



**PROJECT IDENTIFICATION FORM (PIF)**  
**PROJECT TYPE: Full-sized Project**  
**TYPE OF TRUST FUND: LDCF**

**PART I: PROJECT IDENTIFICATION**

Project Title:	<b>Promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angolan's Cuvelai River Basin</b>		
Country(ies):	Angola	GEF Project ID:	5177
GEF Agency(ies):	UNDP	GEF Agency Project ID:	5166
Other Executing Partner(s):	Ministry of Environment (MINAMB) (lead), Civil Protection, Ministry of Energy and Water (MINEA), Ministry of Agriculture, Provincial Government of Cunene (various line ministries and Civil Protection)	Submission Date:	October 9, 2012
		Resubmission date:	January 7, 2013
GEF Focal Area (s):	Climate Change	Project Duration:	4 years (48 months)
Name of parent programme: For SFM/REDD+	n/a	Agency Fee:	779,000

**A. FOCAL AREA STRATEGY FRAMEWORK:**

<b>Focal Area Objectives</b>	<b>FA Outcomes</b>	<b>FA Outputs</b>	<b>Indicative financing from relevant TF, (\$)</b>	<b>Indicative co-financing, (\$)</b>
CCA-1	1.2: Reduced vulnerability to climate change in development sectors	Output 1.2.1: Vulnerable physical, natural and social assets strengthened in response to climate change impacts, including variability	1,305,000	3,000,000
CCA-2	2.1: Increased knowledge and understanding of climate variability and change-induced threats at country level and in targeted vulnerable areas	Output 2.1.2: Systems in place to disseminate timely risk information	1,200,000	3,175,000
	2.2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses	Output 2.2.1: Adaptive capacity of national and regional centers and networks strengthened to rapidly respond to extreme weather events	1,305,000	4,945,000

CCA-3	3.1: Successful demonstration, deployment and transfer of relevant adaptation technology in targeted areas	Relevant adaptation technology transferred to targeted groups	4,000,000	15,695,000
Project management cost <sup>1</sup>			390,000	1,235,000
<b>Total project costs</b>			<b>8,200,000</b>	<b>28,050,000</b>

## B. PROJECT FRAMEWORK

**Project Objective:** The climate-related vulnerabilities facing the inhabitants of Angola's Cuvelai River Basin are reduced through targeted investments and capacity building

Project Component	Grant type	Expected Outcomes	Expected Outputs	Financing from relevant TF, (\$)	Indicative co-financing, (\$)
1. Transfer of appropriate technologies and related capacity building for climate and environmental monitoring infrastructure	INV (Outputs 1.A, 1.B, 1.C and 1.D)  TA (Outputs 1.E, 1.F and 1.G)	Enhanced capacity of national and local hydro-meteorological services, civil authorities and environmental institutions to monitor extreme weather and climate change in the Cuvelai Basin.	A. Establishment of a comprehensive famine and flood early warning systems (FFEWS), including downscaled seasonal forecast delivery systems, that take into account climate change induced drought and flood events in the Cuvelai Basin  B. Procurement and installation or rehabilitation of at least 3 gauging stations in the Basin  C. Procurement and installation of satellite monitoring equipment to receive real time climate and environmental information (via a geospatial flood map) for authorities in the Basin  D. Procurement or rehabilitation of at least two hydrometric stations in the Basin <sup>2</sup>  E. Training of at least 5 officers in the Provincial government and Civil Protection to operate and maintain climate	4,000,000	15,695,000

<sup>1</sup> GEF will finance management cost that is solely linked to GEF financing of the project.

<sup>2</sup> This will only be done if (as expected) it is not budgeted under Component 2 of the World Bank's Water Resources Management Project (2011-2016) which has one of its proposed outputs to rehabilitate MINEA's approximately 189 hydrometric stations in the country. This matter will be addressed following consultations with the WB staff at the PPG phase. See Table 1 for more information.

			<p>monitoring infrastructure</p> <p>F. Strengthen the Civil Protection's capacity for assimilating forecasts and monitoring into existing development planning, and disaster management systems, including the provincial contingency plan</p> <p>G. Communication channels and procedures for issuing warnings (through both governmental and non-governmental agencies) are enabled (e.g. radio, newspapers, mobile phones, television etc).</p>		
2. Enhanced human and institutional capacity for increased sustainable rural livelihoods among vulnerable communities	INV (Outputs 2.A – 2.E)	Increased resilience of smallholder farmer communities in the Basin to climate-induced risks and variabilities via access to locally-appropriate climate data and germplasm resources	<p>A. Livelihoods assessment conducted of the spatial density and location of all smallholder farming communities in the Angolan side of the Basin that are vulnerable to climate impacts</p> <p>B. Establishment of online registry of vulnerability data and population density from assessment noted in (A)</p> <p>C. Identification of locally appropriate, climate-resilient germplasm resources<sup>3</sup> for the Basin from the National Plant Genetic Resources Centre (CNRF) database</p> <p>D. Establishment of at least three demonstration plots in the Basin for climate-resilient crop varieties</p> <p>E. Dissemination of climate-resilient seed packets (from CNRF database) for multiplication to smallholder farmer groups</p>	2,610,000	7,945,000

<sup>3</sup>Please refer to pg. 10 for more info. These will be locally-specific, climate-resilient, open pollinated varieties of drought- and flood-resistant seeds (particularly for sorghum and food crops) that are suited to ecological conditions in the Basin. The NPGRC has already collected more than 3,500 accessions of local crop varieties from more than 80% of the municipalities in the country, including some 62 varieties from the Province of Cunene.

3. Increased understanding of climate change adaptation and practices in climate-resilient development planning at the local community and government levels	TA (Outputs 3.A-3.E)	<ul style="list-style-type: none"> <li>Local institutional capacities for coordinated, climate-resilient planning strengthened (3.A)</li> <li>Capacity for effective community-based climate change adaptation (including traditional knowledge practices) improved at local level (3.B-3.D)</li> </ul>	<p>A. Updating of Province of Cunene Master Plan as regards best practices in climate-resilient development planning</p> <p>B. All Civil Protection officials in Province receive training on climate change impacts and adaptation measures</p> <p>C. Awareness raising campaigns about climate change impacts on watershed resources and on human activities undertaken at village level in 300 sites</p> <p>D. Case studies developed and disseminated that capture traditional knowledge about climate change management at local level</p> <p>E. Development and annual dissemination of micro-seasonal maps of adaptability of different climate resilient crops to all Provincial rural extension agents</p>	1,200,000	3,175,000
Project management costs				390,000	1,235,000
<b>Total project costs</b>				<b>8,200,000</b>	<b>28,050,000</b>

**C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, (\$)**

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount (\$)
National Government	MINAMB - Ministry of Environment	Cash	1,500,000
National Government	National Directorate of Hydrologic Resources - Ministry of Energy and Water (MINEA)	Cash	2,000,000 <sup>4</sup>
National Government	Ministry of Agriculture <sup>5</sup>	Cash	3,000,000
National Government	Civil Protection (Protecção Civil)	Cash	3,000,000

<sup>4</sup> Note: The government – through MINEA – is a major co-financier of the Kunene Transboundary Water Supply Project (a contribution of 17 million USD) and Angola Water Sector Institutional Development Project (see Table 1) but activities within those projects (as well as MINEA's work on FFEWS in other provinces) which are of direct relevance to the outcomes of this project can be estimated at USD 2 million

<sup>5</sup> Following the recent national elections, the previous Ministry of Agriculture, Rural Development and Fisheries has been split into two new ministries: the Ministry of Agriculture and the Ministry of Fisheries

National Government	National Plant Genetic Resource Centre (CNRF) – Agostinho Neto University	Cash	500,000
National Government	INAMET - National Institute of Meteorology and Geophysics	Cash	2,000,000
Local Government	Funds transferred from Central Government to Provincial Government of Cunene (funds for Infrastructure as well as public works financing schemes and DRR assistance from the Ministry of Finance; technical studies by the Technical Committee of the Provincial Government)	Cash	8,000,000 <sup>6</sup>
GEF Agency	UNDP	Cash (grant)	800,000
Multilateral donor	World Bank	Cash (loan)	6,500,000 <sup>7</sup>
Non-governmental organization	Development Workshop Angola (Local NGO)	Cash (grant)	750,000
<b>Total Co-financing</b>			28,050,000

#### **D. GEF RESOURCES REQUESTED BY AGENCY, FOCAL AREAS AND COUNTRY**

GEF AGENCY	TYPE OF TRUST FUND	FOCAL AREA	Country name/Global	Project amount (a)	Agency Fee (b)	Total c=a+b
UNDP	LDCF	Climate Change	Angola	8,200,000	779,000	8,979,000
<b>Total GEF Resources</b>						

## **PART II: PROJECT JUSTIFICATION**

### **A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH GEF FOCAL AREA STRATEGIES:**

This project is fully in line with LDCF/SCCF focal area objective 2 to “increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level” and objective 3 to “Promote transfer and adoption of adaptation technology.”

### **FOR PROJECTS FUNDED FROM LDCF/SCCF: THE LDCF/SCCF ELIGIBILITY CRITERIA AND PRIORITIES:**

1. **Country ownership:** The Government of Angola has ratified the UNFCCC and is classified among the non-Annex 1 parties. These countries have also developed and submitted their National Adaptation Plans of Action (NAPA) and are entitled to benefit from the LDC Fund for the implementation of priority measures identified in their respective NAPAs. In late 2011 the Angolan Government officially presented the NAPA which was developed according to the guidelines set out in decision 28/CP.7 of the United Nations Framework Convention on Climate Change regarding the annotated guidelines for the creation of the National Adaptation Programmes of Action for the least developed countries. In implementing priority interventions identified in the NAPAs, the project is consistent with the Conference of Parties (COP-9) and also satisfies criteria outlined in UNFCCC

<sup>6</sup> Some of these funds are allocated from the Central Government via the Ministry of Finance and other organs but are coordinated and spent via the Provincial government. Funds for DRR needs are allocated on a case by case basis.

<sup>7</sup> As noted in Table 2 on baseline financing, the WB-funded Angola Water Sector Institutional Development Project rehabilitation includes a component to support the strengthening of the institutional framework for the water resources management sub-sector, including rehabilitation of hydrometric stations and hydrometric networks across the country, as well as information management systems. Co-financing for activities of direct relevance to this project are conservatively estimated at 50% of WB funds committed (USD 13 million) for Component #2.

Decision 7/CP.7 and GEF/C.28/18. In addition to supporting NAPA priorities, the project is in line with a number of other government plans and projects as outlined in Section A.2.

2. The project focus is aligned with the scope of expected interventions as articulated in the LDCF programming paper and decision 5/CP.9. As climate impacts fall disproportionately on the poor, the project recognizes the links between adaptation and poverty reduction (GEF/C.28/18, 1(b), 29).

3. ***Compliance with programme and LDC Fund policies:*** The project complies with several specific NAPA-identified priorities as noted below, all of which are relevant for supporting national development goals and for achieving MDGs 1, 3, 7 and 8.

4. ***Financing:*** The project is designed to accommodate the additional adaptation costs of priority actions identified in the NAPAs and build on several other baseline projects and programmes. The co-funding for this project is also within the stated guidelines as regards prospective co-funding. The relevance of the co-financing to the proposed LDCF project is outlined in section B.2 and will be further elaborated on during the project preparation phase.

5. ***Institutional Synergy and Coordination:*** The project outcomes will be primarily implemented through national implementation. The PIF therefore outlines project management costs that will be incurred by implementing partners at the national level (below 5%).

6. ***Monitoring and Evaluation:*** The implementation of the project's activities will reflect UNDP-GEF monitoring and evaluation standards and procedures, in line with the requirements of the LDCF. Details for monitoring and evaluation will be articulated during the project development phase.

**This project specifically focuses on support for NAPA priorities 7 (Create an early warning system for flooding and storms) and 13 (Climate monitoring and data management system).** These two NAPA priorities are intricately linked (and have therefore been bundled together for the purpose of this project) since establishment of a comprehensive famine and flood early warning systems (FFEWS) – including downscaled seasonal forecast delivery systems – is one key component of a more broad-based climate monitoring and data management system, which also includes climate information dissemination and capacity-building. As the NAPA notes, there is “insufficient climate monitoring infrastructure in Angola and as a result, early warning is nearly impossible in the country.” Agricultural planning and extension is also made difficult due to the lack of appropriate seasonal forecasts and climate monitoring information; even if systems are established the data must be shared with key stakeholders at the local level to develop appropriate site-specific responses, such as distribution of flood-resistant seed varieties.

In addition to responding to these NAPA priorities as classified on a sectoral level, the project has been specifically designed to address the specific needs of a particularly vulnerable region of the country: the Angolan portion of the Cuvelai River Basin and more specifically the Province of Cunene (see Section B). In an effort to better understand the different dimensions of vulnerability across the whole country, as part of the NAPA formulation process it was decided to divide Angola into various geographic areas in which each one represented a type of vulnerability. In each province, consultations took place at 4 different levels: with local authorities, non-governmental organisations, private sector entities as well as the population of specific locations providing evidence as to the types of vulnerability in a certain area and providing input into a list of context-specific adaptation priorities.

The province of Cunene was chosen as the NAPA priority province for “integrated vulnerabilities”<sup>8</sup> due to a rare confluence of factors that classify it as the most vulnerable province in the country as regards significant climate-induced risks, particularly as it applies to what was identified as the highest ranked topical threat in the NAPA: flooding and water-induced soil erosion. Thus the populations who will most directly benefit from this project are those that are most vulnerable to floods and other disasters due to the risks factors identified in the NAPA.

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<sup>8</sup> Angola NAPA, 2011, Summary of the NAPA development process, Pg. 66

Finally in line with LDCF guidelines the project is based on a learning-by-doing approach. Angola has recently emerged from what was one of Africa's most protracted conflicts. The civil war between 1975 and 2002 resulted in the destruction of infrastructure and the breakdown of institutions of all kinds. The ability of the Angolan Government to maintain an administrative presence and collect and monitor data of all kinds during this period was also negatively impacted by the war. The primary geographic focus of this project – the Cuvelai River Basin – was one of the regions most affected by the war and remains poorly understood by both development practitioners and climate experts, both as regards its basic geography (climate, soils and hydrology) and socioeconomic characteristics. In many Angolan provinces there has been almost no donor presence until recently. At the same time decentralization, or the delegation of administrative and fiscal responsibilities to sub-national units of government, is slowly taking place in Angola albeit at a slow and uneven pace; much information gathered at national levels still does not reach local authorities. This particular project involves several layers of government – from national entities to provincial and municipal level authorities – and builds on a variety of recently proposed initiatives that seek to address the complex climate-related challenges facing this critically important trans-boundary wetland. As such this project will by default need to assume a rigorous adaptive management approach and adopt a learning and information-sharing orientation from the onset, with the potential to indirectly benefit a much larger population than just its intended beneficiaries and hopefully inform the development of similar multi-stakeholder efforts in other provinces of the country. The GoA, in partnership with USAID efforts, will seek to communicate all relevant findings, conclusions and recommendations to neighboring governments as well as SADC experts on climate-related disasters.

## **A.2. NATIONAL STRATEGIES AND PLANS OR REPORTS AND ASSESSMENTS UNDER RELEVANT CONVENTIONS:**

The Angolan NAPA is in conformity with the priorities of the National Plan 2010/11, the National Constitution, objectives outlined in the Angola 2025 report, and the principles addressed in the National Programme on Climate Change. Angola has ratified most of the key Multilateral Environmental Agreements – CBD, UNCCD, Convention on International Trade in Endangered Species (CITES), FCCC and several African conventions and protocols. Over the last twelve years the Angolan government (GoA) has taken the following actions as it relates to implementation of UNFCCC commitments:

- In 2000 the GoA adopted the UNFCCC – United Nations Framework Convention on Climate Change
- In 2004, the GoA regulated the mandate of Environmental Impact Assessments
- In September 2007, the GoA published its National Strategy for the effective implementation of UNFCCC and the Kyoto Protocol
- In November 2009 the GoA instituted AND - National Designated Authority for the Clean Development Mechanism
- During 2011 the GoA finalized its 1st National Communication to the UNFCCC

This project is also informed by and consistent with the following national plans:

- 1) The **Angolan Strategy to Fight Poverty (SFP) / Estrategia de Combate a Pobreza (ECP)**, approved by Resolution 9/04 of 4 June, includes environmental considerations in accordance with the Millennium Objectives, some of which relate to climate change. The measures presented within the scope of sustainable development of natural resources, include an evaluation of the level of degradation of natural resources with mapping studies in the vulnerable areas, forest repopulation, and the promotion of pilot activities to combat ravines forming using biological techniques. The ECP sets out that the measures need to be implemented based on intervention plans to be drawn up by the responsible ministries (namely MINAMB and MINADERP),

together with the Provincial Governments and with public consultation. This project is specifically informed by the ECP plans for the Province of Cunene.

- 2) The **National Plan for 2010-2011**, approved by Law 1/10 of 15 January, has the following objectives, among others: implementing a rural and suburban development policy that mitigates the inequality in quality of life between rural and urban areas; refurbishing and developing the infrastructure needed to reconstruct and develop the country; promoting accelerated industrial development aimed at replacing imports; ensuring rapid urbanization of shanty towns and modernizing urban communities; and pursuing the process of implementing the National Programme for Climate Change. This project directly supports the objectives of the National Programme for Climate Change and more specifically the NAPA priorities already mentioned.
- 3) The **National Strategy for food and nutritional security and its Plan of Action**, approved by Resolution 130/09 of 29 December, recognizes the right to food as fundamental and aims to create conditions to guarantee that every Angolan citizen has lasting food security, reducing the level of inequality in income distribution and structurally reducing extreme poverty. The actions that may be related to climate change themes include: increasing and diversifying agricultural, livestock and fishery production in a sustainable way to improve the standards of the populations' food supply and their living conditions; creating and implementing national and local rapid warning systems; monitoring systems for food and nutritional security as well as mechanisms for communicating with and providing information to families; and creating and inter-sectoral platform for coordinating policies and actions in matters of food and nutritional security, with participation from civil society. This project seeks to directly address issues of food insecurity caused by climate change in a targeted region by increasing the resilience of smallholder farmer communities in the Cuvelai Basin to climate-induced risks and variabilities via access to locally-appropriate climate data and germplasm resources.
- 4) The **National Plan for Preparation, Contingencies, Response and Recovery from Calamities and Natural Disasters 2009 - 2014**, approved by Presidential Decree no. 205/10 of 21 September. The general objective of the National Plan for Preparation, Contingencies and Response is to define the lines of authority that guide a suitable and concerted response to a natural disaster and the conditions and essential means to minimize the adverse effects of a serious accident or catastrophe that affects the Angolan population. The Plan sets out scenarios for 1. Floods and mudslides that may be: Localized — activating the Provincial Plan; Medium — activating the National Plan; Exceptional — Activating the National Plan, with a declaration of a state of emergency and a request for international health; 2. Drought: Activation of provincial or national plans depending on the magnitude of the phenomenon.

More specifically, this project directly supports (and has been specifically defined in relation to) the *Plano de Contingência* for the Province of Cunene (Emergency Action Plan or Contingency Plan for Cunene Province) which has as its objectives to: 1) increase the operational and functional capacity of Civil Protection Authorities to prepare for and respond to floods, droughts and natural disasters; 2) mobilize adequate resources to allow for timely and effective responses to floods, droughts and natural calamities at the provincial level; and 3) increase the awareness of the province's inhabitants to such threats and increase cooperation among different organs of government to response to such threats.<sup>9</sup> The project has also been informed by several technical studies done by the Technical Committee for Infrastructure for the Province of Cunene.<sup>10</sup>

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<sup>9</sup> REPÚBLICA DE ANGOLA MINISTÉRIO DO INTERIOR, DELEGAÇÃO PROVINCIAL DO CUNENE COMANDO DO SERVIÇO DE PROTECÇÃO CIVIL E BOMBEIROS, Plano de Contingência, 2011/2012

<sup>10</sup> Several external consultants were involved in the studies, including Vladimir Russo, Eng<sup>o</sup> Fernando Pacheco and Dr. Pedro da Fundação Kissama



- 5) The **Angolan Water Act**, 6 of 2002, establishes the State as the custodian of the country's water resources and prioritizes the use of water resources within the boundaries of Angola. As custodian, the State is responsible for administering the water user rights system. The Act also acknowledges the rights of the individual and entities to water. Furthermore, the themes of integrated water resource management (IWRM), institutional co-ordination and community participation are highly encouraged. The Act encourages the development of new administrative policies in the water sector, as well as a decentralized system of control. Provisions are also made for a water allocation framework and for water quality control mechanisms that are in line with IWRM principles. Provision within legislation is made for the establishment of Basin committees. Article 19 and Article 76 of the Water Act (No. 6 of 2002) refer specifically to trans-boundary water resources. The importance of cooperation between neighboring countries and utilization of water resources is emphasized. While Article 19 provides information with regards to international cooperation in water management, Article 76 highlights the importance of Angola's need to fulfill its domestic obligations, without compromising any ratified international agreements.

This project supports the procurement and installation or rehabilitation of various hydrometric stations (as well as strengthening hydrological monitoring capacity among Provincial authorities) in the Cuvelai Basin which is in line with the Act and established IWRM principles more generally.

- 6) The post-war process of national reconstruction has placed increased emphasis on the process of sustainable development through environmental best practice as an essential determinant of achieving human development and well-being. The commitment of government towards this goal is expressed in the **National Environmental Management Programme (NEMP) / Programa Nacional de Gestão Ambiental (PNGA)**, which, in conformity with the *Lei de Bases do Ambiente*, is a key vehicle for achieving environmental protection and sustainable use goals. Among the specific objectives of the PNGA (which the project is in conformity with) are:

- define priority actions in environmental management, based on the importance of these and the available human, technical and financial resources;
- promote environmental controls on activities using natural resources or which may cause any damage to the environment, developing the required instruments for environmental policy and management;
- develop institutional structures and professional capacity necessary for the responsible implementation of environmental management policy, the NEMP and other sectoral strategies; and
- promote the elaboration and implementation of environmental policies, strategies and plans of action and corresponding environmental investment plans, and their periodic revision.

## **B. PROJECT OVERVIEW:**

### **B.1. DESCRIBE THE BASELINE PROJECT AND THE PROBLEM THAT IT SEEKS TO ADDRESS:**

#### **Problem**

As noted in the opening of a ground-breaking study published in 2011, the “Cuvelai is different!”<sup>11</sup> It is not a delta nor a river nor an alluvial fan. The Cuvelai Basin is perhaps unique in the world as a drainage system that consists of hundreds of channels that join and separate thousands of times. It has a geographical area of 159,620 km<sup>2</sup> split between Angola and Namibia, extends over 450 kilometers from north to south and covers more than half of the Province of Cunene in Angola. Slivers of the Cuvelai Basin

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<sup>11</sup> John Mendelsohn and Beat Weber, *Povos e águas da Bacia do Cuvelai em Angola e Namibia* (The Cuvelai Basin – Its Water and People in Angola and Namibia), Published by Development Workshop Angola, 2011

also lie within the Angolan provinces of Cuando Cubango and Huila. Part of Cuvelai's water comes from the headwaters on the southern slopes of the Angolan highlands but most channels begin as broad courses right along the Cunene River. The Cunene River is 1,050 km long and is one of the few perennial rivers in this region with a mean annual discharge of 5.5 km<sup>3</sup> at its mouth. Local rivers provide water to these channels (called *iishanas*) that mesh, network and divide on their way downstream to the famous Etosha Pan. For much of the year, most channels hold no water and fill only after summer rains. Rainfall in the northern-most catchment area averages about 900 mm per year, just over double the historical average of 400 mm in the south. Compared to surrounding areas the Cuvelai Basin is home to a very large number of people, largely because of the presence of shallow groundwater and relatively fertile soil in many areas. Among the many livelihood activities practiced by local people are rain-fed agriculture and livestock-raising, principally cattle. The borderland of the Basin is clearly visible from space due to the fact that there have been considerably higher rates of deforestation on the Namibia side compared to the Angola side.

The Cuvelai Basin has experienced regular flooding for centuries; however over the past three hydrological years (2008-2011) the Basin has had extensive floodings with various negative repercussions, including loss of life and property. According to the Angola Civil Protection Commission, at least 234 persons were killed, 204,000 displaced and 254,000 directly affected by flooding between January and April 2011 throughout Angola. The Cuvelai Basin region was especially impacted. Heavy rainfall made access to communities difficult, with some areas only reachable by air.<sup>12</sup> At the same time, many years in the Basin are extremely dry. Almost all rain falls in the summer months and the further south in the Basin the more unpredictable the rainfall; this is typically the area where the most extreme droughts occur. The driest among these in recorded history have led to catastrophic famines, the most disastrous of which resulted in the deaths of up to 40% of the people in the Basin.<sup>13</sup> Moreover the timing of summer rainfall within one summer may be so erratic that crops fail, even if the total aggregate amount of rainfall received is high.

The proposed activities in this project are solely focused on the Angolan side of the Basin. As noted in Section B.6, Namibia started its basic monitoring systems (and disaster early warning systems) in the 1940 and is one of the countries in SADC that has a wide range of monitoring data available. The Namibian Hydrology Division in the Department of Water Affairs and Forestry (DWAF) continuously monitors the stream flow on the major rivers in Namibia, including those within the Cunene River Basin; it has river water level stations in operation at Ruacana and Epupa on the Cunene River; and operates river gauging stations (Ombuku, Minimahoro) on the ephemeral tributaries of the Lower Cunene River. Whereas almost every homestead in the Namibian side of the Basin can be reached along roads or tracks that are clearly visible on Google Earth images, the same images show that most homesteads on the Angolan Cuvelai have never or seldom been visited by vehicles. Moreover the great majority of livelihoods in the Angolan side are subsistence-oriented and dependent on rain-fed agriculture whereas the Namibian inhabitants of the basin are much less vulnerable to climate-induced shocks.

### **Climate Change and the Implications for the Cuvelai River Basin**

Available reports from the region (focusing particularly on Namibia; the Angolan side has received much less attention) report a rise in mean temperature over the 20th Century that is three times that of the global average. A temperature rise in the region of between 2° C to 6° C has been predicted for 2100. Regarding specific observations relevant to the Cunene River Basin, the following statements can be made based on the available literature:

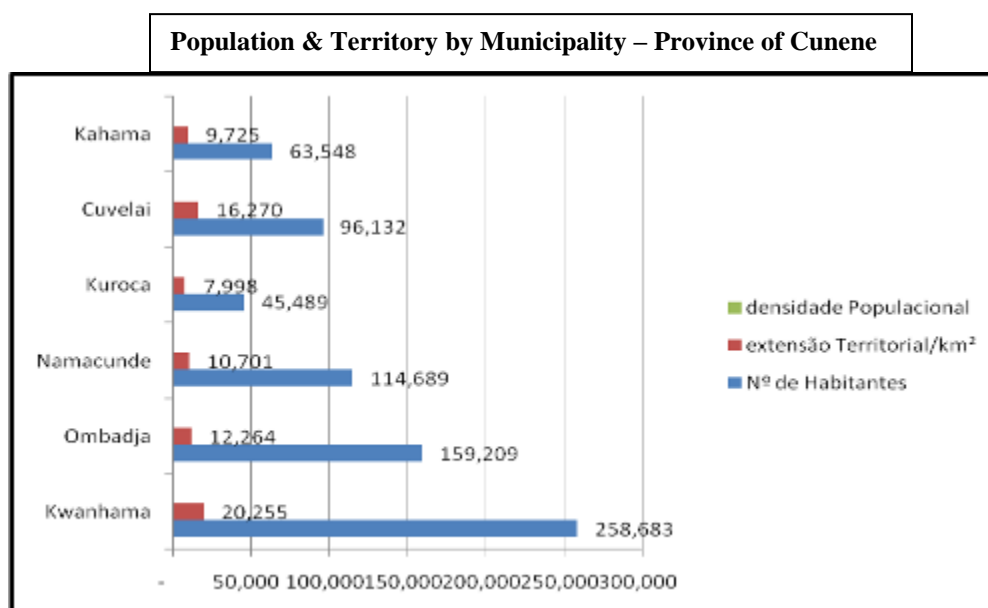
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<sup>12</sup> UN Office for the Coordination of Humanitarian Affairs (2011). Southern Africa Floods and Cyclones: Overview of 2010/2011 Rainfall Season.

<sup>13</sup> Mendelsohn and Weber (2011)

- Precipitation is generally expected to decrease across all of Angola (including in the Cuvelai Basin) with the exception of northern areas where these may increase (*High Level Conference on Water for Agriculture and Energy in Africa 2008*).
- Studies for Namibia suggest much greater variability in rainfall from year to year with a much shorter and more intense rainy season (*Government of Namibia 2002*).

Such trends and variability will obviously result in changes in the run-off regime of rivers. Decreased precipitation in Angola (particularly in the Upper Cunene where up to 75 % of the flow is generated) will have a marked effect on the entire Cunene Basin.<sup>14</sup> **According to one USAID/Southern Africa report, the Cuvelai Basin is likely to be more vulnerable to climate disasters (mainly increased flooding) than any other area in the entire SADC region.** To compound the Basin's vulnerability to climate disasters, Cunene – the Angolan province falling within much of the Basin – is among the poorest provinces in Angola. The current population in the Province is approximately 750,132 inhabitants spread across six municipalities: Kwanhama; Ombadja; Namacunde; Curoca; Cuvelai; and Cahama. The provincial capital (Ondjiva) is located in Kwanhama and thus has the highest population in the province (see table below).



The great majority of livelihoods in the Province are subsistence-oriented and dependent on rain-fed agriculture. Most homesteads are built entirely as traditional structures of wood and thatch and the HIV/AIDS rate is among the highest in the country. About 74% of the population drinks entirely untreated water and more than 80% of the population does not have access to improved sanitation facilities. Following the flooding of the past several years the Provincial Delegation of the civil protection has prepared an Emergency Action/Contingency Plan which includes an assessment of the primary climate risks for each municipality as follows<sup>15</sup>:

<sup>14</sup> <http://www.kunenerak.org/en/river/climate+and+weather/climate+change/climate+change+in+the+Basin.aspx>

<sup>15</sup> REPÚBLICA DE ANGOLA MINISTÉRIO DO INTERIOR, DELEGAÇÃO PROVINCIAL DO CUNENE COMANDO DO SERVIÇO DE PROTECÇÃO CIVIL E BOMBEIROS, Plano de Contingencia, 2011/2012

Municipality	Main Climate Risk
Kwanhama	Flooding
Namacunde	Flooding
Cuvelai	Flooding
Curoca	Drought and forest fires
Ombadja	Flooding and forest fires
Cahama	Flooding

All of this evidence and studies indicate that climate change is likely to exacerbate the substantial threats to human health and welfare that residents of the Basin on the Angolan side are already facing. This is due in part to the direct effects of elevated temperatures on heat-related morbidity and mortality. Several studies have cited the increased likelihood of extreme events due to the increased water-holding capacity of a warmer atmosphere and accelerated land evaporation. Such extreme events pose not only serious livelihood and direct health risks but can also affect waterborne disease vectors in highly detrimental ways.<sup>16</sup> However, perhaps more significant are the indirect effects of likely changes in the hydrologic cycle, including a likely increase in the frequency and intensity of extreme events such as floods and droughts, a potential decrease in the length of the rainy season, and a likely decrease in the frequency and quantity of precipitation.<sup>17</sup> Given the population density of the Basin and likely changes in precipitation extremes, it can be expected that hundreds of thousands of residents on the Angolan side could face increased risks due to flooding and droughts (and their associated impacts) in coming decades.

### Barriers and Challenges

In light of these worrying projections and the impact of recent disasters, there has been a renewed interest among various stakeholders in the Basin as how to better prepare for and understand climate variability and climate-induced impacts in the region and strengthen the adaptive capacity of the Basin's communities to reduce risks to climate-induced economic losses. A consensus has emerged around three important categories of barriers and respective needs going forward:

#### **1) First, there is an urgent need to better understand patterns of flow and flooding patterns and establish an early warning system, particularly in the Angolan catchment area.**

The inability of the Angolan government to maintain an administrative presence and collect data during the post-Independence period also affected meteorological and hydrological data. By 2002 around 200 hydrometric stations had been registered in Angola, the majority of which were non-operational because of the civil war. Research indicates that historic hydrological information of sufficient quality is available for Angola for the period 1955 to 1972. However after 1972 little reliable data is available, and access to the data that exists is difficult. The number of meteorological stations went from almost 500 to 20 after 1975. It was only after the end of the civil war in 2002 that a consistent – though gradual – programme for improved data collection has been put in place. In many areas there is a gap of thirty years of meteorological information which coincides with the period of possible climate change. Similarly hydrological information for Angola remains scarce. Mapping of river Basins and collection of information on stream flows developed more slowly than in other countries of the region. The

<sup>16</sup> USAID - Global Climate Change Integration Pilot Proposal (draft)

<sup>17</sup> Christensen et al. (2007). Regional Climate Projections. In: *Climate Change 2007: The Physical Science Basis*. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

development of an effective system of measurement was interrupted by the lack of staff and conflict from 1975 onwards and it has only been since 2002 that this work has been effectively re-established.<sup>18</sup>

The lack of meteorological and hydrological monitoring stations in Angola has meant that many populations vulnerable to climate hazards – such as those in the Cuvelai Basin – are currently not monitored e.g. drought conditions (rainfall) are not monitored for important agricultural lands, intense rainfall is not monitored in areas prone to landslides and flooding, and rapid rises in rivers as a precursor to flooding goes unnoticed. There is a lack of analysis of how rainfall and its variability translate into variations in stream-flow, flooding and drought conditions in the Basin. As such many potentially threatening hazards are not forewarned because of a lack of monitoring stations. More specifically, gauging stations that transmit information on flow levels on a regular basis are needed on both the Cuvelai and Miu rivers. Other gauging stations are needed on some of the major *iishana* and the gauging stations should be equipped with rainfall recorders to alert observers to local storms. These gauging stations would augment what has been established on the Namibian side.<sup>19</sup>

Also essential to disaster planning and prevention in the face of a changing climate is the provisioning of appropriately scaled climate projections. It is now common practice to utilize satellite imagery as a useful tool for monitoring areas where meteorological and hydrological monitoring stations do not exist and aspects of the environment useful for assessing current risks e.g. vegetation monitoring helps assess crop performance and images of floods help understand which areas are more at risk. Additionally satellite data may be used to predict rainfall or monitor severe weather. All of these systems are urgently needed in Angola and particularly in the Basin, as reflected in NAPA priority areas #7 and #10.

**2) Secondly, there is a need to identify high concentrations of farming households in those areas most prone to flooding in the region and disseminate seasonal forecasts and flood- and drought-resistant local seed varieties.**

The importance of rain-fed agriculture to rural livelihoods in the Basin is critical and highest near the source of the Cunene River in the far north, gradually decreasing further downstream. Seasonal floodplains in parts of the middle Basin provide favorable conditions for crop production. Crop and livestock farming patterns vary across the Basin as follows:

- In the Upper Cunene (humid sub-tropical climate, with average annual rainfall varying between 1000 and 1500 mm), the dominant crops are maize and beans and to a lesser extent sweet potato, with livestock playing a complementary role in local farming systems, being used for animal traction and as a source of milk.
- In the Middle Cunene (mostly semi-arid climate, with average annual rainfall in the range of 400-1000 mm) farming systems are generally based on livestock as well as crops to a greater or lesser extent, depending on relative location within the middle section, with a greater range of crops (maize, manioc, sorghum (*massambala*), millet (*massango*) and cowpea (*feijão macunde*)) being grown
- The (semi-)arid lower section of the Cunene (average annual rainfall below 400 mm) is dominated by subsistence pastoralism, supplemented by crop cultivation (mostly millet, sorghum, maize and pumpkins) on the Cunene River bank and around springs during the rainy season.

As an initial step, there is an urgent need to determine what areas of the Cuvelai are most vulnerable to flooding and analyze the density and distribution of people (particularly farmers) and their socio-

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<sup>18</sup> Development Partners Angola, *Water and climate change: risks in Angola's coastal settlements* (Draft Proposal to IDRC's Water and Climate Change Programme), 2011

<sup>19</sup> Mendelsohn and Weber (2011)

economic vulnerability and livelihoods (this is not a component of the FFEWS). It is clear from some studies that most rural households in the Angolan part of the Basin rely much more on subsistence crops than the majority of rural homes in Namibia, where non-farming sources of income are most important.<sup>20</sup> However an identification of those communities has not yet been done. Moreover the Provincial Government also desperately requires the creation of a registry to track which persons have received DRR assistance or livelihoods support so that there is no duplication of assistance and the resources are targeted towards the most vulnerable target populations.<sup>21</sup>

A second pressing need is the dissemination and uptake of locally-specific, climate-resilient, open pollinated varieties of drought- and flood-resistant seeds (particularly for sorghum and food crops) that are suited to ecological conditions in the Basins. The Angola National Plant Genetic Resources Centre (NPGRC) in Luanda has been carrying out activities related to conservation and characterization of germplasms that are specifically adapted to local physical, climatic and biological conditions throughout various parts of Angola. The majority of Angola's districts were inaccessible over the last 13 years and for this reason many areas cultivating local varieties of food crops were not visited in the past due to the war. It is now possible to collect genetic diversity from most of these from farmers, farm stores and village markets. Since January 2003, the NPGRC has been developing an emergency collection project of local varieties of food crops which constitutes the essential base of plant breeding programs. By June 2010 the NPGRC had collected more than 3,500 accessions of local crop varieties from more than 80% of the municipalities in the country; this included some 62 varieties from the Province of Cunene. *However very few of these seed varieties are actually being disseminated in the field to small holder farmers* and the Province of Cunene is one of the few provinces without demonstration plots for local seed varieties. Moreover rural agricultural extension agents in the Province have very little knowledge of these seed varieties or how to train farmers on climate-resilient crop and soil management methods.

**3) Finally, there is a need for increased understanding of climate change adaptation and practices in climate-resilient development planning at the local community and government levels, particularly if any future climate monitoring or data systems are to be successfully utilized**

As the NAPA notes, one of the challenges to implementing any NAPA priority in Angola is the “scarcity of human resources with the skills to translate the strategies into actions at a community level where the impacts of climate change are evident.” The overall level of knowledge of climate change adaptation and climate-resilient development practices in the Cuvelai Basin remains very low. Investments in a comprehensive famine and flood early warning system (FFEWS), micro-seasonal forecasts and drought-resistant seed varieties will only be effective if the knowledge base of all stakeholders as regards climate change impacts is increased. Both the Cunene Infrastructure Master Plan and the Emergency Disaster Plan require updating to include climate change impacts and integration with climate monitoring and data systems. Civil Protection officials in Province require training on climate change impacts and adaptation measures and awareness raising campaigns about climate change impacts on watershed resources and on human activities are needed at the village level. It is also important to capture and disseminate best practices as regards traditional community-based coping mechanisms for dealing with natural disasters and periods of flooding/droughts. Investments in capacity-building and learning will significantly advance the ability of the provincial government authorities to deliver the relevant climate information and services that meet the needs of stakeholders and decision-makers in sectors such as agriculture, water resources and disaster management.

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<sup>20</sup> Ibid

<sup>21</sup> Discussions with MINFAMU officials in Cunene during a site visit by the author revealed that many persons receiving new houses by the government after the floods were actually renting them out and going back to live in their houses damaged by the floods and that other people had received multiple social grants due to the inability of the local authorities to track DRR assistance

A parallel and complementary requirement to climate-resilient seed dissemination in the Basin and extension outreach is the establishment and dissemination of annual short-term seasonal climate forecasts, which is directly linked to the need for an early warning system. Such forecasts have the potential to affect farmers' cropping and fertilization decisions in highly beneficial ways. The forecasts themselves are already available at a coarse scale from the Southern Africa Regional Climate Outlook Forum (SARCOF) but need to be improved at the country and provincial level (in conjunction with the early warning system) and then efficiently communicated to farmers in a useful and understandable form using appropriate mediums such as SMS messaging and radio. By positively influencing farm decisions, such forecasts can have a significant positive effect on farm yields, incomes and diversity and therefore farmers' resiliency to climate disasters. The capacity is needed to develop these maps and disseminate them on an annual basis.

### **Baseline Project (scenario without GEF financing)**

In an effort to address these barriers and needs, a number of government- and donor-financed initiatives are either underway or under development. The major baseline activities currently underway in the Province are listed below (those that will be subsumed into this project are identified accordingly):

**Table 1. Summary Overview of all Relevant Baseline Activities**

<p><b>Baseline Project #1 – Government of Angola (various multi-sectorial investments by National and Provincial Authorities)</b></p> <p>The Government of Angola has spent and is committed to spend a significant amount of resources on short-term DRR assistance and long-term infrastructure investments in the Basin. This includes the establishment and maintenance of a major system of flood-resistant dikes around the Provincial capital of Ondjiva; funding for several infrastructure studies in the Basin by the Technical Committee of the Provincial Government of Cunene and MINAMB; significant investments in new houses for flood victims from the past three years (2008-2011); major funding for disaster preparedness for the Provincial Delegation of the civil protection; and the rehabilitation of 524 boreholes in Cunene Province and 600 new boreholes.. As way of example, the entire nation-wide “<i>Aguas para todos</i>” or “Water for All” project – spread out over 18 provinces – has drawn \$650 million from the government to increase coverage of water systems to peri-urban and rural areas to 80 percent by 2012.</p> <p>The government is also a major co-financier of the Cunene Transboundary Water Supply Project (KTWSP) with a contribution of 17 million USD through the Ministry of Energy and Water. The Xangongo water scheme of the KTWSP corresponds to Phase 2 of the Water Master Plan of Cunene Province and is financed and implemented by government. In the Xangongo scheme, water will be abstracted from the Cunene River at Xangongo in Angola, 75 km upstream from Calueque, treated and then distributed to various towns and villages including Ondjiva, Namacunde, Santa Clara and Chiede. The scheme includes the construction of a water treatment plant with a total capacity of about 40 000 m<sup>3</sup> per day at Xangongo and the construction of a transmission pipe network from Xangongo over Ondjiva to Santa Clara and Chiede. The scheme also foresees the construction of adequate water distribution systems and sewer networks in all towns and villages and the construction of affordable wastewater treatment facilities in the region. The Ministry of Agriculture is also contributing significant resources to promote changes in agricultural practices in the Province for the conservation of soil humidity and nutrients, avoiding superficial draining and controlling erosion, and assisting with evacuation of livestock during flooding.</p> <p>As regards other investments, as already mentioned the National Plant Genetic Resources Centre (NPGRC) has received funding through SADC and the Government and INAMET is receiving assistance for several projects such as the establishment of a hydro-meteorological information system in the Rio Kwanza Basin and the establishment of an early warning system in Benguela. INAMET is also seeking funding for several projects related to climate information systems associated for agricultural development.</p> <p><b>Sub-total: \$20 million USD</b> (from various government budgets and including relevant co-financing for the Cunene Emergency Action Plan, Infrastructure Master Plan, etc)</p>
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**Baseline Project #2 – Development Partners Angola (local NGO) / International Development Research Center (IDRC) – Project on Water and Climate Change Risks in Angola’s Coastal Settlements**

The overall objective of this project – developed by one of Angola’s leading non-government organization (see Section B.5) and to be implemented in partnership with Canada’s International Development Research Center (IDRC) – is twofold: 1) to provide information that will assist policy-makers to address water-supply issues and environmental management challenges in Angola’s coastal urban areas, to estimate the impact of climate change and variability on water resources and infrastructure in urban informal settlements, and to propose better water governance mechanisms for these areas; and 2) to develop the capacity of national government and civil society organizations to climate-proof infrastructure and develop community-based adaptive management schemes through partnership with these bodies.

The first objective will be to generate information on the climate hazards facing Angola’s coastal urban areas by making available information on climate, climate variability and climate change, and create a framework for future data collection. The project will assess the impact of climate variability and possible climate change on water markets (and thus on water availability and affordability) and on urban living conditions (through droughts, the incidence of heavy rain, sea-level rise, and coastal flooding or riverine flooding). This will improve adaptive capacity, which will also be enhanced by working alongside local institutions in this research and jointly developing technical and policy adaptive innovations. The second component will fund activities connected to various discrete physical infrastructure assets; for example activities to be funded include the carrying out of key informant surveys about water supply systems in the relevant coastal urban areas and specific infrastructure facilities; analyzing the structure and use of specific water supply systems and making recommendations on how to adapt them to climate change; and carrying out tests on the quality of water in certain sites.

The geographic focus will be selected urban areas in the coastal belt of Angola. These will be Cabinda, Luanda Benguela/Lobito, and Namibe. In Luanda the project will update information from previous projects in response to the rapid growth of the city’s population and geographical extent, and the implementation of various infrastructure projects that have attempted to improve water supply. The project will extend to Cabinda, Benguela/Lobito, and Namibe the use of the techniques developed in previous projects in Luanda.

The project will build on the findings from the two DW implemented (IDRC-supported) projects. In these programs DW has developed innovative approaches to participatory uses of GIS in demographic and environmental risk mapping and tools for assessing complex water markets and household affordability. The project will involve collaboration with the Ministry of Environment’s efforts to build-up national research capacity and to develop a framework for future continuous data collection and analysis, as well as improve water management efforts at the local level. It will also involve collaboration with the new National Institute for Water Recourses (responsible for study of and development of river Basins) and the existing National Water Department (responsible for water supply and sanitation). The project will also involve collaboration with the local government administrations for each urban area. The project will be of three-year duration from mid-2012 to mid-2015.

Sub-total: **\$750K budget to be funded partially by IDRC**

**Baseline Project #3 – Angola Water Sector Institutional Development Project / World Bank**

The Angola Water Sector Institutional Development Project (2010-2016) is a World Bank project (implemented via the Ministry of Energy and Water and its National Directorate for Water Supply and Sanitation-DNAAS) to support improved water supply access. The project supports one of the Government’s primary MDG targets which is to provide adequate access to water for 67 percent and 70 percent of the urban and rural population respectively. These goals were updated in the Government’s current policy, *Programa de Governo* 2009-2012, to 100 percent and 80 percent for urban population living in the “cement city” and for the population living in peri-urban areas

This will be achieved by the rehabilitation of existing production capacity and construction of new/expanded distribution systems and networks resulting in new domestic connections. The project has four components:

- **Component 1: Development of Institutions in the Water Supply and Sanitation Sub- Sector (US\$21.7 million):** The objective of this component is to strengthen the institutional framework for the water supply



sub-sector at both the central and regional levels. The objective will be achieved through the implementation of three related subcomponents: (i) the development of the Asset Management Unit; (ii) the creation of Provincial Water Supply and Sanitation Utilities; and (iii) the development of a Regulatory Agency for the water supply and sanitation sub-sector.

- **Component 2: Water Resources Management (US\$13.0 million):** The objective of this component is to support the strengthening of the institutional framework for the water resources management sub-sector. This objective will be achieved through three sub-components which are: (i) the development of an institution for water resources management; (ii) the development of systems for water resources management; and (iii) the rehabilitation of water resources management systems.
- **Component 3: Rehabilitation of Water Supply Systems (US\$51.8 million):** The objective of this component is to support the physical rehabilitation of selected urban water supply systems due to the critical need to reverse many years of inadequate investments and maintenance. This objective will be achieved through two subcomponents: (i) the construction of approximately 240 kilometers of water supply networks and about 72,000 domestic house connections; and (ii) the preparation of technical cadastre and implementation of an information system.
- **Component 4: Capacity Building and Change Management (US\$11.0 million):** The overall objective of this component is to strengthen the ability of GoA to improve the efficiency of water supply in Angola by engaging stakeholders, managing and communicating change, and improving the ability of individuals to play their parts, especially at management—but also at technical—levels.

The Cuanza and Cubango river basins were originally selected as the pilots for Component 2 of the project which has a budget of US\$13.0 million. The Cubal da Hanha-Catumbela-Cavaco-Coporolo watershed was later selected as a pilot in place of the Cubango. Under that component the project will: (i) formulate pilot schemes designed to develop integrated Basin management plans of the Cuanza and Cubal da hanha-Catumbela-Cavaco-Caporolo rivers; (ii) review the framework of safety of dams in the Recipient's territory; and (iii) rehabilitate the *Recipient's*: (a) *approximately 189 hydrometric stations*; (b) *hydrometric network*; and (c) *information management systems*.

Since the Cuvelai is not one the two pilot basins under the project only a portion of the funds under component #2 (although significant) will directly address its sizeable water resource management and climate monitoring needs; at this time it is not expected that the WB project will fund the required hydrometric stations and information management systems needed in the Cuvelai basin.

**Sub-total: USD 120 million in total with \$13 million budgeted for Component #2 (50% of this - \$6.5 million – is claimed as co-finance for the project based on scope of relevant activities for this project)**

**Total: USD \$28.050 million in co-financing (direct relevance to this project)**

## **B. 2. INCREMENTAL COST REASONING AND THE ASSOCIATED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED BY THE PROJECT:**

The proposed GEF project has been developed following extensive consultations with a wide range of actors in Angola and has been designed to address the three major categories of challenges and needs described in Section B.1 in an integrated manner while building on and complementing the proposed baseline activities described in Table 1. It is important to note that this project is only focused on the Angolan part of the Basin. The specific added value of proposed project activities vis-à-vis identified needs is described in detail in Table 2 below.

**Table 2: Project Activities and Incremental Reasoning**

Baseline Activities	Incremental Activities	Incremental Reasoning
<b>Component 1: Transfer of appropriate technologies and related capacity building for climate and environmental monitoring infrastructure</b>		
Refer to subsumed activities from Projects #1 and #3 as listed in Table 1.	<ul style="list-style-type: none"> <li>Establishment of a comprehensive famine and flood early warning systems (FFEWS), including downscaled seasonal forecast delivery systems, that take into account climate change induced drought and flood events in the Cuvelai Basin</li> <li>Procurement and installation or rehabilitation of at least 3 gauging stations and at least two hydrometric stations in the Basin</li> <li>Procurement and installation of satellite monitoring equipment</li> <li>Training of at least 5 officers in the Provincial government and Civil Protection to operate and maintain climate monitoring infrastructure</li> <li>Strengthen the Civil Protection's capacity for assimilating forecasts and monitoring into existing development planning, and disaster management systems, including the provincial contingency plan.</li> <li>Communication channels and procedures for issuing warnings (through both governmental and non-governmental agencies) are enabled (e.g. radio, newspapers, mobile phones, television etc).</li> </ul>	<p>This is the largest single component of the project and builds on the significant baseline investments of the Government of Angola and World Bank in the Province, as well as parallel activities by USAID supporting development of a FFEWS (see related initiatives section). Firstly, the proposed activities in this project are incremental to a variety of short-term DRR assistance and infrastructure investments, as well as technical studies, the GoA is undertaking in the region, as well as the establishment of an early warning system in Benguela.</p> <p>Secondly key aspects of the hydrology of the Cuvelai River Basin remain poorly understood and basic data and measurement necessities are currently unmet and needed to complement the establishment of the FFEWS. For example, gauging stations that transmit information on flow levels on a regular basis are needed on both the Cuvelai and Miu rivers and these will not be funded under current baseline investments. The World Bank (through the Angola Water Sector Institutional Development Project) is strengthening integrated Basin management plans in several basins of the country but not Cuvelai; hence the need for GEF funds to fund hydrometric stations and other infrastructure needs in the Basin which are not covered under that project.</p> <p>All of this is essential for a comprehensive climate monitoring system to be effectively operational in the Basin and its importance cannot be overstated. A conservative estimate of the number of people who will directly benefit from the Disaster Risk Reduction (DRR) and Flood Forecasting and Early Warning System (FFEWS) investments are at least 52,000 given that estimates indicate over 52,000 people in the less-populated Angolan portion of the Basin were affected by the 2009 floods. If flooding in the region in coming decades becomes more frequent and intense, beneficiaries may number around 100,000 or more. GEF funds are thus critical to a partnership with Government and donors to avert the massive destruction and human losses that resulted from previous floods in the Basin.</p>
<b>Component 2: Enhanced human and institutional capacity for increased sustainable rural livelihoods among those communities areas most prone to flooding in the region.</b>		
Refer to subsumed activities from Projects #1 and #3 as listed in Table 1.	<ul style="list-style-type: none"> <li>Livelihoods assessment conducted of the spatial density and location of all smallholder farming communities in the Angolan side of the Basin that are</li> </ul>	Component #2 activities are directly linked to Component #1 in an effort to make sure that climate data and early warning systems are complemented by downstream efforts to make sure that climate data actually reaches the community-level and relevant adaptation technologies are transferred to targeted groups those most vulnerable to floods . For example, the

1	<p>vulnerable to climate impacts</p> <ul style="list-style-type: none"> <li>• Establishment of online registry of vulnerability data and population density from assessment</li> <li>• Identification of locally appropriate, climate-resilient germplasm resources for the Basin from the National Plant Genetic Resources Centre (CNRF) database</li> <li>• Establishment of at least three demonstration plots in the Basin for climate-resilient crop varieties</li> <li>• Dissemination of climate-resilient seed packets (from CNRF database) for multiplication to smallholder farmer groups, leading to improved yields and food security indicators</li> </ul>	<p>NPGRC has been developing an emergency collection project of local varieties of food crops and has collected some 62 seed varieties from the Province of Cunene; however very few of these seed varieties are actually being disseminated in the field to small holder farmers and the Province of Cunene is one of the few provinces without demonstration plots for local seed varieties. Moreover rural agricultural extension agents in the Province have very little knowledge of these seed varieties or how to train farmers on climate-resilient crop and soil management methods. GEF funds will build on these research investments by funding downstream utilization of appropriate climate data and technologies. Discussions have been held between UNDP and FAO as regards these components and although they have a limited presence in the Province at present, FAO has expressed their strong willingness to be subtracted as a technical partner for the implementation of these activities.</p>
<b>Component 3: Increased understanding of climate change adaptation and practices in climate-resilient development planning at the local community and government levels</b>		
Refer to subsumed activities from Projects #1 and #2 of Table 1	<ul style="list-style-type: none"> <li>• Updating of Province of Cunene Master Plan as regards best practices in climate-resilient development planning</li> <li>• All Civil Protection officials in Province receive training on climate change impacts and adaptation measures</li> <li>• Awareness raising campaigns about climate change impacts on watershed resources and on human activities undertaken at village level in 300 sites</li> <li>• Case studies developed and disseminated that capture traditional knowledge about climate change management at local level</li> <li>• Development and annual dissemination of micro-seasonal maps of adaptability of different climate resilient crops to all Provincial rural extension agents</li> </ul>	<p>Investments in a comprehensive FFEWS, micro-seasonal forecasts and dissemination of drought-resistant seed varieties will only be effective if the knowledge base of all stakeholders as regards climate change impacts is increased. Investments in capacity-building and learning will significantly advance the ability of the provincial government authorities to deliver the relevant climate information and services that meet the needs of stakeholders and decision-makers in sectors such as agriculture, water resources and disaster management.</p> <p>GEF-funded activities in this component will complement various GoA investments as well as NGO efforts. MINAMB and the Civil Protection authorities have already started education campaigns around the country on climate change adaptation but many of these have not yet reached the village level. Several NGOs such as Development Workshop are pioneering innovative community-based communication and data gathering techniques. For example, DWA has a project starting that will disseminate information on the climate hazards facing Angola's coastal urban areas by making available information on climate, climate variability and climate change, and create a framework for future data collection. That project will work alongside local institutions and stakeholders in jointly developing technical and policy adaptive innovations and building capacity. Similar approaches are needed in the Cuvelai Basin and have thus been proposed to be supported by GEF funds.</p> <p>Finally, GEF funds will be incremental to parallel investments to</p>

		develop micro-seasonal forecasts (tied into data collected from the FFEWS) for the Province which in turn require funds to allow for the dissemination of these forecasts at the community level. The capacity needs to be developed to update and distribute these maps on an annual basis.
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It is important to recognize that all three components are interrelated with Component #1 focused on incremental investments in critically-needed large-scale climate monitoring technologies and data collection infrastructure (hardware) at a Provincial level while Component #2 seeks to provide more site-specific infrastructure and services (dissemination of climate-resilient seeds for example) required for those most vulnerable stakeholders to have the adaptive capacity to reduce risks to climate-induced economic losses. Component #3 ties the two together with a cross-cutting approach to capacity-building and improved climate planning across the Province, such as funding for the building the capacity for stakeholders to disseminate annual micro-seasonal forecasts (tied into data collected from the FFEWS) and climate-proofing the Province of Cunene Master Plan.

**B.3. DESCRIBE THE SOCIO-ECONOMIC 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. AS A BACKGROUND INFORMATION, READ [MAINSTREAMING GENDER AT THE GEF.](#):**

Gender considerations will by necessity assume a central role in the project if it is to be successful. While gender disaggregated data on the impacts of past disasters in Cunene Province is not readily available, it is well understood that men and women often face differential disaster and climate risks and that women have suffered disproportionate impacts from past disasters in many parts of the world. As primary caregivers and caretakers, many women are more often at home than men, and thus are often more vulnerable to disasters. They may have less ability to survive a flood by swimming and often must assume greater responsibility for assuring children's well-being when disasters occur. Project staff will work closely with MINFAMU staff and make sure to use gender-integrated planning and implementation as a result of the substantial number of women led households in the Basin (result of civil war). During the PPG phase the project will provide further information – disaggregated by gender – concerning the key direct socio-economic benefits expected to reach the target population from project activities.

**B.4. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS AND MEASURES THAT ADDRESS THESE RISKS:**

<b>Risk</b>	<b>Rating</b>	<b>Risk Mitigation Measure</b>
The project requires a high degree of buy-in, information sharing and delineation of roles and responsibilities across several layers of government, particularly national and provincial levels, which could impede project implementation.	Medium	The PPG phase will develop a specific management arrangement that will allow for appropriate roles of all stakeholders. Although the project will be led by MINAMB, it is expected that much of the project implementation will happen at Provincial level and the PIU will likely be based in Cunene. UNDP Angola has excellent relationships with all the key partners and also takes note that decentralized approaches to implementation are increasingly gaining traction in Angola. The Ministries of Water and Health, for example, with support from donors, have established provincial offices for improved service delivery. Decree 17/10, which replaces the previous law on local government, specifies a transfer of resources to local governments and specifically mentions the need for community inclusiveness in making decisions that impact service delivery.

Unavailability of requisite human resources and data	High	The issue of the unavailability of requisite human resources will be mitigated by recruitment of international consultants who will work closely with in-country counterparts and by targeted capacity building activities. Training activities of local personnel will also be part of all aspects of the work and the relevant institutions will be encouraged to expand the staff base if it is weak in particular areas.
Insufficient institutional support and political commitments	Medium	The proposed project is strongly supported by Government, USAID and other key stakeholders and development partners. The project, in conjunction with UNDP, will therefore take advantage of this opportunity to seek substantial support from the Governments and forge strong partnership with other development partners. Direct linkages to existing and planned baseline development activities implemented by government, securing of the necessary co-financing, as well as local buy-in will also minimize this risk. It will also be important to establish buy in from all government departments early on as the project will utilize data and information from a wide range of departments.
Work progresses in a compartmentalized fashion and there is little integration e.g. government departments refuse to share data and information	Medium	This risk is always present in a project such as this. By ensuring that capacity is built across a range of departments and working closely with MINAMB as the lead partner it is hoped this can be mitigated (MINAMB worked closely with a range of government ministries on the NAPA and will seek to play a similar coordinating role in this project). UNDP is implementing other transboundary projects such as the GEF-funded <i>Sustainable Management of the Okavango River Basin</i> (collaboration among Angola, Botswana and Namibia for joint management of the Okavango River Basin resources) and enjoys strong relationships with Namibian counterparts
Non-compliance by primary proponents for the successful implementation of this project	Medium	Ensuring that the project is designed and implemented in a participatory and inclusive manner, following established UNDP procedures, will mitigate the risk. Since the activities correspond to the urgent needs as expressed by the primary proponents the risk of non-compliance should be reduced. Provincial authorities – particularly the Civil Protection– have already expressed strong support for implementation at the Provincial level.

OVERALL RISK LEVEL IS MEDIUM-HIGH

**B.5. IDENTIFY KEY STAKEHOLDERS INVOLVED IN THE PROJECT INCLUDING THE PRIVATE SECTOR, CIVIL SOCIETY ORGANIZATIONS, LOCAL AND INDIGENOUS COMMUNITIES, AND THEIR RESPECTIVE ROLES, AS APPLICABLE:**

**Government agencies (national and provincial):**

MINAMB - Ministry of Environment is responsible for the coordination, elaboration, execution and monitoring of all environmental policies, namely those in the area of biodiversity, environmental technology, and the prevention and evaluation of environmental impacts, and of environmental education. MINAMB will be the main lead agency for the project and will have the overall responsibility for achieving the project goal and objectives. MINAMB will designate a senior official to act as the National Project Director (NPD). The NPD will provide the strategic oversight and guidance to project implementation. The day-to-day administration of the project will be carried out by a Project Coordinator and a Project Administrative Assistant (PAA). The project implementation unit may be based on MINAMB's offices in Onjiva. The Project Coordinator will liaise and work closely with all partner institutions to link the project with complementary national programmes and initiatives. Several activities may be sub-contracted to other line ministries or agencies (i.e. FAO).

National Directorate of Hydrologic Resources - Ministry of Energy and Water (MINEA): This Ministry will play a key role on the implementation of the project, at the national level through the NDHR as well as at the provincial level, as each province has a Provincial Director for Water and Energy. River basins management are of direct responsibility of this ministry and planned assessments on this project, data and information obtained along it, will be very useful for future river basin master plans.

Ministry of Agriculture: Extension services to support small-scale farmers are under this line ministry and every province of the country has a provincial representation of the Instituto de Desenvolvimento Agrario (IDA) and several EDAs (Estações de Desenvolvimento Agrario), which connect agriculture research institutes with farmers. Agricultural extensionists will be crucial for successful implementation of component 2 of this project.

Civil Protection (Protecção Civil) is a key UNDP partner (see section B.6) in various disaster preparedness activities and the Provincial Delegation of the Civil Protection in Cunene has prepared an Emergency Action/Contingency Plan. Civil Protection will be a key stakeholder in the project at both the national and provincial levels and will coordinate many of the downstream activities.

National Plant Genetic Resource Centre (CNRF) – Agostinho Neto University: Agostinho Neto University was the first public University of the country and it is the mother of other current public universities. The National Plant Genetic Resource Centre is one of the six investigation centres of the UAN and the only one in the country dedicated to collection, classification, and collection of national germoplasm. At the national level, it is linked with Research Institutes of Agriculture for the multiplication of OPV seeds and linked with MINADERP (extension services) for distribution of already multiplied seed. At international level, it is part of the SADC network of genetic resources centres.

INAMET - National Institute of Meteorology and Geophysics: INAMET will play a key role in the development of components #1 and #2.

Provincial Government of Cunene will be involved in project activities at all levels and the project implementation unit may be based in Onjiva, the capital of Cunene.

Inter-sectoral coordination lies with the Comissão Técnica Multi-setorial para o Ambiente (CTMA), established in 2001 but not yet fully effective. The CTMA is intended to provide technical coordination between sectors. In order to provide a broader participation in environmental policy and sustainable development, a further coordinating mechanism, the Comissão Nacional de Desenvolvimento Sustentável has been established.

### **Bilateral and Multilateral Development Agencies:**

*United States Agency for International Development (USAID)* has been providing aid to Angola since the late 1970s and working in Angola with full mission status since 1998. USAID's programmes promote stability, good governance, economic opportunity, and increased access to health services and electricity. Specific programmes include the strengthening of the Justice Sector, the Election Support Programme, as well as emphasis placed on fostering an enabling environment conducive to broad-based economic growth, and special emphasis on promoting youth entrepreneurship and vocational education. USAID will be a key project counterpart for all components, particularly component #1.

*KFW Development Bank (KFW)* is a partner in the The Cunene Trans-boundary Water Supply Project (KTWSP), a pilot initiative of the fifteen-member state Southern Africa Development Community (SADC) and is administered through the Regional Strategic Water Development Programme (RSWP). This project encompasses the development and rehabilitation of water supply and sanitation infrastructure schemes for communities residing along the border between Southern Angola and Northern Namibia. Implementation occurs through the Task Force Caluque, which is a committee of the Permanent Joint Technical Commission (PJTC) in the Cunene region. The German Federal Ministry for Economic Cooperation and Development, in cooperation with UKAid, from the Department for International Development (DFID) and the Australian Agency for International Development (AusAid) are organizations supporting this pilot project. KFW will be consulted as regards water-related activities in Component #1.

**World Bank:** The Water Sector Institutional Development Project aims to strengthen institutional capacity of the water sector by, among others, strengthening managerial and technical capacities on the water supply sub-sector. By supporting the National Directorate of Water Supply, management of main river basins will be improved with a clear positive impact on risk reduction.

**Food and Agricultural Organization (FAO):** Given their expertise with agricultural extension, FAO will possibly serve as a sub-contractor for outputs 2.C, 2.D and 2.E & 3.E. *Farm Field Schools* methodology has been used by FAO and the GoA (Ministry of Agriculture) during the last 10 years in some provinces of the country as an innovative extension methodology. Taken into account results achieved to date, it is likely to be assumed by the GoA and implemented along the country. Currently, FAO is implementing this methodology in Cunene Province, through a Joint Programme funded by the Spain – UNDP MDG-Fund. UNDP is also a partner in this initiative and a nutritional and food security assessment has been done for the Municipality of Ombadja. Livelihoods information obtained are richful inputs for Component #2 and #3. **UNEP** will also be consulted to as regards their plans to develop a project to train government officials in key ministries in climate risk management, climate integration and adaptation planning, and develop an early warning systems for coastal areas (see section B. 6 below).

#### **Local and International NGOs, Community Based Organizations (CBOs) and Civil Society Organizations (CSO):**

**Development Workshop Angola (DW)** is a non-profit organisation working to improve settlements and livelihoods of the poor in less-developed communities. With offices in Luanda, Huambo, Cabinda, and Lunda Norte, they have worked in Angola since 1981, for many years the only NGO in the country, initially at the national government's request to assist with self-help housing. DW has worked for many years of conflict through a protracted and complex humanitarian crisis in Angola. They continue to have one of the strongest NGO presences in Angola and currently manages a large number of successful projects in the following sectors: Water and Sanitation, Participative Planning, Micro-finance, Shelter, Peace building and Citizenship, Decentralisation, Monitoring, Research & Strategy, and Land Tenure. They focus on building up local capacities and searched for sustainable solutions even within the emergency environment.

**World Learning (WL)** currently implements the USAID/Angola NGO Strengthening Programme, a five-year, \$43 million cross-cutting programme that builds domestic NGO capacity through health service delivery, advocacy and other activities. WL is the thought center for civil society promotion in Angola. The organization maintains an extensive database of 302 Angolan NGOs and recently released a comprehensive report on the state of NGOs in Angola. WL has extensive grants administration experience in Angola and globally. WL has developed processes, procedures, and manuals which allow it to quickly issue competitive sub-grants and effectively oversee their administration. WL will utilize its current database of 302 Angolan NGOs to identify those working in the Cuvelai Basin when distributing calls for concept papers.

**The private sector:** BP is the most likely multinational to contribute substantially to the programme (most likely via USAID) given that BP funded the first-ever extensive study of the Angolan side of the Cuvelai Basin to help plan flood infrastructure, as well as a complementary Geographic Information System (GIS) training center at Agostinho Neto University.

## **B.6. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:**

The proposed project will avoid duplication and seek to find synergy with other ongoing projects and programmes wherever possible, particularly the initiatives listed below which are not included as baseline activities but nonetheless have strong linkages with the proposed project activities. Collaboration will be done via communications with the responsible entities mentioned below and the entities will be invited to participate in stakeholder consultation meetings and be consulted as regards project design during the PPG phase.

### Regional

- The **Department of Water Affairs and Forestry (DWAF) in the Ministry of Agriculture, Water and Forestry (MAWF)** is the Namibian institution responsible for setting up monitoring systems, coordination of monitoring activities and data analysis. Other organisations, such as NamWater and NamPower, also collect hydrological data at sites where they have water infrastructure. This includes water quality and pollution control in all river Basins of the country. Namibia started its basic monitoring systems in the 1940s. These were much expanded during the two decades since independence. Today Namibia is one of the countries in SADC that has a wide range of monitoring data available.

The Hydrology Division in the Department of Water Affairs and Forestry (DWAF) continuously monitors the stream flow on the major rivers in Namibia, including those within the Cunene River Basin. At this stage, river water level stations are in operation at Ruacana and Epupa on the Cunene River. NamPower also monitors the flow at Ruacana as a combination of the flow through the turbines and the overflow over the diversion weir (with occasional releases through the dam outlets). The monitoring system has major gaps further downstream, with a closed station at Marienfluss and no station at the River Mouth. The Hydrology Division also operates river gauging stations (Ombuku, Minimahoro) on the ephemeral tributaries of the Lower Cunene River.

The Namibia Meteorological Services (NMS) in the Ministry of Works and Transport (MWT) is responsible for monitoring, analysing and reporting meteorological data on rainfall, temperature, humidity, atmospheric pressure and wind. In 2003 NMS's comprehensive rainfall data set held about 150 000 daily records from about 120 stations (Meteona website 2010). The Okavango Research Institute at the University of Botswana is in the process of setting up seasonal forecasting for the Okavango Delta. The project will seek to work in close collaboration with all these actors.

- **Climate for Development in Africa Programme (ClimDev-Africa)** is a joint initiative of the Commission of the African Union (AUC), the African Development Bank (AfDB) and the United Nations Economic Commission for Africa (UNECA). ClimDev-Africa has received strong political endorsement from AU heads of state and government, African Ministers, several key stakeholders and the International Community. In general, the ClimDev-Africa programme supports Africa's response to climate variability and change by building regional, sub-regional and national policy capacity. It will improve the quality and availability of information and analysis to decision-makers.
- The **African Monitoring of the Environment for Sustainable Development (AMESD) Project**. The European Union funded project Preparation for the Use of MSG in Africa (PUMA) made available data and products from EUMETSAT's latest satellites, promoting African National Meteorological and Hydrological Services to provide accurate weather forecasts, monitor extreme weather phenomena, and improve disaster management. The African Monitoring of the Environment for Sustainable Development (AMESD) initiative takes PUMA a stage further by



significantly extending the use of remote sensing data to environmental and climate monitoring applications.

- The **Global Climate Observing System (GCOS)** is intended to be a long-term, user-driven operational system capable of providing the comprehensive observations required for: Monitoring the climate system; Detecting and attributing climate change; Assessing impacts of, and supporting adaptation to, climate variability and change; Application to national economic development; Research to improve understanding, modelling and prediction of the climate system. GCOS is a joint undertaking of the World Meteorological Organization (WMO), the Intergovernmental Oceanographic Commission (IOC) of the United Nations Educational Scientific and Cultural Organization (UNESCO), the United Nations Environment Programme (UNEP) and the International Council for Science (ICSU). It includes both in situ and remote sensing components, with its space based components coordinated by the Committee on Earth Observation Satellites (CEOS) and the Coordination Group for Meteorological Satellites (CGMS). GCOS is intended to meet the full range of national and international requirements for climate and climate-related observations.
- The **Southern African Development Community Hydrological Cycle Observing System (SADC-HYCOS)** is a regional component of the World Meteorological Organisation (WMO) programme aimed at improving the basic observation activities, strengthening regional cooperation and promoting free exchange of data in the field of hydrology. The programme is guided by the World Hydrological Observing System (WHYCOS) International Advisory Group (WIAG). The aim is to ensure that participating countries, individually and collectively, attain the technical capability, effective management and equitable use of the freshwater resources of the sub-region and to establish a Water Resources Information System as an effective decision making tool.

#### National

- **USAID's Global Climate Change Integration (GCCCI) Pilot Proposal for Angola** (USD \$5.164 million with 2-3 million coming from USAID core funds) is part of USAID's 2012-2016 Climate Change and Development Strategy designed to enable countries to accelerate their transition to climate-resilient low emission sustainable economic development. Under the new strategy USAID will pursue three strategic objectives (SOs): 1) Accelerate the transition to low emission development through investments in clean energy and sustainable landscape; 2) Increase resilience of people, places, and livelihoods through investments in adaptation; and 3) Strengthen development outcomes by integrating climate change in Agency programming and learning

Under this strategy and as a means to address the pressing disaster risk reduction needs that have been identified by Angola's NAPA and other vulnerability assessments, USAID/Angola has developed a Global Climate Change Integration (GCCCI) Pilot Proposal focused on climate change adaptation training, planning, implementation and advocacy components that will be integrated into its existing NGO Strengthening Programme .

The proposed USAID pilot focuses primarily on the Angolan portion of the Cuvelai River Basin with a focus on the province of Cunene. However, selected activities will also be relevant to broader geographic areas. Cunene was selected as the focus region on the basis of consultations with government and several vulnerability assessments and studies, including Angola's NAPA, which as previously mentioned identifies Cunene as a target province. The project proposal has three main components:

- 1) Support Angolan NGOs to work with communities in the Cuvelai River Basin to develop DRR plans and response measures. These plans will link specific climate extremes that have occurred

in the past or are likely to occur in the future to specific, proactive response measures geared at protecting key assets and above all human lives. With technical input and support from Office for Disaster Assistance (OFDA)/Southern Africa, the planning process will likely utilize the Community-Based Disaster Risk Management Tool OFDA has supported in other regions. The process will be rooted not only in understanding and analysis of past extreme event but also take into account climate change projections that the implementing NGOs will be empowered to access with USAID support and guidance. Links will be formed with the Climate Systems Analysis Group at the University of Cape Town in South Africa, which aims to produce relevant, appropriately framed downscaled projections for the entire African continent by mid-2012. The focus will be on four of the six municipalities in the province.

2) Support Angolan NGOs to partner with the provincial and national government to develop the infrastructure needed for an effective flood forecasting and early warning system (FFEWS). This will involve not only advocacy but also the provision of technical assistance for the institution building that is essential for a functioning FFEWS. Key aspects of the hydrology of the Cuvelai River Basin remain poorly understood and basic data and measurement necessities are currently unmet, including a geospatial flood map that can help inform DRR activities and target FFEWS efforts. To address this core need, USAID/Angola will partner with the Southern Africa Regional Environment Program (SAREP) to develop such a map. SAREP will utilize a free geospatial flood planning tool, MODIS12, which has global coverage and data extending to the present day. MODIS can be utilized to construct flood maps that while relatively coarse-grained can nonetheless serve as an essential input for a functional FFEWS.

3) Support Angolan NGOs to partner with the provincial government to improve the dissemination of short-term seasonal climate forecasts.

The project will be implemented through World Learning, who currently implements the USAID/Angola NGO Strengthening Programme, a five-year, \$43 million cross-cutting programme that builds domestic NGO capacity through health service delivery, advocacy and other activities. USAID Angola staff have liaised closely with UNDP staff in designing the project so as to harmonize it with the activities in this proposal; the two agencies have also agreed to work closely on M&E issues during implementation of the two respective projects.

- At the request of GoA, FAO has developed another LDCF PIF entitled “***Integrating and up-scaling climate resilience through soil fertility management into agricultural and agropastoral production systems for food security in key productive and vulnerable areas through the Farmers Field School approach.***” The project location is Angola’s Central Plateau and the project aims to meet the CCA needs of the agro-pastoral sectors in the Central Plateau as established in the NAPA and increase the resilience of small farmers to cope with declining ecosystems services (and especially sustainable crop production and diversification) due to increasing climate variability, droughts, and extreme events. Although the GoA requested that the two agencies work in different regions (the Cuvelai basin is located in the Cunene region, and is ecologically considerably different from the Planalto), various meetings and communications are ongoing between the national FAO and UNDP offices to define the collaboration to be undertaken under the framework of LDCF and to ensure harmonization of results and synergies are maximized. FAO has also been invited by UNDP to work on component #2 of this project and may be sub-contracted to do the activities in that Component.
- UNEP is also in the early stages of developing a project to address urgent coastal adaptation needs and capacity gaps, which will include several different components and possibly an operational forecasting and early warning system for climate-induced extreme events along the coast.

- UNDP Angola is currently supporting the National System of Civil Protection to improve its response capacity and structure at Provincial and Municipal level. DRR participatory methodologies, best practices and key tools will be provided to Municipal Commissions of Civil Protection. Cunene is also a target province of this intervention, thus, their Municipal Commissions will be strengthened at this stage and this effort will be used as a solid base for building of this new proposal.
- The rehabilitation of the Angolan network of hydrometric stations has been prioritized under separate projects and planned activities will need to be harmonized with this project's proposed activities during the PPG phase to avoid duplication. One such example is the NAWASMA (National Water Sector Management) project funded by NORAD, which started in 2002 and centers around institutional cooperation between the Angolan National Water Directorate and the Norwegian Water Resources and Energy Directorate (NVE).
- UNICEF's Water, Health, and Sanitation (WASH) activities were implemented in Cunene from 2008- 2011 at a cost of approximately \$860,000. Thanks to these efforts, an estimated 30,000 people, 27 communities and six schools in the Cuvelai Basin municipalities of Kwanhama and Ombadja have improved access to safe water. Although the donor-funded programme has ended, community-managed *Grupos de Agua e Saneamento* (GAS) (Groups of Water and Sanitation) continue to manage and maintain water infrastructure in a sustainable manner with support from local government administrators who also received training under the programme. The EU plans to possibly continue funding Community-led Total Sanitation (CLTS) activities. Investments made thus far in the "hardware" and "software" of water and sanitation provision will significantly reinforce disaster risk reduction activities. UNICEF has pioneered a successful model for making available clean, safe water in communities subject to extreme weather events as well as social messaging that emphasizes, in mutually reinforcing fashion, the importance of proper hygiene and water treatment in disaster response plans. During the PPG UNICEF will be consulted as to their experiences and lessons learned as to the most effective way to implement community-based activities in the Province of Cunene. Some of the community-based capacity building activities proposed under this project may be done through the GAS groups in the Province.
- Another project which will require coordination is USAID/Angola's Strengthening Angolan Systems for Health (SASH) programme implemented by JHPIEGO, an affiliate of Johns Hopkins University, and Management Sciences for Health (MSH). The USAID/Angola Health Team strongly believes that municipal health workers in the Cuvelai Basin should clearly understand the relationship between climate events and water-borne illnesses like diarrhea, typhoid fever, and cholera. A good faith effort by the USAID/Angola Health Team proposes to leverage municipalização (decentralization) funds (at a 1:1 ratio with the Ministry of Health) to build the capacity of health managers in the municipalities of Cuvelai, Kwanhama, Ombadja and Namacunde in Cunene province.

**C. DESCRIBE THE GEF AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:**

UNDP has long-standing experience in supporting projects that require the development of climate-related information. Over the past decade, it has actively supported work on National Adaptation Programmes of Action (NAPA), as well as National Communications to the United Nations Framework Convention on Climate Change in some 140 countries. Recent UNDP efforts have focused on assisting national and subnational agencies in their efforts to formulate and implement green, low-emission and climate-resilient development strategies (Green LECRDS). As part of these Green LECRDS, UNDP has completed detailed climate-scenario development for several regions and is working on several Early Warning System-related projects in Malawi, Zambia, Tanzania, Ethiopia, Uganda, Benin, Burkina Faso, Sierra Leone, São Tomé and Príncipe and Liberia.

In Angola, UNDP has been working on environmental sustainability issues for over a decade, and has established strong partnerships with national institutions such as MINAMB, Civil Protection and MINEA, implementing partners such as FAO, as well as donors such as GEF, USAID and the Government of Norway. UNDP has a particularly strong relationship with the Civil Protection Agency and is just starting development of a new project (US\$300K budget) to work with the agency as noted in the previous section on related initiatives.<sup>22</sup>

UNDP Angola has one of the largest portfolio of GEF projects under implementation in the country. GEF projects which might be of particular relevance to this project as regards learning and collaboration include:

- Sustainable Land Management (medium size). Main counterpart: MINAMB. Main components: a) individual and institutional capacity strengthening on SLM; b) capacity building on mainstreaming SLM principles; c) support to the elaboration of the National Action Plan; and d) elaboration of a Financial Integrated Strategy for SLM.
- Sustainable Management of the Okavango River Basin (full size): \$5M USD. Main counterpart: MINEA. Collaboration among Angola, Botswana and Namibia for joint management of the Okavango River Basin resources.

UNDP Angola's value-add as regards implementation of this project includes:

- Trusted, long-term partnership with main counterparts: MINAMB, MINEA and Civil Protection (including major support for Rio+)
- Extensive past experience on DRR interventions and implementation of other GEF projects
- Consolidated experience on capacity building at provincial and local levels
- Well-respected as a key convening actor in the environment sector at a national level

**THE GEF AGENCY IS BRINGING TO THE PROJECT:** UNDP Angola is in the final stages of approval with the government of an overarching programme in support to the environment sector in Angola. Its goal is to “strengthen national capacities to mainstream environmental protection into national development plans and programmes within a pro-poor growth perspective”. The programme will constitute a number of related initiatives financed by government, donor agencies (including the EU and the AfDB) and private sector. More specifically, this project contributes to Outcome 4 of the below-mentioned UNDP Environment Programme: *Mainstreaming CC adaptation and mitigation on national development plans and policies*. UNDP Angola will contribute 800K in co-financing to this project.

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<sup>22</sup> ASSISTÊNCIA PREPARATÓRIA PARA A GESTÃO E REDUÇÃO DE RISCOS – SERVIÇO NACIONAL DE PROTEÇÃO CIVIL E BOMBEIROS – draft UNDP prodoc, Sept. 2012

Additional co-financing for the PPG phase will come from UNDP core funds being mobilized for a new project working with the Civil Protection Agency.

**C.2. HOW DOES THE PROJECT FIT INTO THE GEF AGENCY’S PROGRAMME (REFLECTED IN DOCUMENTS SUCH AS UNDAF, CAS, ETC.) AND STAFF CAPACITY IN THE COUNTRY TO FOLLOW UP PROJECT IMPLEMENTATION:**

The UNDP Angola Environment Programme is positioned within existing frameworks of the UN system, such as its Millennium Development Goals (MDGs), Multilateral Environmental Agreements (MEAs), and the legislative instruments of the Government of Angola. It responds to the priorities identified from analyses undertaken over the past decade in Angola, and in particular, to the UNDP Country Programme Action Plan (CPAP) for 2009 – 2013 and the National Programme for Environmental Management (Programa Nacional de Gestão Ambiental - PNGA) of the Ministry of Environment


Two key strategy documents provide a chapeau for the project’s fit within the UN and UNDP’s Programmes in Angola: the United Nations Development Assistance Framework (UNDAF) and the Country Programme Action Plan (CPAP). The UNDP Angola CPAP (2009-2013) is anchored in the UNDAF (2009 – 2013), and underpins the Angolan national vision of “sustainable human and economic development and strengthened national cohesion and democracy”.

UNDAF Outcome 4 is: “Strengthened pro-poor economic growth and accountable macroeconomic management and integrated rural development, natural resources and energy management, to promote environmental protection and adaptation to climate change.” This project will make a key contribution to UNDAF’s Outcome #4 under which a concerted UN approach is geared to provide a framework for national and decentralized institutions, strengthened integrated rural development, ensuring food security with due consideration for environmental protection, natural resource management and adaptation to climate change.

As regards staff capacity, the UNDP Country Office in Angola, supported by the UNDP Regional Office in South Africa, will oversee and provide support to this project, relying on UNDP’s country-level coordination experience in integrated policy development, human resources development, institutional strengthening, and non-governmental and community participation. The UNDP Country Office counts on at least three full-time professional staff dedicated to the environment portfolio (plus support from operations and senior management). This team is supported by UNDP/GEF Regional Coordination Unit (including a Portuguese speaking Regional Technical Advisor for Climate Change and support staff assisting with M&E and delivery oversight, among other tasks). The project will also benefit from the technical guidance of the UNDP/EEG/GEF Technical advisor on climate information and modeling, whom is also based in South Africa.

**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 template).

NAME		POSITION	MINISTRY	DATE	
Dr. Carlos Avelino Manuel Cadete		National Director of Statistics Planning and Studies Cabinet, GEF Operational Focal Point	Ministry of Environment	Sept. 4, 2012	
Agency Coordinator, name	Signature	Date	Project Contact Person	Telephone	Email Address
Yannick Glemarec UNDP/GEF Executive Coordinator		January 7, 2013	Lucas Black UNDP Regional Technical Advisor – Energy, Infrastructure, Transport and Technology (EITT)	Tel: +27 12 354-8132	<a href="mailto:lucas.black@undp.org">lucas.black@undp.org</a>

## Annex A - Map of the Cuvelai Basin Region

