officers (DPAE) of the Ministry has been developed to make the system sustainable. The sample is derived from the Comprehensive Food Security and Vulnerability assessment (6000 families) and reduced to about 3000. The provincial officers twice a year collect data through mobile telephones (Samsung GT-S55701) on which a questionnaire developed through a simple interface (open source software) is loaded via internet, and can be updated in case of change. The telephone, with a GPS, is trackable, even if the SIM card is changed. Interviews are conducted with same households to develop panel data. The data from each filled questionnaire can be saved and sent via Internet (at the cost of 200FBU), they are stored into a database; the service to handle and store data is provided by Google inc. for an un-pricy sum (less than 50USD per year).

37. It is a good instrument for monitoring food system, aligned to sense indicators observed by WFP globally, as food consumption index, but it would not be effective in early warning. The FSMS is mainly an instrument to gauge indicators as household consumption, which is more capable of registering impact of crisis then alerting on their arrival or immediately registering their occurrence. It is a current project of the FSMS to expand the system to use it for the agricultural surveys that are conducted twice a year, making production data more reliable on a scientific sample and immediately available once collected.

Cost for Component 1
Co-funding Component 1: US\$ 10, 800,000
Funds GEF/LDC requested: US\$ 1, 839,450

Alternative

38. In the baseline, Burundi has developed a corps of texts for DRR that encompass laws and plan but very little operational capacity, included equipment, communication infrastructure and know-how, can be observed for the key stakeholders in terms of preparedness, risk prevention and response. While literature mapping risks, planning for contingencies, identifying possible solutions or sketching mitigation plans for Burundi is abundant, very limited are practical mechanisms for early warning, measures for risk reduction and response.
39. Without LDCF intervention, the overall capacity of existing mandated institutions is very restricted by lack of resources, skilled personnel and equipment, but also hampered from a crucial missing link, which is connection with the broader population. A recent Interagency Evaluation of capacity in Disaster Risk Reduction (DRR)⁹ has been conducted, with very clear-cut judgment on current situation, synthetically re-proposed. Without the involvement of local authorities and communities at risk, government and institutional interventions and responses to hazard events are likely to be inadequate. The active participation of the population in climate risk prevention and management remains a challenge. During the field visits, it has been found much interest and support for a community based early warning. It seems a priority to invest resources to develop this service and capacity.
40. With LDCF intervention, a community-based early warning system established and operationalized as a platform for climate-related disaster risk reduction and for guiding the implementation of climate change adaptation. The local communities will have a well decentralize, reliable and functioning organisational system for managing climate risk and disaster and coordinate response, not just as receiver but also as stakeholders' part taking in the system. A people centred Early Warning System will be test out as a system capable of involving and reaching communities, putting them in relations to the national level, and also connect it to sensitization activities as well as to infrastructural work to work as a connecting ring between climate changes adaptation measure and DRR interventions. The system will be top down as well as Bottom Up approaches to generate and disseminate climate information effectively. The intervention is oriented at mitigating the low attention to preparedness at local level, and as such it intends to contribute as response to the lack of articulation (and effectiveness) between national and lower levels, highlighted by the Interagency Evaluation of National Capacity for risk reduction in Burundi. It will be based on raising awareness and building capacity of local authorities and the general public on the type of risks lived and experienced by the population itself (by gender and social strata).
41. The IGEBU information system will be improved by structurally involving the population in the system of data collection, monitoring and alert, whenever possible. As far as the IGEBU systems are concerned, the CB EWS can help reinforce the data collection in the target areas, while also involving and sensitizing population to disaster risks factors. The information system will produce data / primary information to

⁹ UNDP BCPR : Rapport D'évaluation Des Capacites Nationales Pour La Reduction Des Risques Au Burundi (July 2013).

be transmitted up at central (national) level, while also being able to elaborate and disseminate down (even to colline level) weather forecast and information for the public and the interested communities.

42. The proposed CB EWS is based on existing systems and capacity already developed under the National Platform on Disaster Risks Reduction and management, supported by UNDP-BCPR. The existing data collection systems, particularly hydromet and food security database from IGEBU, WFP FSMS, can provide some elements of an organisational model, together with some technical solutions to replicate and integrate in the CB EWS. Coordination with the existing systems and corresponding organizations can help guaranteeing that information from the CB EWS to be will feed into - and also take from - the other two systems, as relevant, improving chances of better information development and sharing and of coordinated response.

Outputs and Activities

43. According to UNISDR (2009), an early warning system is defined as a set of capabilities to produce and disseminate relevant and timely information and alert of a danger to allow individuals, communities, companies, organizations and institutions threatened to be prepared and act appropriately and effectively in a timely manner to reduce the probability of risk and damages. The Community Based EWS here proposed is a multi-level structure that attempts to respect these principles, in order to convey real time climate information to target communities and individuals to effectively anticipate, respond to, and recover from, the impacts of climate climate changes (drought and flood).
44. The system will be established in priority areas defined during the preparatory phase. This consist of:
 - Province of Kirundo, affected by the severity of drought and water shortages. The intervention will be focused on Bugabira and Busoni Communes and will target at least 12 collines;
 - Province of Bujumbura Rural, the Communes along the Ntakangwa River affected by landslides and flooding during heavy rains. Target communes will be Nyabiraba, Kanyosha, Isale, Gatunguru and Mugongo Manga (total 24 collines targeted);
 - Province of Makamba. Nyanza Lac commune, surrounding the Lake Tanganyka, will host the community-based early warning system.
45. Four major outputs will contribute to attaining this outcome. They consist of:

Output 1.1: Set up the functional structure of the Community Based Early Warning System on climate change related risks in Bujumbura Rural, Kirundo and Makamba Provinces.

The structure will support the production of primary data from that level to be transferred up to national level, while also being capable of disseminating on large population at colline level information and alerts proceeding from advanced data analysis and meteorological forecasts. Following activities will be undertaken:

Activity 1.1.1. During the project inception phase, a *Participatory Situational Analysis* will be undertaken to ensure successful outcome of the mapping, analysis and effectiveness of the early warning system. This will be done through: (i) the capacity assessment to identify existing capacities in the community on which the early warning system and existing coping (warning) mechanism can be built; (ii) the institution and stakeholder analysis where target communities will identify the organizations and institutions which can support for and be a part of early warning systems; and (iii) the analyse of the organisational, technical, and financial sustainability of the system to set up in place. The Participatory analysis will help also to identify existing communication and dissemination systems and the mechanism and medium for communication and dissemination based on the information and level of risk.

Activity 1.1.2. Establishment of CB EWS focal points at colline, communal, provincial and national level

- *At Colline level*, the appointment of focal points (two or three persons per hill) will be done through meetings held with associations and local communities during the phase of participatory analysis (Activity 1.1.1.). The people identified, together with the Chef de colline, will constitute the Colline Committee. Coordination will be developed with IGEBU and Burundi Red Cross to include their focal points for better coherence of intervention, specifically when collecting hydrometeo data. Half of the focal points coordinators established in the target areas shall be women;
- *at Commune and Province levels*, the establishment of CB EWS focal points will be based on existing DRR platforms: (i) Provincial platforms of Kirundo, Bujumbura Rural and Makamba; (ii) Communal platforms of Busoni, Bugabira and Kanyosha. Ongoing discussions with UNDP BCPR project and the National Platform are held to establish in priority communal platforms in other project target sites. In each platform at least two people will be identified as focal points.
- *At the National Platform*, two people will be identified as liaison members with local elements of the CB EWS. They shall be equipped with the same type of phone that provincial coordinators will have. They are responsible for regularly accessing the central database, monitor data quality (according to the SOP to be established), and to prepare reports from bottom up data for the Committee of the National Platform on data from bottom to top, as well as monitoring reports on the interaction among focal points and coordinators.

The potential responsibilities of the EWS FPs are presented in below. It will be refined during the project inception phase after the Participatory Situational Analysis.

Table 3: Responsibilities of the CB EWS FPs

Colline level	Commune level
<ul style="list-style-type: none"> - Measure and communicate through sms (feeding an automatic system) the value of waterfall (in newly established pluviometric station) or height of water, in those selected collines and in sites along the river (Ntakangwa, Kanyosha, Muha, in Bujumbura area) or lake (in province of Kirundo) where pluviometric and hydrologic station will be set up; - Monitor other indicators (or signs) as will be defined in the participated design phase - Facilitate collective identification and alert on emerging risks (early signs of appearance of ravines, etc) - Rapid identification and communication to the Communal committee for DRR of extent and type of needs in the aftermath of a destructive climate event – or of other disasters - Communicate results of sensitisation process at the communal committee for DRR by participating in the planned mtgs - Sensitise population on how severe climate events – excessive rain, drought – can have a stronger impact and be related to deforestation - Organise community hearing sessions of project radio programme - Sensitise on the importance of land management measures to prevent soil erosion, and to explain the risk caused by wrong interventions (deforestation, uncontrolled fire, path opened perpendicularly to the hillside with no containing interventions, etc.) 	<ul style="list-style-type: none"> - Organize in collaboration with project staff training and retraining for the focal points. - Monitor the focal points - Assist focal points when asked for conveying appropriate messages - Bring to the DRR Committee request for urgent assistance and in agreement with the rest of the Committee organize the response - Guarantee harmonizations of indicators used at colline level - Transmit to <i>colline</i> level information concerning response plans - Organize regular meetings with focal points (at least twice a year) and maintain good communications - Provide to the digital system and to Provincial and Central level of the Platform for DRR additional information, including pictures and exact locations, in case of a sensitive change on some key indicators (level of water, incipit of new erosions, etc) - Guarantee timely communication of emerging issues or difficulties in the system to the Project Staff.

Activity 1.1.3. Equip focal points. The focal points will operate on a volunteer basis and will be equipped with: - mobile phones with credit for phone calls and text messages (SMS); - solar powered radio (or at least powered by rechargeable batteries, and a charger fitted to be connected to the solar panel to be installed at the school of the municipality); - boots (1 pair per each focal point) and office equipment; - 1 megaphone by hill. Sustainability concern shall not remove the incentives and considered here, which are needed as basic equipment to start a system, and which also impose requirements in terms of time and commitment of its volunteer members.

Activity 1.1.4. Trainings for CB-EWS focal points and the members of the National Platform, provincial and municipal will be organised to enable them to become familiar with CB EWS, understanding indicators and functioning of the CB EWS, its information transmission systems (including SMS updates bottom up and top down) and understanding SOPs of the CB EWS and learning to use it. In addition, they will be engaged to identify; (i) the type of response to natural disasters that can be provided or improved with existing resources (ii) the actions and measures to improve coordination of mitigation and adaptation interventions through existing measures, projects and active partners (iii) the gaps and plan for future interventions to reduce risk, strengthen preparedness and improve responses. Following steps are planned: (i) assessment of training needs; development of the training materials; organisation of at least 2 training a year; and monitoring and evaluation of trainings.

Output 1.2: Upgrading the hydrometeorological network and improving capacity to generate real-time information weather and data series for information dissemination to target communities

Insufficient hydrometeorological forecasting as well as response capacity is a urgent problem addressed in this project. The development of a Community Base Early Warning System (CBEWS) to reinforce the hydrometeorological observation network is a very important part to complete. The process will take time, and for this reasons it shall begin in the early implementation steps. Beside generating bottom up information through primary data collection, the CB EWS shall also be used – from its initial steps- to disseminate top down reliable and place specific weather forecast on a weekly basis (or more frequently as needed) initiated in the initial phase of the project to disseminate simple and reliable weather forecasts to population. Following activities are planned:

Activity 1.2.1. Need assessment: A joint assessment team with representatives from the, EWS taskforce at colline levels, project staff and government staff (members of the Platforms and IGEBU) will assess the stations to determine whether they can provide relevant information for an early warning system. The assessment team will identify the relationship between the observer stations and downstream communities. The team will look into quantity and quality of the monitoring devices, human resources available, need for capacity building, and possibilities for communication, additional equipments and necessary maintenance.

Activity 1.2.2. Upgrading the existing hydrometeorological network

Although this project financed under LDCF's cannot rehabilitate the entire data collection network of IGEBU, many stations will be added through the set up of CBEWS: many new or to-be-restored rainfall and water level measuring stations will become operational as they will be entrusted to CBEWS local focal points. The recorded data will be transmitted daily via SMS by a group of focal points living near the stations. To strengthen the technical capacity of the IGEBU, the following equipment will be purchased and actions implemented:

- ✓ At least two new differential GPS (with training for intended responsible users in IGEBU staff);
- ✓ At least three automatic hydrological stations (with ADCP server) rivers Ntahangwa, Muha and Kanyosha, for automating recording of water level, and 2 limnometric scales for Cohoha lake;
- ✓ Installation of 1 synoptique station, 9 automatic metereological stations with servers in line with WMO standards in target provinces, municipalities (Bujumbura Mairie, Bugabira, Busoni,

Kirundo province rural, Isale, Mugongo-Manga, Kanyosha, Nyabiraba, Nyanza-Lac and Rumonge), and of 200 rain gauges in target collines (5 gauges/colline);

- ✓ At least 3 new computers (and proper training for the intended users among IGEBU staff).

This list will be updated and refined taking in account recommendations from the need assessment (Activity 1.2.1) and the EWS focal point will select the most feasible location for the monitoring water level and rainfall devices with external technical advice.

Activity 1.2.3. Trainings for the collection, processing and analysis of data and of messages top down

While installing monitoring devices, it will be important to ensure that people operating the system have relevant knowledge and skills required for the collection, processing and analysis of data and of messages top down. Main target audience for the capacity building should be IGEBU staffs, gauge/rainfall observers, CB EWS focal points. Suggested content for capacity building is:

- a. A series of courses will be organised for the IGEBU staff to develop and produce accurate meteorological and hydrological forecasts, and also to develop capacity and methodology to analyse, test and improve information from CB EWS. This include:
 - ✓ An advanced remote sensing and satellite image interpretation for 8 people for a period of at least two months possibly spread over the four years of project training;
 - ✓ An advanced training on meteorological and hydrological analysis, with scholarships for 2 or 3 IGEBU staff (keep quota male/female even, and at least one male/female on 3 posts), in regional institutions like the African School of Meteorology and Civil Aviation in Niamey or at IMTR Nairobi Hydrology.
 - ✓ Advance training on: (i) how to conduct regular maintenance and integration of database (ii) how to add new indicators coded and to be updated with coded SMS strings, (iii) how to create report with preformatted query, (iiii) how to write and run query functions, also extracting the data by geographic parameters.
- b. The CB-EWS focal points will be trained and regularly re-trained. The content of sessions will include:
 - ✓ Measure and communicate through sms (feeding an automatic system) the value of waterfall (in newly established pluviometric station) or height of water, in those selected collines and in sites along the river (Nahangwa in Bujumbura area) or lake (in Bugasera province) where pluviometric and hydrologic station will be set up;
 - ✓ Identification and alert on emerging risks (early signs of appearance of ravines, etc.) and monitoring other indicators (or signs) as will be defined in the participated design phase
 - ✓ Communicating results of sensitization process at the communal committee for DRR by participating in the planned mtgs
 - ✓ Introduction to climate risk and to vulnerability in a gender sensitive way to better sensitizing target communities on (i) how severe climate aleas – excessive rain, drought – can have a stronger impact and be related to deforestation, addressing with proper communication also young people (ii) the importance of land management measures to prevent soil erosion, and to explain the risk caused by wrong interventions (deforestation, uncontrolled fire, path opened perpendicularly to the hillside with no containing interventions, etc.)
 - ✓ Organize community hearing sessions of project radio programmeThe CB EWS focal points shall also be prepared for transferring information in the aftermath of disasters. Training shall be developed, the automatic system prepared, and SOPs defined to guide the CB EWS focal point to transfer basic but key information for response:
 - Number of people injured and in need of evacuation
 - Number of people dead
 - Type of losses observed
 - Situation of crops

Output 1.3: Set up an effective and efficient communication and dissemination system to reach all end users

This step will focus on transferring the information gathered during observation and monitoring of hazard to target communities on risks. A reliable and well-organized dissemination system will be in place for on time information dissemination. It is therefore essential to develop and agree on a flow of information that needs to be well understood by all stakeholders. The communication and dissemination system should offer alternative methods in case of failures of one or more communication channels. Communication between the different level of CBEWS will operate in both directions: - bottom up, from hill level (colline) up towards the municipal level and then towards the central level; - top down, from the central or municipal to the hill level. Besides voice communication, an automated system will be implemented (in collaboration with telecommunications providers), who will read and store coded message strings bringing update values on the different indicators. The following activities are planned:

Activity 1.3.1: Develop the functional database to analyze and produce relevant information and linked to existing information systems (FAO, WFP, IGEBU)

The data to be collected through the CB EWS will be handled by software interfacing with a central database established at IGEBU. The software to be developed could be preferentially open source, and among requirements needs to include the capacity to:

- ✓ Handle and recognize the telephone numbers of the CB EWS focal point and allow those numbers to input data in database through SMS
- ✓ Predefine a list of choices for the users to be able to categorize the information they need to send (i.e.: rainfall data: ID of rainfall station; level of water at a given time (date and hour); or geological data: new ravine just opened) or to be able to send free text messages in case the information is new and uncategorized yet
- ✓ Properly store the data obtained by SMS in different categories/tables with clear connection with the ID and geographical location (colline of residence) of the focal point who has sent the info
- ✓ Re-send immediately to key members of the organization within the system (i.e.: communal coordinator, national coordinator, project coordinator, etc) the critical SMSs which are classed with alert code (i.e.: #111# could mean : “we need immediate assistance for evacuation”, or #112# “we need assistance for shelter/food”; or #112:85# number of households in immediate need of shelter or food in a given colline). Those messages will precede bottom up from the CB EWS focal points and need an immediate response. A document with Standard Operating Procedures (SOPs) will define what are the possibilities that can be handled and answered.

The database will be designed in a way to maximize compatibility with the already existing database supporting the WFP FSMS system, so that data from both sources could be periodically merged and cumulatively analyzed. The database system will include data set, containing indicators significantly more on the early warning and emergency side than the ones inscribed in the FSMS, and will allow to trigger targeted response on short timelag. While messages classed as highest alert can reach key resource persons in real time, regular reports shall be produced on a weekly basis and response action called within a maximum of ten days.

To facilitate the preparation of weekly reports, the structure of a news report with minimum content will be identified, and the basic queries prepared and developed on the database itself to be used (and possibly customized) in a user friendly fashion, so to enlarge the basis of the IGEBU staff who potentially can – if authorized - operate on it.

Activity 1.3.2. Develop Standard Operating Procedures (SOPs)

Resources will be allocated for the development of SOPs for correct, consistent and durable functioning of the CBEWS. The SOPs will specify time intervals of data collection and transmission.

The preparation of SOPs will be participative, involving *colline* Focal Points and other members of the Municipal Committee, as well as the National and Provincial Disaster Risk Reduction platform, the IGEBU and the humanitarian and development agencies (Red Cross, WFP, FAO, UNDP, international NGOs, etc.). Under this framework, a set of indicators will be developed as a key moment in the work of awareness rising that the project also entails. The indicators will be easy to monitor but also capable to inform on the factors influencing different risk to which not only different communities, depending on land use and level of land degradation, but even different type of people (for sex, age, social class as well as for house location, mobility patterns and livelihoods) are exposed. The work on indicators will start in parallel to the gender sensitive risk analysis (Outcome 2) and will be as participative and inclusive as possible.

Activity 1.3.3: Information transfer and dissemination system

Communication and dissemination of messages will be conducted according to the SOP and depending on the type of information and the urgency. Different communication and dissemination systems can be applied to communicate information from gauge station to CB-EWS focal points, and stakeholders; and to disseminate the information to all the members of the community. Options for communication flows from bottom up and top down are proposed under the EWS rappers (PPG Report 2).

Messages and alerts will be communicated:

- Either through the automated path, through a software handling mobile text messages coded in categories of indicators and users (closed string messages)
- Or relying on direct person-to-person communication, via voice or text message, between member of the same level or of different level of the CBEWS.

Moreover, an existing public building will be identified, in each target *colline*, as a basis for the activities of the CB EWS, where also storing equipment for focal points. An agreement with the Ministry of Education will be developed to use primary school at hill level, given the level of funding required for the construction of structures ex novo, and difficulties in many areas to find a common / federal land readily available. Schools exist on every *colline*, and the buildings are relatively solid. The school will be available for the CB EWS focal points to organize outreach activities including public sessions. Minimum equipment will be installed in schools to facilitate the organization of SAP (photovoltaic panel, external board with few key indicators to be update in writing) activities. During the Project inception phase, these options and propositions will be refined according to the recommendations from the participatory assessment (Activity 1.1.1) that identify the mechanism and medium for communication and dissemination based on the information and level of risk.

Component 2: Resilience and response capacity of local communities strenghtened

Outcome 2: Cost-effective adaptation investments and options integrated into local development planning and budgeting instruments, taking into account weather variability and climate change projections

Baseline

Cofinancing initiatives/projects

46. Component 2 builds on the efforts made by the Government of Burundi to strengthen local development and urban planning. Planning tools have been developed locally, such as:
 - (i) The *Master Plan And Development Plan Of The City Of Bujumbura 2025*. Following the civil crisis, the city of Bujumbura, capital of Burundi, was subject to significant demographic pressure, and must have an adequate and updated document of urban planning to organize and guide the urban expansion, and anticipate major infrastructure shortfalls in order to promote a sustainable development. The natural site of the city, the environment and status of land, erosion areas, conflicts with the agricultural world, equipment in outlying areas, the economic role of Bujumbura in the sub-region, are challenges that the planning and programming documents for 2025 must address. The Master Plan is unde

development and following analysis are undertaken: Urban diagnosis, organizational and financial audits, demographic and socio-economic analysis of the mode of production of land for building, economic analysis. **Population projections, land development, development prospects, infrastructure needs.** **Strategic guidance. D e**
 explanatory report. **-Institutional set**

- (ii) The *Provincial Land Use Management Plans* (SPAT in French) are developed under the support of the World Bank and European Union. They materialize the National Strategy for the sustainable use at Province level and address three key issues (i) national integration, (ii) economic and social development and (iii) protection of natural resources. The SPAT of Kirundo, Bujumbura Rural are under validation by national authorities.
- (iii) The *Communal Development Plans* (PCDC in French) is a framework reference for both national and international organizations involved in development, which keeps into consideration environmental strengths and social features of the population involved.

47. This policy baseline provide a good basis from which to plan for climate change at the local level and will contribute to strengthening the overall capacity of local decision makers and targeted rural communities to understand climate change risks and their impacts on local development. However, local decision-makers have limited knowledge of climate change impacts or adaptation responses and will not address specifically climate variability and climate change projections in the local development plans. Information, including inventory and mapping, is inadequate and staffs from local councils have limited expertise to internalize climate changes into existing local development plan and budgting framework. Finally, proper gender analysis of risk is not conducted. This will make less chance to include broadly the concrete risks faced by the population, but also its effectiveness will be hampered, since women are the key agents of interage communication and informal training in families and communities. The additional funding from LDCF will help facilitate the integration of climate change risk management in the local development plans and in the SPAT by providing skills, support of technical expertise and tools to municipal and provincial officials.
48. Under the UNDP “Public Administration Reform Project”, the establishment of “single access point” is initiated in the first 5 Provinces, followed by the signature of memoranda of agreements between several ministries, to build synergy around the Governor. The single access points will be operationalized in 2014. In addition, negotiations are underway on the adoption of management strategy performance. The UNDP baseline is relevant to the project funded by the LDCF since it provides the mechanism for better coordination and well prepared administration that facilitates the integration of climate risk management into local development processes. The resources allocated to the improvement of public administration are estimated at **1,000,000 USD**, which can be considered a cofinancing of the project.

Component 2
 Cofinancing: US\$ **1, 000,000**
 GEF / LCDF requested US\$ **1, 460,207**
See section IV for more details

Alternative

49. This second component will provide relevant information and skills to local government decision makers and community leaders for defining their adaptation priorities and planning necessary budget for their implementation. The results provide a solid foundation for the identification of practical strategies to facilitate community-based adaptation to climate change.
50. Without LDCF support, local institutions do not yet have enough technical capacity (included on the equipment side) that would allow mapping, measuring, monitoring and timely communicating the risks associated with climate change. This gap is also visible at the level of governmental institutions involved

in the Platform for disaster risk management platform and IGEBU limiting their ability to respond to rapid assessment when disaster strikes.

51. With the LDCF funding will also help to strengthen the skills of national technical experts committed to supporting decentralization thorough understanding of risk associated with climate change, the ability to analyze it in gender sensitive ways, and how to use knowledge on risk in in planning.
52. A gender sensitive climate risk assessment is needed and shall be conducted in a participatory fashion and with significant attention to gender analysis in the first step of the implementation of the CB EWS. This preparatory phase is needed to ground the actions in in-depth local knowledge, beyond illusion of gender-neutral description, and to set up and root at community level the whole project. A gendered analysis of risk shall be conducted with the use of participatory tools as well as with existing risk assessment frameworks to mainstream gender in climate disaster preparedness are an absolute necessity.
53. Without GEF intervention, the communities will not access to relevant information on climate changes and it's impacts, adaptation opportunities and will not have have the capacity to participate in the integration process of climate change aspects into development planning. In Burundi there is one national radio (RTN) which has nation wide coverage, plus several private radios, some of them thematic (as the CCIB with information relevant for commercial activities and investments) others, as RPA (which has national coverage), treating same variety of themes but considered less oriented and monitored by government. Community radios do not exist, and in the rural areas people mostly listen to national radio, also by the use of radio receiver on mobile phone. None of them has meteorological services information. IGEBU could not disseminate meteo info through them since airing messages and communication requires a budget that IGEBU does not have. The creation of a specific radio emissions dedicated to environment has been proposed as a key action to be a component of the early warning system but also the main instrument to carry on a cost effective information and training initiative at different level, from the institutional one down to communities in collines.
54. Three major outputs will contribute to attaining this outcome. They consist of:

Output 2.1: Gender and climate vulnerability assessment to guide the development of a local climate change response

Vulnerability and adaptation assessments are a critical first step in developing the climate change profile at Provincial and Communal levels. The integration of gender sensitive climate risk management in Municipal Development Plans and financing for adaptation need to have first an analysis of the impact that climate change is having and will have on the country and its activities. The results provide a solid foundation for the identification of practical strategies to facilitate community-based adaptation to climate change.

Activity 2.1.1: Climate changes and vulnerability assessment for target Provinces and municipalities

This activity will provide a framework for analyzing vulnerability and capacity to adapt to climate change at the community level. By combining local knowledge with scientific data, the process builds people's understanding about climate risks and adaptation strategies. The main steps concern:

- ✓ **Step 1:** General organization of vulnerability diagnostics: This step aims to prepare diagnostic for defining the scope of actions (geographical and sector development), resources (consultants, teams and organization) planning interventions, mobilizing stakeholders and budgets. An international consultant will facilitate and organize a series of meetings with public beneficiaries.
- ✓ **Step 2:** Analysis of exposure and sensitivity to climate in the past: identification of exposure (weather conditions that have been suffered in a certain area) and sensitivity (the socio-economic impacts that these hazards have had on the municipality, on infrastructure and on population, according to gender, age, class) to past climatic events (period of ten, twenty or even a hundred years). Three sources of information will be used: (i) data records of climate observation from local weather stations, to provide information on actual local changes on long term weather

- patterns; (ii) archive documents, including press, municipal and institutional documents, literature; (iii) consultation of collective knowledge for formalizing collective memory and letting different demographic and social profiles of vulnerability emerge: interviews and focus group discussions with different leaders of the communities and with population groups of different sex, age and social level to understand how gender patterns, age and class interplay in defining individual vulnerability to climate change and determine different severity of impact.
- ✓ **Step 3:** Analysis of current and of future sensitivity. This step has the overall goal of understanding climate change scenarios in the future (2030, 2050 or 2100) and estimating the impact, in different geographic areas as well as on different socio-economical profiles. There are three sub-steps: (i) description and selection of scenarios; (ii) Projection of the future sensitivity; (iii) Consultation of collective knowledge;
 - ✓ **Step 4:** Hierarchy of levels of vulnerability. The outcome of diagnosis is to identify the levels of vulnerability of public services – in relation to their intended users - and of the different activity sectors of the municipality against a disturbance or shock on elements of the environment and population by a given time;
 - ✓ **Step 5:** Identification of adaptation actions: it will be based on (i) Research; (ii) detailed analysis on adaptation paths that take into account the different climate scenarios and the connected impacts on different geographical areas and social groups; (iii) costs-benefits analysis of different adaptation options to control whether these measures are effective and efficient;
 - ✓ **Step 6:** Setting up a mechanism for monitoring and evaluation feeding in an adaptive management approach;
 - ✓ **Step 7:** Presentation and communication of results to stakeholders and communities.

Activity 2.1.2: Gender sensitive risk analysis

The gender sensitive risk analysis shall be conducted with the involvement of population. The objective is to understand how men and women (but also youth, elderly, disabled people) in the region of intervention of the project experience disaster differently and can differently benefit of preventative measures or of interventions, due to their gendered identities (and also their age and ability) that define in a variety of different ways their primary roles and responsibilities, opportunities, capabilities, access to resources, coping strategies, decision making power in household and community. This understanding, in the form of a document output, will underpin the implementation of all the project to make sure the measures implemented reinforce resilience of the entire population and reduce gender and age gap. The objective is not only to conduct a qualitative analysis, but also to engage the communities in a reflection on the existing risk, on the identification of indicators to monitor the risk, on possible preventative measures, and on the type of response that community itself can either provide or request outside in case of lack of internal resources. The design and conduction of gender sensitive risk assessment component needs to include:

- ✓ Review of relevant documents, national laws and international laws and conventions signed by the Burundi government
- ✓ Gender audit of the institutions to involve in risks analysis and management;
- ✓ Interview with key informants operating at National, Provincial, Communal and *colline* level
- ✓ Organization of focus group discussions inclusive of different groups
- ✓ Participative workshops at *colline* level, providing several meetings in each *colline*, with very robust interactive facilitation, to collectively identify risk and risk determinants, areas at risk, indicators, preventative measure, possible responses, possible actors involved in response.

During conduction of the gender analysis of risk project staff shall all be involved, obtaining hands-on training on gender analysis technique, and getting involved in community sensitization and mobilisation.

The completion of the gender sensitive risk analysis shall be followed by a:

- Proper diffusion of results (as a stakeholder workshop with working groups to start suggest possible transformations in the different domain touched upon);

- Solid incorporation in project staff training as well as in all project components design and implementation of the analysis finding (with explanation of methodology and dissemination of reference texts);
- Readjustment of CB EWS initial design to the gender sensitive risk analysis finding to make the CB EWS as well, as any disaster preparedness and disaster response measures, structurally gender-sensitive and gender-inclusive;
- Review of all project components to adjust approach and work plan according to the finding of the analysis;
- Full integration of the gender risk analysis into the climate risk study and vulnerability assessment, and their dissemination.

Output 2.2: Local government decision makers, technical staffs and communities assisted with training on proper use of climate risks tools and sensitisation on climate changes impacts to support the identification of cost-effective adaptation investments options and adjust plans, programmes and projects given new climatic experiences

Activity 2.2.1: Train 50 members of Provincial and Communes councils on climate change planning tools.

Provincila and Communal council members will be trained on the proper use of probabilistic modelling concepts, weather forecasts and predictions, climate change projections and relevant environmental and socio-economic data to adjust urban, watershed, infrastructures management plans, programmes and projects given new climatic conditions. Specific activities include:

- Identifying needs and developing training modules;
- Organising 3 training sessions, assuring the participation of women;
- Monitoring and evaluation of trainings to assure their usefulness.

Two national consultants with expertise in local planning and climate change will be recruited to facilitate the development of tools and to organize training workshops. They will help develop monitoring and evaluation tools in partnership with local agents in charge of planning within targeted Provinces and Communes.

Activity 2.2.2: Training 150 technicians of decentralised services (agriculture, health, environment and water, livestock, etc.) on integrating climate risk management into socio-economic planning.

Training sessions for about 150 officers (respecting equal quotas for male and female officers) proceeding from Provincial level teams of: the General Directorate of Agricultural Extension, the Agency for Water Management in Rural Area, the Directorate General of the Public Health Department, The Directorate General of Forests and Environment and the Directorate General of Planning and Protection of land. The curriculum will include: (i) in depth information on variety of climate risks; (ii) gender sensitive tools to assess the variety of sectoral socio-economic vulnerability; (iii) management of climate risks and adaptation strategies in different response sector (agriculture, etc.) highlighting gender impacts of different choices. The skills and tools developed during climate risk mapping and vulnerability assessment will be largely used, and integrated as needed (gender sensitive vulnerability assessment, map development from spatial and georeferenced data, understanding weather information, understanding functioning of alert systems, etc.). Applications will be developed to demonstrate the impact that climate change may have on socio-economic activities, and the variation of impact according to existing gender patterns, and how to consider the potential impact in planning and management. Specific modules on adaptation technologies will also be developed. Specific activities include:

- ✓ Identifying specific training needs and preparation of training materials;
- ✓ The development of a detailed training program on the use of tools for gender sensitive climate risk management in the planning and management of socio-economic activities across provinces;
- ✓ The organization of at least four thematic training ensuring equal participation of men and women;

- ✓ Monitoring and evaluation of training activities, focusing on actual knowledge developed for its application in a proper climate risk responsive and gender sensitive planning and management of socio-economic activities.

Development of tools and mentoring of beneficiaries in the implementation will be conducted by consultants.

Activity 2.2.3. Interventions for government, public officials and administrators

During consultations in Rumonge and also in Bujumbura town both interviews and field visits clarified how some issues related to excess water and damages provoked by water during heavy rains are more dependent on the way infrastructures were designed, implemented and managed than on the intensity of water itself. In Rumonge, the enormous ravines developed along the road seems to be significantly connected with the lack of proper water canalization, with insufficient length of reinforced channels, which leave water falling and generating waterfalls on fragile soil even inside the town. In Bujumbura town, many areas seem to flood because the water channels are clogged (mostly by plastic and organic waste, also by mud and other debris) and do not evacuate water properly.

A helpful intervention can be organizing three seminars, inviting staff and political representative of relevant ministries, as well as technical services of the different municipalities in the country, and members of the platform:

- Seminar 1 – Lessons learnt in public works. Objective of the seminar is to develop - with the contribution of all participants – shared knowledge of negative impact resulting from public works, especially those conducted without a preliminary evaluation of environmental impact. The case will be presented with photos and possibly recorded interviews of people impacted, and brief technical assessment of the features and causes producing the unintended effects. Output of the seminar will be a compilation of the cases and a checklist of sensitive features in projecting and implementing public works that shall be particularly thought through, monitored, and adjusted as needed.
- Seminar 2 – Maintaining and managing water systems in the fast-growing Capital of Bujumbura. Objective of the seminar is identifying urgent and structural measures to improve the management of water in the town, highlighting the critical points (lack of funds for maintenance, development in areas that are not fit for hosting large number of people, etc) and suggesting practical governance measures (i.e.: water company paying a percentage to Municipal Technical Services to maintain rain water collectors clean, etc.) to be considered by the legislators. Expected output of the seminar is a list of critical issues accompanied by a list of possible mitigation measures or suggested solutions to the issues highlighted.
- Seminar 3 - Gender, population growth and natural resources under the pressure of climate change. The demographic issues and population growth is a very sensitive ground, and societies with strong patriarchal legacies where gender equality is not achieved (which are still the vast majority at a global level) are particularly at risk of unethical drift of policy solutions. As a contribution to inspire ethical policy measures that are complying with current understanding of human rights and reproductive rights (as for example: increase of girls level of education, not only school attendance but also increase of school retention over years as it is proven to correspond to a reduction in fertility rates), it is important to foreseen in the project a dedicated high level seminar, focused on gender, population growth and natural resources under the pressure of climate change. The seminar will be open to political and administrative decision makers, but also to representative of civil society, and will have as objective the revision of existing policies and initiatives for the promotion of family planning, by keeping in focus a non-discrimination and women empowerment approach that only UN promoted projects and programme can effectively sustain. The workshop will also be an opportunity to disseminate the results of the gender sensitive risk analysis.

Activity 2.2.4: Awareness-raising and targeted messaging on climate change, human interactions with the environment, as well as on extreme hydrometeorological factors.

During consultations, all stakeholders stressed the need to work with the population to develop greater awareness and solid information on human interactions with the environment, including extreme meteorological and hydrological events patterns. Messages received during consultations could have an impact on specific content tailored to different categories of public. Two main activities have been identified to articulate and convey the messages across the project:

- Organisation of awareness campaigns: All the work developed at community level shall be seen as intervention to reinforce awareness and understanding of basic environmental dynamics of the population leaving in the target areas. In particular, each phase of the project will bring about participatory work focused on a variety of topics: risk reduction, risk management, and response encompassing: sessions, animation with youth, distribution of materials, common hearing session of radio programmes with debate following, etc. Exchange information will be organized among each other's, across same communes and among different communes, and will organize visit of groups of population in other collines if good results emerge out of land management interventions.
- Radio Programmes: This specific action in the project could aim at creating radio programmes in at least 20 transmissions (but more could be realised if partnership with interested actors – as GIZ - are developed) focused on articulating and disseminating ecology and climate change notions, adaptative and mitigation measures, and also serving as part of the early warning system. The expected results will be a-production radio programmes (with at least 20 issues) in Kirundi conveying:
 - Essential terms, the cause and effect of climate change, particularly in different region of the country
 - Local practical behaviors towards natural environment contribute to worsen or mitigate the effect of climate change (ex: protection of soil vs. extreme exploitation of forests, river borders and soil as construction material; indiscriminate use of wood vs. controlled exploitation of forest together with reforestation or afforestation – which plants – and use of devices as high efficiency stove and solar ovens)
 - Descriptions of type of interventions and infrastructures conducted within the project (reforestation, plantation of appropriate species of plants, conducive to rearing livestock as well, construction of small artificial water reserves and small scale irrigation plant, etc) with interview to local people who have been involved in the development of the project as workers and beneficiaries. This information can be conveyed with transmission developed in situ, with the involvement of population who has been engaged in the realization of the project
 - Explanation of soil conservation techniques and the different interaction with the environment of different species of plants, and why certain plants are not appropriate in drought prone areas (i.e., plantation of palms, which are increasing and being pursued by local rich investors for the high economic revenues that they guaranteed)
 - Explanation and vulgarization of key existing norms as Code de l'eau, establishing clear boundaries and thresholds (i.e. in terms of minimum distance from lakes' or rivers' banks for constructions or agriculture)
 - Key early warning messages in accord to the CB EWS established in the project (see CB EWS paragraph)
 - Meteorological information proceeding from a reinforced IGEBU to guide the agriculturalists in taking actions at appropriate moments (if rains are expected, when, intensity)

Output 2.3: Provincial & Municipal development plans and annual budgets reviewed and updated to integrate effective climate risk management to support more climate-smart investments.

Based on skills acquired through trainings conducted as part of Output 2.2, climate information collected as part of Output 2.1, the SPAT, PCDC, Bujumbura City Master Plan, and their annual budgets will be reviewed and updated to include risks and opportunities associated with long-term climate change and to make community investments more resilient. Following activities are planned:

- ✓ *Activity 2.3.1:* A preparation phase, consisting of: (i) coordination of decision makers and the service provider team selected to revisit the local planning instrument; and (ii) sharing tools for mainstreaming climate changes issues;
- ✓ *Activity 2.3.2:* Updating local development plans and SPAT. The different steps for this phase will include: (i) Development of a plan of priority actions using the results of vulnerability analysis; and (ii) Consensus among key actors.
- ✓ *Activity 2.3.3:* Plan adoption and compliance control: developed or revised document will be adopted in accordance with prescribed procedures. The document adopted by the Provincial or Municipal board is subject to the control of conformity according to prescribed procedures
- ✓ *Activity 2.3.4:* identify funding mechanisms for adaptation measures and early warning system at the community level.
- ✓ *Activity 2.3.5:* Dissemination of revised local development plans and SPAT

Component 3: Effective response to climate risk within a programme of community resilience

Outcome 3: Provide necessary investments to protect infrastructures and local livelihoods from climate impacts and build the socio-economic resilience of crisis-affected population

Baseline Cofinancing initiatives/projects

55. After several years of devastating civil war (1993-2000) that had a destructive effect on the economy and infrastructures of the country, Burundi is still a very fragile country. The civil war resulted in the destruction or deterioration of existing facilities; combined with a lack of adequate investment, negatively impact service delivery. As of December 2008, steady progress has been made to restore critical institutions and the country is now in the process of overseeing the resettlement and reintegration of thousands of returning refugees and internally displaced about 150,000 people (IDPs) are distributed in 160 camps in the country.
56. The development baseline initiatives are contributing to the response of challenges posed by the recovery in Burundi, including climate resilience.
 - Current investments from the Government of Burundi made available to target communities a number of plots of lands (about 11.321 plot of land produced in 2013 in 10 different sites in the provinces of Bururi, Bubanza, Kayanza Karusi, Makamba, Muramvya) and granting them with cement and steel panels for the construction of houses. The government will continue to support the Villagisation programme under sectoral budget **and the co-financing from the national budget over the 5 years of this LDCF financed Project will be 4 millions** (see Letter from the Ministry of Finances).
 - The UN agencies (FAO, UNDP, WFP, UNICEF) support Programme built, from 2011 to 2013, eight incorporated villages to resettle 5,000 returnees, IDPs and vulnerable residents. The Programme allowed the creation of local coordinating committees for the implementation of the National Strategy, and the strengthening of the capacity of communities to prevent and resolve conflicts. The program improved the delivery of basic social services through training of health personnel and the provision of 12 ambulances. The integrated program also helped 244 women to establish food-processing companies to small scale, which allowed them to generate income. Other activities included 89 labor-intensive projects,

which temporarily employed 6530 people, including more than 4,000 ex-combatants. A follow up Programme is under design ("*Assistance to internally displaced persons in Burundi*", (**planned 13 Millions USD-expected co-financing to this GEF funded project 6 millions**)) and will focus on socio-economic reintegration and income diversification of IDPs in general and women in particular, gathered in associations, small and medium enterprises and pre-cooperative producers movements, through the development of agricultural and non-agricultural sectors.

However, the current reintegration Programme is no longer specifically taking into account climate change issues. This will be a limiting factor for the sustainability of the resettlement strategy. In addition, most of reintegration programmes are intervening in most vulnerable areas. For example, Rumonge and Nyanza Lac Provinces are bordering the Lake Tanganyika where water level varied between 772 - 777 m of altitude since 1929 to date because of the variability of precipitations in the catchment's area. The receding of waters lead to shortages in water available for domestic and agricultural uses affecting crop and livestock production. Between 1998 and 2005, drought caused 35% livestock mortality and a widespread food crisis. These Provinces are also located in Mumirwa natural region's where erosion is felt by the population as being the principal factor of the fall in soil fertility, and consequently of the fall in crop productivity. In this primarily agricultural and strongly populated area, the economic survival of the population is related to the preservation of soil productivity capacity. In this region, any land subjected to precipitations undergoes the phenomenon of erosion, i.e. a degradation of the relief, a modification of the chemical composition of the soil and its structure and loss of the outer soil surface that is wiped off by run-off waters. The loss of the outer soil surface impoverishes the farmed lands, making it less fertile and less productive. Erosion control and soil fertility restoration are urgent needs that require adequate circumscribing both in its form (manifestation) and its content (causes) in order to propose strategies adapted to the real land situation. There is a need to establish structural, systemic, and sustainable support that meaningfully recognizes and addresses climate change challenges into integrated village programme in Burundi.

- The LDCF financed project is also designed to take opportunities of current support provided by multilateral partners (e.g. World Bank, AfDB and the European Union) to address the lack of basic infrastructures in key cities. These investments will greatly improved access to socio-economic infrastructure in urban centers and strengthened existing municipal management systems. ***The co-financing associated to the infrastructure Programme is 4 millions*** (see Letter from the Ministry of Finance). As April 2012, the World Bank Project "Public Works and Urban Management" (targeting Bujumbura, Gitega and Ngozi) supported the completion of at least 27 subprojects. These include: (i) 27 km of urban paved roads, (ii) 10 new covered markets, (iii) 54 classrooms for primary schools and 30 classrooms for secondary schools, (iv) 7 health centers, and (v) 40 kilometers of urban drainage systems. An extension phase of this project (2012-2015) is underway and aims to: (i) the implementation of additional work (14 million U.S. dollars equivalent) that intensify the impact of the project, and (ii) continue to support institutional reforms and municipal management practices and policies that affect the sustainability of investments (1 million U.S. dollars equivalent). However, the effects of climate change will threaten the sustainability of these infrastructures. Bujumbura is located in the lowlands of Imbo, especially identified by NAPA as vulnerable sites. This area gets a lot of torrents arising on the Congo - Nile Mumirwa, which are highly watered and steep. Very disastrous situations erosion characterized by landslides and colluvium and alluvium deposits in the lowlands are constantly observed and are likely to be accentuated by the heavy rainfall due to climate change. This type of destructive erosion particularly affects urban areas, particularly the city of Bujumbura. Torrential rains in the years 1937, 1941, 1950, 1960, 1961-1964, 1983, 1986, 1989 and 1991 have caused regular cuts combined roads landslides and huge damage to infrastructure and flooding the population of the city of Bujumbura. During the night of 9 Feb 2014 torrential rains fell for around 10 hours and caused flooding, mudslides and landslides in five communes of Burundi's capital, Bujumbura. As of 12 Feb two more areas, Bujumbura rural province has been affected: 64 people have been reported dead, of which many were children. There is a concern that more people may have been buried. Over 940 homes have been destroyed and nearly 12,500 people are estimated to be homeless.

However, the effects of climate change will threaten the sustainability of these infrastructures. Bujumbura is located in the lowlands of Imbo, especially identified by NAPA as vulnerable sites. This area gets a lot of torrents arising on the Congo - Nile Mumirwa, which are highly watered and steep. Very disastrous situations erosion characterized by landslides and colluvium and alluvium deposits in the lowlands are constantly observed and are likely to be accentuated by the heavy rainfall due to climate change. This type of destructive erosion particularly affects urban areas, particularly the city of Bujumbura through which 4 of these torrents. Torrential rains in the years 1937, 1941, 1950, 1960, 1961-1964, 1983, 1986, 1989 and 1991 have caused regular cuts combined roads landslides and huge damage to infrastructure and flooding the population of the city of Bujumbura. In April 2009, the floodwaters reached the previously unaffected areas, "even moving on a road leading to Bujumbura International Airport. During the night of 9 Feb 2014 torrential rains fell for around 10 hours and caused flooding, mudslides and landslides in five communes of Burundi's capital, Bujumbura. As of 12 Feb two more areas, Bujumbura rural province has been affected: 64 people have been reported dead, of which many were children. There is a concern that more people may have been buried. Over 940 homes have been destroyed and nearly 12,500 people are estimated to be homeless. Most families have lost everything. These floods affect public and private infrastructures of national economic importance such as the companies BRARUDI, COGERCO, RAFINA SEP, and the Port of Bujumbura at the delta of the Ntahanga. In the natural region of Mumirwa, where Bujumbura is also located, one can observe the events of climate change manifesting as prolonged drought, heavy rains and flooding, and landslides. The vulnerability of this region is also due to its topography with permanent long and steep slopes as well as the abundance hydrological network of rivers that cross the city of Bujumbura and the Imbo Plain lowlands. Landslides change magnitude in case of increased precipitation, and result in destruction of both public (infrastructures, roads, schools, health centers, etc.) and private (houses, fields of populations, etc.). In case of heavy rain, rainfall increases, and rivers and ravines increase their dynamics. Riverbeds are collapsing and riverbanks are crumbling in many places. Rocks and ground eroded torn along rivers and ravines course as a consequence of lateral and vertical erosion, are deposited in areas of low slope and make stream shallow increasing flooding of lowland in the Plain of Imbo.

Component 3

Cofinancing: US\$ **14, 000,000**

GEF / LCDF requested US\$ **5,000,343**

See section IV for more details

Alternative

57. Without LDCF intervention, the lowlands of the Imbo and Mumirwa regions will continue to be threatened by the impacts of increased precipitation that result in the amplification of linear erosion along watercourses that are causing destruction and/or damage to many public and private infrastructure located in different districts of Bujumbura. If river bed corrections of the multiple streams and protection works are not carried out, Bujumbura will continue to experience heavy floodings. These events have very negative impacts on the national economy and on people's health because they are the basis of: contraction in agricultural and livestock production, malnutrition of populations, and the contraction of water level in the North Lake. The protection of natural resources in an environment with high density population, appalling level of poverty and problematic governance needs to be conducted while keeping human rights and particularly right to food in focus, and with careful understanding of local vulnerabilities and power patterns.
58. LDCF funded project will come in additionality to these on-going efforts of resettlement and urbanisation by providing necessary investments to protect infrastructures and local livelihoods from climate impacts and build the socio-economic resilience of crisis-affected population. The funded LCDF project seeks to implement measures that could simultaneously reduce risk, enhance ecosystems and vulnerable households through strengthening livelihoods. LDCF resources will complement these efforts during relocation and improvement of urban infrastructures by reducing local causes of climate change

through reforestation. While increasing adaptation level by strengthening the collines with the appropriate land management and plant use, and while also keeping the safety of people as a pivot value, it is important that the livelihoods of people are not affected negatively.

Outputs and activities

59. Three key outputs will contribute to this result:

Output 3.1: Realisation of 300 ha of vegetated ditches erosion control in Bugabira, Busoni and Kirundo-rural to protect and preserve communities lands from higher risk of pluvial top soil erosion

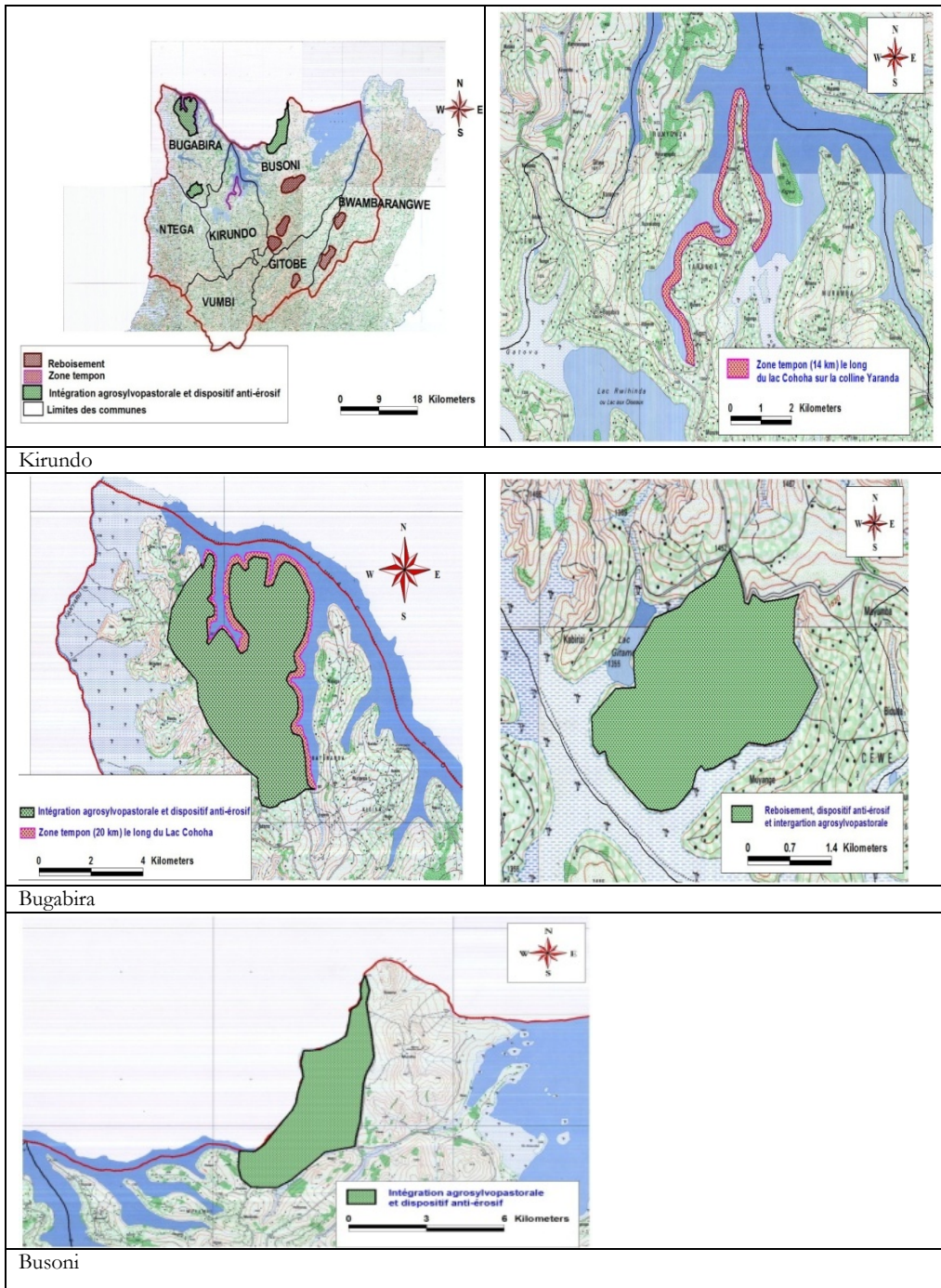
Well maintained vegetated ditches is a technology providing three main advantages: the preservation of soil fertility through prevention – and interruption - of erosion; the possibility of feeding livestock with forage grasses; and the possibility of introducing plant species for agroforestry, or improved banana trees. Following activities in target sites are planned. The implementation of anti-erosion vegetated ditches will enable agro-forestry-pastoral integration and protection of Lake Cohoha. The following activities will be performed:

Activity 3.1.1: Production of plant nurseries (i) 3million of agroforestry plants and 3,000 fruit plants to be planted in agricultural plots in the of Communes of Bugabira and Busoni plants, (ii) 500,000 plants fodder shrubs, purchase of 1,250,000 tufts of stabilizing plants to be planted in hedges on slopes and along roads to control erosion, retain water, and reclaim ground by improving its quality and preparing it for revegetation. Target communities, specifically women groups, will do the multiplication of plants and the seedling.

Activity 3.1.2: Realisation of protection works: Communities, supervised by technical services, will undertake the reforestation of 300 ha in following hills: Kirerama (54ha), Kagirasoni (60 ha), Mukerwa (34ha) Mutarishwa (45ha), Budahunga (50ha) and Nyarukeza (57ha). They will be also realized the digging ditches for erosion control on 500 km in the farm communities of the municipality of Bugabira (Kiyonza and Kigoma areas);

Activity 3.1.3: Facilitate the engagement of communities: at least 2 workshops per year will be organized to sensitize communities on the maintenance of plantations established and on the work for erosion control. The Colline Management Committee (50/50 male/female) will be set up for the maintenance of the system.

FIG 6: Target sites and interventions in Kirundo, Bugabira and Busoni



Output 3.2: Stabilization works undertaken in Ntahangwa and Gaseyni Rivers to reduce the risk of flooding landslides in Bujumbura City

From February 9-10, 2014, Burundi experienced heavy rainfall that generated intense runoff in the watersheds, together with landslides and the outburst of a small-unplanned reservoir on the Gasenyi River. The main road RN1 and the populated unserved neighborhood of Gatunguru in Kinama, downstream Gasenyi River, were washed away by a violent flash flood, responsible for the majority of the casualties. After the catastrophe, the agencies and programs of the United Nations (UNDP, UNICEF, WFP, FAO, IOM), the European Union, the African Development Bank and the World Bank have been working closely to support

the government in the development of this rapid assessment. Among the priority activities, the joint team identified the protection of infrastructure weakened by the disaster, to prevent further damage or collapse, which is imminent in some cases with erosion due to the rainy season. As medium Crosscutting disaster risks management activities, like sustainable lands and water management are also identified. The Resources from LDCF will support the government of Burundi to realize urgent, medium and long-term activities identified by the assessment. Under the component 1, the financed LDCF project will establish a community early warning system in communes already affected by the disaster (e.g. Isale, Gatunguru). Under the component 3, stabilization works will be undertaken in catchment upstream of Bujumbura (Ntahangawa & Gasenyi Rivers) to protect Bujumbura city against the risk of ravinement, landslide, mudslide, and to gradually reduce runoff.

Activity 3.2.1: Preliminary slope stabilization works in watershed upstream of Bujumbura (Ntahangawa & Gasenyi Rivers)

It will be undertaken:

- The Production of plant nurseries and consequent planting of 800.000 agroforestral plant, and of 3,000 fruit plant in Isale, Mugongo-Manga, Nyabiraba, Kanyosha (Ntahangawa watershed) and Kinama (Gasenyi watershed)
- The production of plant nurseries and the seedlings of 800.000 fodder shrubs; purchase of 1,250,000 tufts of stabilizing plants to be planted in hedges.
- The reforestation of the top of hills on 300ha in the area of haute Mumirwa in the Municipality of Isale, Mugongo-Manga, Nyabiraba, Kanyosha and Kinama.
- Digging erosion control ditches for 800 km according to location and nature of the soil on the farm in the Municipalities above mentioned;
- Organization of workshops to sensitize communities on the maintenance of planted vegetation and erosion control works
- Implementation of the Colline Management Committee for system maintenance.

Activity 3.2.2: Advanced slope stabilization works in Ntahangwa Rivière

It will undertaken:

- The faisability studies with complementary assessments to finalise the cost-effectiveness and due-diligence with respect to socio-environmental and other standards. Identification of measures will be based on current and future vulnerability using different climate scenarios through the downscaling of available climate data and coupling with matching socio-economic information;
- The construction of 8 gabion small dams and 200m of gabion retaining walls to reinforce banks upstream of the Ntahangwa bridge's



FIG 7: Planned interventions in Ntahangwa River

- The construction of 2 reinforced retaining walls under vulnerable public infrastructure and houses;
- The completion of sloping banks works through the inclination of the slope gradient to 60degree to make them more stable;

- The stabilization works of the Ntakangwa Bridge at Boulevard du 28 November through the construction of asin on reinforced concrete for the reduction of hydropower that erodes the foot of the bridge;
- The redirection of hydraulic flow over 800m.

Output 3.3: Accompanying measures to strengthen the food security of vulnerable households

During the PPG field mission, communities have expressed their needs to develop adaptation measures that could simultaneously reduce risk, enhance ecosystems and target vulnerable households through strengthening livelihoods. This is why a number of accompanying measure have been identified and here proposed, so that environment protection measures and land management interventions do not result in losses of access to natural resources for vulnerable households, nor interested populations are set as passive spectators of interventions developed with top down approach.

Activity 3.3.2: At least 100 households around the lake Cohoha supported to undertake climate resilient IGA

The Lake Cohoha is facing persistent drought by climatic changes resulting from unfriendly human practices—over-cultivation, deforestation and unregulated livestock farming methods. Due to human activities such as farming and grazing, at least 30 meters of Lake Cohoha's shores have been lost so far. The Burundi code on protection of water resources states that: “50 meters from the lake should be a buffer zone, unfarmed or affected by any human activities”. Many families have already been enforced to regress and leave the land closer to the lake (around 50m belt) but had no support for this. In the testimony of some women interviewed, this measure has caused severe food insecurity and increased poverty (due to high prices of food in the area) since the land by the lake was much more productive even in case of insufficient rain and drought. Means and capacities will be provided to women groups to identify and select relevant and profitable alternative livelihoods to reinforce food security considering the loss of access (not of property) to more productive land. Following actions will be undertaken;

- Rapid Assessment of potential opportunities to diversify women incomes during the project inception phase. Also, as the Ministry of Agriculture (Center for Planning and Research) is exploring, consider promoting apiculture as a more sustainable breeding activity to reinforce household food security, also very important to increase plant pollination and fruit production.
- Distribution of goats and poultry with proper sensitization and direction. Consider proposing ranching over free range as the appropriate way to raise the goats in high population density zone, with collection of manure and distribution on field.
- Facilitate the access of climate resilient seeds for horticulture and use of collective pump (or hand or foot operated) every 500 meters to 100 meters from the lake, to maintain the small family garden. This activity will be done in coordination with FAO, that shown it's interest in adding funds to install two pilot solar pumps (300m from the lake) and the local irrigation system.
- Tutorial and accompanying extension sustainable agriculture and farming techniques. Training will be organise on the maintenance of irrigation schemes.

Activity 3.3.2: Demonstrating the benefits of water collection from the watershed, in combination with set up of vegetable gardens (for communities leaving in the hills)

These measures must be implemented on the hills where people will show greater participation and good results on the CB EWS and in protection of created infrastructure. On houses with tin roof simple solution for water collection can be applied on a number of about 100 households to start. The sequence shall encompass:

- Sensitization and direct observation of the effects on the ground of uncaptured water proceeding from roofs
- Self targeting of households who accept to participate in the initiative (explaining what is required and what will be given)

- Set up of gutters in tin roofs of houses of the participating families
- Distribution and positioning of 100 liter small tanks / container in position for water collection
- Set up of kitchen garden for each household participating in the programme. Identify best design according to average available size (consider option of small vertical terraced tower scheme)
- Distribute climate resilient seeds for horticulture to be used in the kitchen garden and provide direction on watering (min and max per day according to available water and season)
- Consider exploring apiculture as direct enhancement of food security and natural improvement of plant pollination (and fruit production)
- Regular monitoring and tutoring
- When plants begin to bear fruits, organize visit of other collines on the pilot place.

Activity 3.3.3- At least 50 households supported with climate resilient cooking technology to reduce wood consumption

As many intervention of reforestations, according to local authorities, were hampered in their effectiveness due to high level of exploitation of trees, included young plants providing very little biomass for charcoal, rethinking the approach to replanting trees seems needed. On one side, it might be important to opt for indigenous variety, slower in growth, but more appropriate for soil and for climate, and less demanding in terms of water needs than the mainstreamed eucalyptus, commercially valuable and difficult to protect. On the other side, the very level of consumption of wood at least of population living in target areas need to be addressed and reduced with interventions on improving available cooking technologies. The project therefore will envisage:

- Training of women organisation to build high efficiency stoves¹⁰
- Distribution of high efficiency stoves to the very vulnerable or labour constrained families
- Assess the potential for developing briquette from vegetable waste with minimal technology requirement. Environmental and social impacts assessment will be conduct to avoid generating excessive pressure on available biomass, which could be negatively impacting availability of natural fertilizer for soil degraded areas.

II.5. Project Indicators, Risks and Assumptions

60. The proposed project indicator framework follows the GEF-5 Adaptation Monitoring and Assessment Tool (AMAT) and is aligned with the UNDP M&E Framework for Adaptation. Objective level indicators and outcome level indicators are specified according to the UNDP nomenclature of Results Based Management (RBM). The project design further foresees the development of more specific M&E tools, especially at the local implementation level. Participatory local level M&E can be a powerful management and communication tool, especially for tracking and demonstrating project results in demonstration sites. It is foreseen that a more detailed M&E project framework will be developed during the project inception phase for national management purposes. An overall project M&E plan has been devised and is included in the respective section of the project document below. It foresees regular progress reports, as well as audits, a mid-term evaluation and an end-of-project evaluation. Assumptions underlying the project design include that:

- An Effective cooperation, between technical institutions in charge of climate monitoring, disaster risks management, the local governments and local communities, will be developed for the integration of changes climate adaptation issues into local policies and budgets process;
- The establishment of a Community-Based Early Warning System with a mechanism for real time and operational climate information system;
- A sufficient number of training and capacity building programs will be developed to operationalize, in a sustainable manner, the climate risks mamngement tools and climate resilience activities in selected sites;
- Replication of effective adaptation measures to be carried out at the demonstration sites through a system integrating lessons learned in the formulation and review of policies and programs;

¹⁰ Example from a SGEF fund in Ivory coast, as a measure to reduce wood consumption and as income generating for women.

- Sufficient adaptation capacities will be built during the project to ensure sustainability of project activities beyond the project's time horizon.

61. A complete Risk Log is included in UNDP Prodoc Annex 1 of the project document. It includes risks identified in the project identification form (PIF) (see below) as well as newly identified risks. Additional barriers are included in the Barrier section above and are generally represented by the risks specified below. Most risks are organizational or strategic in nature, and mainly relate to relatively low current institutional and individual capacities of the public service structure in terms of adaptation. In summary, the following key risks were identified:
- Social conflict
 - Political instability
 - Insufficient institutional support and political commitment
 - Low Institutional/ Execution Capacity
 - Duplication and lack of coordination with other initiatives, resulting in inefficient use of resources, and a loss of Unavailability of requisite human resources and data
 - Duplication and lack of coordination with other initiatives, resulting in inefficient use of resources, and a loss of opportunity for building climate change resilience
 - Lack financial sustainability
 - Unavailability of requisite human resources and data
 - Sustainability of investment due to low capacity of communities to maintain infrastructures
 - Potential Environmental and social risks mainly linked to activities
 - Impacts of climate change far greater than predicted
 - Insufficient institutional support and political commitment
 - Target communities in collines do not see the benefit of new practices or social conflicts hinder taking up the practices.

II.6. Cost-effectiveness

62. The Burundi is facing recurrent floods that resulted in substantial damages to infrastructure and economic losses. On February 2014, up to 182 persons have been injured, with 84 of them seriously injured. Over 940 homes have been completely destroyed and nearly 12,500 people are estimated to be homeless. Infrastructures have been destroyed, including roads, power supplies, as well as crops and livelihoods.

63. The proposed LDCF financed projects will the Government of BURUNDI to overcome key barriers identified as major issues that contributed to the climate disaster. These are: (i) denuded vegetation and land degradation in upstream areas, including watersheds; (ii) People settled close to lake edges or near lowlands and marshes are likely to be flooded; (iii) lack of early warning communication, preparedness and evacuation of affected communities; and (viii) limited capacity of local deciders to protect communities and infrastructures from climate disasters. The development of medium to long-term activities is needed to better cope with the underlying causes of drought, floods and landslides in Burundi. Using techniques such as the mapping of risks, improved early warning systems and urban planning, it is hoped future landslides and floods can be prevented. It also addresses the priorities 1,6 & 10 that have been identified in the NAPA as urgent and immediate adaptation priorities. These priorities have been weighed for cost-effectiveness and sustainability before the proposed project components were selected and elaborated.

64. The project is designed to strengthen local response to climate disaster risks through the application of relevant climate disaster management tools and the promotion of adaptation technologies in urban and rural areas to ensure the socio-economic resilience and wellbeing of vulnerable communities. The total project cost is estimated at US\$8,75 million over the period of five years. The project area includes the Provinces of Bujumbura Rural, Kirundo, Makamba and Bururi (total: 36 collines).

65. During the project design, a number of adaption priorities have been assessed through documentation review, consultations at the national, provincial municipal and local levels, and sites visit. After initial consultations conducted as part of the PPG, prioritized pilot adaptation activities identified by stakeholders were the following:

- Continuation of water canalization path with solid materials, including stone cages and cement to prevent further erosion, and water barriers to reduce water speed and prevent debris to flow into the lake, accompanied by regular and intense maintenance and cleaning measures;
- Reinforcing ravines borders and reducing access borders of bamboo;
- Support household or neighborhood based solutions to manage organic waste with controlled areas for goats to roam and pasture on organic fraction of kitchen waste (to avoid bamboo plantation along Ravine borders to be destructed, and for reducing waste in water channels);
- Organize sensitization of effects of households solid waste not properly discharged;
- Explore organizing association/cooperatives for recuperation and sale of plastic to industry;
- Creation of Risk reduction and disaster management committees at lowest possible level, inclusive of at least 50% of women, including members of different ages, economic classes and capabilities (at least 1 physically disabled person). In the work of the committees, include discussions on avoidance of buildings and possibly cultivations in risk areas, with the focus on finding agreed solutions for land tenure of those with essential (not redundant) property in risky areas;
- Consider compensation of those in risky areas with concomitant relocation in anticipatively agreed lots, and exclusion of dangerous areas from available lots;
- Increase IGEBU capacity on weather forecast included wind strengths and patterns;
- Reinforce communication aiming at weekly and then daily exchange with all field civil protection officer of easy to understand weather forecast by zones;
- Consider installation of wind measurement stations in critical points (fisherman main docks, up hills);
- Develop civil protection officers (not only managers) capacity in weather forecasts understanding, and in collecting data for IGEBU from newly established stations.

66. After careful and in-depth analysis, it has been decided to focus on 3 specific options: (i) the establishment of an operational Community Based Early Warning system (1,817,560 USD); (ii) the training of communal services, relevant ministry support services and Provincial disaster risks platforms on to use climate risks management tools (1,119,720 USD); and (iii) the financial support on relevant early warning systems and adaptation technologies to protect infrastructures and local livelihoods from climate impacts (5,362,720). These options have been selected on the basis of significant direct and indirect economic impacts on the economy of the project areas.

67. Given the nature of this project, it is difficult to quantify the potential project benefits and estimate the economic rate of return to project investments. First, the project has only a few revenue generating activities that can be used to quantify the benefits. Second, the project has allocated almost 12% of the project cost to strengthen the disaster risk management capacity of local government and civil society organizations and the potential benefits, while very large, are difficult to quantify.

68. The project has other direct and indirect potential benefits that are briefly summarized below:

- Involving population in the analysis, design and functioning will make the system structurally relevant and more effective in providing relevant and timely information in emergency to the vulnerable ones;
- Based at the community level the system can generate granular highly relevant real time bottom up information, accurate and useful for alerting all those concerned by an event and to activate well targeted response;
- Developed in a gender sensitive way can provide operable information to national and international levels for designing more relevant interventions oriented at strengthening resilience and at filling gender gap in vulnerability;
- The development and functioning of the system requires an investment on community mobilisation that will pay off in terms of improved awareness on good practices (and negative ones) of land

management and use vis a vis climate change, and as preparedness to minimize the toll of disastrous events.

- Involvement of communities in monitoring climate and the territory can build the engagement of the populations living on the land for the protection of the natural habitat and resources, including a better and more informed use of forests and of other natural resources;
- Increasing public managers' as well as population's knowledge of dynamics involved in climate change, included deforestation, land use change and water management, can increase good governance (better information for more sustainable decision) while also obtaining an increase of the accountability standard (better informed population can exercise better control on public decision on land management).

69. The project has allocated almost 12% of the project resources to strengthening technical and institutional capacity in the urban and rural areas. The likely impact of the project on capacity strengthening is summarized as follows: - First, the project interventions will strengthen IGEBU capacity to generate real-time warnings information for vulnerable areas. - Second, technical experts engaged in decentralization process will be provided with skills on climate risks concepts, analysis and use of information for planning purpose. - Third, communities engaged in CB EWS will be harnessed to improve response mechanism; and finally, staff and political representative of relevant ministries, as well as technical services of the different municipalities in the country, and members of the platform will received information on maintaining and managing water systems in the fast-growing under climate variability and changes. The advantages of this approach are manifold, in particular: (i) a good level of knowledge from all categories of staff and local population enables a common understanding of the problems generated by climate change as well as the adaptation options responding to local needs; and (ii) community involvement in the various activities will ensure buy-in of promoted activities and scaling-up to a broader audience of the promoted measures.

70. The LDCF financed project intervention's will not only strengthen technical and institutional capacity but will also improve alignment with and implementation of various Government initiatives that deal with DRR, DRM and climate change. These initiatives include (i) National Platform for DRR (ii) National Strategy and plan for Disaster Risk Prevention and Reduction; (iii) National Adaptation Program for Action (NAPA) under the UN Framework Convention on Climate Change (UNFCCC).

71. The project will have a positive impact on agricultural growth due to several project interventions. About 2,000 ha of agricultural land will be protected from floods and landslide through erosion control in the Bugasera and Mumirwa regions. This would be added to the total irrigable area to enhance food security in the target regions. In term of environmental benefits, the erosion control works will help slow down runoff and consequently curb soil erosion, favour sedimentation of fine particles to increase water retention and improve water infiltration and consequently the refilling of the water table. The combination of woodlots with these works and the planting of binding grass will protect farmlands against erosion and improve their fertility.

72. The cost effectiveness of the project is demonstrated by using examples of the impact of project investments in protecting infrastructures and local livelihoods from climate impacts (Component 3). The project will help mitigate the impact of future climate disasters and increase Burundi's overall resilience capability. If the project investments in flood protection (Component 3) and disaster risk management (Component 1) are made, as proposed, and properly maintained over a period of 25 years, the project will have substantial economic impact by avoiding the damages and losses due to future floods in the absence of this project. According to the history of the last 50 years, Burundi experiences floods 11 times and the estimated value of the damage and some economic losses due to the flood on January 2014 was US\$ 3 million.

73. The project interventions will not only improve capacity but will also protect urban infrastructure through river stabilisation in order to improve efficient delivery of critical public urban services. As the share of urban population in the country is likely to increase to at least 50% by 2050, the protection of critical public urban facilities/services is absolutely essential. This will have a major impact for improving the quality

of life in Bujumbura Rural and Mairie. This will also reduce any interruptions of urban public services due to any future disasters like these floods.

74. Finally, the project will induce 16,424 temporary jobs (with at least 40% of women) in community erosion control works and infrastructure protection and income generating activities. This situation will lead to an improvement of the socio-economic indicators and a significant reduction of the incidence of poverty. Income-generating activities such as bee keeping, market gardening and fruit growing will contribute to economic growth, and notably to the wellbeing of women and children. This increase in incomes will relieve the poorest populations of the project area who will then be able to bear certain expenditures on food, health and education.

II.7. Sustainability

75. Overall sustainability of the project relies on the full commitment of the Government of Burundi in coordinating and providing guidance on climate changes and disaster risks management.

76. The mainstreaming of adaptive measures to address additional risks posed by climate change within the local and regional development strategies of the targets Provinces and Communes (target: 2 SPAT and 3 PCDC) will ensure institutional sustainability. This project will effectively mainstream climate change into relevant planning mechanisms such as the local development plans and budgets, thus ensuring sustainability of the intervention.

77. Critical factors for project institutional sustainability will be also addressed through a full collaboration with institutions at national and local levels and adequate M&E procedures carried out by different national agencies. The project will provide support to the entities to strengthen their capacities in line with their role in the project. The project team will be based in close proximity to the municipalities - within provincial administration services - and a number of civil servants will be identified, equipped and trained at the provincial municipal and collines levels in order to work with the project team and closely monitor project activities and results. Along the same line of ensuring the project's sustainability, a strategy for replicating site-level interventions will be developed.

78. The long-term project viability and sustainability will depend greatly on its 'ownership' and on the 'institutionalization' of capacity built by the project. All capacity building activities foreseen in the project have been planned so as to have a lasting impact, both at the local and national levels, e.g. training components will be planned based on needs assessments. At the local level, the project will be associated with local NGOs and community organizations and the private sector, building their capacities and thus ensuring long-term buy-in. Empowering all local-level stakeholders, including the dissemination of timely and meaningful climate & warning information and erosion control techniques to the communities and through a whole range of capacity building activities tailored to their specific needs and defining and implementing an efficient knowledge management and sharing system to efficiently capitalize lessons learned will also contribute to institutional sustainability.

79. The beneficiaries will directly take part in early warning system and implementing activities related to erosion control. Such involvement of the populations and their role in the implementation of project activities is likely to guarantee the sustainability of the actions, enhance their capacities to prevent and management climate disaster risks and obtain additional resources. The envisaged training of the population and extension services will build their capacities and will create the conditions for sustainable resilience and local development, by fostering the emergence of community groups capable to act appropriately and in sufficient time to reduce the possibility of harm or loss. The developments, which will be carried out at the request of beneficiaries, will use simple techniques that are adapted and easily grasped by the populations.

80. Finally, lessons learned from the implementation of this project will be compiled and diffused to a broad range of stakeholders, using a systemic framework, and the project will make use of the ALM to ensure that the lessons learnt from the project contribute to, and benefit from, experiences in adapting to climate change across the entire LDCF portfolio.

II.8. Replicability

81. The project is designed to scale up effective and efficient community-based adaptation measures and practices. It is designed to ensure a wide adoption and diffusion of these practices. Such an approach will ensure the sustainability and replicability of the results achieved. Furthermore, by organizing exchange visits between farmers from other Prefectures, it is expected that other communities will replicate community-based adaptation initiatives. The **replication mechanism** is embedded in project components.

- Potential for organisational scaling up is developed under the Component 2 in the view that training activities will increase organizational strength of selected extension institutions on climate changes risks management and vulnerability assessment, allowing them to adjust regulations and policies governing development sectors (such as water, infrastructures, environment, etc.) and disaster risks reduction strategies at national and local level (Provincial & local development plans). From the baseline, individual and institutional capacities on climate changes adaptation do not exist. At the end of the project at least 4 ministerial & decentralised institutions, 36 collines DRR committees' representatives (all estimated to be at least 300 people) will increase their capacity on climate risks management and assessment (output 2.1).
- In term of political scaling up, it will be facilitated the integration of climate changes adaptation concerns into the political agenda at Provincial and communes levels and foster local government engagement to adjust local policies and inclusion and the provision of climate smart finance (output 2.2).
- Documenting adaptation practices and technologies constitutes a precondition and point of departure for the process of scaling up and out (quantitative scaling up). Under Output 1.e, project lessons learned will be generating, sharing, capturing, and disseminating among current stakeholders but also future stakeholders who want to promote and implement effective, sustainable, large-scale climate resilient water infrastructure and management practices. The participatory processes and other collaborative planning approaches to be developed at local level by of the project will enable multiple stakeholders to share knowledge, develop awareness, and improve learning and foster replication in other sites. In addition, the skilling communities members in appropriate climate resilient adaptation techniques (Output 2.3) will facilitate further upscale the application of these technologies. Finally, a functional knowledge management documents (adaptation guides on CB EWS, planning, gender, etc.) will be developed under each component to ensure that the outcomes find their way into national development planning and negotiation with investment partners.

II.9. Compliance with UNDP Safeguards Policies

82. From an environmental and social safeguard point of view, the project is rated as a Category 3a, with small scale, site-specific and manageable environmental and social impacts. No adverse long-term impacts are anticipated. Under Component 1 (Community Based Early Warning system), the project will enhance communities understanding of climate risks to prepare them to cope with the impact of climate disaster risks by facilitating information access and data resources, disseminate project-generated data and information, and foster public awareness about the potential impacts of climate change. Under Component 2, the project expect to have positive impact in the planning process at subnational levels by strengthening national capacities in climate risks management by providing necessary knowledge and tools for development decision-making in the selected Provinces and Communes. National Government technical staffs and subnational decision makers will be provided with appropriate training, policy/legal tools and integrated coordination mechanisms to improve /support policy design and implementation in dealing with current and long-term climate challenges. Under component 3 : The net social and environmental effect of the project is expected to be highly positive. By providing better protection against floods in urban and rural areas reduces risk of losing livelihoods and assets, such as housing and crops. The project is also expected to improve the food security status of households, as crops will not be as susceptible to losses due to floods and drought.

83. The anticipated negative environmental and social impacts of the project would result mainly from civil works associated with (i) the realisation of vegetated ditches erosion control and (ii) the stabilization

works undertaken in Ntahangwa and Gaseyni Rivers to reduce the risk of flooding landslides in Bujumbura City. The Government undertakes an Environmental and Social Management Framework (ESMF) that will provide guidance and measures with clear roles and responsibilities, along with capacity strengthening measures for effective implementation and monitoring. The document will provide key steps for screening all project components, outlines procedures for preparing, reviewing, clearing, disclosing and monitoring subproject-specific Environmental and Social Impact Assessments (ESIAs)/Environmental and Social Management Plan (ESMPs). The document will be validated during the LPAC meeting.

84. Coordination and implementation of the Project's environmental and social safeguards will be carried out by the PCU, which has recruited an M & E expert to be responsible for overseeing Project compliance with the environmental and social guidelines established under the ESMF. An MOU will be developed with the Burundi Association for Environmental Impact Assessment (ABEIE) for external monitoring and evaluation of safeguards. Finally, UNDP will develop key guidelines to ensure that during overseeing missions, the UNDP GEF RTA will report on the progress of the safeguards.

III. Result Framework

<p>This project will contribute to achieving the following Country Programme Outcome as defined in CPAP 2014-2016:</p> <p>Outcome 2.1.6: The institutional, organisational and technical capacities at national, local and community levels for the management of the environment, natural resources et climate changes adaptation are strengthened</p> <p>Outcome 2.2.1: The institutional, organisational and technical capacities at national, local and community levels for the prevention, preparation of disasters risks, including natural, are strengthened</p>
<p>Country Programme Outcome Indicators:</p> <p>Number of mechanisms and tools for the regulation, coordination, management and expertise of the environment and natural resources, climate change and disaster risk revitalized and / or established, and operational.</p> <p>Number of techniques, technologies and infrastructure for the preservation of the environment and resources, and the resilience to the impacts of climate change and natural disasters</p> <p>Existence of an integrated and functional information, evaluation and supervision system on Climate change & disasters risks and reduction</p> <p>Existence of technical tools, technical expertise and appropriate equipment</p> <p>Existence of a climate risks adaptation program</p>
<p>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):</p> <p>3. Promote climate change adaptation</p>
<p>Applicable GEF Strategic Objective and Program:</p> <p>CCA-1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level</p> <p>CCA-2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level</p> <p>CCA-3: Promote transfer and adoption of adaptation technology</p>
<p>Applicable GEF Expected Outcomes:</p> <p>Outcome 1.1: Mainstreamed adaptation in broader development frameworks at country level and in targeted vulnerable areas</p> <p>Outcome 2.3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level</p> <p>Outcome 3.1: Successful demonstration, deployment, and transfer of relevant adaptation technology in targeted areas</p>
<p>Applicable GEF Outcome Indicators: (following AMAT tool)</p> <p>Indicator 1.1.1. Adaptation actions implemented in national/sub-regional development frameworks</p> <p>Indicator 2.3.1. % of targeted population awareness of predicted adverse impacts of climate change and appropriate responses</p> <p>Indicator 3.1.2. Type of relevant climate change adaptation technology implemented in selected areas by participatory stakeholders</p>

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
<p>Project Objective¹¹ <i>Provincial, communal services and local communities capacitated on disaster risks preparedness and responses management to ensure long term and sustainable emergency and reconstruction phase in Bugesera, Mumirwa and Imbo Lowlands' regions (equivalent to output in ATLAS)</i></p>	<p>No. and type of actors in Kirundo, Makamba, Bururi and Bujumbura Provinces with increased adaptive capacity to reduce risks of and response to climate variability (AMAT indicator 2.2.1.)</p>	<p>Type and level: 0 The capacity of communities, local governments, and national government to respond effectively to climate change risks remains limited due to the non-availability of relevant data and management tools, the lack of local technical expertise, and the low contributions in financial resources. There is insufficient indigenous knowledge on weather forecasting indicators and skills in the future. In addition, climate change risks and climate resilient activities are not considered into the planning and budgeting systems at the local government and community levels.</p>	<p>At least, 150 technical staffs from extension services, municipalities, 50 members of DRR platforms and 1000 households (with a gender balance) implement adaptive and more resilient measures to climate change impacts</p>	<p>Survey Interviews APRs/PIR</p>	<p><u>Assumptions</u></p> <ul style="list-style-type: none"> ➤ Good coordination and better coherence of disaster risks management ➤ Participation and commitment of target communities <p><u>Risks</u></p> <ul style="list-style-type: none"> ➤ Social conflict ➤ Political instability ➤ Insufficient institutional support and political commitment ➤ Low Institutional/ Execution Capacity ➤ Duplication and lack of coordination with other initiatives, resulting in inefficient use of resources, and a loss of opportunity for building climate change resilience

¹¹ Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Outcome 1 ¹² <i>An operational Community Based Early Warning system established capable to engage and reach out target communities for climate change disasters risks prevention and guiding the implementation of adaptation activities.</i> (Equivalent to activity in ATLAS)	No. and type of stakeholders targeted in target collines with access to information and alerts proceeding from advanced data analysis and hydro meteorological forecasts (gender disaggregated) <i>(AMAT indicator 2.1.1.)</i>	No. and type: at least 500 households received alert messages from Civil Protection officers and the Burundi branch of the Croix Rouge. Civil protection officers use megaphone to encourage evacuation in case of strong rains and floods. The Burundi branch of the Croix Rouge has developed – at least in the provinces identified as main target of the present project, Bujumbura rural and Bugasera – an impressive structure with high capillary presence at hill level (around 150 volunteers each hill) and locally-based consistent response mechanisms to assist the most vulnerable families with food and other basic items.	At least 2000 households in the 36 target collines have access frequently to climate risks information and alerts proceeding from advanced data analysis and hydro meteorological forecasts	Survey Reports; Monitoring reports from DRR platforms IGEBU annual reports APRs/PIR	<u>Assumptions</u> <ul style="list-style-type: none"> ➤ Existence of an operational Disaster Risks platforms at different levels ; ➤ Participation and commitment of target communities <u>Risks</u> <ul style="list-style-type: none"> ➤ Unavailability of requisite human resources and data ➤ Duplication and lack of coordination with other initiatives, resulting in inefficient use of resources, and a loss of opportunity for building climate change resilience
	Type and No. of information systems in place to support CB EWS in target collines <i>(AMAT indicator 2.1.2)</i>	Type and No.: 2 FAO and WFP, have developed nation wide monitoring systems: the “ <i>Système d’Alerte Précoce et Suivi de Sécurité Alimentaire</i> ” (SAPSSA). But, the FAO’s system is more focused on agricultural production and animal husbandry, while WFP FSMS more on food security and access to food.	At least 10 community based Early Warning systems established to convey down accurate hydrometereological previsions messages & climate risks alerts to population		

¹² All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Outcome 2 <i>Communal services, relevant ministry support services and Provincial disaster risks platforms trained to use climate risks management tools for long term planning under climate change variability and projections</i> (equivalent to activity in ATLAS)	No. and types of staffs trained on adaptation and climate risks management themes and tools (gender disaggregated) <i>(AMAT indicator 2.2.1.1)</i>	No and types: 0 No climate risks tools available to extension services and DRR Platform to support communities on climate disaster risks management Low capacity of staffs from IGEBU to produce real-time information on weather forecasts, climatic and agro-climatic	At least 50 staffs from extension services and 100 members from DRR Platforms trained on climate changes themes including climate risks management, and functioning of CB EWS At least 15 staffs from IGEBU trained on Geographic Information System tools and software, remote sensing and satellite image interpretation, meteorological analysis, climate disaster risks information management	Training evaluation and monitoring Reports; APRs/PIR	<u>Assumption</u> <ul style="list-style-type: none"> ➤ Commitment of national institutions, local government, civil society, and research institutions; ➤ Effective intersectoral collaboration <u>Risks</u> <ul style="list-style-type: none"> ➤ Lack financial sustainability ➤ Unavailability of requisite human resources and data
	Number of SPAT & PLDC including specific actions and budget for climate change adaptation <i>(AMAT indicator 1.1.1.1)</i>	Num. 0 Most of local deciders and communities have limited ability to integrate climate change in all relevant sectoral activities and in development strategies in general.	At least 2 SPAT et 3 PCDC are updated to include climate risks and climate change issues (including budget), and to support the implementation of adaptation actions		
	% of community groups sensitized on predicted adverse impacts of climate change, risk reduction, risk management, and appropriate adaptation responses (gender disaggregated) <i>(AMAT indicator 2.3.1)</i>	Low (<15%) : the civil protection officers operating megaphones in case of violent weather phenomenon arrives, for requesting households in risky areas (as those along ravines) to evacuate. There is a limited understanding of the risks and opportunities related to climate change and the potential development benefits of climate change related activities	High >75% of targeted population aware of predicted impacts of climate change and appropriate adaptation responses, including at least 50% of women.		

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Outcome 3 <i>Investment on relevant early warning systems and adaptation technologies to protect infrastructures and local livelihoods from climate impacts (equivalent to activity in ATLAS)</i>	Type of relevant climate change adaptation technology implemented in selected areas by participatory stakeholders (AMAT Indicator 3.1.1.2)	The lowlands of the Imbo and Mumirwa regions are threatened by the impacts of increased precipitation that result in the amplification of linear erosion along watercourses that are causing destruction and/or damage to many public and private infrastructure located in different districts of Bujumbura. Most of current investments (e.g. roads, schools, urban drainage systems) are addressing the lack of basic infrastructures in key cities such as Bujumbura, Gitega and Ngozi. Very little and scattered investments are underway in target sites to mitigate erosion impacts.	At most 300 ha of vegetated ditches erosion control in Imbo and Mumirwa and 300ha of reforestation undertaken to stabilize watershed upstream of Bujumbura; And slope stabilization works realized to correct the Ntahangwa riverbed	Survey Reports; Service providers execution reports APRs/PIR	<u>Assumptions</u> <ul style="list-style-type: none"> ➤ Participation and commitment of target communities ➤ Effective intersectoral collaboration <u>Risks</u> <ul style="list-style-type: none"> ➤ Sustainability of investment due to low capacity of communities to maintain infrastructures ➤ Potential Environmental and social risks mainly linked to activities ➤ Impacts of climate change far greater than predicted ➤ Insufficient institutional support and political commitment ➤ Target communities in collines do not see the benefit of new practices or social conflicts hinder taking up the practices
	Number of targeted households adopting adaptation technologies by technology type (AMAT indicator 3.1.1)	<u>Baseline:</u> At least 25 households are involved in livelihoods activities such as fisheries. Many families have already been enforced to regress and leave the land closer to the lake Cohoha (around 50m belt) much more productive even in case of insufficient rain and drought. However, they had no alternative support causing severe food insecurity and increased poverty (due to high prices of food in the area). In addition, communities hamper reforestations activities	<u>Target:</u> At least 100 households, including at least 25% of female headed households, have access to relevant climate resilient livelihood measures (e.g. IGA, water collection and associated vegetable gardens, cooking technology) to strengthen the food security of vulnerable households		

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
		in their effectiveness due to high level of exploitation of trees.			

IV. Total budget and workplan

Award ID:	00081297	Project ID(s):	00090618
Award Title:	PIMS: 4922		
Business Unit:	BDI10		
Project Title:	Community based climate change related disaster risk management		
PIMS no.	PIMS: 4922		
Executing Agency	IGEUBU / UNDP		

GEF Outcome /Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Amount year 1 (USD)	Amount year 2 (USD)	Amount year 3 (USD)	Amount year 4 (USD)	Amount year 5 (USD)	Total	Budget note
early warning system established for the preparation of disaster risks and adaptation	IGEUBU	62160	GEF/LDCF	71200	International Consultants	14,000	63,000	63,000			140,000	a
				71300	National Consultants		25,000	25,000	25,000	25,000	100,000	b
				71400	Contractual Services - Individual	4,500	30,000	30,000	30,000	30,000	124,500	c
				71600	Travel		55,375	67,875	25,000	25,000	173,250	d
				72100	Contractual services -		100,000	100,000	100,000	100,000	400,000	e

GEF Outcome /Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Amount year 1 (USD)	Amount year 2 (USD)	Amount year 3 (USD)	Amount year 4 (USD)	Amount year 5 (USD)	Total	Budget note	
					Companies								
				72200	Equipment and furniture	50,000	311,000	285,000	85,000	731,000	f		
				74200	Audio Visual & Print Prod Costs	20,000		50,000	50,000	40,000	160,000	g	
				74500	Miscellaneous Expens	1,000	2,400	2,400	2,400	2,500	10,700	h	
				Total Budget Component 1						89,500	586,775	623,275	317,400
Component 2: Community Response Capacity Strengthened	IGEBU	62160	GEF/LDCF	71200	International Consultants		44,100	44,100	44,100		132,300	i	
				71300	National Consultants		30,000	30,000	30,000	90,000	j		
				71400	Contractual Services - Individual		15,000	15,000	15,000	45,000	k		
					Travel		54,185	54,185	54,185	54,185	216,740	l	
				72100	Contractual Services - Companies		209,167	209,167	149,167	209,167	776,667	m	
				74200	Audio Visual & Print Prod Costs		50,000	50,000	50,000	40,000	190,000	n	

GEF Outcome / Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Amount year 1 (USD)	Amount year 2 (USD)	Amount year 3 (USD)	Amount year 4 (USD)	Amount year 5 (USD)	Total	Budget note
				74500	Miscellaneous Expenses		2,500	2,500	2,500	2,000	9,500	o
Total Budget Component 2							404,952	404,952	344,952	305,352	1,460,207	
Component 3: Effective response to climate risk within a programme of community resilience	IGEBU	62160	GEF	71600	Travel		12,500	25,000	25,000	25,000	87,500	p
				72100	Contractual services - Companies		20,000	135,000	115,000	60,000	330,000	q
				72600	Grants			1,460,000	1,460,000	1,460,000	4,380,000	r
				74200	Audio Visual & Print Prod Costs		50,000	50,000	50,000	40,000	190,000	s
				74500	Miscellaneous Expenses		2,900	3,500	3,500	2,943	12,843	t
				Total Budget Component 3							85,400	1,673,500
Subtotal components						89,500	1,077,127	2,701,727	2,315,852	2,115,795	8,300,000	
Contractual Services -	IGEBU	62160	GEF	71400	Contractual Services -	24000	96000	96000	96000	72000	384,000	u

GEF Outcome /Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	Atlas Budget Description	Amount year 1 (USD)	Amount year 2 (USD)	Amount year 3 (USD)	Amount year 4 (USD)	Amount year 5 (USD)	Total	Budget note
					Individual							
				72100	Contractual Services - Companies	1,500	5,125	5,125	5,125	5,125	22,000	v
				74500	Miscellaneous Expenses	1,000	2,000	2,000	2,000	2,000	9,000	w
Total Budget Gestion						26,500	103,125	103,125	103,125	79,125	415,000	
TOTAL PROJET						116,000	1,180,252	2,804,852	2,418,977	2,194,920	8,715,000	

Budget Note	Explication budget notes
a	<u>Output 1.1.</u> CB-EWS Expert; <u>Output 1.2.</u> Hydromet Expert; <u>Output 1.3:</u> Expert Climate risks data systems
b	5 national consultants to support CB-EWS trainings
c	National Communication officer & Community Based-Early Warning System Expert
d	Travel & DSA for 3 International consultants Ticket & DSA 3 staff IGEBU attending international training; Travel for M&E activities /project staffs travel to international foras
e	<u>Output 1:</u> Meeting of Local committee DRR (4 meeting/year); Agreement with National Platform DRR to support CB-EWS;

Budget Note	Explication budget notes
f	<u>Output 1.1</u> : equipement of 50 Local Com DRR; <u>Output 1.3</u> : procurement of 5 GPS, 7 climatological automatic weather stations in target communes, 3 synoptique stations in target provinces, 200 rainfall gauge at collines level, 2 water level (limnimetric scale) for lakes Cohoha; 8 automatic river gauges (ADCP), for Ntahangwa, Muha, Gasenyi and Kanyosha rivers; 2 computer + software; Procure equipment (hardware and software) and ensure connectivity (internet modems and access) for 10 modern forecasting; workstations, School equipment; PMU equipment (3 laptop, 3 All-in-One Printer/ photocopier/scanner/fax, 1 LCD projector and screen, etc.); 4 mobile phones and 2 GPS Cameras, office equipment (table, chairs, etc.);
g	Printing of awareness-raising & training tools, Communication material & publication (national & international)
h	Contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials.
i	<u>Output 2.1</u> : Expert vulnerability assessment, Gender expert; <u>Output 2.2</u> : expert climate changes planning, expert climate risks management, 3 Conference speakers; <u>Output 2.3</u> : Finance expert
j	<u>Output 2.1</u> : expert vulnerability assessment; <u>Output 2.2</u> : expert climate planning; expert climate risks management; 5 awareness experts
k	National gender expert
l	Ticket international - Expert vulnerability assessment (2), Gender expert (1), expert climate changes planning (1), expert climate risks management (1), 3 Conference speakers, Finance expert (1); DSA international DSA -Expert vulnerability assessment (60days), Gender expert (30 days), Expert Finance (30 days), expert climate changes planning (30 days), expert climate risks management (30 days), 3 Conference speakers (3*5 =15 days); Transport national expert: expert vulnerability assessment; expert climate planning; expert climate risks management; 5 awareness experts DSA national experts: expert vulnerability assessment (100 days); expert climate planning (100days); expert climate risks management (50days); 5 awareness experts (200) M&E activities /project staffs travel to international foras
m	25 training@7500each 100 awareness campaigns@2000each MOU with universities and research centers to support gender and vulnerability assessment and lessons learned/best practices capitalisation, Community radios
n	Printing of training tools Communication material/publication (national & international)
o	Contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials.
p	Travel for M&E activities /project staffs travel to international foras

Budget Note	Explication budget notes
q	<u>Output 3.1:</u> Agreement with Ministry of Environment to supervise replanting activities, awareness activities, meeting of management committees, feasibility studies; <u>Output 3.2:</u> agreement with Bujumbura Mairie to supervise hydraulic works; MOU with Burundi Association for Environmental Impact Assessment (ABEIE); Feasibility studies, awareness activities on wastes management; Output 3.3: feasibility studies & training awareness
r	<u>Output 3.1:</u> grants for the realization of nursery plants & Plantation activities- Cash for work; <u>Output 3.2:</u> grant for the construction of 8 small dams, the realization of nursery plants, the plantation activities- Cash for work, the Construction of protection walls & other hydraulic works; <u>Output 3:</u> grant for -dissimination of improved cooking technologies, roof water catchment & Income Generating activities
s	Printing of training tools Communication material, publication (national & international)
t	Contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials.
u	Project coordinator, M&E expert, Drivers (2), RAF, Admin Assistant, Utility men & Guard
v	Project Boards meetings
w	Contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials.

Co-financing:

Co-financing has been confirmed for the following partners. The letters of co-financing are provided in Annex.

Sources of Co-financing	Name of Co-financier (source)	Type of Co-financing	Co-financing Amount (\$)
National Government	Ministry of Finance	Grant	18,500,000

National Government	IGEBU	In-kind	500,000
GEF Agency	UNDP	Grant	7,800,000
Total Co-financing			26,800,000

IGEBU, the executing partner for this initiative, will provide in-kind contribution estimated at USD 500,000 to the project implementation. This in-kind contribution will cover office maintenance and running costs (electricity, water, etc.) in Gitega.

The UNDP Cash contributions includes:

- Recruitment of one national UNVs for Kirundo Province
- Contribution to VNU operation costs
- Transportation equipment + maintenance (vehicule, moto fo the VNU)
- Computers and additional ITs equipment

V. Management Arrangements

The United Nations Development Programme (UNDP) will implement the project under its National Implementing (NIM) modality, over a period of four years beginning from the PRODOC signature date. The implementing partner in Burundi will be Institute of Geography (IGEBU), who will closely coordinate project implementation with the General Directorate for Forests and Environment, General Directorate of Agricultural Extension, Directorate General of land use and protection of land. At local level, the Institution will coordinate local action with Governors, Mayors and members of councils in target areas.

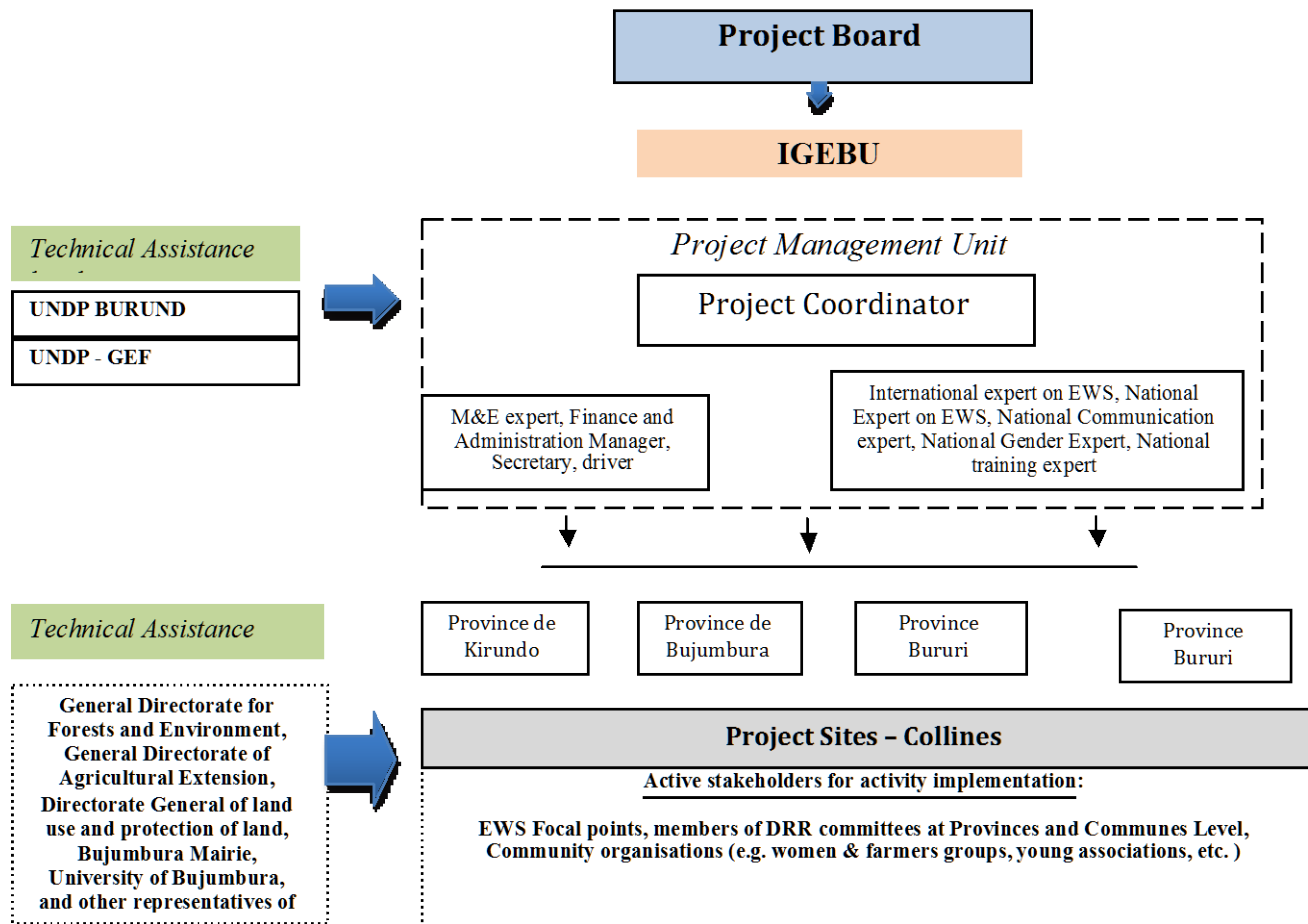
The management arrangements were determined based on an institutional capacity assessment carried out during the preparation phase of the project.

A **Project Board (PB)** will include representatives from key institutions involved in the project activities and representatives from beneficiary municipalities. The Ministry of Water, Environment, Land Management and Urban Development (MEEATU) will be President of the PB and IGEBU will serve as Secretary. The definitive list of members (a maximum of 15) will be elaborated during the inception phase of the project implementation after consulting with regional and national authorities. The Project Board is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual WorkPlan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans. In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

The **Project Implementation Unit (PIU)**, based in Gitega, will assure day-to-day implementation and management of project activities as well as close collaboration with intervention municipalities and communities. Members for the PIU will be recruited by IGEBU with support from UNDP. The PIU will consist of one National Project Manager (PM), one M&E experts, one Finance and Administration Manager, one Secretary, two drivers, one utility men and one gard. National and international consultants will support the PM: International expert on EWS, National Expert on EWS, National Communication expert, National Gender Expert, National training expert. The project will also develop MOU with extension services and Bujumbura Mairie to support resilient communities activities. Finally, UNDP will hire UNVs to support management of project in select Provinces. The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost. The Project Support role provides project administration, management and technical support to the Project Manager as required by the needs of the individual project or Project Manager. The Detailed TOR for each of these will be prepared prior to the Inception Workshop, approved by the PB and by UNDP/GEF.

At the **Communes level**, Provincials extension services agents from the General Directorate for Forests and Environment, General Directorate of Agricultural Extension, Directorate General of land use and protection of land as well as other representatives of relevant institutions will support project implementation. MoU will be signed with stakeholders to define roles and responsibilities as well as modalities for implementation.

FIG 8: Project Organisation Structure



At the **local level**, Community Consultation Committees (CCC) will be set-up from already existing entities. If not, they will be created in targeted municipalities where appropriate structures don't already exist. The CCCs will bring beneficiaries together including representatives from the municipalities, NGOs and farmer organisations. CCCs will be in charge of monitoring and implementing pilot adaption initiatives as well as linking the rural population to the project. In addition, they will examine and give advice on financial aspects for activities implemented at the local level. They will participate in planning and approval of activity expenses at the local level. The CCCs will meet at least once every three months.

VI. Monitoring Framework and Evaluation

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

Project start:

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

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

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

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

Quarterly:

- Progress made shall be monitored in the UNDP Enhanced Results Based Management Platform.
- Based on the initial risk analysis submitted, the risk log shall be regularly updated in ATLAS. Risks become critical when the impact and probability are high. Note that for UNDP GEF projects, all financial risks associated with financial instruments such as revolving funds, microfinance schemes, or capitalization of ESCOs are automatically classified as critical on the basis of their innovative nature (high impact and uncertainty due to no previous experience justifies classification as critical).
- Based on the information recorded in Atlas, a Project Progress Reports (PPR) can be generated in the Executive Snapshot.
- Other ATLAS logs can be used to monitor issues, lessons learned etc... The use of these functions is a key indicator in the UNDP Executive Balanced Scorecard.

Annually:

- Annual Project Review/Project Implementation Reports (APR/PIR): This key report is prepared to monitor progress made since project start and in particular for the previous reporting period (30 June to 1 July). The APR/PIR combines both UNDP and SOF (e.g. GEF) reporting requirements.
 - The APR/PIR includes, but is not limited to, reporting on the following:
 - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
 - Project outputs delivered per project outcome (annual).

- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management
- ATLAS QPR
- Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.
- Describe M&E framework for specific outputs that are based on RCT principles, including who is to be involved, budget, survey instrument etc.

Periodic Monitoring through site visits:

UNDP CO and the UNDP RCU will conduct visits to project sites based on the agreed schedule in the project's Inception Report/Annual Work Plan to assess first hand project progress. Other members of the Project Board may also join these visits. A Field Visit Report/BTOR will be prepared by the CO and UNDP RCU and will be circulated no less than one month after the visit to the project team and Project Board members.

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-EEG. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#). The relevant SOF (GEF) Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

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

The Final Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response which should be uploaded to PIMS and to the [UNDP Evaluation Office Evaluation Resource Center \(ERC\)](#). The relevant SOF (e.g. GEF) Focal Area Tracking Tools will also be completed during the final evaluation.

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

Learning and knowledge sharing:

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

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

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

Communications and visibility requirements:

Full compliance is required with UNDP's Branding Guidelines. These can be accessed at <http://intra.undp.org/coa/branding.shtml>, and specific guidelines on UNDP logo use can be accessed at: <http://intra.undp.org/branding/useOfLogo.html>. Amongst other things, these guidelines describe when and how the UNDP logo needs to be used, as well as how the logos of donors to UNDP projects need to be used. For the avoidance of any doubt, when logo use is required, the UNDP logo needs to be used alongside the GEF logo. The GEF logo can be accessed at: http://www.thegef.org/gef/GEF_logo. The UNDP logo can be accessed at <http://intra.undp.org/coa/branding.shtml>.

Full compliance is also required with the GEF's Communication and Visibility Guidelines (the "GEF Guidelines"). The GEF Guidelines can be accessed at:

http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf.

Amongst other things, the GEF Guidelines describe when and how the GEF logo needs to be used in project publications, vehicles, supplies and other project equipment. The GEF Guidelines also describe other GEF promotional requirements regarding press releases, press conferences, press visits, visits by Government officials, productions and other promotional items.

Where other agencies and project partners have provided support through co-financing, their branding policies and requirements should be similarly applied.

Table 4: M& E workplan and budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
Inception Workshop and Report	Project Manager UNDP CO, UNDP CCA	Indicative cost: 10,000	Within first two months of project start up
Measurement of Means of Verification of project results.	UNDP CCA RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of Means of Verification for Project Progress on <i>output and implementation</i>	Oversight by Project Manager Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	Project manager and team UNDP CO UNDP RTA UNDP EEG	None	Annually
Periodic status/ progress reports	Project manager and team	None	Quarterly
Mid-term Evaluation	Project manager and team UNDP CO UNDP RCU External Consultants (i.e. evaluation team)	Indicative cost: 40,000	At the mid-point of project implementation.
Final Evaluation	Project manager and team,	Indicative cost : 40,000	At least three months

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team staff time</i>	Time frame
	UNDP CO UNDP RCU External Consultants (i.e. evaluation team)		before the end of project implementation
Project Terminal Report	Project manager and team UNDP CO Local consultant	0	At least three months before the end of the project
Audit	UNDP CO Project manager and team	Indicative cost per year: 3,000	Yearly
Visits to field sites	UNDP CO UNDP RCU (as appropriate) Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US\$ 93,000 (+/- 5% of total budget)	

VII. Legal Context

This document together with the CPAP signed by the Government and UNDP which is incorporated by reference constitute together a Project Document as referred to in the SBAA [or other appropriate governing agreement] and all CPAP provisions apply to this document.

Consistent with the Article III of the Standard Basic Assistance Agreement, the responsibility for the safety and security of the implementing partner and its personnel and property, and of UNDP's property in the implementing partner's custody, rests with the implementing partner.

The implementing partner shall:

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

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

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

VIII. Annexes

A - Risk Analysis

Project Title: Community based climate change related disaster risk management	Award ID:	Date:
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#	Description	Date Identified	Type	Impact & Probability (1-5)	Countermeasures / Mngt response	Owner	Last Update
1	Low Institutional/ Execution Capacity	June 2012 (PIF)	Organizational and operational	I=3 P=3	Each component includes capacity building investments to support communes and provincial authorities to understand and manage climate risks	IGEBU, UNDP	A capacity needs assessment has been carried out during the PPG. Several capacity building and awareness raising activities are planned as part of project implementation
2	Political instability	June 2012 (PIF)	Political	I=3 P=4	Government is supported by the UN system to install a peace and democratic environment in Burundi	IGEBU, UNDP	The International Community is engaged to support Burundi in the process of internal reconciliation and democratization within all the states of the region to promote a stable, democratic community of nations that will work toward mutual social, economic, and security interests
3	Lack financial sustainability	June 2012 (PIF)	Financial	I=4 P=2	UNDP and the World Bank are working with national and local government to ensure coordination mechanisms on aid, leveraging of financial resources at national and international levels. In addition, the project will develop framework for investment with the revision of local plan to introduce adaptation options and investments.	IGEBU, UNDP	Analysis of the financing of adaptation measures and early warning system will be undertaken as part of the revision of Local Development Plan (Component 2). The outcome will be a financing strategies developed and discussed with the government and development actors involved in the disaster management in Burundi
4	Sustainability of investment due to low capacity of communities to maintain infrastructures	June 2012 (PIF)	Financial	I=3 P=3	Under UNDP, UNPBF and WB projects, local stakeholders are trained for the maintenance of rural and urban infrastructures. In addition, the project will provide additional training for the	IGEBU, UNDP	Analysis of the financing of adaptation measures and early warning system will be undertaken as part of the revision of Local Development Plan (Component 2). The outcome will be a financing strategies

#	Description	Date Identified	Type	Impact & Probability (1-5)	Countermeasures / Mngt response	Owner	Last Update
					management and maintenance of tree plantation and anti erosion small infrastructures for sustainability and better management of the infrastructures		developed and discussed with the government and development actors involved in the disaster management in Burundi
5	Potential Environmental and social risks mainly linked to activities	April 2014	Environmental	I=3 P=3	During the preparatory phase, the project prepared an Environmental and Social Management Framework (ESMF), integrated in the project document, that describe and propose measures and plans to reduce, mitigate and/or offset adverse impacts and enhance positive impacts.	IGEBU	
6	Impacts of climate change far greater than predicted	April 2014	Environmental	I=4 P=2	Should the margin of error regarding predictions be far greater than anticipated, it may prove very difficult to identify new measures and practices, which may undermine the project strategy. However, the design of the project took this risk into account and a system to follow climate change impacts will be implemented. Results from this system will then be used to take relevant decisions during the implementation of the project.	IGEBU UNDP	
	Duplication and lack of coordination with other flood risks mitigation initiatives, resulting in inefficient use of resources, and a loss of opportunity for building climate	April 2014	Strategic	I=4 P=3	A donor coordination mechanism is in place to maximize synergies and complementarity and reduce potential redundancy between the planned projects. The Steering Committee will also be an effective mechanism to help ensure the transparency of decision-making;		

#	Description	Date Identified	Type	Impact & Probability (1-5)	Countermeasures / Mngt response	Owner	Last Update
	change resilience						
7	Target communities in collines do not see the benefit of new practices or social conflicts hinder taking up the practices	April 2014	Strategic	I=4 P=2	Particular livelihood activities will be identified in a participatory manner to ensure ownership, and will be accompanied by the planned capacity development efforts.		

B-Agreements

To be completed during Project inception phase

C. Key assessment reports

The following key reports were produced as part of the PPG phase, based on detailed TORs developed during the inception of the PPG phase/work planning. They are available in French & English.

PPG Report 1: Stakeholders consultation report (English)

PPG Report 2: Community Based Early Warning System (English)

- Analysis of existing drr structure and alerts mechanisms
- Proposal for a structure of cb early warning system on climate change induced risks including new or emerging vulnerabilities and hazards
- Assessing gender sensitive risks and information needs
- Sustainability of the system
- Development of minimum response package
- Accompanying measures
- Notes on organogram, profiles and training for the project staff
- Complementary interventions in collaboration with fao

PPG Report 3: Rapprt sur la gestion des terres et les chngements climatiques (French)

- Régions naturelles et changements climatiques
- Vulnérabilité des terres aux changements climatiques
- Terres plus vulnérables aux changements climatiques au Burundi
- Aspects politiques, juridiques et institutionnels de la gestion durable des terres et Changements climatiques
- Actions prioritaires pour l'intégration des changements climatiques dans les politiques pertinents
- Capacités des institutions dans la gestion des risques climatiques et des terres
- Mesures d'adaptation pour la gestion des terres

PPG Report 4: Climate Risks Management (French)

- Les risques climatiques consécutifs aux événements météorologiques extrêmes
- Effets Prévus du Changement Climatique sur les Secteurs Agricoles et la Sécurité
- Les stratégies en cours, les politiques et mesures pour un développement durable et pour faire face à la variabilité climatique
- Contexte institutionnel et analyse des intervenants en matière de prévention des risques climatiques

- Nécessité de la constitution de la base de données pour la Plateforme Nationale de Prévention des Risques et de Gestion des Catastrophes (PNPRGC)
- Formation sur l'utilisation des outils de gestion
- Investissement dans les technologies d'adaptation et systèmes d'alerte précoce

PPG Report 5: Water resources (French)

- Situation des ressources en eau
- Stations hydrologiques
- Distribution spatiale des stations météorologiques actuelles
- Infrastructures hydrauliques
- Menaces liées aux changements climatiques dans le secteur des ressources en eau
- Politique nationale de l'eau
- Aspects techniques de la gestion des ressources en eau
- Mesures d'adaptation et de réduction des impacts négatives

PPG Report 6: Socio-economy (French)

- Communautés en présence
- Moyens de subsistance des communautés
- Vulnérabilités des communautés cibles face aux changements
- Adaptation des communautés cibles
- Obstacles majeurs et risques qui pourraient affecter la réussite du projet

PPG Report 7: Environmental Impacts Assessment (French – under finalisation)

- Analyse des opportunités du cadre légal et institutionnel du EIE
- Contexte, description du projet et les alternatives
- Analyse de l'état initial de l'environnement physique, biologiques et socio- économiques
- Contexte du projet et les alternatives
- Analyse des impacts du projet
- Identification des mesures d'atténuation des impacts négatifs
- Plan de gestion environnemental et social
- Mécanisme de suivi et de surveillance des indicateurs du projet et son environnement
- Conclusion
- Résumé des consultations du public

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14. IGEBU (2001)-Evolution climatique actuelle et développement des scénarios de changements climatiques à l'horizon 2050.
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18. SABUSHIMIKE J M. (2013)- Mécanisme Régional de gestion des catastrophes et de planification d'urgence
19. SABUSHIMIKE J M. (2013)- Etude de la vulnérabilité des pays membres de la CIRGL
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E. Stakeholder involvement plan

The success of project intervention requires the active involvement and participation of the different stakeholders. Key stakeholders for the project include (i) ministries, local governments and other public institutions implementing the project and/or benefiting from it, (ii) cooperating partners, NGOs, and Civil Society Organizations (CSOs) involved in direct support, and (iii) communities that are living in the targeted rural areas, including the participation of potentially vulnerable groups such as women. The present Plan was

designed based on the series of meetings organised with stakeholders during the project inception, for agreeing on project content and operationalization (situation analysis, priority sites for intervention, priority criteria, management arrangements).

Outputs	Lead institution & role	Stakeholders & roles
1.1. Set up the functional structure of the Community Based Early Warning System on climate change related risks in Bujumbura Rural, Kirundo and Makamba Provinces	Direction of the Civil Protection/National platform on DRR Establish the Community Based Early Warning System	Local committee DRR /community organisation groups) in target Provinces & Communes Contribute to the designing and establishment of the structure of the Community Based Early Warning System on climate change related risks
1.2. Upgrading the hydro meteorological network and improving capacity to generate real-time information weather and data series for information dissemination to target communities	IGEBU Assessment of infrastructure and capacity need; Establishment of the hydro meteorological network and running the system	Local committee DRR /community organisation groups) in target Provinces & Communes Participate to assessment and capacity need
1.3. Set up an effective and efficient communication and dissemination system to reach all end users	National platform on DRR: participate in the (i) Standard Operating Procedures and (ii) communication and dissemination of messages & IGEBU Develop the functional database to analyze and produce relevant information	Local committee DRR /community organisation groups) in target Provinces & Communes: participate in the (i) Standard Operating Procedures and (ii) communication and dissemination of messages Other partners: FAO, WFP, Red Cross: participate in the (i) Standard Operating Procedures
2.1. Gender and climate vulnerability assessment to guide the development of a local climate change response	Local government: General organization of vulnerability diagnostics; IGEBU: develop TOR for the assessment and provide necessary financial and technical support under the project budget	Province and Municipal council staffs, community organisation, research centers: <ul style="list-style-type: none"> - Analysis of exposure and sensitivity to climate in the past; - Analysis of and of future sensitivity - Hierarchy of levels of vulnerability - Identification of adaptation actions - Setting up a mechanism for monitoring and evaluation
2.2. Local government decision makers, technical staffs and communities assisted with training on proper use of climate risks tools and sensitisation on climate changes impacts to support the identification of cost-effective adaptation investments options and adjust plans, programmes and projects given new climatic experiences	Local government and target Ministries: General organization of the training IGEBU: develop TOR for the training and provide necessary financial and technical support under the project budget; monitoring of trainings	Province and Municipal council staffs, community organisations: Identification of training needs; Beneficiaries of trainings
2.3. Provincial & Municipal development plans and annual budgets reviewed and updated to integrate effective climate risk management to support more climate-smart investments	Local government: organization of policy review	Province and Municipal council staffs, community organisation: validation of the review policy

Outputs	Lead institution & role	Stakeholders & roles
3.1. Realization of 300 ha of vegetated ditches erosion control in Bugabira, Busoni and Kirundo-rural to protect and preserve communities lands from higher risk of pluvial top soil erosion (AMAT 3.1.1.2)	Ministries of Water, Environment, Land Management and Urban Development: planning and supervision of works	Local government & community organisation: Extension services: technical supports to communities
3.2. Stabilization works undertaken in Ntahangwa and Gaseyni Rivers to reduce the risk of flooding landslides in Bujumbura City	Municipality of Bujumbura Mairie: planning and supervision of works	Local government & community organisation: beneficiaries of adaptations activities
3.3. Accompanying measure to strengthen the food security of vulnerable households	Local government: Planning and supervision of activities	Community organisation: beneficiaries of adaptations activities Extension services: technical supports to communities

F. Terms of Reference for Project Personnel

The Project Implementation Unit is responsible for day-to-day implementation and management. It is notably responsible for technical support to all activities, and establishing technical working relationships with a range of projects and programmes and activities throughout Makamba, Bujumbura Rural, Kirundo and Bururi Provinces.

Tasks

- Preparing Annual and Quarterly workplans;
- Preparing Financial and progress report;
- Preparing TOR for all activities, inputs and services;
- Overseeing the identification, selection and supervision of all service providers;
- Providing technical support to the implementation of climate-resilient income generating activities and specific adaptation measures at the community level. This includes regular visits to communities' areas to observe and advise on all local activities;
- Providing technical support and direct inputs to all capacity development activities at local, municipal and provincial levels. This includes the design and implementation of training programmes;
- Prepare policy papers, recommendation, as appropriate and necessary;
- Ensuring coordination with all related projects in the sector and related sector;
- Arrange and ensure the smooth implementation of all PB meetings;
- In-between PB meetings, ensure the PB members are informed of all major developments and reports on a regular basis as specified by the PB (note: this should take place at least twice a year other than planned PB meetings);
- Building working technical partnerships;
- Overseeing lesson learning and lesson dissemination;
- Providing training in line with workplans and budget;
- Implement the M&E plan;
- Oversee communications: website, newsletters, leaflets, etc;
- Ensure that appropriate accounting records are kept, and financial procedures for NIM are followed;
- Facilitates and cooperates with audit processes at all times as required;

Staffing

The PIU will consist of one National Project Manager (PM), one M&E experts, one Finance and Administration Manager, one Secretary, two drivers, one utility men and one gard. National and international consultants will support the PM: International expert on EWS, National Expert on EWS, National Communication expert, National Gender Expert, National training expert. The project will also develop MOU with extension services and Bujumbura Mairie to support resilient communities activities. Finally, UNDP will hire UNVs to support management of project in select Provinces. The Detailed TOR for each of these will be prepared prior to the Inception Workshop, approved by the PB and by UNDP/GEF.

National Project Manager

Reports to: Project Board

Timing/Duration: This is a full-time position for the four years of the project.

Objective/scope:

This is a high level policy/leadership position to oversee the project implementation.

- The initial objective is to establish the PIU and oversee the recruitment of its staff and its operationalisation.
- The next objective is to ensure regular work planning, adaptive management and monitoring of project progress towards project objectives and goals, and management of all PIU staff.
- The third objective is to ensure the PIU interacts functionally with all partners, national and international, at high levels. This includes developing joint objectives and activities with international partners and other projects.

He/she will be a locally recruited national selected based on an open competitive process. He/She will be responsible for the overall management of the project, including the mobilization of all project inputs and the supervision of project staff, consultants and sub-contractors. He/she will report all substantive and administrative issues to the MEE deputy minister. The PM will report to the Project Board (PB) on a periodic basis and will be responsible for meeting the project's government obligations under the national implementing modality (NIM). He/She will act as a liaison between the Government and the liaison officer that will be nominated in the CNEDD, UNDP and other UN Agencies, NGOs and project partners, and will maintain close collaboration between the project and other co-financing donor agencies.

Tasks (these include, but are not limited to):

PIU Management and Planning

1. Assume operational management of the project in consistency with the project document and UNDP policies and procedures for nationally executed projects;
2. Oversee preparation and updates of the project work plan as required; and formally submits updates to UNDP and reports on work plan progress to the PB and UNDP as requested but at least quarterly;
3. Oversee the mobilization of project inputs under the responsibility of the Executing Agency;
4. Oversee the recruitment of all consultants and sub-contractors;
5. Ensures that appropriate accounting records are kept, and financial procedures for NIM are followed, and facilitates and cooperates with audit processes at all times as required;
6. Ensures all reports are prepared in a timely manner;
7. Assist in the finalization of TORs and the identification and selection of national consultants to undertake the rapid assessment;
8. Assists in the planning and design of all project activities, through the quarterly planning process and the preparations of TOR and Activity Descriptions;
9. Supervises the project staff and consultants assigned to project;
10. Throughout the project, when necessary, provides advice and guidance to the national consultants, to the international experts and to project partners;

11. Assist in the dissemination of project findings, notably to relevant governmental departments and internationally.

Partnerships

1. Oversee development and implementation of communication strategy;
2. Oversee development and implementation of the M&E monitoring system;
3. Build working relationships with national and international partners in this sector;
4. Ensure the coordination of project activities work with related work of partners;

Qualifications

The PM will have nationally renowned expertise in at least one of the following fields: Environmental, Disaster Risks Management, or rural economics; Natural resources management, and, climate change forecasting and impact forecasting. In addition, the following qualifications will be key to the project success:

- Appropriate University Degree in natural resources management, economics or agriculture;
- Substantial experience and familiarity with the ministries and agencies in Burundi;
- Verified excellent project management, team leadership, and facilitation;
- Ability to coordinate a large, multidisciplinary team of experts and consultants;
- Fluency in English;
- Knowledge in English is an asset.

Supported staff

The **M&E Expert** will be national expert. He/She will:

- Provide technical expertise and guidance to all project components, and support the Project Coordinator in the coordination of the implementation of planned activities under the LDCF project as stipulated in the project document/work plan;
- Be specifically responsible for the technical input into the development of a M&E framework and its implementation and follow-up with all relevant stakeholders at national, county and demonstration site level, in line with the project results framework in section III of the project document and in line with the GEF tracking tool for LDCF project AMAT and GEF M&E guidance;
- Ensure that technical contracts meet the highest standards; provide input into development of Terms of Reference for sub-contracts, assist with selection process, recommend best candidates and approaches, provide technical peer function to sub-contractors; provide training and backstopping were necessary;
- Provide technical inputs into the work of the PB, and other relevant institutions implicated in the project management and implementation arrangements;
- Undertake regular reporting in line with project management guidelines.

The **Finance and Admin Manager** will be a national expert. He/she will:

- Set up and maintain project files;
- Collect project related information data;
- Update plans;
- Administer PB and other relevant meetings;
- Administer project revision control;
- Establish document control procedures;
- Compile, copy and distribute all project reports;
- Responsible for the financial management tasks under the responsibility of the PM;
- Provide support in the use of Atlas for monitoring and reporting;
- Review technical reports;

- Monitor technical activities carried out by responsible parties.

In addition, **short-term local and international consultants** will support the PIU for the implementation of the project activities. The detailed profiles of these consultants will be defined during project implementation, but will include expertise in: Early Warning system, hydraulic, rural economy, gender, communication, etc.

G. Special Clauses

The schedule of payments and UNDP bank account details.

The value of the payment, if made in a currency other than United States dollars, shall be determined by applying the United Nations operational rate of exchange in effect on the date of payment. Should there be a change in the United Nations operational rate of exchange prior to the full utilization by the UNDP of the payment, the value of the balance of funds still held at that time will be adjusted accordingly. If, in such a case, a loss in the value of the balance of funds is recorded, UNDP shall inform the Government with a view to determining whether the Government could provide any further financing. Should such further financing not be available, the assistance to be provided to the project may be reduced, suspended or terminated by UNDP.

The above schedule of payments takes into account the requirement that the payments shall be made in advance of the implementation of planned activities. It may be amended to be consistent with the progress of project delivery.

UNDP shall receive and administer the payment in accordance with the regulations, rules and directives of UNDP.

All financial accounts and statements shall be expressed in United States dollars.

If unforeseen increases in expenditures or commitments are expected or realized (whether owing to inflationary factors, fluctuation in exchange rates or unforeseen contingencies), UNDP shall submit to the government on a timely basis a supplementary estimate showing the further financing that will be necessary. The Government shall use its best endeavours to obtain the additional funds required.

If the payments referred above are not received in accordance with the payment schedule, or if the additional financing required in accordance with paragraph above is not forthcoming from the Government or other sources, the assistance to be provided to the project under this Agreement may be reduced, suspended or terminated by UNDP.

Any interest income attributable to the contribution shall be credited to UNDP Project Account and shall be utilized in accordance with established UNDP procedures.

Ownership of equipment, supplies and other properties financed from the contribution shall vest in UNDP. Matters relating to the transfer of ownership by UNDP shall be determined in accordance with the relevant policies and procedures of UNDP.

The contribution shall be subject exclusively to the internal and external-auditing procedures provided for in the financial regulations, rules and directives of UNDP.

Audit: Project will be audited in accordance with UNDP Financial Regulations and Rules and applicable audit policies.

I. Letters of Co-financing

