PROJECT DOCUMENT

SECTION 1: PROJECT IDENTIFICATION

1.1	**Project title:**	Addressing urgent coastal adaptation needs and capacity gaps in Angola
1.2	**Project number:**	GFL/5230 PMS:
1.3	**Project type:**	FSP
1.4	**Trust Fund:**	LDCF
1.5	**Strategic objectives:**	Climate Change Adaptation
	GEF strategic long-term objective:	Climate Change Adaptation
1.6	**UNEP priority:**	Climate Change Adaptation
1.7	**Geographical scope:**	National
1.8	**Mode of execution:**	External
1.9	**Project executing organization:**	Ministry of Environment (MINAMB)
1.10	**Duration of project:**	48 months Commencing: March 2016 Technical completion: March 2020
	Validity of legal instrument:	54 months

1.11	**Cost of project**	**US$**	**%**
Cost to the GEF LDCF		6,180,000	34
Funds managed by UNEP		5,180,000	
Funds managed by UNDP:		1,000,000	
Co-financing			
Grant			
INAMET Strategic development Master Plan (SDMP), funded by the Government of Angola		6,161,467	33
Support to the Fisheries Sector Project (FSSP), funded by the African Development Bank		3,000,000	16
Angola Water Sector Institutional Project (PDISA), funded by the International Development Association and Southern African Development Community		3,000,000	16
UNEP, Building capacity for coastal EbA in SIDS		150,000	**1**

Sub-total	12 311 467	
Total	**18,491,467**	**100%**

1.12 Project summary

Angola's coastline is home to over 50% of the country's population, where the combination of rapid population growth and inadequate urban planning has resulted in diverse socio-economic and environmental challenges. Such challenges include inadequate access to water and electricity, poor sanitation, and exposure to natural disasters such as flooding. Approximately two thirds of coastal Angolan communities are reliant on livelihoods such as agriculture and fishing for subsistence and employment. The livelihoods of these communities are therefore underpinned by the goods and services generated by functional, intact ecosystems. Despite this important contribution of Angola's ecosystems to household income and national GDP, inappropriate management practices and sustained overexploitation has resulted in the widespread degradation of Angola's coastal ecosystems. Impoverished households that are reliant on natural resource-based livelihoods are consequently becoming increasingly vulnerable to the negative effects of ecosystem degradation.

The threats to the livelihoods and wellbeing of coastal communities will be further exacerbated by the current and future effects of climate change. These effects include: i) increased variability in rainfall and temperature; ii) increased frequency and severity of droughts and floods; and iii) rising sea level and increased frequency of storm surges, which results in increased beach erosion. Consequently, climate change will result in multiple negative effects on the livelihoods and health of coastal households in Angola. For example, coastal infrastructure and households will be damaged by increased frequency and severity of floods, storm surges and beach erosion. Additionally, increases in temperature and flooding events will increase the incidence of water-and vector-borne diseases of both humans and livestock. Agricultural production will decrease as a result of drought, thereby exacerbating food insecurity amongst local communities in these coastal regions. Several economically important sectors – including fisheries, agriculture, water, energy and tourism – are also vulnerable to the negative effects of climate change.

To address these urgent adaptation needs, the proposed project will use Least Developed Country Fund (LDCF) investments to increase the capacity of Angola's government and coastal communities to adapt to climate change. In particular, the project will promote and demonstrate cost-effective, low-regret options for adaptation including: i) climate-resilient practices such as Ecosystem based adaptation (EbA) and climate-resilient land management (including promotion of agricultural, waste management and sustainable harvesting practices promote ecosystem health and sustainable livelihoods under climate change), and ii) establishment of a pilot Early Warning System (EWS). The benefits of these approaches to climate change adaptation will be demonstrated to impoverished rural communities in coastal areas as well as stakeholders from important economic sectors such as fisheries, agriculture, transport, energy, water and tourism. The objectives of the proposed project will be achieved through multiple complementary measures that will include: i) increasing scientific and technical capacity of government staff to deliver early warning information to coastal communities in Cabinda, Kwanza Sul, Bengo and Namibe Provinces; ii) demonstrating EbA and climate-resilient land-management practices in participation with coastal communities; and iii) mainstreaming climate change adaptation into local to national governance.

To promote sustainability and upscaling of the project's activities beyond the intervention sites and implementation period, the project will develop briefs and technical guidelines on adaptation interventions – including EbA and climate-resilient land management – to be developed for distribution to policy- and decision-makers. Moreover, the project will provide recommendations to integrated best practice options for adaptation into relevant sectoral strategies and budgets, such as the Master Plan for Tourism, and the Artisanal Fisheries Development Plan 2014–2017. In addition, the project will develop EbA project concept notes for presentation to stakeholders in the private sector – including the diamond and petroleum industry – to outline potential opportunities for Corporate Social

Investment (CSI) programmes to support EbA-related activities along the coast of Angola. These EbA project concept notes will be packaged for different investment amounts and will include: i) details on the vulnerability of the target sector to climate change ii) the economic rationale for investing in EbA; and iii) quantification of the social and environmental benefits of the investment.

The LDCF project will build on several on-going selected baseline projects, which include: i) INAMET Strategic Development Master Plan (SDMP) (2012–2018); ii) Support to the Fisheries Sector Project FSSP) (2012–2017); and iii) Angola Water Sector Institutional Project (PDISA) (2010–2019). The project will be executed by MINAMB of Angola. Components 1 and 2 will be implemented with support from the United Nations Environment Programme (UNEP). Component 3 will be implemented with support from the United Nations Development Programme (UNDP).

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ACRONYMS AND ABBREVIATIONS[1]

AAKNET	African Adaptation Knowledge Network
AfDB	African Development Bank
CIBAC	Inter-ministerial Commission for Climate Change and Biodiversity
CNPCB	Civil Protection Services and Fire Brigade
COSPE	Cooperation for the Development of Emerging Countries
CSI	Corporate Social Investment
DNAAS	National Directorate for Water Supply and Sanitation
DNIIP	National Directorate of Infrastructure and Fisheries Industry
DNPA	National Directorate of Fisheries and Aquaculture
DW	Development Workshop
EbA	Ecosystem-based Adaptation
EIA	Environmental Impact Assessment
EDLP	Long Term Development Strategy
EWS	Early Warning System
FAO	Food and Agriculture Organisation of the United Nations
FAS	Local Development Project
FFEWS	Famine and Flood Early Warning System
FM	Financial Manager
FSSP	Support to the Fisheries Sector Project
FSP	Full-Sized Project
GAC	Climate Change Cabinet
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GoA	Government of Angola
GSA	Cabinet of Food Security
IDA	Institute of Agricultural Development
INAMET	National Institute of Meteorology
INARH	National Institute of Hydrologic Resources
INIP	National Institute for Fisheries Research
INRH	National Institute for Water Resources
IPA	Development of Artisanal Fisheries and Aquaculture Institute
LDCF	Least Developed Country Fund
MINAGRI	Ministry of Agriculture and Rural Development
MINAMB	Ministry of the Environment
MINEA	Ministry of Energy and Water
MINTRANS	Ministry of Transport
MININT	Ministry of the Interior
MINPET	Ministry of Petroleum
MINPES	Ministry of Fisheries
MLS	Monitoring and Learning Specialist
MTR	Mid-Term Review
MTIT	Ministry of Telecommunications and Information Technologies
NAP	National Adaptation Plan
NAPA	National Adaptation Programme of Action
NDP	National Development Plan
PA	Project Administrative Assistant
PASA	Environmental Sector Support Project

[1] All acronyms in italics refer to the Portuguese

PDPA	Artisanal Fisheries Development Plan
PMU	Project Management Unit
PNFFSAC	National Policy on Forestry, Fauna and Areas of Conservation
PDISA	Angola Water Sector Institutional Project
PNIEG	National Policy for Gender Equality and Equity
PRODEL	National Energy Production Company
SADC	Southern African Development Community
SDMP	INAMET's Strategic Development Master Plan
SLM	Sustainable Land Management
SNPC	National Civil Protection System
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

2.1. Background and context

1. The Least Developed Country Fund (LDCF) has approved funds for the implementation of the Full-Sized Project (FSP) entitled: "Addressing urgent coastal adaptation needs and capacity gaps in Angola". Hereafter this FSP will be referred to as the LDCF project or the project.

Brief introduction

2. The Republic of Angola (hereafter Angola) has a population of ~21 million people, with more than half of the population living along the coast. There are high rates of unemployment, financial disparity and poverty in the country[2]. This disparity is largely a consequence of a prolonged civil war[3] over the period 1975 to 2002. Moreover, as a result of limited financial resources and infrastructure, most of the population has limited access to *inter alia*: i) food; ii) safe drinking water; iii) sanitation; iv) education; v) healthcare; and vi) electricity. The growing population density along the coast of Angola – coupled with poor urban planning and governance – has resulted in a wide range of social and environmental problems. In particular, poor governance of Angola's environmental sector has led to the overexploitation of natural resources. For example, construction of infrastructure in environmentally sensitive coastal land and lack of enforcement of Environmental Impact Assessment (EIA) requirements has resulted in the degradation of productive coastal ecosystems, such as mangroves.

3. Under the current and predicted effects of climate change – including *inter alia* sea level rise and increases in the frequency and severity of both flood and drought events – it is likely that the poor living conditions of coastal communities will be further exacerbated[4]. For example, increased frequency and severity of floods will increase the risk of damage to coastal infrastructure and housing, with implications for human health. Additionally, increased frequency and intensity of drought events are likely to affect agricultural yields negatively, thereby compounding food insecurity in the coastal region. In particular, the projected increase in the temperature of the Benguela Current – which has direct influences on the climate of Angola – will have implications for commercial and artisanal fisheries along the coast. For example, it is anticipated that the increased water temperature will disrupt the spawning migration of commercially valuable species along the coast. As a result, artisanal fishers will need to travel further distances to find traditional fishing species or alternatively shift their practices to focus on different target species (e.g. from demersal to small pelagic species e.g. mackerel and sardinella)[5]. Coastal ecosystems will also be negatively affected by climate-related changes to river flows, hydrology and water temperature. These changes will have a negative impact on fisheries and agricultural sectors. In summary, observed and predicted climate changes are likely to exacerbate the vulnerability of communities in coastal areas of Angola[6]. Additional information on the climate, ecology, geography, and the political and socio-economic context of Angola – relevant to the LDCF project – is presented below.

Geographical context

[2] Angola: FAO Country Profile. http://www.fao.org/countryprofiles/index/en/?iso3=AGO Accessed 14 January 2015.
[3] War of independence followed by a civil war.
[4] UNDP. Angola: Climate Change Country Profile
[5] FAO/BCC. 2011. Climate change implications for fisheries of the Benguela current region: making the best of change. Available at: http://www.fao.org/docrep/017/i3053e/i3053e.pdf. Accessed on: 17 April 2015
[6] Angola: National Adaptation Programme of Action under the United Nations Framework Convention On Climate Change (2011).

4. Angola is located on the western Atlantic coast of southern Africa between the latitudes 4°12' and 18°02' South and longitudes 11°41' and 24°05'[7]. It is the second-largest country south of the Sahara[8], with a total land area of ~1,246,700 km^2 and a maritime coastline extending ~1,650 km[9]. Angola has a diverse topography, including flat coastal plains, a mountainous inland region and an interior highland plateau. The country is bordered by the Democratic Republic of Congo, Republic of Zambia and the Republic of Namibia. It consists of 12 inland and 7 coastal Provinces[10].

Figure 1: Geographical location of Angola[11]

Political Context

5. In 1975, Angola gained independence from Portuguese rule after a 14 year anti-colonial war. Soon after achieving independence, the country entered a state of civil war for 27 years. Angola held its first post-war legislative elections in 2008. The *Movimento Popular de Libertação de Angola –*

[7] http://unfccc.int/resource/docs/natc/agonc1.pdf Accessed 16 October 2014.
[8] http://www.sadc.int/member-states/angola/ Accessed 16 October 2014.
[9] McSweeney.C, New, M. and Lizanco, G. (2012). UNDP country profile: Angola. School of Geography and Environment, University of Oxford and Tyndall Centre for Climate Change Research.
[10] http://www.angola.or.jp/english/index.php/about_angola/geography Accessed 13 October 2014.
[11] Adapted from: Robson, P. and Roque, R. (2001). *Here in the city there is nothing left over for lending a hand: In search of solidarity and collective action in peri-urban areas in Angola*, Occasional Paper Number 2, Canada: Development Workshop.

under the president José Eduardo dos Santos – won this election[12]. Thereafter, Angola became a unitary republic such that the president holds authority over local and provincial governments. The President is both Head of State and Commander-in-Chief of the Armed Forces. Under this new constitution, the government consists of three independent branches: executive, legislative and judicial. The country comprises 18 provincial governments, 163 municipalities and 532 communes.

Socio-economic context

6. In 2014, Angola's population was estimated to be ~21 million, with an annual growth rate of ~2.7%[13]. It is projected to reach ~54,324,000 by 2050[14]. Most people reside along the coast, with the coastal capital of Luanda having the highest population concentration in the country[15]. In 2011, ~59% of the population lived in urban areas, with the urban population rate increasing at ~4%[16] per annum. Moreover, Angola has a human development index of 0.508[17], placing the country into the 'low' human development category[18]. Furthermore, ~54% of the population live below the poverty line of US$1.25 per day[19].

7. Angola's economy is based on the extractive sector, with oil contributing ~46% of the gross domestic product (GDP), ~80% of government revenues and ~95% of exports. Between 2009 and 2011, Angola's economy experienced a downturn because of the global oil and financial crisis[20]. However, since 2012 the country's economy has followed an upward growth trajectory and is one of the fastest growing economies in Africa[21]. Consequently, Angola is considered an upper middle-income country by the World Bank[22]. It has a GDP of US$121.7 billion. An economic growth of ~8.8% has been projected for 2015 as a result of the country's expanding oil and gas sector and attempts by the government to foster economic diversification[23]. However, the recent drop in global oil price is predicted to slow economic growth in Angola. Furthermore, this drop in global oil price is anticipated to create delays in major infrastructure projects and reductions in social spending[24].

Infrastructure and planning

8. Four decades of war (1975–2002) caused a significant demographic shift in Angola's population[25]. In particular, people living in rural areas migrated to urban areas on the coast, resulting in rapid urbanisation of these coastal areas. This process has resulted in the degradation of infrastructure in sectors such as transport, water and sanitation, with Angola ranking 41 out of 142 countries in overall infrastructure quality[26]. Because of this degradation, infrastructure in these economic sectors is not adequate for supply of basic services to the population. Furthermore, in some areas there is no running water, electricity or sewage and waste collection systems (see Appendix 15).

[12] Jover, E.Lopes Pintos, A., and Marchand, A. (2012). Angola: Private Sector Country Profile: September 2012.
[13] Jover, E., Lopes Pintos, A., and Marchand, A. (2012). Angola: Private Sector Country Profile: September 2012.
[14] United Nations. (2013). World Population Prospects. The 2012 Revision Volume 1: Comprehensive Tables.
[15] https://www.cia.gov/library/publications/the-world-factbook/geos/ao.html Accessed 10 November 2014.
[16] http://hdr.undp.org/sites/default/files/Country-Profiles/AGO.pdf Accessed 16 October 2014.
[17] According to the 2012 UN Human Development Index (HDI)
[18] http://hdr.undp.org/sites/default/files/Country-Profiles/AGO.pdf Accessed 16 October 2014.
[19] Jover, E., Lopes Pintos, A., and Marchand, A. (2012). Angola: Private Sector Country Profile: September 2012.
[20] http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2013/PDF/Angola.pdf Accessed 17 October 2014.
[21] Jover, E., Lopes Pintos, A., and Marchand, A. (2012). Angola: Private Sector Country Profile: September 2012.
[22] http://data.worldbank.org/country/angola Accessed 17 October 2014.
[23] http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2013/PDF/Angola.pdf Accessed 17 October 2014.
[24] http://www.reuters.com/article/2015/01/29/angola-economy-idUSL6N0V645F20150129. Accessed 17 March 2015
[25] Development Workshop Research Presentation, *Climate Change, Water Supply and Coastal Settlements in Post-War Angola*, June 2014.
[26] https://www.pwc.com/gx/en/transportation-logistics/publications/africa-infrastructure-investment/assets/angola.pdf accessed 12 March 2015.

As a result, waterborne diseases such as cholera have been prevalent in Luanda and other coastal cities. An additional challenge related to urban planning is that the high demand and prices for prime urban property has resulted in the relocation of poorer households to marginal areas such as river basins. These marginal areas are susceptible to landslides and flooding and are often without sanitation and water supply services making them unsuitable for settlement.

Agriculture

9. Angola has a strong agricultural potential as a result of: i) a favourable climate; ii) plentiful water resources; and iii) large areas – approximately 57 million hectares – of arable land. Currently, the country uses a relatively small portion of its land for agriculture. Prior to independence, agriculture represented a main contributor to Angola's GDP through large-scale exportation of corn, cotton, sisal and coffee[27]. During the war, the rural agricultural economy declined because: i) crops, livestock and plantations were destroyed; and ii) agricultural infrastructure was damaged. Currently agriculture contributes only ~11% of the GDP and accounts for ~70% of total employment in Angola[28]. At the household level, local communities living along the coast rely on various products – including tomatoes, cassava, banana, potato, onion and papaya – for subsistence and income. In an attempt to increase agricultural output, the GoA is implementing a variety of plans and programmes, as described in Section 2.4.

Livestock

10. Many rural Angolan households practice livestock husbandry, of which cattle (~80%), sheep and goats (~10%) pigs (~7%) and poultry (~2%) are the preferred animals. In general, livestock are grazed in accessible areas in close proximity to villages/settlements, while in coastal areas, cattle are frequently grazed on estuary banks.

Fisheries

11. Fishing is an important part of the Angolan economy and contributes ~10% to the country's GDP[29]. In addition, artisanal fishing provides coastal communities with a source of food and income. Artisanal fishing catches are predominantly marine and only a handful of locals practice riverine fisheries. A wide range of species are caught, handled and sold (cooked or dried) locally to visitors. Artisanal fishermen often establish cooperatives or associations to improve coordination between fishermen and increase access to government and aid grants[30].

Ecosystems and protected areas

12. Ecosystems within Angola provide diverse services upon which some economic sectors – such as agriculture and fisheries – and vulnerable coastal communities depend. Additionally, these ecosystems include a number of threatened, rare[31] and endemic fauna and flora species. To preserve[32] these species and their habitats, terrestrial protected areas – covering ~8% of the country's total

[27] http://www.ifad.org/operations/projects/regions/pf/factsheets/angola.pdf Accessed 11 March 2015.
[28] http://www.africaneconomicoutlook.org/fileadmin/uploads/aeo/2013/PDF/Angola.pdf Accessed 10 November 2014.
[29] http://www.our-africa.org/angola/climate-agriculture Accessed 10 November 2014.
[30] A law will soon be approved to strengthen the cooperative as a legal entity – this will allow cooperatives to access to more government funding support.
[31] e.g. Braun's bush-shrike (*Laniarius brauni*), giant sable antelope (*Palanca negra gigante*) and Namibian giraffe (*Giraffa camelopardalis angolensis*).
[32] Poaching is a threat to biodiversity and species preservation.

surface area – have been established[33]. In addition, Angolan territorial waters are an important centre for marine biodiversity. Marine ecosystems in the country are varied, and include *inter alia*: i) mangroves; ii) open sea; and iii) estuaries. Marine Protected Area's (MPA's) cover ~7% of Angola's terrestrial waters[34].

Education

13. Angola currently has one of the lowest rates of enrolment in school in southern Africa. During the civil war, many schools in Angola were destroyed or abandoned. Consequently, a large percentage of Angolan youth did not attend school until the end of the civil war in 2002. Currently, 85% of urban children and nearly 70% of rural children are enrolled to attend primary school[35]. Despite this, basic adult literacy continues to be low in Angola, with ~30% (~17% of males and ~43% of females) of the adult population (15 years and older) being illiterate[36]. In an effort to reverse this trend, the GoA has recently begun to increase investments in education, particularly through the construction of schools and training of teachers. In 2009, to improve the standard of teaching and schools, the government commenced the Programme of Assistance to Primary Education (PAEP) – facilitated by UNICEF and funded by the European Union – to train teachers across the country in modern teaching methods. However, problems in the education sector still exist including *inter alia*: i) inadequate access to education in both rural and urban areas; and ii) high failure and dropout rates among learners[37].

General climatic conditions

14. Angola's climate is quite variable as a result of the country's heterogeneous altitude and topography, as well as the influence of the Benguela Current.38. In general, the climate is characterised by two distinct seasons: i) the cool and dry 'Cacimbo' season from June to September; and ii) the warm 'rainy' season from October to May. The coastal region is relatively humid, with an average annual rainfall of ~600 mm, decreasing from north to south (Figure 2). The coast receives less rainfall than the inland areas as the cooling effects of the northward-flowing Benguela Current become more pronounced. Inland, the northern areas receives between ~1150 mm and ~1660 mm of rainfall annually. The northern coast receives between ~340 mm and ~840 mm of rainfall annually, while the Southwest zone – close to the Kalahari Desert – is semi-arid and receives between ~5 mm and ~360 mm of rainfall annually.

[33] http://www.tradingeconomics.com/angola/terrestrial-protected-areas-percent-of-total-surface-area-wb-data.html 17 November 2014.
[34] http://www.tradingeconomics.com/angola/terrestrial-and-marine-protected-areas-percent-of-total-territorial-area-wb-data.html 18 November 2014.
[35] http://www.angola-today.com/society/education/. Accessed 17 March 2015
[36] Figueira, S. & Inácio, E. 2006. Youth and Adult Learning and Education in Angola. OSISA Open Society Initiative for Southern Africa.
[37] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.
[38] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.

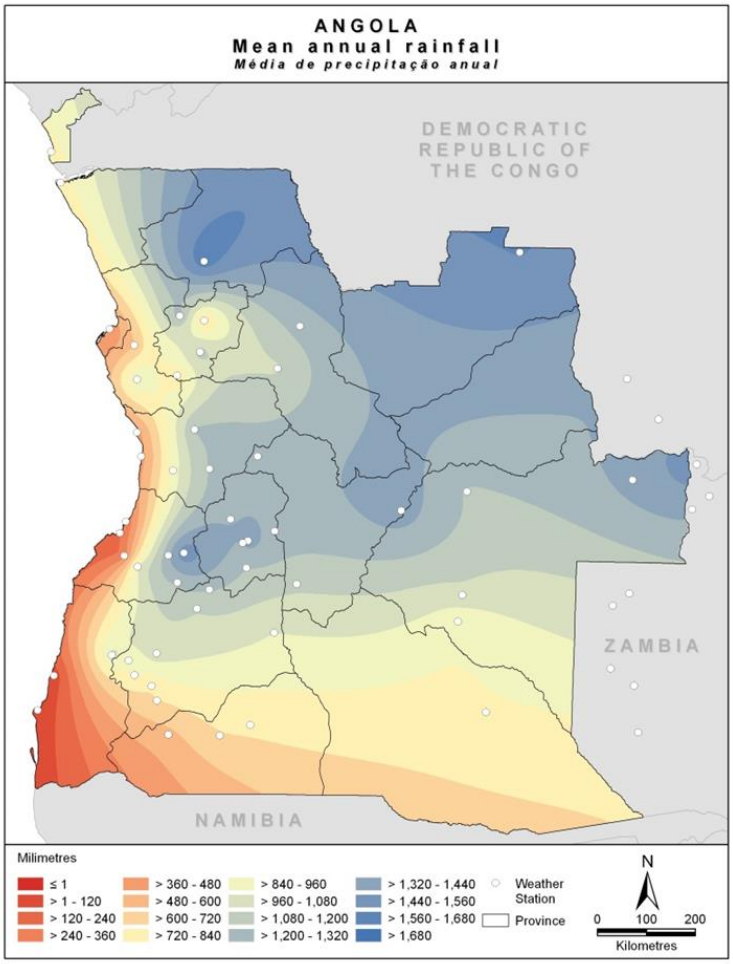

Figure 2: Angola's mean annual rainfall[39]

Observed and predicted climate change

15. Over the past two decades, Angola has experienced an increase in the frequency and intensity of extreme climate events such as droughts and flooding[40]. However, recording data for such events and responding to them with skilful downscaled climate forecasts is a challenge in Angola. This is because of the limited capacity of the GoA to collect climatic data during the civil war, as detailed in Section 2.6. However, observed changes in climate include *inter alia*: i) a decrease in mean annual rainfall and; ii) an increase in mean annual temperature. In particular, between 1960 and 2006, mean annual rainfall over Angola increased by 2.4% per decade[41]. Between 1970 and 2004, the temperature in coastal areas and northern regions increased by 0.2–1.0°C. Over the same period, temperature in the central and eastern region increased by 1.0–2.0°C[42].

[39] Development Workshop, Angola, November 2014.
[40] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.
[41] McSweeney, C., New, M. and Lizcano, D. UNDP climate change country profiles: Angola. Available at: http://www.geog.ox.ac.uk/research/climate/projects/undp-cp/UNDP_reports/Angola/Angola.lowres.report.pdf
[42] Lotz-Sisitka, H. and Urquhart, P. (2014). Angola Country Report. Southern African Regional Universities Association. See: http://www.sarua.org/files/SARUA%20Vol2No1%20Angola%20Country%20Report.pdf
Jover, E., Lopes Pintos, A., and Marchand, A. (2012). Angola: Private Sector Country Profile: September 2012.

Projected climate change in the coastal zone

16. Several climate-related changes are projected for the coastal regions of Angola[43]. These include: i) an increase in intensity and change in frequency of rainfall; ii) variations in temperature and relative air humidity; iii) prolonged droughts; iv) an increase in the frequency and intensity of floods; v) variability in wind frequency and intensity; vi) increased rainfall; and vii) sea-level rise. In addition, based on model simulation for neighbouring countries, the eastern and north-eastern areas of Angola are likely to experience: i) higher levels of mean annual precipitation; and ii) increased occurrences of heavier rainfall[44].

17. Based on the data for sea-level changes from 1980 to 1999, three possible scenarios have been projected for the year 2090. These include a rise in sea level of: i) ~0.13–0.43 m; ii) ~0.16–0.53 m; and iii) ~0.18–0.56 m. Many low-lying areas are likely to experience flooding. These areas include *inter alia*: i) parts of the capital city of Luanda; and ii) other coastal cities such as Bengo and Cabinda. Moreover, low-lying coastal lagoons are likely to become inundated[45].

Predicted effects of climate change

18. In general, Global Climate Models (GCMs) project that the country's climate will become warmer. In particular, the mean annual temperature is expected to increase by: i) ~1.2°C–3.2°C by 2060: and ii) ~1.7°C–5.1°C by 2090. It is projected that this rate of warming will be faster in the eastern and interior regions of Angola, and slower in the western coastal areas.

19. Climate change will have a negative effect on the main socio-economic sectors of Angola, as described in Table 1 below. The challenges that are likely to be experienced by each sector under predicted climate change conditions are discussed below.

[43] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.
[44] http://unfccc.int/resource/docs/natc/agonc1.pdf Accessed 16 October 2014.
[45] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.

Table 1: Climate change related effects on Angola's socio-economic sector as adapted from Angola's NAPA (2011)[46]

Effect (ranked from 0 to 5: 0 being no impact, and 5 being high impact)								
Threat	Agriculture and fisheries	Health	Infrastructure (buildings, ports, roads, cities)	Environment (including forests, biodiversity, water)	Loss of life	Economy (including extractive industry)	Rural	Urban
Direct threat								
Sea-level rise	2	1	2	1	0	2	1	1
Increased sea surface temperature	4	3	0	3	0	2	1	1
Higher temperatures	4	4	0	2	1	0	3	4
Drought	4	4	2	4	1	3	5	3
Floods	4	5	4	4	4	4	5	4
Indirect threat								
Heat waves	4	4	1	2	1	1	1	2
Loss of vegetative cover	4	2	0	4	0	1	4	2
Habitat transformation	4	2	3	3	1	3	3	2
Coastal erosion	3	2	4	2	4	3	2	3
Water erosion	4	3	4	2	4	4	4	5

20. Climate change is predicted to affect the **agricultural sector** by causing *inter alia*: i) an increased water demand and reduced water supply as a result of rising temperatures; ii) reduced crop productivity owing to increased temperature and prolonged droughts; iii) loss of arable land as a result of increased erosion from flooding and sea-level rise; and iv) reduced productivity of livestock and poultry as a result of heat stress and disease. In addition, climate change models project a decline in the length of the growing season for crops along the southern coast of Angola. Although agriculture does not contribute markedly to the GDP, it does represent a main source of income for the majority of the Angolan workforce and food supply. Consequently, the predicted increase in average temperature and severe rainfall events in Angola will negatively affect smallholder agricultural producers. Farmers who lack the technical capacity to adapt to changing conditions will be particularly affected[47].

21. The **fisheries sector** will also be affected by climate change. Approximately 50,000 local people in Angola rely on fishing for their livelihoods and/or food supply. However, sea-level rise, increasing sea surface temperature, changing ocean currents and increases in the frequency and intensity of El Niño events will result in degradation of marine ecosystems. These effects are predicted

[46] Adapted from: UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napAngolaa/ago01.pdf Accessed 20 October 2014.
[47] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 13 March 2015.

to be particularly severe in the south and south-eastern zones of Angola[48]. Consequently, the abundance and diversity of marine species will be reduced. This will have a negative effect on coastal communities and the country's fishing industry. The most severe effects of climate change are expected to influence Angola's artisanal and semi-industrial pelagic fisheries.

22. Water is an abundant resource in Angola. However, climate change will likely have an adverse effect on the **water sector**. The spatial and temporal distribution of the availability water resources will likely be compromised as a result of increases in the frequency and/or intensity of droughts associated with climate change. In addition, an increased incidence of floods and droughts across Angola will reduce water quality because of associated erosion and siltation. Furthermore, this reduction in water quality will affect the supply of drinking water and important fish species. Reduced water availability will have implications for other economic sectors such as agriculture[49].

23. The predicted effects of climate change will have a negative effect on the **health sector**. For example, increases in temperature are likely to result in heat stress-related deaths among vulnerable groups such as the elderly and children. In addition, the distribution of vector-borne diseases – such as malaria – is likely to be affected by increases in: i) mean annual temperatures; and ii) flooding events. This will likely be exacerbated by poor sanitation. Health problems associated with extreme weather events have already been documented in Angola. For example, in Luanda, intense rain and floods in 2008 resulted in an increase in diseases associated with contaminated water – including cholera, gastrointestinal diseases and malaria. In addition, increases in mean annual temperatures will also likely expand the geographic distribution of the tsetse fly, thereby increasing the number of individuals infected by sleeping sickness. Furthermore, an increase in the frequency and severity of floods will likely result in damage to transport infrastructure, thereby hindering access to hospitals and emergency services[50].

24. Climate change will affect Angola's **transport sector**. In particular, the predicted increase in the frequency and/or intensity of flood events in Angola will result in the destruction and loss of transport infrastructure, such as roads. Since 2006, Angola has allocated US$33 million of its Public Investment Programme to the rehabilitation of roads. However, increasing temperatures will cause the frequent expansion of railway tracks causing them to expand and buckle, which will require track repairs or speed restrictions to avoid derailments. Furthermore, the increasing temperature can cause pavement to soften and expand leading to the cracking of asphalt on roads. Consequently, the economy may be adversely affected by a disruption in the national transport systems[51].

In the **environmental sector**, climate change will result in ecosystem degradation and loss of biodiversity in Angola. Sea-level rise – and the resultant saltwater intrusion – and extreme climate-related events will result in physical damage to the habitats of plant and animal species in coastal areas of Angola. Increased rates of soil erosion will – as a result of more frequent and intense rainfall events – have implications for *inter alia*: i) agriculture; ii) infrastructure; and iii) industry. More frequent and intense rainfall events will also likely result in landslides in poorly constructed urban areas – such as Cabinda, Bengo, Kwanza Sul and Namibe – or along denuded or deforested slopes. Most Angolan

[48] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 13 March 2015.
[49] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.
[50] Lotz-Sisitka, H.and Urquart, P. (2014). SARUA Climate Change Counts Mapping Study: Angola Country Report, Volume 2, Country Report 1. See http://www.sarua.org/files/SARUA%20Vol2No1%20Angola%20Country%20Report.pdf.
[51] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.

cities are classified as being at-risk zones for soil erosion[52]. Furthermore, the degradation of ecosystems is likely to effect the national **tourism industry**, which benefits from the natural beauty of the Angolan coastline.

2.2. Global significance

25. Coastal ecosystems in Angola are rich in biodiversity. In particular, these ecosystems include a number of endangered and near threatened marine species, such as the leatherback turtle *(Dermochelys coriacea*[53]) and the African skimmer (*Rynchops flavirostris*)[54]. Through appropriately designed, implemented and monitored EbA interventions, the LDCF project will contribute to the conservation of globally significant biodiversity in and around intervention sites in Cabinda, Bengo, Kwanza Sul and Namibe (as described in Section 3.3). The LDCF project will promote conservation of biodiversity through *inter alia*: i) restoring wetland and mangrove ecosystems and; ii) promoting community-based management of restored ecosystems. By restoring these ecosystems, the LDCF project will contribute to increasing the availability of resources integral to local livelihoods and nutrition, such as fish. Consequently, the project will help to improve regional food security and secure local livelihoods. Additionally, mangrove restoration and coastal reforestation interventions will contribute toward global mitigation of climate change through carbon sequestration[55].

26. Information produced by the project, such as sectoral vulnerability assessments, integrated vulnerability maps and EbA protocols, will be shared regionally through the African Adaptation Knowledge Network (AAKNET). Therefore, lessons learned through LDCF project interventions will contribute towards a global understanding of best practice adaptation in an LDC context and in other coastal countries.

2.3. Threats, root causes and barrier analysis

27. The problems induced by climate change in Angola, as well as their causes and threats, are described in Section 2.1. Additional problems that are not related to climate change in the country are described below.

Non-climate change related threats

Threats to human welfare

The primary threats to human welfare in Angola are described below.

- *Inadequate planning of housing and infrastructure*: Poorly coordinated development planning and regulation has resulted in development of infrastructure and housing in inappropriate coastal areas, resulting in damage and loss of life as a result of climate-related hazards such as flooding and landslides. For example, many internally displaced persons and poor families have settled in areas where the inadequate infrastructure has placed them at an increased risk of flooding. Furthermore, people who have settled and are living in low-lying coastal areas, river basins or areas adjacent to eroded slopes are vulnerable to floods and landslides (for example, in March 2015, flooding resulted in over 60 deaths in the coastal settlement of Lobito in the Benguela province[56]).

[52] http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2015.
[53] https://www.cbd.int/doc/world/ao/ao-nr-04-en.pdf Accessed 05 January 2015.
[54] Holisticos: Environmental and Social Characterisation to Determine the Coastal Sensitivity of the Areas Between Cabinda and Kwanza Sul (Quicombo), Final report, May 2012 (updated March 2013).
[55] Murray, B, Linwood Pendleton, W. Jenkins, A, and Sifleet, S. 2011. Green Payments for Blue Carbon: Economic Incentives for Protecting Threatened Coastal Habitats. Nicholas Institute Report. NI R 11-04.
[56] Development Workshop, email communication, 13 March 2015.

Additionally, insufficient access to basic sanitation in both urban and rural areas results in frequent incidents of waterborne diseases, especially among children[57]. This health risk is exacerbated by overcrowding, inadequate wastewater drainage and inadequate access to public services such as water and electrification.

- *Fresh water:* The quality of fresh water in Luanda and other major Angolan cities is decreasing as a result of pollution and contamination with solid and liquid waste[58]. This can be attributed to factors including *inter alia* inadequate sewage and waste disposal facilities and overcrowding. Other water resource problems include inadequate supply of fresh water to households, especially in rural areas.
- *Health:* Overall, the quality and availability of healthcare in Angola is limited. For example, although HIV/AIDS is a widespread health challenge, there is an inadequate supply of antiretroviral drugs to meet demands. In some Angolan coastal zone villages, health care facilities are poorly equipped and medical expertise is scarce[59] (See Appendix 15: Longa site report). The limited access to healthcare is particularly problematic due to the widespread incidence of water- and vector-borne diseases such as cholera, typhoid and malaria, which are endemic in Luanda and other coastal cities as a result of poor sanitation and water drainage.
- *Food insecurity:* Much of Angola's food is imported. In some cases, local production is more expensive than importing food – this is because of difficulties in internal transportation and the high prices of agricultural inputs at a commercial level. Additionally, the amount of food produced is not sufficient to meet the needs of the domestic market. Consequently, food prices are very high relative to average income – for example a 500 g loaf of fresh white bread in Luanda costs ~US$1.75 while over ~50% of the population subsists on US$1.25 per day[60]. The majority of the rural population (85%) is dependent on subsistence agriculture and fishing[61]. Consequently, households in rural areas are particularly vulnerable to climate-related hazards such as droughts, floods and increased temperature, as well as other hazards that degrade natural resources such as oil spills.

Threats to natural resources

- *Land and vegetation*: During the prolonged period of civil war, forests and woodlands were cleared to provide woodfuel and building material for displaced individuals[62]. Forests continue to be degraded by extensive extraction of timber and woodfuel (including firewood and charcoal). The reliance of households on woodfuel as a source of domestic energy and on charcoal production as an income generating activity contributes to ecosystem degradation in wooded areas on a localised scale, particularly in proximity to residential areas and cities. It is likely that the consumption of biomass will increase over time, resulting in further deforestation, land degradation and reductions in biodiversity.
- Mangrove forests in Angola are also being cleared by the local population to meet demand for woodfuel and building material[63] and by the tourism industry for construction of resorts. The degradation of mangroves is further exacerbated by gas and oil exploration activities in Angola. The removal of mangrove forests has resulted in a decrease of once-abundant fish, crab and shrimp species, which are a source of food and income for coastal communities.

[57] Development Workshop (2012), GEF Proposal: Climate change, flooding and water supply in Angola's growing coastal cities.
[58] http://pdf.usaid.gov/pdf_docs/PNADO925.pdf Accessed 17 March 2015.
[59] http://dhsprogram.com/pubs/pdf/MIS11/MIS11.pdf 05 December 2014.
[60] Jover, E., Lopes Pintos, A., and Marchand, A. (2012). Angola: Private Sector Country Profile: September 2012.
[61] Angola NAPA 2011.
[62] http://wrm.org.uy/oldsite/bulletin/28/Angola.html 09 December 2014.
[63] http://www.unep.org/regionalseas/publications/otherpubs/pdfs/Mangroves_of_Western_and_Central_Africa.pdf

- *Marine life:* Marine and coastal biodiversity is threatened by overfishing and unsustainable fishing methods. Other threats include *inter alia*: i) destruction of marine habitat through rapid and poorly planned development along the coast; ii) industrial pollution and oil spills; iii) lack of marine conservation areas; and iv) the introduction of alien species[64]. Consequently, there are negative implications for the fishing industry and for the livelihoods and food security of coastal communities.

The problem addressed by the project and the preferred solution

28. Rapid migration into the coastal zone – combined with poor development planning – has led to widespread environmental degradation, inadequate public service delivery, food insecurity, health risks and generally poor living conditions for coastal communities in Angola. The observed and predicted effects of climate change – including increasing temperature and an increase in frequency and intensity of extreme weather events – is further threatening the livelihoods of these vulnerable coastal communities. The **problem** that the project seeks to address is that national and local government and coastal communities have limited technical and institutional capacity to adapt to these negative effects of climate change. This is because of: i) insufficient scientific and technical capacity for planning adaptation in coastal zone areas; ii) limited demonstration of, and availability of technical capacity to implement, sustainable coastal adaptation interventions; and iii) poor institutional coordination and capacity for adaptation to climate change.

29. The **preferred solution to the problem** is to enhance national and community-level capacity to adapt to climate change along the coast of Angola by: i) building institutional, scientific and technical capacity to analyse climate change risks and to plan coastal adaptation interventions; and ii) demonstrating innovative approaches to climate change adaptation in coastal areas, including measures such as Ecosystem-based Adaptation (EbA), climate-resilient agriculture, and Early Warning Systems (EWS).

Barriers to implementing the preferred solution

30. There are several barriers to achieving the preferred solution in Angola. By addressing the barriers to implementing these responses, the LDCF project will contribute to the achievement of the preferred solution.

Inadequate scientific data, historical climate information and monitoring networks/stations

31. There is little reliable climatic data for the whole of Angola from 1975 until the end of the civil war in 2002. This hampers the production of accurate national climate change scenarios[65] and subsequent adaptation planning in the country. During the civil war, many of the meteorological stations built under colonial rule were destroyed[66] and the GoA's ability to operate and maintain the hydrometeorological network was severely constrained. It was only after the end of the civil war in 2002 that a consistent – though gradual – programme for improved collection of climate and weather data was established. The National Institute of Meteorology (INAMET) currently has an expansion programme in place to improve meteorological monitoring infrastructure in Angola in order to provide related public service products, such as agricultural forecasts and early flood and drought warnings. However, this expansion programme is progressing slowly. The Angolan National Adaptation

[64] http://www.cbd.int/countries/profile/default.shtml?country=ao 09 December 2014.
[65] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.
[66] After 1975 the number of meteorological stations dropped from almost 500 to 20.

Programme of Action (NAPA) emphasises that the early warning information currently available through government agencies such as INAMET and the Civil Protection Services and Fire Brigade (CNPCB) is insufficient. Additionally, available information is not being communicated effectively to end-users[67.] Coastal communities have not yet received training on how to respond to early warning information. This acts as a barrier to the comprehensive and effective use of EWS in Angola and limits appropriate responses to climate change.

Limited technical and scientific capacity to address climate change

32. Although climate change is recognised as an issue of national importance within the NAPA, there is currently insufficient technical and scientific understanding of climate change and climate change adaptation within the Government of Angola (GoA). For example, the vulnerability of communities living in different areas along the Angolan coast to the effects of current and future climate change is currently not understood. In addition, there are too few individuals with the appropriate skills for translating climate change adaptation strategies into actions at a local level. For example, in Barra do Dande, local government representatives require training on inter alia: i) interpretation of climate information provided to them by CNPCB and provincial bodies; and ii) prompt and accurate transmission of these warnings to local populations.

Lack of inter-ministerial coordination with regards to planning for climate change adaptation

33. An effective national response to climate change requires coordination between relevant national ministries, including inter alia: i) the Ministries of Environment, Water and Energy (MINEA); ii) the Ministry of Agriculture and Rural Development (MINAMB); iii) the Ministry of Telecommunication (MTIT) (including INAMET); and iii) the Ministry of the Interior (MININT) (including CNPCB). Historically there has been limited coordination between government departments, scientific institutions and projects involved in climate change adaptation in Angola. To address this gap, the Inter-ministerial Commission for Biodiversity and Climate Change (CIBAC) was established in 2012. CIBAC is attended by ministers of 7 national ministries[68] and their technical advisors and therefore has a high degree of political influence and technical knowledge about climate change. However, the secretariat of CIBAC is under-capacitated with regards to administration of the commission. Consequently, CIBAC meets irregularly and relevant climate change topics are not included on the agenda. Effective inter-ministerial coordination regarding planning for climate change adaptation is therefore currently curtailed.

Limited understanding of climate change risks to coastal sectors.

34. Currently there is a limited understanding within CIBAC member ministries – including inter alia the Ministry of Environment (MINAMB), the Ministry of Agriculture (MINADER), Ministry of Fisheries (MINPES) and the Ministry of Interior (MININT) – of the climate risks faced by important economic sectors in coastal areas. Additionally, there are no sector-specific guidelines for adaptation that would enable cost-effective interventions to be effectively planned and executed. Consequently, adaptation to climate change is not appropriately integrated into the strategies, plans and related budgets of ministries associated with coastal sectors. Moreover, the economic rationale for climate change adaptation at a sectoral level has not been properly articulated in Angola. Specifically, the cost

[68] CIBAC is chaired by the Minister of Environment and attended by the Ministers of: i) Petroleum; ii) Transport; iii) Higher Education, Science and Technology; iv) Health; v) Agriculture and Rural Development; vi) Fisheries; and vii) Telecommunications and Information Technologies.

effectiveness of adaptation versus other actions is not understood. Without this information there is reduced motivation for climate-vulnerable sectors to implement adaptation interventions and include climate change adaptation in their annual operating budgets.

Limited knowledge of the value of ecosystems, EbA interventions and climate change

35. There is a limited understanding and awareness of the role of ecosystems in reducing the negative effects of climate change, both at the level of rural households as well as within government institutions such as MINAMB and the Ministry of Fisheries (MINPES). Ecosystem degradation resulting from commercialisation of sensitive coastal land or unsustainable resource use by coastal communities is partly a result of limited knowledge of the benefits of maintaining functional ecosystems. For example, it is likely that fishing communities are currently unaware that the decline in fish stocks can be partly attributed to the degradation of local ecosystems, including the mangrove wetlands and estuaries which are important breeding grounds for commercially valuable fish species. Consequently, the limited knowledge of EbA is a barrier to effective planning and implementation of adaptation activities in coastal areas.

Lack of demonstration/proof of concept of EbA interventions and related protocols/tools.

36. Currently, there are no EbA projects being implemented in Angola. As a result, the benefits and cost-effectiveness of EbA interventions have not been sufficiently demonstrated to policy- and decision-makers and coastal communities. Without sufficient demonstration it is unlikely that: i) an EbA approach will be integrated into local, regional and national policies, plans and legislation for coastal areas; or that ii) coastal communities will support and contribute to EbA projects. To enhance adaptation to climate change and promote the development of additional livelihoods, EbA will need to be tailored to particular ecosystems. However, technical protocols for EbA in ecosystems along the coast – including coastal forests, mangroves and wetlands – have not yet been produced. This is mostly because there is currently limited integration of climate change science into ecosystem restoration plans. Therefore, institutions and ministries engaging in ecosystem restoration – such as the Institute of Forestry development under MINADER – have limited access to nationally-appropriate tools or documents to guide them to implement EbA.

Overcoming barriers to implementation of the preferred solution

The LDCF project will contribute toward overcoming the identified barriers by:

Enhancing the capacity of the GoA to collect climatic and hydrological information and produce early warnings and improving the ability of coastal communities to respond to early warnings.

37. The LDCF project will support the GoA to collect climate information by *inter alia*: i) analysing climate effects on important coastal economic sectors, such as fisheries and tourism; ii) conducting a gap analysis of the existing non-operational EWS; iii) training stakeholders – such as extension officers from the SNPC and other relevant local government representatives at the selected project intervention site – on interpretation and communication of climate information; and iv) installing additional meteorological and hydrological monitoring stations, in line with INAMET's national expansion strategy. Additionally, the LDCF project will develop an early warning response plan for the selected project sites in collaboration with coastal communities. These interventions will improve the capacity of INAMET and the National Civil Protection System (SNPC) to collect climate information and produce accurate and timely early warnings that reach vulnerable coastal communities in the project intervention site. The information disseminated will be tailored to support coastal communities in Barra do Dande to respond appropriately to any early warnings issued.

Improving coordination between government institutions involved in climate change adaptation through forums such as the CIBAC.

38. The LDCF project will work directly with the secretariat of CIBAC to provide operational support. By ensuring that meetings are properly coordinated, agendas are set, inputs are noted and decisions taken at meetings are followed up on, the LDCF project will support the effective functioning of this commission. Given that the CIBAC operates at an inter-ministerial level within the GoA, targeted operational support for the secretariat will improve coordination between government institutions directly involved in climate change. Additionally, training will be undertaken to strengthen the technical capacity of CIBAC to: i) interpret the economic assessments of climate change adaptation generated under Activity 3.2.1; and ii) include consideration of the economic impacts of climate change relative to the costs of adaptation in future planning and decision-making. Consequently, training under this output will provide CIBAC members with information and technical guidance to mainstream adaptation into regional, national and sectoral development plans.

Demonstrating the benefits and cost effectiveness of EbA interventions in pilot areas with view to upscaling across Angola.

39. The LDCF project will demonstrate EbA interventions for the restoration of coastal ecosystems at four sites, namely Chiloango, Barra do Dande, Longa and Bero. Sites have been selected to provide demonstrations in different social, geographical and climatic parts of the Angola coast. These EbA interventions, detailed in Section 3.3, will demonstrate the multiple benefits and cost-effectiveness of EbA to policy- and decision-makers in Angola. In addition to this, protocols for EbA will be undertaken for the particular ecosystems in which on-the-ground activities will take place. Such protocols will be tailored by combining scientific knowledge/best practices with traditional knowledge of coastal communities and will support the upscaling of EbA in similar coastal ecosystems across Angola.

Improving awareness and understanding of EbA and climate change at national and local level

40. The interventions of the LDCF project will: i) increase knowledge on EbA in national/local government and coastal communities; ii) raise national and local level awareness of EbA and climate change; and iii) improve and facilitate the dissemination of relevant information on climate change and EbA. This will be achieved through a variety of activities under Outcomes 2, 3 and 4. The project includes an awareness-raising programme targeting communities living within the Angolan coastal zone as well as other local stakeholders, including NGOs and representatives of the private sector (Activity 4.1.1). Private sector stakeholders will include representatives from fisheries, agriculture, petroleum, mining and tourism businesses, and commercial representative bodies. This awareness programme will focus on the following topics: i) current and future effects of climate change; ii) the role of ecosystems in reducing vulnerability; iii) the principles of EbA; and iv) climate-resilient livelihoods with an emphasis on the sustainable use of natural resources. Additionally, the regional and national networks such as the AAKNET will be used as platforms to disseminate lessons learned and knowledge gained to various stakeholders. This will serve to further strengthen awareness and understanding of climate change and EbA at national and local levels in Angola.

Development of guidelines/tools for adaptation in coastal sectors that are vulnerable to climate change.

41. The LDCF project will promote a sectoral approach to adaptation in various ways. Firstly, under Outcome 1, a detailed analysis of climate impacts on important economic sectors along the coast

– including *inter alia:* agriculture, fisheries, petroleum and tourism – will be conducted. Secondly, a detailed vulnerability assessment will be conducted along the coast of Angola in order to produce a vulnerability map for planners and policy makers. This map will highlight the vulnerabilities of different sectors in the coastal area. Thirdly, the LDCF project will create opportunities for sectors such as the petroleum industry to invest directly in EbA. At present, international petroleum companies working in Angola are contractually required to invest a percentage of their profits in national corporate social or environmental responsibility initiatives. Some direction is given by the Petroleum Industry Steering Committee with regards to the direction of this CSR spend. However, there are no pre-packaged CSR projects available to the industry for initiatives that benefit the environment while supporting vulnerable communities to adapt to climate change. The EbA project concept notes will provide structured investment packages, thereby directing CSR spend towards reducing the vulnerability of coastal communities to the effects of climate change. Finally, a study will be undertaken to establish: i) the costs of current and future climate change on important sectors operating in the coastal zone; and ii) the costs of various sectoral adaptation responses, relative to no adaptation response. This study will be disaggregated by sector and develop the economic rationale for integrating climate change adaptation into sectoral plans and related budgets. To complement this study, guidelines will be produced to inform the execution of recommended adaptation activities.

2.4. Institutional, sectoral and policy context

42. Within Angola, the **Ministry of the Environment** (MINAMB) is responsible for the coordination of all environmental matters. In particular, this ministry formulates, executes and monitors environmental policies, on: i) biodiversity; ii) environmental technology; iii) environmental impact assessments; and iv) environmental education. Within the MINAMB, the GAC is responsible for implementation of the Climate Change National Programme, including both adaptation and mitigation. The GAC is also responsible for addressing drought and desertification.

43. MINAMB chairs the **National Commission on Climate Change and Biodiversity** (CIBAC). This commission was created by Presidential Dispatch No. 10/12 of 1 January to drive the national climate change and biodiversity agenda at an inter-ministerial level. Members include ministers from Ministries of: i) Petroleum; ii) Transport; iii) Higher Education, Science and Technology; iv) Health; v) Agriculture and Rural Development; vi) Fisheries and; vii) Telecommunications and Information Technologies. Technical advisors of the various ministers are invited to attend meetings as necessary. These technical advisors form the secretariat of CIBAC, which is responsible for the administration of the commission, including: i) scheduling meetings; ii) taking minutes at meetings and following up on action points with various members; and iii) setting meeting agendas.

44. The **Ministry of Agriculture and Rural Development's** (MINAGRI) mandate includes *inter alia*: i) promoting agricultural, pastoral and forestry production; ii) protecting local communities, animals and plants against plagues and diseases; iii) preparing policy that support conservation and the sustainable management of forest resources; and iv) ensuring compliance with commitments made in international agreements. The **Institute of Agricultural Development** (IDA) and the **Cabinet of Food Security Department** (GSA) are under the administration of MINAGRI. The IDA – under the supervision of MINAGRI– is responsible for establishing and implementing extension services to support small farmers. The GSA's mandate includes *inter alia*: i) monitoring the implementation of strategies – such as *agrometeorological* monitoring and EWS – to improve the food security of the population; and ii) identifying programmes that address specific food security constraints at regional, sectoral and national levels.

45. The **Ministry of Fisheries** (MINPES) has two national directorates. These include: i) fisheries management (**National Directorate of Fisheries and Aquaculture** - DNPA); and ii) fisheries

infrastructure (**National Directorate of Infrastructure and Fisheries Industry -** DNIIP). Additionally, three public fisheries institutes are under the administration of MINPES, namely the: i) National Institute for Fisheries Research; ii) Institute for Development of Artisanal Fisheries and Aquaculture; and iii) Institute for the Support of Fisheries Industry and Technological Research.

46. The **National Institute of Meteorology** (INAMET) falls under the **Ministry of Telecommunications and Information Technologies** (MTIT). This institute has a mandate for coordinating and implementing climate monitoring. In addition, INAMET serves as a research organisation and provides scientific services in the fields of meteorology and geophysics. In particular, INAMET: i) maintains the network of automatic weather stations; ii) undertake observations of atmospheric parameters; and iii) stores, processes and disseminates climate- related data.

47. Civil protection in Angola is the mandate of the **Ministry of the Interior** (MININT). Under this ministry, the **Civil Protection Services and Fire Brigade** (CNPCB) are responsible for mitigating risks arising from accidents, natural or technological disasters. The CNPCB is represented at national, provincial and municipal level.

48. The **Ministry of Energy and Water** (MINEA) assists in establishing and implementing the government's policies related to energy, water and sanitation. The **National Water Supply and Sanitation Directorate** promote access to clean water and sanitation. Within MINEA, the **National Institute for Water Resources** (INRH) is responsible for the execution of the national policy on water resources and river basin management This includes execution of exceptional measures in case of extreme events (e.g. floods and droughts) in coordination with CNPCB. INRH has a **Department of Hydraulic Works and Dam Safety**, which is responsible for the development of mechanisms of prevention and flood and drought coordination. The **National Civil Protection System** (SNPC) is the group of state agencies and private entities with the duty of collaboration in disaster situations (Presidential Decree No. 229/10 of 8th October).

49. The **Ministry of Petroleum** (MINPET) is mandated to monitor and inspect petroleum operations. Consequently, it promotes adequate environmental considerations in all petroleum activities. In addition, MINPET has the authority to impose penalties for pollution and other related illegal activities.

Policy context

50. The GoA has implemented policies, strategies and legislation to promote appropriate environmental management and sustainable development. The documents that are relevant to the LDCF project – and with which the project will comply – are described below.

51. **Angola 2025: Long Term Development Strategy** (EDLP) presents the long-term vision for the country development agenda and reviews the main challenges facing Angola, such as insufficient healthcare and education, regional inequality and economic development[69]. The strategy outlines the government's intention to *inter alia*: i) stimulate job creation; ii) reduce poverty; iii) increase per-capita GDP; and iv) improve Angola's presence and competiveness within the global market.

52. **Angola's Development Programme for 2012–2017** consolidates the country's reconstruction, stability and economic development through the natural resources sector. By improving adaptation responses in the coastal areas, the LDCF project supports the programme's objectives by: i) reducing food insecurity; ii) reducing poverty; iii) supporting economic development;

[69] http://www.saiea.com/dbsa_handbook_update2012/pdf/chapter03.pdf Accessed 12 November 2014.

iv) modernising the public sector; v) integrating rural development; vi) training of the local population; and vii) improving the living conditions of the Angolan people.

53. **The National Development Plan 2013–2017** was developed as a five year plan to execute the EDLP. Consequently, it aims to improve the living conditions of both rural and urban local communities and promote the overall stability and economic growth of Angola. The plan gives particular attention to improving economic sectors, including energy, water, infrastructure, education and health[70].

54. **The Strategic National Programme for the Water 2013–2017** is a short-term framework for multi-sector investment in the water sector. It includes investment in the economic, social, environmental, legal and institutional aspects of the water sector in Angola. In the programme, the needs of different water users – including agriculture, hydropower and domestic users – are identified. The main problems facing the water sector are also identified, including floods, droughts, erosion as well as existing and potential conflicts over water use. This programme should inform the vulnerability and economic assessments conducted by the LDCF project under Components 1 and 3.

55. **The Tourism Master Plan of Angola for 2011–2020** describes the potential of the domestic and international tourism industry in Angola, as well as barriers to achieving that potential. Identified barriers to the development of the tourism industry include i) inadequate infrastructure; ii) unreliable service; iii) excessive bureaucracy; and iv) lack of human capacity and trained staff in the hospitality and tourism industries. The LDCF project will support the Tourism Master Plan and the general development of the tourism industry by promoting the restoration and conservation of Angola's coastal ecosystems. These activities will increase the aesthetic beauty of Angola's coastal areas and contribute to the development of ecotourism potential.

56. **National Plan for Preparedness, Contingencies, Response and Recovery from Calamities and Disasters 2015-2019** provides a framework that guides suitable and rigorous responses to natural disasters to ensure the safeguarding of the Angolan population. Additionally, it defines the means through which to minimise the adverse effects of extreme or emergency events. The plan sets out scenarios for the following climate related events: i) floods and mudslides; and ii) drought. Under the national plan, provincial contingency plans for preparing for and responding to natural disasters will be prepared based on a localized risk analyses.

57. **The Artisanal Fisheries Development Plan 2014–2017** (PDPA) reduces poverty in local artisanal fishing communities. The plan also aims to enhance access to markets for fishing products from artisanal fishermen. Additionally, implementation of the plan will contribute to improving the health, education, living conditions and income of artisanal fishing communities[71].

58. The objective of the **National Policy for Gender Equality and Equity** (PNIEG) (Presidential Decree 223/13 of December 24) is to build an Angolan society based on equality and justice and values human rights. PNIEG has a specific focus on women's rights. In particular, the policy promotes non-discrimination and effective participation of men and women in a variety of spheres including *inter alia*: i) agriculture, ii) policy; iii) the economy; and iv) civil society[72].

[70] http://www.worldbank.org/en/country/angola/overview Accessed 12 November 2014.
[71] http://allafrica.com/stories/201402150130.html Accessed 16 February 2015.
[72] http://www.peacewomen.org/content/angola-family-ministry-action-plan-promote-greater-gender-equality Accessed 16 February 2015.

59. The **National Policy on Forestry, Fauna and Areas of Conservation** (PNFFSAC) (Resolution 1/10 of January 14) develops the legal and institutional framework, to strengthen the management and sustainable use of natural resources. Consequently, this policy contributes to poverty reduction, food security and integrated rural development in Angola.

Legal Framework

60. The **Environmental Framework Act** (5/98 of June 19) defines the concepts and principles of environmental conservation and promotes enhancing local communities' quality of life. The act includes *inter alia*: i) recognition of the right to environmental education and training; ii) promotion of a balance between environmental sustainability and development; and iii) protection and preservation of the natural resources including national genetic resources.

61. The Angolan **Water Act** (6/02 of June 21) applies to surface and ground water. This law outlines water management principles for government. These include *inter alia*: i) the rights of individuals to have access to water; ii) the concurrent use of the water management policy with land-use planning and environmental policies; and iii) the unification of water resource management practices. The law also advocates the establishment of a new administrative policy for the water sector which will ensure *inter alia*: i) access to water; ii) a balance between water supply and demand; iii) adequate sewage systems; and iv) the sustainable use of existing water supplies.

62. The **Land Act** (9/04 of November 9) considers land as property of the state and proposes that land should serve the following uses: i) as shelter for Angolan civil society; ii) as a source of natural resources that can be used for mining, agriculture, forestry and land planning; and iii) as a support for economic, agricultural and industrial activities. This act contains a number of environmental related aspects that promote sustainable development in Angola and the better use of the soil and natural resources[73].

63. The **Land-Use Planning and Urban Development Act** (3/04 of June 25) promotes integrated land-use planning. This includes socio-economic considerations and promotion of synergies between the urban and rural areas. Additionally, this law promotes the establishment of a decentralised system to coordinate the work of land-use planning.

64. The **Agrarian Development Base Law** (15/05 of December 7) enables the development and modernisation of the agricultural sector through the implementation of support mechanisms and incentives to agricultural activities.

65. The **Biological and Aquatic Resources Act** (6A/04 of October 8) replaced the **Fisheries Act** (20/92) in 2004. This act emphasises the importance of developing policies to conserve and restore biological water resources. The act also includes a number guidelines and regulations to promote the sustainable use of these aquatic resources by individuals and economic sectors such as fishing and aquaculture. In 2005, following the formation of this Act, a number of regulations were adopted. These included concessions on *inter alia* i) fish farming; ii) taxation of fisheries; and iii) fishing in general. In addition, a number of laws and decrees that established the structure of the Ministry of Fisheries, the Institute for Development of Artisanal Fisheries and Aquaculture (IPA) and the National Institute for Fisheries Research were issued.

[73] Russo, V., 2005: 'Early Warning and Assessment Documents on Angola for the Africa Environment Outlook. Task 1: Review environmental policies and regulations in Angola and provide a comprehensive list'. Prepared for the United Nations Environment Programme (UNEP) and Division of Early Warning and Assessment (DEWA).

66. The **Law on maritime spaces** (Law 14/10 of July 14) regulates the maritime rights and duties of the Angolan State and defines maritime areas under national sovereignty. Such areas include: i) internal waters; ii) territorial sea; iii) the contiguous zone; iv) the exclusive economic zone; and v) the continental shelf.

67. The **Organisation and Functioning of the Local Municipalities Law** (17/10 of July 29) replaced the **Local Municipalities Decree-Act** (17/99, October 29th). This law establishes the: i) principles and rules of organisation; and ii) functioning of the administrative bodies.

Multilateral agreements

68. Angola has ratified, among others, the following international conventions:

- United Nations Convention on the Law of the Sea (UNCLOS) (1990);
- United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification (UNCCD) (2000);
- United Nations Convention on Biological Diversity (1997);
- United Nations Framework Convention on Climate Change (UNFCCC) (2000); and
- Kyoto Protocol to the United Nations Convention on Climate Change (2007).
- Sustainable Development Goals

The Sustainable Development Goals (SDGs) are a set of targets that have been proposed to replace the Millennium Development Goals, which expire in 2015. However, the SDGs take a broader approach on environmental sustainability. There are 17 SDGs that are to be achieved by 2030. The LDCF project will contribute to the following SDGs:

- SDG 5 – *Achieve gender equality and empower all women and girls*, by promoting gender equity throughout the project and targeting women in specific project activities;
- SDG 6 – *Ensure availability and sustainable management of water and sanitation for all*, by implementing EbA interventions in wetlands and mangroves, introducing climate-resilient land management techniques and improving waste management in coastal areas;
- SDG 13 – *Take urgent action to combat climate change and its impacts,* specifically*:*
  - 13.1 *Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries,* by implementing EbA interventions in four coastal communities and introducing an EWS at Barro do Dande;
  - 13.2 *Integrate climate change measures into national policies, strategies and planning,* by capacity building and strengthening of coordination mechanisms within the Secretariat of CIBAC, and;
- SDG 15 – *Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss* through the rehabilitation of wetlands and the introduction of climate-resilient land management techniques.

2.5. Stakeholder mapping and analysis

69. The activities of the LDCF project have been developed through extensive consultations with national and multilateral stakeholders (see Appendix 16 for further details on the inception mission, workshop and stakeholder consultations). As a result, the project has been designed to address the priority adaptation needs identified by these stakeholders. This participatory approach to stakeholder engagement has promoted ownership of the project by coastal communities and the national

government. Consultations included: i) the inception workshop in January 2015; ii) meetings with international, national and local level stakeholders in November 2014 January and at the validation workshop in April 2015; and iii) remote consultations with national and multilateral stakeholders between October 2014 and May 2015. The purpose of the stakeholder consultations was to identify: i) appropriate EbA and climate change adaptation interventions, based on the vulnerabilities and needs of coastal communities; ii) on-going projects relevant to the activities of the LDCF project; iii) national and local government authorities who will be involved in the activities of the project; iv) relevant national policies and legislation with which the project is aligned; and v) additional information on the baseline context in Angola. As a result of these consultations, the LDCF project will be feasible in the local context.

Organisations and institutions	Involvement during PPG
Ministry of Environment (MINAMB)	Provided overall input into design of LDCF project and project site selection.
Climate Change Cabinet (GAC)	The GAC: i) contributed to the overall design of the LDCF project; ii) coordinated inception and validation missions and workshops; iii) attended stakeholder and project team meetings; and iv) directed the selection of project intervention sites and baseline projects.
UNFCCC focal point	In addition to the above contributions, the UNFCCC focal point liaised directly with the baseline projects to secure baseline co-financing.
Development Workshop (DW)	Provided input into the design of the LDCF project, particularly in relation to specific vulnerabilities of coastal communities under conditions of climate change.
World Bank	Provided details about the Environmental Sector Support Project (PASA)
Institute of Agricultural Development (IDA)	Provided input into the design of the LDCF project and assisted the project team to identify aligned ecosystem restoration and sustainable agriculture projects in Angola.
Cabinet of Food Security (GSA)	Provided input into the overall design of the LDCF project. The CGA also provided specific information about the vulnerability of coastal communities related to food insecurity.
Food and Agriculture Organisation of the United Nations (FAO)	Provided details about aligned FAO projects and potential synergies with the LDCF project.
AfDB	Provided details about the Support to the Fisheries Sector Project (FSSP) and discussed the additionality of the LDCF project to the FSSP.
Ministry of Transport (MINTRANS), Marine Institute	Provided input into the overall design of the LDCF project, particularly in relation to the best means of climate-proofing the transport sector along the Angolan coast.
Academia - Agostinho Neto University	Provided input into the design of the LDCF project and relevant scientific information to inform site selection.
MINPES, including:	Provided input into the overall design of the LDCF

• Institute for the Development of Artisanal Fisheries and Aquaculture (DNPA); and • National Institute for Fisheries Research.	project, particularly in relation to the best way to support artisanal fishers in the coastal zone to become resilient to current and future climate change.
INAMET	Provided input into the overall design of the LDCF project, particularly in relation to the design of the EWS. Provided specifications of INAMET equipment and systems to make sure that the pilot EWS will be properly integrated into existing national EWS. INAMET also provided information about the INAMET SDMP, which is a baseline project for the LDCF project.
Ministry of Petroleum (MINPET)	Gave input into the overall design of the LDCF project, particularly regarding the viability and design of EbA project concept notes.

2.6. Baseline analysis and gaps

Baseline situation

70. Rapid population growth – coupled with poor land use planning – and associated environmental degradation is resulting in a range of social and environmental problems along the coast of Angola. Such problems include *inter alia*: i) environmental risks to human wellbeing, such as floods; ii) food and livelihood insecurity; and iii) insufficient access to clean water. These are the main problems that the baseline projects are seeking to address. Various national projects have been initiated to address these baseline issues, three of which have been included as baseline projects for this project. Specifically, the **INAMET's Strategic Development Master Plan (SDMP)** aims to improve the provision of climate information for planning and decision making nationally, provincially and locally. This includes improvements to the existing flood EWS, and links closely with Component 1 of the LDCF project. The **Support to the Fisheries Sector Project (FSSP)** is improving capacity and infrastructure for the artisanal fishing industry in order to improve the food security and livelihoods of coastal communities. The FSSP is a baseline project under Component 2 of the LDCF project. Finally, the **PDISA project** is upgrading water infrastructure and developing capacity within the water sector to improve provision of clean water in Angola, and reduce the spread of water-borne diseases. The capacity development objectives of the PDISA project link with activities under Component 3 of the LDCF project. However, the current and predicted effects of climate change – including *inter alia* increases in the frequency and severity of both flood and drought events – is likely to reduce the ability of these baseline projects to address the baseline problems.

71. The baseline situation, as it relates to each component of the LDCF project and the associated baseline projects, is further described below.

Component 1: Enhanced scientific and technical capacity for adaptation in coastal zone areas.

72. A climate change vulnerability assessment of Angola's coastal zone – including coastal sectors such as fisheries, agriculture, transport, energy, water and tourism – has not been conducted. This is because of: i) limited technical capacity to conduct such an assessment within National Civil Protection System (SNPC), National Institute of Meteorology (INAMET), local governments and line ministries; ii) limited availability of data necessary to undertake such an assessment; and iii) the dispersion of appropriate climatic and environmental data across various government departments and NGOs. One assessment, the ACEPA report, has collated some of this information, however it was an

environmental and social sensitivity analysis aimed at prioritising sensitive areas along the coast for management in case of an oil spill and did not specifically include climate change considerations. The lack of detailed vulnerability assessments, combined with the overall limited understanding of the current and future effects of climate change along Angola's coast, means that coastal infrastructure is designed and constructed without consideration of potential climate change impacts. The lack of vulnerability assessments also continues to hinder the identification and planning of locally appropriate and cost-effective adaptation interventions for important coastal sectors.

73. In addition to vulnerability assessments, a functional weather monitoring and forecasting system is an important element for formulating an appropriate set of coastal adaptation measures. A functional forecasting system would also facilitate the development of an Early Warning System to prepare coastal communities for impending climate risks. However, the hydrometeorological monitoring network within Angola is limited and poorly maintained, and no functional EWS exists. Ongoing initiatives, such as INAMET's SDMP (described further below) aim to increase the coverage of the hydrometeorological monitoring network, but progress in this regard continues to be slow. Furthermore, there remain too few qualified meteorologists and hydrologists to manage the network of weather and hydrometric stations[74]. The availability of climate and weather information is further undermined by a 30-year gap in meteorological data, coinciding with the period of civil war, for many regions of Angola. As a result of limited infrastructure and insufficient human resources, INAMET will continue to be unable to consistently and efficiently generate and issue early warnings for extreme climate events such as floods and droughts[75].

74. In principle, INAMET is responsible for producing the technical and scientific information upon which early warnings are based. The climate risk identified by INAMET is then graded according to the alert level and transmitted to SNPC via email or telephone. If the alert is classified as 'high impact', it becomes the responsibility of the SNPC to transmit warnings to the population via its extension network, email, radio and other means of communication. INAMET also post the early warning on their website. If a climate-related threat is localized to a small area, provincial government administrative structures should be informed and become involved in the response. However, if a flood or drought event affects multiple localities, national bodies should be informed and a national or even an international response may be required. At present, the EWS system described above is 'paper-based' rather than operational. The communication system that is in place to transfer early warnings in real time from INAMET to SNPC, or from SNPC to its extension network, is unreliable. Additionally, no reliable communication system is in place between SNPC and provincial and national bodies that are responsible for assisting communities during flood and drought events. Consequently, when a medium or high impact incident is imminent, early warnings do not reach the vulnerable communities in time. This became evident when no early warnings were issued for flash floods that took place in the coastal cities of Lobito and Benguela in March 2015. These floods were classified as high impact and resulted in loss of life and catastrophic damage to property.

Table 2: Climate alert levels

Alert level	Classification
Blue	**Low impact:** damage is not significant and communities impacted are easily supportable.
Yellow	**Medium impact:** damage is significant but still tolerable by well-informed and prepared communities.

[74] For example, there are only 4 meteorologists at a national level.
[75] UNFCCC. (2011). Angola: National Adaptation Programme of Action. See: http://unfccc.int/resource/docs/napa/ago01.pdf Accessed 20 October 2014.

Orange	**High impact:** damage is significant and communities are negatively impacted, even if they are informed and prepared.
Red	**Catastrophic impact:** damage is catastrophic and communities are unable to respond.

75. Data sharing between government departments continues to be a barrier to generating early warnings for coastal communities. Currently, data from the national hydrometeorological monitoring network is collected and analysed by INAMET. However, other government departments are also involved in the collection of climate-related data. For example: i) the Civil Protection Services and Fire Brigade (CNPCB) monitors precipitation; ii) CNPCB and National Water Directorate (DNA) monitor the level of rivers and streams; and iii) National Energy Production Company (PRODEL) monitors dam level[76]. These data remain siloed and are not shared with INAMET. This reduces the quality of any early warnings INAMET produces for coastal communities.

76. The lack of a functional EWS increases the vulnerability of coastal communities to extreme climate events. At present, residents of the coastal community Barra do Dande are particularly vulnerable to flooding as a result of the establishment of housing in high-risk areas around the Dande river mouth (see Section 2.6 and Appendix 15 of the UNEP project document). Flooding is already commonplace and is predicted to increase in frequency and intensity under conditions of climate change. Informal coping strategies include elevating valuable household possessions above the floor and temporary evacuation of homes when the level of the river rises or when there is heavy rain. However, in the event of a catastrophic flood event, the lives and property of people living in parts of the settlement are at risk in the absence of a functional EWS and early warning response plan. Climate change is also predicted to impact the fisheries-based livelihood activities of the ~ 1,540 residents of the Dande river mouth and ~24 000 people living within the vicinity. These informal coping strategies will continue to be used unless an adequate early warning system is set up that can give residents signals well in advance of predicted flood events.

77. To address the existing gaps in data, communication and capacity related to national climate forecasting and EWS, a GEF UNDP project entitled 'Promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angola's Cuvelai River Basin' (Cuvelai project) was launched (2015–2019). The Cuvelai project will enhance the capacity of hydro-meteorological services and networks to predict climatic events and associated risks. It will also develop a more effective and targeted delivery of climate information including flood and drought early warnings in the Cuvelai River Basin. .While this project will transfer appropriate technology, infrastructure and skills to national hydro-meteorological services and communities in Cunene province, other coastal communities will remain without an EWS and vulnerable to climate change impacts.

Component 2: Local demonstrations and capacity building interventions on ecosystems rehabilitation and adaptation measures in coastal areas.

Coastal communities in Chiloango (Cabinda), Barra do Dande (Bengo), Longa (Kwanza Sul) and Bero (Namibe) depend strongly on artisanal fishing, supplemented by subsistence agriculture, for their livelihoods. The location of the four project sites are shown in Figure 1 below. These livelihood practices are underpinned by ecosystem services, such as: i) maintenance of fish spawning grounds; ii)

[76] For example: i) the CNPCB monitors precipitation; ii) CNPCB and National Directorate of Water Supply and Sanitation (DNAAS) monitor the level of rivers and streams; and iii) National Energy Production Company (PRODEL) monitors dam levels.

nutrient cycling; and iii) crop pollination. However, ongoing environmental degradation[77], exacerbated by the negative effects of climate change, is reducing the capacity of coastal ecosystems to provide these services and consequently threatens the livelihoods of these coastal communities. Ongoing poverty, low levels of education, a lack of alternative livelihood options and the limited integration of climate change adaptation into coastal development plans means that the environmental degradation and climate change impacts will remain threats to the livelihoods of these coastal communities.

Figure 1: Map of Angola detailing selected LDCF intervention sites

78. In the southern-most Cabinda Province, the village situated at the Chiloango River mouth is negatively impacted by the rapidly declining condition of the adjacent wetland. The flow of water from this wetland has been restricted by the deposition of silt from degraded upstream watersheds as well as waste and detritus from nearby settlements. An additional factor that has contributed to the degradation of this wetland is pollution from upstream users such as the petroleum industry. Villagers report that stagnation of the wetland – as a result of pollution – has resulted in a sharp decline in local fish and crustacean stocks upon which they depend for their livelihood and food security. Additionally, poor drainage of the wetland exacerbates the risk of flooding at the river mouth adjacent to the village. The condition of mangroves that currently buffer the community from storm surges and floods is further aggravated by the poor circulation of stagnant water through the wetland. Community members have begun the excavation of a basic drainage channel between the wetland and the ocean, however it is not clear whether this approach is likely to solve the problem or result in further environmental degradation.

[77] Environmental degradation is being caused by *inter alia*: i) destruction of natural ecosystems as urban centres expand; ii) poor land uses practices resulting in overgrazing and erosion; iii) degradation of forest and woodland for fuelwood and charcoal production resulting in increased erosion and decreased water supply; and iv) pollution from nearby settlements.

79. Households in the Chiloango village practice subsistence agriculture to supplement a fish-based diet. Small amounts of fruit and vegetables – such as mangoes, bananas, corn, tomatoes and sweet potatoes – are grown in family plots. Many households in the village are also reliant on illegal hunting as a source of supplementary income in order to purchase charcoal and food from larger neighbouring settlements. At present, the productivity of agriculture in the area is relatively low as a result of inefficient practices and limited access to inputs. Consequently, the yields of fruit and vegetables are inadequate to meet the subsistence needs of the community. Additionally, the widespread practice of cultivating land adjacent to river banks is likely to further undermine the agricultural output and food security of Chiloango households, as the risk of flooding and crop damage in these areas is predicted to increase as a result of climate change.

80. In the Bengo Province, communities near the Dande River mouth and upstream areas are particularly vulnerable to climate-related hazards such as flooding. The Dande River is particularly negatively affected by deposition of sediment and silt from upstream areas, to the degree that deposition of sediment in the Dande River mouth has created a new landmass. As a result of the settlement of housing in low-lying areas, flooding of houses and infrastructure is common. To date, this area has not experienced any catastrophic flood events comparable to the recent March 2015 floods that caused significant loss of life in Lobito and Benguela cities in the Benguela Province. However, the communities near Dande River are potentially vulnerable to floods of similar severity. In addition to the direct hazard of floods, the food security of communities in this area is particularly vulnerable to climate-related shocks to the agriculture and fishery sectors. The majority of households in the Dande community are dependent on livelihoods related to artisanal fishing. However, local fishers report that it has become necessary to travel further out to sea as a result of declining fish stocks near the shore. The decline in fish stocks is attributed to the degradation of local ecosystems, including the mangrove wetlands and estuaries, which are important breeding grounds for commercially valuable fish species. Subsistence agriculture is practiced by some households a few kilometres upstream of the river mouth; however, the downstream areas are largely uncultivated as a result of waterlogging and poor soil quality.

81. A factor that further increases the vulnerability of communities in the Dande River area to climate change is the degradation of ecosystems, which would otherwise provide a degree of protection against the impacts of climate change. For example, the mangroves that buffer communities on the north banks of the river against storm surges have become degraded as a result of expansion of the settlement. The local municipality has established two small dump sites close to the river mouth in an effort to reduce the challenge of litter, however communities are not making use of these dump sites. Consequently, mangroves on the south banks of the river have been degraded by deliberate dumping of waste as well as deposition of water-borne human waste and detritus by the rising tide. As a result of the widespread degradation of these ecosystems, people living in the Dande settlement are likely to be negatively affected by increased storm surges and flooding under climate change.

82. In the Kwanza Sul Province, there are three villages near the Longa River mouth, namely Calamba, Simão and Hojíua. These low-lying coastal villages are particularly vulnerable to flooding and storm surges – these risks are likely to increase under conditions of climate change. The vulnerability of these villages to flooding and storm surges is exacerbated by the degradation and removal of mangroves and riparian forest from the banks of the Longa River, which is primarily driven by the demand for woodfuel and building materials. However, these pressures have been reduced in recent years because of the availability of alternative building materials and charcoal produced outside of the area. The degradation and removal of vegetation from river banks and surrounding areas is also partly attributable to excessive grazing and trampling by livestock, particularly cattle and goats, which graze and drink water around the Longa River mouth. This contributes to soil erosion along the river and estuary and affects water quality negatively.

Commercial and subsistence agriculture is practiced extensively in the area. Subsistence farmers rely on rainfall and flooding to irrigate their crops and – despite the abundance of cattle dung – no fertilisation of fields is practiced. Consequently, yields of locally grown vegetables – such as tomatoes, potatoes, onions and cassava – are inadequate to meet the subsistence needs of the community.

83. A local conservation initiative – the Kitabanga Project – provides employment and environmental education to local communities to preserve the local estuaries in which sea turtles breed. However, there is no running water, electricity, sewerage or waste collection system for the three villages. Consequently, the wetlands are negatively affected by deposition of waste and untreated sewerage, which creates a health hazard and reduces the productivity of local fisheries. Artisanal fishers report that the size of their catch has reduced considerably in local years, forcing them to travel further out to sea. Therefore, any negative impacts on the productivity of fisheries has particularly severe implications for these already-impoverished fishing communities.

84. The northernmost project site is in the Namibe Province. In 2003, there was a catastrophic flood at the Bero River mouth that resulted in loss of life and destruction of the settlement. Approximately 2,000 people were resettled. In recent years, people have moved back into the area to practice commercial and subsistence agriculture. In an effort to reduce the risk and severity of flooding, protective dykes were constructed across an extent of 10 km inland from the river mouth. The dyke barriers provide protection against flash floods; however, households in this area are still affected by slow-onset flooding during periods of extended rainfall. It is anticipated that flooding is likely to become more frequent in the future owing to greater intensity of rainfall under climate change. The severity and frequency of flooding in these areas is exacerbated by the destruction of vegetation on the river banks. The ecosystem at the river mouth is comprised of coastal lagoons, mudflats and marshlands. This estuarine area will help to prevent coastal erosion caused by storm surges under conditions of climate change. In addition, the health and integrity of these ecosystems is threatened by multiple pressures including *inter alia*: i) eutrophication resulting from inappropriate fertiliser application by commercial farmers upstream; ii) pollution with solid waste; and iii) earth-moving works for construction of commercial properties along some parts of the river.

85. Overall, environmental degradation – and the consequent reduction in ecosystem goods and services – and climate change hazards pose a considerable threat to the livelihoods of communities living along the coast, particularly in Chiloango, Barra do Dande, Longa and Bero. Currently, there are a few initiatives underway to develop the livelihoods of selected communities living along the Angolan coast. These include the FSSP and a COSPE[78] project for the *Protection and Development of Angolan Coastal Forests*. The FFSP is developing artisanal fishing livelihoods through investments in transport, waste management and infrastructure, while the COSPE project is promoting livelihoods[79] derived from forest products. Both of these projects are being implemented in areas within and outside of the targeted project intervention sites. The livelihoods of communities targeted by the LDCF project therefore remain vulnerable to ongoing environmental degradation and climate change impacts.

86. There are also land management projects taking place in coastal regions of Angola. For instance, in Namibe Province[80], an FAO-funded project *Integrating climate resilience into agricultural and agro pastoral production systems through soil fertility management in key productive and vulnerable areas using the farmers field school approach* is training smallholder livestock farmers to mitigate the impact of land degradation. In general, these land management projects are promoting

[78] Cooperation for the Development of Emerging Countries
[79] such as sustainable timber harvesting
[80] Including two coastal communities

climate-resilient agriculture and the integration of related interventions into existing agricultural practices. However, no previous or ongoing initiatives implement EbA, and therefore the approach remains poorly demonstrated in Angola's coastal areas. As a result, an understanding of the benefits of EbA among coastal communities – including those living in Chiloango, Barra do Dande, Longa and Bero – will remain limited. Moreover, such communities have not received formal training on planning and implementing this approach. Consequently, there will remain limited opportunities for these communities to maximise the benefits of ecosystem restoration to increase their adaptive capacity to the adverse effects of climate change.

87. Private sector funding of land restoration and EbA in Angola remains limited. This constraint persists despite the existence of a national Environmental Fund that has the potential to catalyse private sector investment in ecosystem restoration and climate change. Currently, this fund is sourced from environmental fines, licensing fees and donor contributions. Resources from this fund should be directed to priority environmental projects by means of an application process, however, because of the continued slow progress to establish financial mechanisms to disperse funds, the application of these funds remains limited and will likely continue to remain so according to consultations carried out during the PPG. Another potential source of investments in EbA from the private sector is the Corporate Social Investment (CSI) allocation of the petroleum industry. Although CSI is not currently legislated for oil companies, it is integrated into their contracts with the GoA. Sonangol, the national petroleum company, is responsible for identifying these CSI projects. Legislated CSI for petroleum companies is likely to come into effect in 2015. Once this legislation is ratified, the Ministry of Petroleum will likely to be the entity that identifies and directs petroleum companies to potential CSI projects. Without technical guidance, the private sector will continue to invest in education (e.g. schools and clinics) and biodiversity conservation (e.g. Green Turtle conservation projects) CSI projects unrelated to EbA.
88.

Component 3: Enhanced institutional coordination and systemic capacity for proactive adaptation in Angola.

89. In Angola, the policies related to management of natural resources and ecosystems – such as the National Policy on Forestry, Fauna and Areas of Conservation – do not include consideration of the current and predicted impacts of climate change. Additionally, the strategies and plans related to coastal planning and ecosystem management – such as the Coastal Zone Master Plan – do not include consideration of potential adaptation measures such as EbA. This is partly because there is inadequate data and information to support a detailed understanding of the impacts of climate change at a sectoral level, or to motivate for increased allocation of budget to support climate change adaptation activities. For example, no analysis has been conducted for the fishery, agriculture, energy, water or tourism industries on: i) the current and future impacts of climate change on each sector; and ii) the relative cost of different adaptation options. This information is important to guide strategic planning and decision-making, and without it, adaptation will continue to not be integrated into sectoral budgets.

90. Currently, MINAMB, through the GAC, is responsible for the overall coordination of projects and programmes related to climate change. Strategic oversight related to climate change in different economic sectors is the responsibility of CIBAC. This commission is chaired by MINAMB and includes, amongst others, ministers from the MININT and MINEA. However, the CIBAC currently does not meet on a regular basis. This is partly because the Secretariat of the CIBAC is currently constituted on an *ad hoc* basis by technical staff from various member ministries, depending on the particular advice required by members. This has resulted in inefficiencies in the administration of the forum such as irregularity of meetings, poor coordination of inputs and inadequate follow-up of actions tabled at meetings. These inefficient institutional arrangements and a lack of information

related to climate change vulnerability continue to be a barrier to effective coordination between Angola's important economic sectors.

91. At an inter-sectoral level, public awareness of the predicted effects of climate change, as well as potential adaptation options such as EbA, remains limited. There is currently no central source of information about adaptation for the general public or specific sectors. Although some useful public documents related to national adaptation options and awareness raising have been generated, these documents are often not publicly available or shared between government departments.

92. At the local level, there remains a limited awareness and knowledge within communities living in the Cabinda, Bengo, Kwanza Sul and Namibe Provinces about the existence, predictions and causes of climate change. In particular, there is little understanding of the linkages between climate change and the increased frequency of events such as flooding. Coastal communities living in these provinces will continue to have limited awareness of practices that would increase their resilience to climate change. Without this awareness, coastal communities will continue with livelihood practices that are vulnerable to climate change.

Baseline projects

Component 1

93. INAMET's Strategic Development Master Plan (SDMP) (2014–2020) is a US$50.6 million project financed by the Government of Angola[81] and implemented by INAMET, which will contribute a total co-financing of US$6,161,467). The primary objective of the SDMP is to develop INAMET into a highly effective public institution in service of public safety and economic development. The SDMP has three overarching priorities: i) promoting good governance and strengthening INAMET's technical capacity; ii) applying climate and geophysical data to support various socio-economic activities; and iii) designing INAMET's human resources policy. Within each priority, a number of goals are defined. Under priority two, Goal 14 includes extending the hydro-meteorological information system of the Kwanza River basin to other basins. This includes the rehabilitation of the existing meteorological monitoring network and the installation of additional automatic weather stations in several provinces, including Cabinde, Bengo and Namibe (investments totalling US$6,161,467). Through the extension of the meteorological monitoring network, this goal then also aims to extend the mechanism for an EWS as well as map climate change vulnerabilities of specific sectors – including agriculture and fisheries – along the Angolan coast. However, the number and location of the proposed automatic weather stations in Bengo province will not be adequate for an EWS in Barra do Dande. The investments in Bengo province also do not include capacity development for the management and maintenance of the meteorological monitoring network.

94. Component 1 of the LDCF project will build on the second SDMP priority, which includes the installation of additional hydro-meteorological infrastructure. By installing automatic weather stations and hydrological monitoring equipment, and piloting a well-designed case study that takes into consideration the effects of climate change on coastal communities, the LDCF project will: i) extend the hydro-meteorological monitoring system of INAMET in Bengo province; and ii) develop a best practice climate monitoring and EWS model that can be replicated in other vulnerable coastal areas. Consequently, INAMET will have improved capacity to monitor climate change.

[81] In the framework of the Presidential Decree 17/2014, the GoA will be financing the rehabilitation of the whole Meteorological Monitoring Network with installation of Automatic Weather Stations.

95. The LDCF project, through Outcome 1.1, will also undertake a detailed climate change vulnerability assessment for Angola's coastal zone. In addition to an overall vulnerability assessment, assessments will be provided for fisheries, agriculture, water, energy and tourism sectors. Appropriate government staff – including employees of INAMET and CNPCB – will also be trained to understand, interpret and replicate the climate change vulnerability assessments produced under Outcome 1. The vulnerability assessments and improved technical capacity of government staff will contribute to SDMP objectives, particularly under priority two. The SDMP will contribute co-financing of US$6,161,467 to this LDCF project.

Component 2

96. **The Support to the Fisheries Sector Project (FSSP) (2012–2017)** is financed through the African Development Bank, implemented by the Ministry of fisheries and has a total budget of US$18,518,518, of which US$3,000,000 will be provided as co-financing. The project will develop artisanal fishing livelihoods, promote economic activity along the Angolan coast through investments in transport, waste management, and fish processing infrastructure. The long-term aims of the project are to: i) improve the well-being of artisanal fishers through increased household income; ii) contribute to the GoA's efforts to reduce poverty and accelerate economic growth on a sustainable basis; and iii) strengthen the capacity of institutions responsible for fishery management. The FSSP will focus on artisanal fishers living in 14 communities along the Angolan coast. As in the LDCF project, direct beneficiaries of the FSSP will include women, who constitute 80% of small-scale fish processors and traders. The project will also be of benefit to ancillary trades such as boat repairers, net menders, transport providers and petty traders working in project sites.

97. Activities under the FSSP include *inter alia*: i) construction of four artisanal fish landing sites/centres; ii) rehabilitation of 14 km of access roads; and iii) construction of water supply and sanitation facilities and a power supply system (US$3,000,000). The effects of future climate change – such as coastal flooding, soil erosion and storm damage – will negatively affect the infrastructure installed by the FSSP, which does not currently account for these impacts. In particular, the predicted increase in rainfall intensity in more northern coastal provinces will result in an increase in frequency and severity of floods. Coastal infrastructure constructed by the project – including access roads and fish landing centres – will remain vulnerable in flood-prone provinces such as Bengo and Luanda. The LDCF project will help to climate-proof the activities of the FSSP through targeted EbA interventions under Component 2. The EbA interventions implemented will demonstrate techniques for climate-proofing coastal infrastructure using an EbA approach. For example, the LDCF project will be undertaking mangrove rehabilitation in and around Barra do Dande in the Bengo Province, where the FSSP is installing a fuel station. Restoration of mangroves at Barra do Dande will safeguard infrastructure in coastal areas from damage from flooding and storm surges.

98. The UNEP project "**Building Capacity for Coastal Ecosystem-based Adaptation in Small Island Developing States (SIDS)**" is financed by the European Commission and will run from 2014 to 2016. This project aims to assist countries and regions to develop and apply ecosystem-based adaptation approaches to maintain and enhance the resilience of tropical coastal ecosystems and the services they provide to coastal communities in SIDS.

99. The LDCF project will build lessons learned through the SIDS project regarding adaptation in coastal ecosystems. In particular, lessons from the SIDS project will help to advise communities on the correct choice of EbA interventions in coastal ecosystems. Further to this, the guide "Options for ecosystem-based adaptation in coastal environments" produced by the SIDS project be promoted as a planning tool and a broader guide for EbA interventions in Angola. As such, the SIDS project will contribute $150,000 as cofinancing to the LDCF project.

Component 3

100. The Angola Water Sector Institutional Project 2010–2019 (PDISA) (US$113.4 million) is financed by the International Development Association and the Southern African Development Community (SADC) (Co-financing US$3,000,000). This project will be implemented through the MINEA and its DNAAS. PDISA is strengthening the institutional capacity and efficiency of agencies in the water sector to improve access and reliability of water service delivery. Inadequate storm water drainage and inadequate sanitation results in frequent occurrence of water-borne diseases and shortfalls in fresh water supply in many inland and coastal cities. The objective of the project is therefore to improve the quality and sustainability of urban water supply and sanitation services in urban centres. The project is comprised of four components, including: i) development of institutions in the water supply and sanitation sub-sector; ii) water resources management; iii) rehabilitation of water supply systems; and iv) capacity building and change management to strengthen the ability of government to improve water supply. Activities under PDISA include *inter alia* the rehabilitation of selected urban water supply systems and investments in improved access and reliability of water service delivery.

101. Without LDCF resources, PDISA will continue to develop water infrastructure without an understanding of climate change vulnerabilities of the water sector – and associated costs – along the Angolan coast. Consequently, in certain parts of the coast this infrastructure could be vulnerable to the future impacts of climate change, including increased intensity and frequency of storm surges and flooding. To enhance the water sector's understanding of adaptation, economic assessments will be undertaken under Outcome 3 of the LDCF project... These assessments will build on the sectoral vulnerability assessments and will demonstrate: i) the economic cost of current and future climate change to the water sector; and ii) the relative costs of different adaptation alternatives.

102. The LDCF project will also build on the capacity-building interventions of the PDISA, which are aimed at improving governance in the water sector (total budget US$3,000,000). Under Output 3.1, CIBAC representatives from the water sector will be trained on: i) how to interpret climate change adaptation investment appraisals; ii) how to use cost effectiveness rationales for the planning and decision-making process; and iii) the importance of mainstreaming climate change adaptation into regional, national and sectoral development plans for the water sector. Additionally, the overall improved functioning of CIBAC – promoted under Outcome 3 – will support the long-term climate-proofing of the water sector through improved inter-sectoral coordination for adaptation.

103. The sectoral vulnerability assessment undertaken under Outcome 1 of the LDCF project will also provide detailed information about the climate change risks faced by the water sector in the coastal zone. This analysis will include the predicted effects of climate change on *inter alia*: i) water provision to coastal settlements; ii) ground and surface water availability; iii) water-related diseases such as malaria and cholera; and iv) water infrastructure along the coast. This vulnerability assessment will include recommendations for cost-effective adaptation interventions appropriate to the water sector and applicable to the aims of PDISA, and therefore contribute to the long-term objectives of this project.

104. In summary, the LDCF project will enhance the institutional capacity building interventions of the PDISA project by promoting an in-depth understanding of the effects – and related costs – of current and future climate change on the water sector. This improved understanding will support agencies in the water sector to improve access and reliability of water service delivery, even under conditions of climate change. The PDISA will contribute co-financing of US$3,000,000 to this LDCF project.

2.7. Linkages with other GEF and non-GEF interventions

105. Numerous GEF and non-GEF projects that focus on adaption to climate change or ecosystem restoration are currently being implemented in Angola. These initiatives provide opportunities for synergies and knowledge exchange with the LDCF project. The project management team will coordinate efforts and establish linkages with similar projects. The related projects are described below.

GEF Initiatives

106. The LDCF-funded UNDP project Promoting Climate-Resilient Development and Enhanced Adaptive Capacity to Withstand Disaster Risks in Angola's Cuvelai River Basin (2014–2017) (US$4,416,210) is a climate change adaptation initiative that addresses climate-related vulnerabilities through on-the-ground investments and capacity building of GoA and local communities. Components of this project include: i) transferring technologies – and related capacity building – for climate and environmental monitoring; ii) enhancing sustainable rural livelihoods; and iii) increasing understanding of climate change adaptation and practices amongst local communities and government. Component 1 of the LDCF project is aligned with the Cuvelai project, which contributes to the development of comprehensive famine and flood early warning systems (FFEWS) in the Cuvelai Basin. Lessons learned from the Cuvelai project have been integrated into the design of the LDCF project. Moreover, the LDCF project will be emulating some of the Cuvelai project's early warning interventions in Barra do Dande.

107. The FAO climate change adaptation project entitled "Integrating and Up-Scaling Climate Resilience into Agricultural and Agropastoral Production Systems through Soil Fertility Management in Key Productive and Vulnerable Areas Using the Farmers Field School Approach is currently at PIF stage (US$4,416,210). The overall objective of the project will be to increase the resilience of small-scale farmers to climate variability and extreme weather events, as well as the consequent degradation of ecosystems. This initiative will be based in the Central Plateau interior of Angola while the LDCF project will be based in the country's coastal areas. However, there are opportunities for engagement and sharing lessons learned between the two projects. In particular, lessons learned from this FAO GEF project will inform the design and implementation of climate-resilient land management interventions under Component 2 of the LDCF project.

108. The FAO project entitled "Enhancing Climate Change Resilience in the Benguela Current Fisheries System" (2012–2017) (US$4,725,000) is a GEF LDCF-funded climate change adaptation project, which is currently implementing participatory adaptive strategies to promote food and livelihood security in the coastal regions of Angola. Given that they are both implementing interventions in the coastal zone, the LDCF and FAO projects offer many linkages and opportunities for cooperation. During implementation, FAO project managers will be consulted to promote synergies and avoid duplication of interventions. In particular, LDCF project activities to strengthen institutional capacity of local organisations – such as the Committee of the Environment – will complement similar activities under Component 3 of the FAO project.

109. The Environmental Sector Support Project (ESSP) (2010–2015) (US$12,314,814) is a nation-wide project funded by AfDB, with counterpart funding from GoA. Initially, this project included three components: i) environmental governance, capacity building and institutional strengthening; ii) integrated environmental conservation and natural resource management; and iii) project management. Thereafter, an additional component related to climate change – approved and funded by GEF (Climate Change) – was incorporated into this project. With GEF support, the project includes

interventions to strengthen the institutional capacities of the Ministry of Environment (MINAMB), Ministry of Agriculture (MINAG), NGOs and CSOs to manage the effects of climate change. The LDCF project will develop the capacity of the CCG – which is based within MINAMB – to manage climate change adaptation at a national level.

110. The AfDB/GEF-LDCF project Integrating Climate Change into Environment and Sustainable Land Management Practices (US$6,668,182) has four components: i) governance, capacity building and institutional strengthening; ii) integrating climate adaptation measures into Sustainable Land Management (SLM) practices in four demonstration sites – Namibe, Huambo, Kuando Kubango and Cabinda; iii) knowledge management through a coordination mechanism with other projects; and iv) monitoring and evaluation. The LDCF project will undertake EbA and climate-resilient land management interventions in Namibe and Cabinda. These interventions will align with the SLM interventions of the AfDB project.

111. The UNEP GEF-LDCF project Umbrella Programme for National Communication to the UNFCCC (US$11,330,000) will strengthen the capacity of the institutions involved in the development of national communications on climate change. Moreover, this initiative will enhance the base of information related to climate change and adaptation. Through Component 3 of the LDCF project, the technical and institutional capacity of the GoA to manage climate change – including integrating adaptation into national policies and plans – will be strengthened. Therefore, the LDCF project is aligned with the Umbrella Programme. During implementation, stakeholders from this programme will be consulted to avoid duplication of capacity-building activities.

112. Two important ongoing GEF-funded initiatives that will be aligned with this GEF LDCF funded projects are the global adaptation projects related to the advancement of the National Adaptation Plans (NAPs) of LDCs. The UNDP/UNEP GEF-LDCF funded project entitled "Assisting Least Developed Countries (LDCs) with Country-driven Processes to Advance National Adaptation Plans (NAPs)" 2013-2015 (US$1,998,000) will strengthen policies and institutional capacities at national and decentralised levels in multiple LDCs, with the objectives of promoting long term adaptation planning and therefore low carbon and climate-resilient human development through initiating the NAP process. The UNDP/UNEP-LDCF project "Expanding the Ongoing Support to Least Developed Countries (LDCs) with Country-driven Processes to Advance the National Adaptation Plans (NAPs)" (US$6,200,000) (starting in 2016) will strengthen the institutional and technical capacities of LDCs to start and/or advance their NAP process. This will be achieved by enhancing the capacity of participating countries to advance both medium- and long-term adaptation planning in the context of national development strategies and budgets. This LDCF project will complement both aforementioned projects – that support adaptation planning in the medium and long term – by increasing the capacity of the GoA to adapt to the immediate and short-term effects of climate change, particularly by responding to the priorities outlined in the NAPA.

113. The objective of the FAO GEF Land Degradation/LDCF project Land Rehabilitation and Rangelands Management in Smallholders Agro-pastoral Production Systems in South Western Angola (US$3,013,636) is to enhance the capacity of South Western Angola's small holders' agro-pastoral sector to mitigate the effects of land degradation. This objective will be achieved by mainstreaming SLM practices into agro-pastoral and development initiatives. The LDCF project will be informed by lessons learned from the FAO project's integration of SLM into local initiatives.

Non-GEF-projects

114. The **Local Development Project (LDP) (2010–2015)** is funded by the GoA (US$121,700,000). This project has three components: i) increasing poor households' access to

improved social and economic infrastructure by financing the rehabilitation and construction of basic public works and municipal grants; ii) promoting Local Economic Development by developing business skills and participation in markets of selected producer groups; and iii) strengthening capacity of local institutions, public entities and civil society to plan, manage and monitor basic public service delivery and expenditure. The LDP is being implemented in 17 provinces, four of which are provinces where the intervention sites for the proposed LDCF project are located – Bengo, Namibe, Cabinda and Kwaza Sul. The LDCF project will also promote food security and environmental infrastructure in these coastal provinces through EbA and climate-resilient agriculture activities.

115. The **Climate for Development in Africa Programme (ClimDev-Africa)** (€14 million for 2012–2014) is a joint initiative of the Commission of the African Union (AUC), the AfDB and the United Nations Economic Commission for Africa (UNECA). Through the ClimDev-Africa, regional, sub-regional and national policy capacity will be strengthened by: i) building science and observation infrastructure; ii) enhancing working partnerships between public, private and civil society sector and vulnerable communities; and iii) creating and strengthening knowledge frameworks. The LDCF project is aligned with ClimDev-Africa in that it builds on existing climate monitoring infrastructure in Angola. Improved collection of climate data in Angola will enhance the regional understanding of climate change. Additionally, Component 1 of the LDCF project will enhance the national understanding of climate change vulnerability through a detailed vulnerability assessment of the coastal zone. This will contribute to the national repository of knowledge about climate change vulnerability and adaptation responses and will be shared with other LDCs through AAKNET under Component 4 of the LDCF project.

116. UNEP, in collaboration with IUCN, developed a Strategic Plan for the Mayombe Transboundary Forest Initiative (2013 – 2014). The Strategic Plan outlines the steps required to establish a transboundary protected area complex in the Mayombe forest ecosystems of Angola, DRC, Congo and Gabon. The Strategic Plan details 8 key result areas, including inter alia: i) Awareness, education and technical capacity building; and ii) Research and ecological monitoring. The LDCF project will contribute to these two key results areas through the awareness-raising and research components included in the project design. In addition, the LDCF project will build on UNEP's experience in Angola gained through this project

117. A UNEP-Angola Country Cooperation Framework was signed in December 2015. This framework focuses on five key areas of cooperation that include biodiversity and ecosystems, environmental governance and regional cooperation, climate change, sustainable production and consumption and disaster risk reduction and city planning. The overall objective of the UNEP-Angola cooperation framework is to provide Institutional and technical cooperation and support to enhance sustainable management of environment and natural resources in Angola. Capacity building cuts cross all these areas and it also includes providing Institutional and technical cooperation from UNEP and support to enhance sustainable management of environment and natural resources in Angola. The LDCF project is directly related to several areas of the Country Cooperation Framework implementation and can help it reach its objectives. During implementation of the LDCF project, cooperation will be sought with the UNEP implementing team of the Country Cooperation Framework to ensure complementarity.

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

3.1. Project rationale, policy conformity and expected global environmental benefits

118. The LDCF project will increase the resilience of vulnerable coastal communities and economic sectors in Angola to the observed and predicted effects of climate change. The project will emphasise the demonstration of cost-effective, low-regret options for adaptation – including the

demonstration of climate-resilient practices such as EbA and climate-resilient land management, and the establishment of a pilot Early Warning System (EWS) – benefit impoverished rural communities as well as important economic sectors such as fisheries, agriculture, transport, energy, water and tourism. The objectives of the proposed project will be achieved through multiple complementary measures that will include: i) increasing scientific and technical capacity of provincial and local-level government staff to deliver early warning information to residents of Barra do Dande; ii) demonstrating EbA and climate-resilient land management practices in participation with coastal communities; and iii) supporting the mainstreaming of climate change adaptation at inter-ministerial, policy and sectoral levels.

119. The practices promoted and demonstrated by the project (including *inter alia* EWS, EbA and climate-resilient land management) will be supported by the increased availability of data and information to guide the development of locally appropriate adaptation actions. This will include the generation of a national-level map of updated climate change vulnerabilities and hazards that will assist in the identification of sites and activities to be prioritised for adaptation-related initiatives. The increased availability and quality of information on sub-national climate change hazards and vulnerabilities will benefit important economic sectors and livelihood practices (notably including agriculture, forestry fisheries, livestock husbandry and water), thereby safeguarding previous and ongoing investments in Angola's socio-economic development. The project will support improved decision-making related to climate-smart development planning by providing investments and technical assistance to the national hydrometeorological agency INAMET, thereby increasing the availability of real-time and spatially explicit climate and weather data. The increased infrastructural and technical capacity within INAMET will support the generation climate and weather data to inform the timely issuing of early warnings for site-specific climate hazards from national agencies such as CNPCB.

120. In the long-term, the investments of the LDCF project will generate sustained benefits for coastal communities and vulnerable economic sectors beyond the lifespan of the project. For instance, the project will support the development of standard operating procedures and community response plans for Barra do Dande thereby supporting a long-term system to issue early warnings for this settlement beyond the project implementation period. Additionally, the EbA project concept notes undertaken under Output 2.4 will catalyse private sector investment in the upscaling of LDCF project interventions. Lessons learned from EbA and climate-resilient land management interventions in Component 2 will be shared through regional networks such as Africa Adaptation Knowledge Network (AAKNET) and an e-library to be published on the MINAMB website. Additionally, the enhanced capacity of the CIBAC (Output 3.1) for the mainstreaming of adaptation into sectoral budgets and plans into the future will support medium- and long-term adaptation to climate change at a national level.

Policy conformity

121. The LDCF project is aligned with the GEF VI programming strategy for LDCF/SCCF projects. Therefore, the project activities will complement and build on the achievements of the existing GEF projects being planned and implemented in Angola. It will also build on relevant non-GEF projects, as outlined in Section 2.7. The following GEF Focal Area Objectives are addressed in the project:

- CCA-1, Outcome 1.3: Climate-resilient technologies and practices adopted and scaled up. The LDCF project will enable communities to adopt EbA and climate-resilient land management practices.
- CCA-2, Outcome 2.1: Increased awareness of climate change impacts, vulnerability and adaptation. The climate change awareness-raising programme to be implemented by the LDCF

project will contribute to this CCA-2 outcome. Furthermore, the project will conduct vulnerability assessments and demonstrate adaptation interventions, which will further contribute to an increased awareness about vulnerability and adaptation.

- CCA-3, Outcome 3.1: Institutional arrangements to lead, coordinate and support the integration of climate change adaptation into relevant policies, plans and associated processes established and strengthened. The LDCF project will provide technical support and training to the secretariat of the CIBAC and Climate Change Cabinet (CCG) to improve inter-ministerial coordination and institutional capacity of the CIBAC.

122. The LDCF project is aligned with Angola's policies and strategies on development and environmental management. These are communicated in the following documents: i) Angola 2025: Long Term Development Strategy; ii) National Environmental Management Programme; iii) Angola's Initial National Communication to the United Nations Framework Convention On Climate Change (UNFCC); iv) the National Development Plan 2013–2017; and v) the NAPA.

LDCF conformity

123. As Angola is a non-Annex I party to the UNFCCC and has already submitted the NAPA to the UNFCCC Secretariat, the project meets the LDCF's eligibility criteria. Furthermore, the project conforms to the strategic objectives of the LDCF, as described below.

124. *Participatory approach*: the project's activities and proposed intervention sites were selected through extensive stakeholder consultations at both local and national levels. Please see Section 2.5 for a full breakdown of stakeholders consulted during the PPG process.

125. *Implementing NAPA Priorities*: The LDCF supports the implementation of the NAPAs. The LDCF project has therefore been developed in alignment with priority activities outlined in Angola's NAPA (2006), including the following NAPA priorities:

- Priority 2: Promote sustainable land management for increased agricultural yields – the project will train coastal communities and extension services on climate-resilient land management methodologies.
- Priority 6: Revise sectoral laws for proactive adaptation – the project will propose recommendations for revisions to relevant national laws, sectoral plans and associated budgets to mainstream adaptation.
- Priority 7: Create an EWS for flooding and storms – the project will be supporting the development a functional EWS in Barra do Dande, working with INAMET and CNPCB.
- Priority 8: National institutional mechanism for adaptation planning and mainstreaming – the project will strengthen the coordination mechanism of CIBAC to encourage effective planning of adaptation interventions in coastal areas of Angola.

126. *Learning-by-doing approach*: The LDCF project will demonstrate innovative EWS, climate-resilient land management interventions and EbA techniques to strengthen coastal communities' resilience to climate change. The lessons learned at the national and international level will be documented and disseminated to inform national and sub-national development plans in Angola (Output 4.1), providing future projects with lessons learned from LDCF project interventions.

127. *Multi-disciplinary approach*: The interventions of the LDCF project require expertise from multiple sectors, including water, agriculture and disaster risk management. Consequently, the development of appropriate interventions in coastal communities will be undertaken under the guidance of technical experts from all of these sectors, including through multi-sectoral committees

such as CIBAC. In addition, the interventions demonstrated by the project will have a cross-sectoral approach that will include methodologies and techniques from fields related to ecosystem restoration and climate-resilient land management.

Gender equality: In Angola, the adaptive capacity of both men and women is compromised by challenges such as to: i) limited access to weather and climate forecasting information; ii) limited access to natural resources such as water; and iii) limited participation in social networks that provide resources or technical support to adapt to the observed and predicted effects of climate change. However, Angolan women are considered particularly sensitive to the effects of climate change because they tend to be responsible for domestic responsibilities such as cooking and collection of fuel and water for household use. Additionally, women in artisanal fishing communities are responsible for selling the fish that are caught by community members. Consequently, the livelihoods of these women are directly linked to the health of fish stocks, which are predicted to be negatively affected by alterations in Benguela Current. Currently, most women in rural parts of Angola have insufficient access to relevant information and skills to manage the negative effects of climate change on food, fuel and water security. A reduction in access to these resources therefore has detrimental implications for women and families in terms of i) overall health; ii) nutrition; and iii) livelihood income.

128. The LDCF project will address the vulnerability and low adaptive capacity of women to climate change by mainstreaming gender considerations into the design and implementation of EbA activities. For example, the project will work directly with fishing cooperatives and associations, several of which are focussed on the sale of fish and therefore have almost exclusively female membership. To integrate gender into relevant activities, within Component 1 the LDCF project will collaborate with the Ministry of Family and Women Promotion. Under Component 2, gender specific indicators and targets will be developed to monitor the progress of gender mainstreaming into EbA activities and the development of alternative livelihoods. Under all Components, gender sensitivity will be incorporated into trainings so that female participants are empowered to participate fully in the training sessions and related EbA activities. Trainers will be required to have the skills and experience necessary to plan and facilitate gender-sensitive training. Finally, the project results framework has used gender-disaggregated targets to ensure gender is mainstreamed throughout.

129. *Complementary approach*: The LDCF project will work in conjunction with relevant ongoing and adaptation projects in Angola (Section 2.6). It will build on the activities of the identified baseline projects, climate proofing their interventions to promote the achievement of their objectives. The project will also coordinate with other ecosystem management projects to share valuable lessons and prevent duplication of efforts. In addition, training will be conducted on innovative adaptation funding to promote climate change adaptation in Angola (Output 3.1).

3.2. Project goal and objective

130. The goal of the LDCF project is to increase the resilience of Angola's vulnerable coastal communities and economic sectors – including fisheries, agriculture, transport, energy, water and tourism – to the negative effects of climate change. The objective of the project to reduce vulnerability to climate change of national government and coastal communities along the coast of Angola... The project will achieve this by enhancing the scientific and technical capacity of government staff at a local and national level to identify and prioritise climate change adaptation activities in coastal areas. This will include investments in strengthening the hydrometeorological monitoring network as well as increasing the capacity for forecasting and issuing early warnings for specific climate hazards. The project will build the resilience of communities living in and around Chiloango, Barra do Dande, Longa and Bero by demonstrating the EbA approach as a technique for climate change adaptation, particularly through the targeted restoration of degraded mangrove and wetland ecosystems. The

LDCF project's investments will be further strengthened by building the capacity of coastal communities to design and implement climate-smart practices such as EbA, climate-resilient agriculture and small-scale aquaculture, thereby strengthening the capacity of communities to adapt to climate change while increasing household income through diversification of livelihoods. At a central/national level, the project will enhance institutional capacity and improve coordination for adaptation at an inter-ministerial level, including through investments in training, technical support, and increased availability of information and knowledge to inform adaptation planning. The objectives of the project will be achieved through four complementary outcomes (please refer to Section 3.3 for more details).

3.3. Project components and expected results

131. The LDCF project will contribute to the long-term sustainability of baseline projects under conditions of climate change, as described in Sections 2.6 and 3.7. The three components and associated activities of the LDCF project are detailed below.

Adaptation alternative

132. As described in Section 2.6, baseline problems in the Angolan coastal zone include *inter alia*: i) environmental risks to human wellbeing, such as floods; ii) food and livelihood insecurity; and iii) insufficient access to clean water. Various national projects have been initiated to address these baseline issues. Specifically, the SDMP is supporting sustainable social and economic development through improved provision of climate information for planning and decision making nationally, provincially and locally. This includes improvements to the existing flood EWS. The FSSP is improving capacity and infrastructure for the artisanal fishing industry in order to improve the livelihoods of coastal communities. Finally, the PDISA project is upgrading water infrastructure and developing capacity within the water sector to improve provision of clean water in Angola, and reduce the spread of water borne diseases. More details on the baseline projects are provided in Section 2.6.

133. The current and predicted effects of climate change – including *inter alia* increases in the frequency and severity of both flood and drought events – is likely to reduce the efficacy of the baseline projects. For example, PDISA will continue to develop water infrastructure without an understanding of climate change vulnerabilities of the water sector – and associated costs – along the Angolan coast. Consequently, in certain parts of the coast this infrastructure could be vulnerable to the future impacts of climate change, including increased intensity and frequency of storm surges and flooding. Similarly, without LDCF project interventions the FSSP will continue to develop artisanal fisheries infrastructure in selected intervention sites without the benefit of restored, healthy ecosystems to buffer this infrastructure from floods and storm surges. The additional cost reasoning of the LDCF project is presented in more detail in Section 3.7.

134. In order to enhance the capacity of national government and coastal communities to adapt to climate change along the coast of Angola and build on the outcomes of baseline projects, the LDCF project will undertake a range of adaptation interventions. Under Component 1, the technical capacity of government staff at local and national level to analyse, predict and respond to climate change effects, access policy-relevant data and deliver relevant information to local communities will be strengthened. This will be achieved by conducting a vulnerability assessment of the coast and establishing a pilot EWS in Barra do Dande. Under Component 2, EbA technologies and climate-resilient land management techniques will be transferred to coastal communities in Angola to reduce their vulnerability to droughts, rainfall variability and extreme events. Finally, under Component 3 inter-ministerial coordination and institutional capacity to adapt to climate change in Angola will be increased. Additionally, awareness about climate change impacts and adaptation among non-

governmental stakeholders will be improved through national awareness campaigns. These interventions are described in further detail below.

Component 1: Enhanced technical capacity for adaptation in coastal zone areas.

Outcome 1: Strengthened technical capacity of government staff at local and national level to analyse, predict and respond to climate change effects, access policy-relevant data and deliver relevant information to local communities.

135. Several important economic sectors based along Angola's coast – including fisheries, agriculture, transport, energy, water and tourism – are vulnerable to current and future effects of climate change. To address these threats, activities under Outcome 1 of the project will strengthen the technical capacity of national government staff in INAMET to collect, analyse and disseminate weather and climate data. Additionally, INAMET staff will be trained to package early warnings based on available data. Moreover, extension officers from CNPCB and other relevant provincial and local government representatives will be trained to disseminate early warnings to coastal communities.

136. Initially under Outcome 1, vulnerability assessments will be undertaken for Angola's coastal zone. These assessments will focus primarily on economic sectors that are vulnerable to climate change and will include the development of recommended adaptation responses, and will be carried out using PROVIA guidelines[82]. Local academic institutions – such as Agostinho Neto University – will be involved in the vulnerability assessments, contributing data and expertise. The information generated under this Outcome will inform the development of other project activities. Additionally, activities in this component of the project will focus on the establishment of an EWS in Barra do Dande. This will be achieved by: i) installing appropriate equipment and software, including *inter alia* weather and hydrological monitoring stations; ii) strengthening the capacity of CNPCB to disseminate early warnings effectively to local communities; and iii) strengthening the capacity of local communities to respond to early warnings. To promote appropriate responses at a local level, an early warning response plan will be developed in collaboration with local communities.

137. Outcome 1 of the project will build on the ongoing work of other projects and organisations in Angola. In particular, the LDCF project will work closely with the GEF/UNDP Cuvelai project that is developing the climate forecasting and EWS in the Cuvelai River Basin (see Section 2.7 of the UNEP project document for a more detailed description of this project). Importantly, the Cuvelai project will work with stakeholders in INAMET and MININT to build national-level capacity for climate forecasting and EWS provision. This national-level capacity building and technical support will benefit the local-level interventions of the LDCF project in Barra do Dande.

<u>Output 1.1: A set of detailed sectoral and localised vulnerability assessments for Angola's coastal zone.</u>

Under Output 1.1, a detailed assessment will be conducted to quantify the climate vulnerabilities of different parts of Angola's coast. This will include sector-specific assessments of vulnerability, including guidelines on cost-effective adaptation responses (the cost-effectiveness aspects of the assessment will be conducted under Component 3). Assessments will be carried out using PROVIA

[82] PROVIA guidance on Assessing Vulnerability, Impacts and Adaptation to Climate Change (UNEP, 2013) is structured along a five-stage iterative adaptation learning cycle: i) identifying adaptation needs; ii) identifying adaptation options; iii) appraising adaptation options; iv) planning and implementing adaptation actions; v) monitoring and evaluation of adaptation. The PROVIA guidance has compiled an e-prototype tool that may be piloted during this project to help develop VIAs. Other tools and methods of dissemination will also be used.

guidelines[83]. The results of the sector-specific vulnerability assessments for Angola's coastal zone will be disseminated to development planners and policy-makers. The most appropriate media for dissemination will be determined based on feedback received during the training workshops under this output but could include: i) online platforms such as the INAMET website[84]; and ii) posters, workshops or presentations within the various ministries. Additionally, government staff will be trained to understand, interpret and replicate climate change vulnerability assessments in Angola's coastal zone. Trainees will include representatives of CNPCB, INAMET, provincial and local government from project intervention sites, and the Ministries of Environment, Fisheries, and Tourism and Transport.

The activities to be implemented under Output 1.1 are:

1.1.1 Undertake a detailed climate change vulnerability assessment – including identification of predicted climate change impacts – for Angola's coastal zone.

1.1.2 Produce sector-specific vulnerability assessments detailing climate change impacts on important coastal sectors – including *inter alia* fisheries, agriculture, transport, energy, water and tourism – and appropriate adaptation responses.

1.1.3 Train appropriate government staff (including staff from *inter alia*: MINAMB, INAMET, CIBAC and Climate Change Cabinet) to understand, interpret and replicate climate change vulnerability assessments in Angola's coastal zone.

1.1.4 1.1.4 Disseminate the results of the coastal zone and sector-specific vulnerability assessments, including an integrated vulnerability map, to development planners and policy makers.

Output 1.2: Operational early warning system developed in Barra do Dande.

138. Barra do Dande in the Bengo Province has been selected during the PPG consultations as the site for the pilot EWS. At present, residents of Barra do Dande are particularly vulnerable to flooding because of the establishment of housing in high-risk areas around the river mouth (see Section 2.6 and Appendix 15). Flooding is already commonplace and is predicted to increase in frequency and intensity under conditions of climate change. Informal coping strategies include elevating valuable household possessions above the floor and temporary evacuation of homes when the level of the river rises or when there is heavy rain. However, in the event of a catastrophic flood event occur; the lives and property of people living in parts of the settlement are at risk in the absence of a functional EWS and early warning response plan. Climate change is also predicted to impact the fisheries-based livelihood activities of the ~ 1,540 residents of the Dande river mouth and ~24 000 people living within the vicinity.

139. Initially under Output 1.2, assessments will be conducted to identify equipment that is required to establish an EWS in Barra do Dande. Importantly, these assessments will be conducted in close cooperation with INAMET. This cooperation will enable: i) integration with existing INAMET monitoring systems; and ii) alignment with the expansion strategy outlined in INAMET's SDMP for 2014–2020[85]. Sites for installation of monitoring equipment within Barra do Dande will be informed

[83] PROVIA guidance on Assessing Vulnerability, Impacts and Adaptation to Climate Change (UNEP, 2013) is structured along a five-stage iterative adaptation learning cycle: i) identifying adaptation needs; ii) identifying adaptation options; iii) appraising adaptation options; iv) planning and implementing adaptation actions; v) monitoring and evaluation of adaptation.
[84] This website is currently under production.
[85] Implementation of this strategy is the baseline project for Component 1.

by factors such as: i) security of equipment from theft and vandalism; and ii) availability of personnel for maintenance[86]. Weather and hydrological monitoring stations will then be installed and tested.

The LDCF project will be aligned with the ongoing GEF-LDCF Cuvelai project, which is strengthening the capacity of stakeholders in INAMET to analyse climate data and develop relevant models. Through the LDCF project, training will be conducted for extension officers from CNPCB and other local government representatives in Barra do Dande. This training will focus on effective: i) packaging of early warning information in an appropriate manner for local communities; and ii) dissemination of these warnings to the local community. Furthermore, the LDCF project will establish an appropriate communication system to transmit meteorological and hydrological information to INAMET and transfer flood and drought early warnings from INAMET Forecasting Centre to CNPCB, SNPC and relevant local authorities. A flood and drought early warning response plan will be developed with pilot communities in Barra do Dande.

The activities to be implemented under Output 1.2 are:

1.2.1 Conduct an assessment to identify/verify the meteorological equipment required to establish a flood and drought EWS in Barra do Dande.

1.2.2 Identify and assess sites for the installation of weather stations and hydrological monitoring.

1.2.3 Procure, install and test relevant weather and hydrological monitoring stations at the identified sites.

1.2.4 Establish an appropriate communication system to transmit meteorological and hydrological information to INAMET, and transfer flood and drought early warnings from INAMET Forecasting Centre, SNPC and relevant local authorities at Barra do Dande.

1.2.5 Train extension officers from SNCP and other relevant local government representatives at Barra do Dande site on interpretation of climate information and translation into locally relevant climate forecasts and advisories[87].

1.2.6 Develop flood and drought early warning response plans with pilot communities in Barra do Dande.

Component 2: Local demonstrations and capacity building interventions on ecosystems rehabilitation and adaptation measures in coastal areas.

Outcome 2.1: EbA technologies and climate-resilient land management techniques transferred to coastal communities in Angola to reduce their vulnerability to droughts, rainfall variability, and extreme events.

140. Currently, the capacity of communities living in the four interventions sites to adapt to extreme climate-related events is limited. To strengthen this capacity, LDCF interventions under Outcome 2 will: i) rehabilitate coastal ecosystems using EbA interventions with the aim of setting in place a process for full restoration; and ii) implement climate-resilient land management interventions – including sustainable agriculture – to promote sustainability of EbA interventions and further

[86] Where security is an issue, equipment could be secured with fencing or other means.

[87] Based on existing informal EWS, means of disseminating climate forecasts to local communities could include a flag alert system. Additionally, extension workers could also implement a system of telephoning or visiting pre-identified community members. These individuals will be tasked with passing the early warning message on to others in their immediate vicinity by knocking on doors or using a loud hailer.

promote resilience of local livelihoods under conditions of climate change. The rehabilitation and climate-resilient management of these coastal ecosystems will provide protection against beach erosion from storm surges and enhance ecosystems goods and services, as described below.

141. The project will promote and demonstrate the EbA approach at intervention sites in Chiloango, Longa, Barra do Dande and Bero through targeted rehabilitation of degraded ecosystems such as mangroves, marshlands and rivers. Climate-resilient plant species (for example mangrove species able to withstand increased salinity because of sea-level rise or riparian tree species that are flood-resilient) will be prioritised in these rehabilitation activities. Furthermore, the project will prioritise species, which generate multiple goods and services (for example fruit trees) for the benefit of local communities. EbA activities to be promoted by the project will include the rehabilitation and establishment of mangroves that will: i) provide a protective barrier against sea-level rise and storm surges; ii) reduce coastal inundation by tidal waters; and iii) increase the productivity of local fisheries by provide breeding habitats for commercially valuable fish species. In addition, the project will rehabilitate wetland and riparian ecosystems, including rehabilitation of vegetation along river banks, to demonstrate the benefits of this approach to local communities. Wetland rehabilitation may also small-scale clearing of channels to improve water flow, thereby increasing water quality and improving habitat for commercially important fish species. These interventions will provide multiple benefits such as: i) reduced severity and frequency of flooding of communities in low-lying areas; ii) reduced loss of fertile topsoil through erosion; iii) reduced deposition of silt and sediment; and iv) improved filtration and resultant quality of fresh water. In particular, the project will focus on increasing the stability of the shoreline at the mouth of the Bero River and restoring the adjacent marshlands. The rehabilitation of the Bero River area will reduce the rate of beach erosion from sea-level rise, thereby providing protection for coastal infrastructure and local communities. For all planned EbA interventions, an Environmental Impact Assessment will be conducted at each site (if deemed necessary following national environmental regulations) to ensure that activities do not have unintended negative consequences.

142. In addition to the demonstration of EbA in several ecosystem types (mangroves, marshlands and rivers), the project will also demonstrate other climate-resilient approaches to land management. These climate-resilient practices for land management will be tailored to each of the project sites (see Section 3.3 of the UNEP project document) and will be complementary to EbA activities by promoting agricultural, waste management and sustainable harvesting practices that promote ecosystem health and sustainable livelihoods under climate change,

143. The EbA and climate-resilient land management approaches demonstrated under this outcome will be implemented through the appointment of appropriately skilled and experienced organisations as technical service providers[88]. Importantly, communities at pilot sites will be involved in the site selection and implementation of the project's activities through community management committees established with the support of the project. These committees will build on existing structures within each community including *inter alia* fishing cooperatives, NGO groups and/or religious organisations. Management plans for the implementation of community-based EbA activities will be developed and implemented by these committees in Chiloango, Barra do Dande, Longa and Bero. These management plans will include a strategy for the long-term sustainability and maintenance of the project's activities. Sub-committees of the community management committee will be established to focus on specific elements of the management plan such as *inter alia*: i) establishment of patrols to prevent activities such as illegal logging and hunting; and ii) waste management; and iii) water quality monitoring. By managing existing and rehabilitated wetland ecosystems sustainably through patrols

[88] These are likely to be national-level NGOs and consultancies, which will partner with local organisations in the various project sites during planning and implementation.

and waste management, local communities will retain the adaptation benefits of these ecosystems, including buffering from coastal storms and floods.

144. Also under this outcome, coastal communities at the project intervention sites will be trained on: i) implementing, monitoring and maintaining EbA to generate long-term benefits; and ii) techniques and practices for climate-resilient land management. This training will include information about EbA-related conservation issues such as responsible hunting for subsistence. Additionally, representatives of local government will be provided with training on the implementation and maintenance of investments in EbA and climate-resilient land management techniques including *inter alia* crop rotation and selection of diverse locally adapted crops. These training activities will promote replication of project interventions in other nearby communities. Community management committees and local community members will also be trained on the early warning response plans developed under Outcome 1. This training will focus on interpreting and responding to early warnings.

145. An education programme will be established in local schools in and around the four project sites to increase awareness of the benefits of EbA. Educational materials will include media such as board games, posters, storytelling and drawing competitions. Content produced and lessons learned from education activities will be shared with the 'Angola Content' education programme, which is part of the National Environmental Education Programme (PRONEA), thereby upscaling the project's awareness-raising activities.

146. Finally, based on the lessons learned through the implementation of project interventions, EbA project concept notes will be developed to encourage private sector investment in EbA in and around Chiloango, Barra do Dande, Longa and Bero. Currently, petroleum and mining companies are contractually obliged to invest in social and environmental projects in Angola, but have very little guidance on how to invest for maximum impact. Consequently, CSI projects tend to be piecemeal and are implemented over short timescales. The project will therefore develop EbA concept notes to support an enabling environment for the private sector to make social investments using CSR budgets that will generate multiple social, ecological and climate change benefits. The EbA project concept notes will be tailored for different CSI budgets and will include *inter alia*: i) details on the vulnerability of the target sector to climate change ii) the economic rationale for investing in EbA; and iii) quantification of the social and environmental benefits of the investment. Additionally, technical details will be included in the EbA project concept notes that would enable replication of project activities, including *inter alia*: i) links to the EbA protocols developed under Output 2.1; ii) practical lessons learned by the LDCF project; iii) budgets required to upscale EbA interventions; and iv) details of suppliers and equipment in pilot sites. Where practical, upscaling of project interventions will be focussed on areas around Chiloango, Barra do Dande, Longa and Bero in order to make use of the implementation capacity of local communities developed under this outcome.

147. The Project Management Unit (PMU) will engage with relevant forums – such as the Petroleum Industry Steering Committee and the Environment Fund – to: i) disseminate the concept notes developed under this Output; and ii) raise awareness of the corporate social investment (CSI) benefits of these projects. The project concept notes will also be shared with government institutions – such as Sonangol and the ministries of Transport and Fisheries – that have large development projects planned along the coast. Dissemination of the concept notes will also be conducted under Outcome 4.1 as part of climate change awareness raising activities targeting private sector stakeholders.

<u>Output 2.1: EbA interventions, including mangrove and wetland rehabilitation, implemented in pilot sites in Chiloango, Barra do Dande, Longa and Bero.</u>

148. Under Output 2.1, appropriately skilled and experienced organisations will be contracted to implement the project's EbA interventions in Chiloango, Barra do Dande, Longa and Bero. These service providers will be national-level NGOs or consultancies such as ADRA and Development Workshop, which will work closely with local initiatives during implementation. Protocols will be developed by an EbA expert to ensure that project activities are aligned with best practices for EbA. These protocols will be based on: i) field-based assessment surveys of intervention sites; ii) predicted climate trends; iii) examples of EbA best practices identified by similar projects in southern Africa; and iv) lessons that have been learned and tools that have been developed by other aligned projects in Africa. Importantly, EbA interventions will be focus on mangrove and wetland ecosystems and will emphasise the selection of multi-use, climate-resilient plant species.

149. The participation of communities in the implementation of EbA and climate-resilient land management practices will be strengthened through the establishment of community management committees at the project's intervention sites. Importantly, the organisations that are appointed to implement EbA will include representatives of these community management committees in the identification of pilot sites and priority activities for EbA interventions, including *inter alia* wetland rehabilitation, mangrove rehabilitation and re-vegetation of degraded areas. Community management plans will be created under the direction of an EbA/Agriculture Specialist and Community Engagement specialist, in partnership with community management committees. These plans will be include a long-term (~20 year) management strategy for the area, broken down into medium and short-term goals.

150. At the Chiloango River mouth in the Cabinda Province, LDCF project interventions will include rehabilitation of 400 hectares of degraded wetland (including mangroves). Rehabilitated mangroves will protect infrastructure, households and farmlands near the river mouth from damage caused by storm surges and flooding. Additionally, the rehabilitation of degraded wetlands will support the livelihoods of local households by increasing the productivity of fisheries through increased breeding habitat for commercially valuable fish and crustacean species.

151. At the Barra do Dande in the Bengo Province, LDCF project interventions will include rehabilitation of 10 hectares of degraded wetland (including mangroves). The degradation of these mangroves can be partly attribute to improper disposal of waste generated by settlements adjacent to the river. Therefore, the project's activities will include the removal of accumulated waste and litter that has been dumped at the mangrove site. Additionally, under Outcome 2.2, the project will support the local municipality to develop a comprehensive waste management plan for the area to reduce re-contamination of the rehabilitated mangroves. Furthermore, the project will introduce complementary activities to rehabilitate and replant degraded mangroves in order to improve the health of the fish nursery and increase fish stocks in the area. The improved productivity of local fisheries will improve the livelihoods and food security of artisanal fishers in the area.

152. At the Longo River mouth in the Kwanza Sul Province, LDCF project interventions will include rehabilitation of 41 hectares of wetland (including mangroves). Rehabilitated mangroves will help to buffer the village located at the river from increased storm surges under climate change. Additionally, degraded parts of the wetland adjacent to the Longa settlement will be rehabilitated in order to: i) mitigate flooding in the area; ii) increase the availability and quantity of NTFPs, fish and crustaceans available to local communities.

153. At the Bero River mouth in Namibe Province, LDCF project interventions will include rehabilitation of 110 hectares of degraded wetland (including riverine and estuarine) areas. These EbA interventions will reduce the severity of flooding and stabilise the shoreline against erosion from increased storm surges and sea level rise under future climate change scenarios. These interventions

will complement the protective dykes that have already been established as a protection measure against flash floods.

154. At all project sites, sub-committees will be established within community management committees to focus on specific elements of the management plan such as: i) implementing activities to patrol and monitor the surrounding area to prevent illegal harvesting; and ii) waste management; and iii) water quality monitoring. The water quality sub-committee will be supported to establish a simple water system for monitoring of water quality. The Project Unit will collaborate with the Environmental Quality Lab in Cabinda – a government lab funded by the petroleum industry – to share the results of water quality tests for hydrocarbon and chemicals. Additionally, the project will engage with upstream water users in the agriculture and petroleum sectors to increase awareness on topics such as the negative effects of chemical pollution on local ecosystems and the benefits of the EbA approach.

The activities to be implemented under Output 2.1 are:

2.1.1 Undertake biophysical, socio-economic and market assessments at each of the chosen intervention sites to identify multi-use plant species for EbA interventions (e.g. wetland rehabilitation, reforestation, mangrove rehabilitation) that can provide co-benefits to local communities.

2.1.2 Identify indigenous multi-use and climate-resilient species for EbA interventions (e.g. wetland rehabilitation, reforestation, mangrove rehabilitation).

2.1.3 Develop protocols to guide the implementation of EbA interventions (e.g. wetland rehabilitation, reforestation, mangrove rehabilitation).

2.1.4 Identify and contract an appropriately skilled and experienced organisation at each of the four project intervention sites to implement the project's EbA and climate-resilient land management interventions.

2.1.5 Establish community management committees at selected intervention sites, building on existing structures, to coordinate community involvement in the implementation of EbA and climate-resilient land management interventions[89]. Sub activities include:

- Establish sub-committees of community management committee focussed on elements of the management plan, such as: i) patrolling and monitoring area to prevent anti-illegal harvesting; and ii) waste management; and iii) water quality.

2.1.6 Liaise with the community management committees and other community members to identify/verify sites and pilot families to carry out EbA interventions, including *inter alia* mangrove rehabilitation, wetland rehabilitation and re-vegetation.

2.1.7 Implement wetland rehabilitation at Chiloango River mouth (Cabinda Province). Sub-activities include:

- Conduct an Environmental Impact Assessment, if required, for the proposed EbA and climate-resilient land rehabilitation activities in Chiloango.
- Establish a community-lead nursery for climate-resilient plant species identified in Activity 2.1.2.

[89] Community management committees are groups of between five and ten community members that consult the broader community on issues related to project implementation. Where practical, these committees will build on existing community groups. Ideally, once established, they should continue meeting beyond the duration of the LDCF project.

- Rehabilitate 400 hectares of degraded wetland (including mangroves) in Chiloango using labour from local communities.
- Undertake a baseline assessment of the wetland ecosystem and create a cost effective strategy for its rehabilitation in consultation with the community management committee.
- Rehabilitate the wetland using workers from local communities. Activities will include *inter alia*: i) digging of new water channels; ii) clearing of existing water channels; and iii) planting with climate-resilient species to stabilise banks.

2.1.8 Implement wetland rehabilitation in Barra do Dande (Bengo Province). Sub-activities include:
- Conduct an Environmental Impact Assessment, if required, for the proposed EbA and climate-resilient land rehabilitation activities in Barro do Dande.
- Establish a community-lead nursery for climate-resilient plant species identified in Activity 2.1.2.
- Rehabilitate 10 hectares of degraded wetland (including mangroves) in Barra do Dande using labour from local communities.

2.1.9 Implement wetland rehabilitation at Longa River mouth (Kwanza Sul Province). Sub-activities include:
- Conduct an Environmental Impact Assessment, if required, for the proposed EbA and climate-resilient land rehabilitation activities in Longa.
- Establish a community-led nursery for climate-resilient plant species identified in Activity 2.1.2.
- Rehabilitate 41 hectares of degraded wetland (including mangroves) in Longa using labour from local and nearby communities.
- Assess the wetland ecosystem and create a cost effective strategy for its rehabilitation in consultation with the community management committee.
- Rehabilitate the wetland and riverine area using workers from local communities. Activities will include *inter alia*: i) digging of new water channels; ii) clearing of existing water channels; and iii) planting with climate-resilient species to stabilise river banks.

2.1.10 Implement wetland rehabilitation at Bero River mouth (Namibe Province). Sub-activities include:
- Conduct an Environmental Impact Assessment, if required, for the proposed EbA and climate-resilient land rehabilitation activities in Bero.
- Assess the estuary, wetland and river ecosystem and create a cost effective strategy for its rehabilitation in consultation with the community management committee.
- Rehabilitate 110 hectares of wetland (including riverine and estuarine) areas using workers from local communities. Activities will include *inter alia*: i) digging of new water channels; ii) clearing of existing water channels; and iii) planting with climate-resilient species to stabilise river banks.
- Rehabilitate estuarine areas using workers from local communities. Activities will include *inter alia* digging of new water channels, clearing of silt and sediment, removal of litter and detritus.

2.1.11 Develop and implement community-based EbA intervention management plans to ensure the long-term sustainability of interventions. . Sub-activities include:
- Engage with upstream water users in agriculture and petroleum sector to share the management plan and educate them on the negative effects of chemicals on local ecosystems and the benefits of EbA, with reference to water quality data gathered by the water quality sub-committee.

<u>Output 2.2: Climate-resilient land management techniques appropriate to local conditions demonstrated in selected communities in Chiloango, Barra do Dande, Longa and Bero.</u>

155. Under Output 2.2, climate-resilient land management techniques will be demonstrated in participation with communities in Chiloango, Barra do Dande, Longa and Bero. Demonstration plots will be established at each of these sites to display examples of climate-resilient agricultural practices. Combinations of techniques and practices have been proposed for each project site based on detailed site studies (described below and in Appendix 15).

156. The main source of income and sustenance for villagers living near the Chilaongo river mouth is artisanal fishing. In addition, subsistence agriculture from family plots provides fruit and vegetables. However, the productivity of agriculture is inadequate to meet the needs of the community as a result of poor soil quality and the widespread reliance on unsustainable agricultural techniques. Increased flooding and irregularity of rainfall under future climate change scenarios is likely to further reduce agricultural yields. Therefore the project's interventions will include the demonstration of climate-resilient land management practices such as: i) introduction of flood- and drought-resistance fruit and vegetable varieties to family plots; ii) introduction of climate-resilient agricultural techniques such as organic composting; and iii) establishment of a small woodlot to promote increase the availability of sustainable woodfuel. The project's focus on increasing the productivity of subsistence agriculture is particularly important in consideration of the reduced productivity of fish stocks, and resultant impacts on food security, reported by local communities in Chiloango.

157. At the Barra do Dande in the Bengo Province, the project's activities will include providing assistance to the local municipality to develop a comprehensive waste management plan to rehabilitate and protect degraded mangroves. Mangrove rehabilitation and improved waste management will improve the health of the fish nursery and therefore increase fish stocks in the area. This will improve the livelihoods of artisanal fishers operating in the area. The project will also promote improved practices for climate-resilient agriculture, including *inter alia* establishment of an irrigation system for small-scale farmers and introduction of drought- and flood-resistant crops, thereby increasing the productivity of local subsistence agriculture. Consequently, the project's activities will contribute to increased food security in the area, even under conditions of increased drought and flooding.

158. At the Longa River mouth in the Kwanza Sul Province, the project will implement climate-resilient approaches for agriculture interventions to compliment EbA interventions and promote food security, such as: i) instillation of a drip irrigation system; ii) introduction of organic composting techniques; and iii) promotion of flood- and drought-resistant vegetable and fruit cultivars. Furthermore, practices for sustainable management of pastures and livestock grazing will be introduced to reduce the erosion of soils by over-grazing and increased intensity of rainfall.

159. At the Bero River mouth in Namibe Province, climate-resilient land management interventions will be implemented to compliment EbA interventions and promote food security under worsening drought and flood conditions. Subsistence agricultural production is currently dependent on fluctuations in river flow. Introduction of a drop irrigation system would therefore increase the resilience of substance farmers to drought and flood while improving water efficiency. Additionally, drought-resistance crops identified in Activity 2.1.2 will be introduced to farmers. Several spur dikes are currently used to trap nutrient-rich residuals, which are collected by farmers and used as natural fertilizers. Construction of several more dykes is an addition means of promoting climate-resilient agriculture and reducing nutrient-leaching along the riverbanks.

The activities to be implemented under Output 2.2 are:

2.2.1 Identify, in collaboration with local communities, appropriate climate-resilient land management techniques to be implemented in each pilot intervention site.

2.2.2 Establish demonstration plots at each project intervention site to demonstrate climate-resilient land management techniques.

2.2.3 Implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. This will include *inter alia:* i) climate-resilient agriculture crops and techniques; ii) waste management interventions to promote ecosystem and human health; and iii) subsistence hunting and harvesting practices to promote sustainable livelihoods under climate change.

Output 2.3: Pilot communities trained on EbA, climate-resilient land management and early warning response plans.

160. Under this Output, coastal communities will be trained on: i) implementing, monitoring and maintaining EbA to generate long-term benefits; and ii) techniques and practices for climate-resilient land management. This training will include information about EbA-related conservation issues such as responsible hunting for subsistence[90]. Conservation of existing and rehabilitated ecosystems will ensure that communities continue to benefit from the adaptation benefits of coastal ecosystems, such as protection from flooding and storm surges. Additionally, representatives of local government will be provided with training on the implementation and maintenance of investments in EbA and climate-resilient land management techniques including *inter alia* crop rotation and selection of diverse locally adapted crops.

161. Under Output 2.3, community management committees and local community members will be trained on the early warning response plans developed in Activity 1.2.6. This training will focus on interpreting and responding to early warnings generated by the EWS developed under Outcome 1.

162. EbA training materials will be developed in consultation with the EbA/ Agriculture Specialist and Community Engagement Specialist. EbA training programmes will be informed by protocols developed under Output 2.1. Furthermore, activities under Output 2.3 will include hosting experience-sharing events where people from nearby communities are brought to the demonstration plots established under Activity 2.2.2 and trained on climate-resilient land management techniques. Additionally, under Activity 2.3.6, an education programme will be established in local schools in and around the four project sites to increase awareness of the benefits of EbA. Educational materials will include media such as board games, posters, storytelling and drawing competitions. Content produced and lessons learned from education activities will be shared with the 'Angola Content' education programme, which is part of the National Environmental Education Programme (PRONEA), thereby upscaling the project's awareness-raising activities.

The activities to be implemented under Output 2.3 are:

2.3.1 Develop and/or adapt training programmes for local communities on: i) the benefits of EbA; and ii) implementing, maintaining and monitoring both EbA interventions and climate-resilient agricultural techniques; and iii) early warning response plans. Training on early warning response plans will be based in the response plans developed under Activity 1.2.6.

2.3.2 Train local government representatives on EbA and climate-resilient land management techniques.

[90] This section of the training will be developed with support from Artisanal Fisheries Institute (IPA) and the Forest Development Institute and in partnership with the patrolling and monitoring sub-committee of the community management committee.

2.3.3 Train community management committees to oversee and coordinate local community involvement in the implementation of EbA and climate-resilient land management interventions.
2.3.4 Train community management committees and local community members on early warning response plans developed in Activity 1.2.6.

2.3.5 Train local communities at each project intervention site on the implementation and maintenance of EbA interventions and climate-resilient land management techniques.

2.3.6 Host four experience-sharing events where people from nearby communities are brought to the demonstration plots established under Activity 2.2.2 and trained on climate-resilient land management techniques. Sub activities include:

- Establish an education programme in local schools on the benefits of EbA.

Output 2.4: EbA project concept notes developed for private sector upscaling of EbA interventions.

163. Under Output 2.4, EbA project concept notes will be developed to encourage private sector investment in EbA in and around Chiloango, Barra do Dande, Longa and Bero, in the Angolan coastal zone. Currently, petroleum and mining companies are contractually obliged to invest in social and environmental projects in Angola, but have very little guidance on how to invest for maximum impact. Consequently, CSI projects tend to be piecemeal and are implemented over short timescales. Consequently, the project will develop EbA concept notes to support an enabling environment for the private sector to make social investments using CSR budgets that will generate multiple social, ecological and climate change benefits. Additionally, the project will engage large public funds such as the Environment Fund to investigate potential sources of financing to fund the EbA project concept notes.

164. The EbA project concept notes will be tailored for different CSI budgets and will include *inter alia*: i) details on the vulnerability of the target sector to climate change ii) the economic rationale for investing in EbA; and iii) quantification of the social and environmental benefits of the investment. Additionally, technical details will be included in the EbA project concept notes that would enable replication of project activities, including *inter alia*: i) links to the EbA protocols developed under Output 2.1; ii) practical lessons learned by the LDCF project; iii) budgets required to upscale EbA interventions; and iv) details of suppliers and equipment in pilot sites. Where practical, upscaling of project interventions will be focussed on areas around Chiloango, Barra do Dande, Longa and Bero in order to make use of the implementation capacity of local communities developed under Output 2.3.

165. The Project Management Unit (PMU) will engage with relevant forums – such as the Petroleum Industry Steering Committee and the Environment Fund – to: i) disseminate the concept notes developed under this Output; and ii) raise awareness of the corporate social investment benefits of these projects. These engagements will include presentations and related discussions. The project concept notes will also be shared with government institutions – such as Sonangol and the ministries of Transport and Fisheries – that have large development projects planned along the coast. Dissemination of the concept notes will also be conducted under Outcome 4.1 as part of climate change awareness raising activities targeting private sector stakeholders.

The activities to be implemented under Output 2.4 are:

2.4.1. Design a long-term strategy to monitor the socio-economic and bio-physical impacts of EbA interventions.

2.4.2. Implement the monitoring strategy designed in Activity 2.4.1 to assess the impacts of EbA to provide lessons learned and best practices for upscaling EbA.

2.4.3 Collate lessons learned and best practices generated through Outcome 2 and from other national/international projects on: i) EbA interventions; ii) climate-resilient land management techniques; iii) the social and environmental benefits of these approaches; and iv) community management structures for the implementation and maintenance of these interventions.

2.4.4 Develop EbA project concept notes for private sector upscaling of EbA interventions.

2.4.5 Engage with the private sector through relevant forums to disseminate EbA project concept notes and raise awareness about the CSI benefits of such projects. Engagements will be through presentations and related discussions within relevant forums, including the Petroleum Industry Steering Committee.

Component 3: Enhanced institutional coordination and capacity for proactive adaptation in Angola.

Outcome 3: Increased inter-ministerial coordination and institutional capacity to adapt to climate change in Angola.

166. At present, the cost of climate change at a sectoral level is not well understood and the economic rationale for climate change adaptation along the Angolan coast has not been developed. Consequently, climate change is not adequately integrated into national policies, or into the plans and budgets of vulnerable economic sectors in Angola. To address this gap, an economic assessment will be conducted under Outcome 3 to quantify the economic impacts of climate change on Angola's coastal zone, disaggregated by sector. Specifically, these studies will demonstrate the cost-effectiveness of adaptation by establishing the relative cost of various adaptation responses. Based on these economic studies, cost-effective adaptation interventions for coastal areas will be recommended. The results of economic assessments will be disseminated to members of CIBAC, thereby raising awareness amongst government officials in CIBAC's member ministries of the need to plan for climate change adaptation. Policy briefs will be produced to guide the integration of climate change adaptation interventions – including EbA – into relevant policies, sectoral plans and budgets.

167. Building on the economic assessment and policy briefs, as well as the vulnerability assessments produced under Outcome 2, a coastal zone adaptation plan will be developed. This plan will build on the existing Coastal Zone Master Plan. CIBAC members and technical staff will be consulted in the development process to ensure that the coastal zone adaptation plan addresses specific sectoral concerns and supports national development objectives. This consultative approach will support the mainstreaming of the coastal zone adaptation plan into relevant sectoral, regional and national development plans and related budgets.

168. The LDCF project will also implement interventions to improve the technical functioning of the CIBAC, and thus promote inter-ministerial coordination on adaptation in Angola. An assessment will be undertaken to identify gaps in, as well as provide recommendations to strengthen, the capacity of the Secretariat of CIBAC, technical staff of member ministries, and the GAC to coordinate climate change actions. Additionally, operational and technical support will be provided to the Secretariat of CIBAC to: i) arrange regular meetings; ii) prepare agendas and contents for meetings; iii) advocate for the inclusion of climate change considerations in relevant strategies and plans based on identification of cost-effective adaptation options; and iv) raise awareness about climate change effects in the coastal zone of Angola. Moreover, technical guidelines and training will be provided to the Secretariat of CIBAC, technical staff of member ministries, and the GAC on mainstreaming adaptation into regional,

national and sectoral development plans. The Technical Advisor hired through the project will support complementarities and programmatic synergies between the LDCF project and the Cuvelai project in developing national-level capacity for climate change adaptation in Angola.

Output 3.1: Technical support and training provided to the Secretariat of the Inter-ministerial Committee for Biodiversity and Climate Change (CIBAC) and Climate Change Cabinet (GAC).

169. Under Output 3.1, the project will provide technical support and training to the secretariat of CIBAC and the GCA. An assessment will be undertaken to identify gaps, as well as provide recommendations to strengthen, the capacity of the secretariat to coordinate the climate change agenda. Additionally, operational and technical support will be provided to the secretariat to: i) arrange regular meetings of the CIBAC; ii) prepare agendas and contents for meetings; iii) advocate for the inclusion of climate change considerations in relevant strategies and plans based on identification of cost-effective adaptation options; and iv) raise awareness about climate change effects in the coastal zone of Angola. In conclusion, the LDCF project will support the secretariat to operationalise CIBAC's mandate more efficiently.

170. The LDCF project will also provide technical support to the secretariat of the CIBAC and for implementation of the National Adaptation Plan (NAP) roadmap. The NAP Global Support Programme (NAP-GSP) is currently assisting the GoA to create a NAP roadmap for Angola. A national-level training on the roadmap process was held in April 2015, but the roadmap has not yet been finalised. Support for the NAP roadmap will be required – probably in the form of training or technical input – but the actual needs of the programme are still unclear. Consequently, the nature of the support that the LDCF project will provide for implementing the roadmap will be decided on during the project inception phase.

171. The training sessions conducted under Activity 3.1.5 for the secretariat of the CIBAC and GCA will be informed by the economic assessment conducted in Activity 3.2.1. The training will strengthen the technical capacity of the CIBAC to: i) interpret the economic assessments of climate change adaptation generated under Activity 3.2.1; and ii) include consideration of the economic impacts of climate change relative to the costs of adaptation in future planning and decision-making. Consequently, training under this output will provide CIBAC members with information and technical guidance to mainstream adaptation into regional, national and sectoral development plans.

The activities to be implemented under Output 3.1 are:

3.1.1 Conduct a gap assessment of the technical capacity of the CIBAC secretariat, technical staff of 3.1.1 Conduct a gap assessment of the technical capacity of the Secretariat of CIBAC, technical staff of member ministries, and the GAC for: i) information-sharing; and ii) coordinating the climate change agenda.

3.1.2 Propose recommendations to clarify/improve the functioning of the Secretariat of the CIBAC, supporting it to operationalise the commission's mandate.

3.1.3 Provide operational and technical support to the Secretariat of CIBAC to: i) arrange regular meetings of the CIBAC; ii) prepare agendas and contents for meetings; iii) advocate for the inclusion of climate change considerations in relevant strategies and plans using an cost effectiveness argument; and iv) raise awareness about climate change effects in the coastal zone of Angola.

3.1.4 Provide technical support to the Secretariat of CIBAC and GAC for the NAP process in Angola, to support implementation of the NAP roadmap.

3.1.5 Conduct training sessions for the Secretariat of CIBAC, technical staff of member ministries, and the GAC on: i) interpreting climate change adaptation economic assessments produced under Activity 3.2.1; ii) using a cost effectiveness argument in the planning and decision making process and; iii) mainstreaming adaptation into regional, national and sectoral development plans and budgets.

Output 3.2: Policy briefs and technical guidelines produced to support the integration of climate change adaptation into relevant policies and plans, including their related budgets.

172. Under Output 3.2, the project will identify cost-effective options for adaptation, including quantification of the cost of current and future climate change to the fisheries, agriculture, water, energy and tourism sectors. This cost-effectiveness assessment will then provide costs of the various potential adaptation options relative to no adaptation response. Policy briefs will be produced, outlining specific revisions to sectoral policies such as the Master Plan for Tourism and the Artisanal Fisheries Development Plan. The economic assessments and policy briefs will be presented to sectoral ministries.

173. The vulnerability assessments produced under Outcome 2 and the economic assessments produced under Outcome 3 will inform the development of a coastal zone adaptation plan. This plan will build on the existing Coastal Zone Master Plan. Interventions will be undertaken that will support the mainstreaming of the coastal zone adaptation plan into relevant sectoral, regional and national development plans.

174. Technical guidelines for policy- and decision-makers on how to assess, plan, finance and implement climate change adaptation interventions – including EbA – will be developed. National and provincial government officials from important coastal sectors – including *inter alia* fisheries, agriculture, transport, energy, water and tourism – will be provided with training on the policy briefs and technical guidelines produced. This training will be delivered through brief workshops and will aim to increase awareness on the cost-effectiveness of the different adaptation options per sector, and provide recommendations to decision makers within the various sectors of the most cost effective adaptation option.

The activities to be implemented under Output 3.2 are:

3.2.1 Undertake and present assessments of the economic impacts of climate change on Angola's coastal zone, disaggregated by sector, to raise awareness about the need for climate change adaptation to be integrated into relevant policies/plans and related budgets. Relevant policies/plans include: i) The Strategic National Programme for Water; ii) The Tourism Mater Plan of Angola; iii) National Plan for Preparedness, Contingencies, Response and Recovery from Calamity and Disasters; and iv) The Artisanal Fisheries Development Plan (See Section 2.4). Sub-activities include:

- Identify cost-effective adaptation interventions, based on the results of the vulnerability assessment produced under Output 1.1, for coastal areas. This process will include the following process: i) a cost effectiveness assessment of the different adaptation options per sector; and ii) recommendations to decision makers within the various sectors of the most cost effective adaptation option.

3.2.2 Identify entry points at the national and provincial level for the integration of climate change adaptation interventions, including EbA, into relevant policies and sectoral budgets and propose policy revisions. Sub-activities include:

- Develop policy briefs that identify entry points at the national and provincial level for the integration of climate change adaptation interventions, including EbA, into relevant policies and sectoral budgets and propose policy revisions.
  Present economic assessments and policy briefs to sectoral ministries.

3.2.3 Develop a coastal zone adaptation plan and integrate adaptation interventions into relevant sectoral, regional and national development plans.

3.2.4 3.2.4 Develop and/or adapt technical guidelines – in English and Portuguese – for GAC, sectoral ministries (including *inter alia* fisheries, agriculture, transport, energy, water and tourism) and the CIBAC on how to assess, plan and finance climate change adaptation interventions, and integrate into the sectoral and national budgeting processes.

Outcome 4: Improved awareness about climate change impacts and adaptation among non-governmental stakeholders.

175. In Angola, there is currently limited public awareness of climate change and adaptation. Although MINAMB and the CNPCB authorities have implemented education campaigns on climate change adaptation in the country, dissemination of information on this topic is still limited. In particular, there is limited public knowledge on: i) the effects of climate change on the coastal zone; ii) potential adaptation interventions to manage these effects; and iii) the benefits of EbA for increasing the resilience of communities to climate change. Through the LDCF project, awareness-raising campaigns will be designed and implemented for the general public including NGOs, relevant private sector stakeholders and academic institutions.

176. The limited sharing of information between sectoral ministries is currently a major barrier to developing awareness about climate change impacts and adaptation. Under Outcome 4, information-sharing mechanisms – in the form of an e-library on the MINAMB website – will be established to promote sharing of relevant national and international publications. Lessons learned from the LDCF project and other national and international adaptation projects will also be shared through this e-library.

<u>Output 4.1: Public awareness programme undertaken to inform non-governmental stakeholders including NGOs, academia and private sector about climate risks and adaptation.</u>

177. Under Output 4.1, a programme will be designed and implemented to raise national and local awareness of the effects of climate change on the coastal zone of Angola, and cost-effective adaptation interventions. This awareness programme will also include *inter alia*: i) lessons learned from implementation of EbA activities at project intervention sites in Chiloango, Barra do Dande, Longa and Bero; and ii) examples of best-practices for coastal adaptation from other LDCs. This programme will target NGOs, relevant private sector stakeholders, academic institutions and the general public. In addition, the lessons learned and knowledge generated through the LDCF project will be disseminated through, but not limited to, appropriate web-based platforms – such as AAKNET and UNDP ALM – to promote national and regional knowledge sharing. Additionally, findings from research that is undertaken by national consultants to inform LDCF interventions ─ including results of coastal vulnerability and economic assessments ─ will be presented to students and academics at national institutions. In addition, representatives of businesses and commercial representative bodies will be engaged as part of the awareness raising campaigns under Outcome 4. Workshops will be held to share the results of the vulnerability and economic analysis with relevant industries, including petroleum, fisheries, agriculture and mining. At these workshops, community members from the project sites will be invited to report on their experiences of EbA and climate-resilient land

management. Additionally, a short film documenting the rehabilitation process will be shown to promote investment in the EbA concept notes.

178. The Project Management Unit will also establish and maintain a climate change e-library – and associated relationships of information sharing – as part of the MINAMB website. This e-library will include open-source adaptation materials, including *inter alia*: i) lessons learned and publications of the LDCF project; ii) academic research and papers produced by national universities; and iii) other relevant publications. In addition to specific documents, there will be a section with different links to other online libraries of NGOs and other LDCs. The e-library will support information sharing between CIBAC members and other government ministries. Additionally, it will be accessible to the general public, including students from national universities and members of the private sector. Consequently, the e-library will promote information sharing and public/private collaboration on climate change and adaptation in Angola.

The activities to be implemented under Output 4.1 are:

4.1.1 Design and implement awareness-raising campaigns for NGOs, relevant private sector stakeholders, academic institutions and the general public on: i) climate change impacts on the coastal zone; ii) potential climate change adaptation interventions; and iii) the benefits of EbA for increasing the resilience of livelihoods and communities to climate change. Sub activities include:

- Hold workshops to share the results of the vulnerability and economic analysis with relevant industries, including petroleum, fisheries, agriculture and mining. At these workshops, community members from the project sites will be invited to report on their experiences of EbA and climate-resilient land management. Additionally, a short film documenting the rehabilitation process will be shown to promote investment in the EbA concept notes.

4.1.2 Collect, codify and disseminate lessons learned and knowledge generated through the LDCF project to appropriate national and regional networks, such as Africa Adaptation Knowledge Network. Sub activities include:

- Establish and maintain a climate change e-library – and associated relationships of information sharing – as part of the MINAMB website of open-source adaptation materials, including *inter alia*: i) lessons learned and publications of the LDCF project; ii) academic research and papers produced by national universities; and iii) other relevant publications.

4.1.3 Arrange for national consultants hired through the project to present the findings of their assessments or studies – including results of coastal vulnerability and economic assessments – at local academic institutions.

3.4. Intervention logic and key assumptions

179. The activities of the LDCF project will increase the capacity of coastal communities and sectors in Angola to adapt to the observed and anticipated effects of climate change. In particular, the LDCF project will: i) increase the scientific and technical capacity of government staff to deliver relevant early warning information to climate-vulnerable coastal communities; ii) reduce vulnerability of coastal communities to climate-related changes – including increased rainfall variability – in Angola's coastal zones through pilot EbA and sustainable agriculture interventions; and iii) promote mainstreaming of adaptation into sectors and related budgets. Importantly, project interventions align with: i) the UNEP and UNDP Programmes of Work; and ii) the priorities identified in Angola's 2025 Long Term Development Strategy national strategy.

180. The project was designed in consultation with multiple local stakeholders and interventions were selected using a participatory approach. This participation of coastal communities and government institutions (Section 2.5) has promoted buy-in and ownership of relevant stakeholders at a national and local level during the PPG phase. This local support – which will be fostered throughout implementation – will enhance the long-term sustainability of the LDCF project.

181. The LDCF project interventions are considered "low-regret" or "no-regret" options. This is because they will benefit both government and coastal communities regardless of the severity of climate change. For example, expanding climate weather stations is in line with INAMET's SDMP (Outcome 1), and will support climate forecasting and provision of early warnings in pilot areas. Furthermore, design and implementation of EbA and sustainable agriculture interventions at LDCF project sites (Outcome 2) will improve human well-being by: i) increasing local food production; ii) reducing erosion through re-vegetation; and iii) increasing availability of NTFPs through mangrove and forest rehabilitation.

182. The assumptions listed below underlie the LDCF project design.

- Project activities are unlikely to be undermined by extreme climate events during implementation.
- Coastal communities at intervention sites will take ownership of activities on the ground.
- Infrastructure constructed will be safe from theft and vandalism.
- Coastal communities participating in the development and implementation of project interventions will accept additional livelihoods and land-uses proposed by the project.
- Governmental institutions will have sufficient capacity to support the project's activities.
- Sufficient national financial resources will be available to maintain the project's interventions in the long term.
- There is sufficient technical capacity to undertake the preliminary studies and to design the implementation of activities.
- Baseline project activities will be implemented as planned.
- Adaptation priorities for climate change are unlikely to be undermined by national emergencies or civil unrest.
- Large-scale infrastructural developments – that would disrupt project activities – will not take place within the project areas during project implementation.

3.5. Risk analysis and risk management measures

183. A participatory approach was adopted during the PPG phase of the LDCF project. This included the consultation of various stakeholders; national workshops and meeting with the project steering committee (see Appendix 16 for details). This approach will be continued throughout project implementation. The LDCF project will therefore engender strong support from coastal communities and government. Monitoring, re-assessing and updating the project risks will be an important task of the TA throughout project implementation. Table 3 below describes the risks that have been identified, their associated impacts and countermeasures.

Table 3. Risk matrix

	Description of risk	Potential consequences	Risk rating	Mitigation measures/proposed interventions	Risk category	Probability & Impact (1=low, 5=high)
National level risks						
1	Institutional capacity and relationships between line ministries are not sufficient to provide effective solutions to climate problems that are complex and multi-sectoral.	Multi-sectoral adaptation interventions are compromised and interventions are confined to those sectors willing to engage in cross-sectoral dialogue. The vulnerability of certain sectors and Angola as a whole to climate change is not fully addressed.	Medium	• Develop technical capacity of the CIBAC to support inter-ministerial coordination and planning around climate change adaptation. • Ensure technical representatives from all line ministries are included in the training provided to the secretariat of the CIBAC. This will increase institutional capacity within, and facilitate coordination between different ministries. • Produce sectoral vulnerability assessments for different line ministries to promote support for the LDCF project activities.	Institutional	P= 3 I= 4
2	Long- and medium-term climate change adaptation priorities undermined by national emergencies or civil unrest.	Project activities are interrupted. Natural and financial capital is lost.	Medium	• The project manager and TA will keep abreast of national events and politics to ensure knowledge of any potential disruption to project activities at intervention sites. This to allow for the timely implementation of contingency plans. Should civil unrest/national emergencies be deemed by the project manager and TA to be a direct threat to project activities at implementation sites, alternative project sites identified during the PPG phase will be considered.	Social, environmental	P= 1 I= 4
3	National financial instability due to high dependence on oil prices	Climate integration into national budgets are undermined by	High	• Strengthen advocacy efforts focused on long- and medium-term economic benefits on integration of adaptation options into national budgets and	Economic, Political	

	Description of risk	Potential consequences	Risk rating	Mitigation measures/proposed interventions	Risk category	Probability & Impact (1=low, 5=high)
		several cuttings in national budgets		communicate these to policymakers throughout. • Engage with the private sector through EbA project concept notes to promote investments outside of the national budget to sustain and upscale climate change adaptation interventions.		
4	Unclear land tenure reduces the sustainability of EbA and climate-resilient land restoration interventions.	Communities degrade restored land as they consider it individually owned.	Low	• Land that will be restored is owned by the state. The project will raise community awareness of this through training of local communities. • Ensure technical representatives from all line ministries are included in the training provided to the secretariat of the CIBAC. This will increase institutional capacity within, and facilitate coordination between different ministries, ensuring that different ministries do not plan to use restored land for alternative purposes.	Political	P= 1 I= 4
Local level risks						
5	Current climate and seasonal variability and/or hazard events prevent implementation of planned activities.	Economic loss or physical damage to infrastructure delays implementation of project activities.	Medium	• Meteorological predictions and seasonal variability at each site will be used to inform the selection of climate-resilient species and techniques to: i) assist plant growth particularly in the seedling/sapling phase; and ii) reduce risk of damage from climate-induced natural hazards. • Intervention sites will be mapped to establish the extent to which they are vulnerable to specific natural hazards. This mapping will be used to inform restoration practices and techniques. • Select EWS equipment that is resilient to climate-related risks.	Economic	P= 3 I= 3

	Description of risk	Potential consequences	Risk rating	Mitigation measures/proposed interventions	Risk category	Probability & Impact (1=low, 5=high)
6	Communities do not support interventions and do not adopt ecosystem management activities for adaptation during or after the LDCF project because of limited immediate benefits of EbA.	Unsustainable use of natural resources continues, leading to further degradation of ecosystems. Climate-resilient land management techniques are not implemented in the long term. Consequently, communities continue to be vulnerable to climate-induced natural hazards.	Medium	• Co-develop community based management plans with coastal communities to guide management activities over time. • Implement alternative livelihoods that have been deemed financially, technically and socially viable/feasible to reduce reliance on intensive land use. • Engage with community stakeholders through-out the project's implementation to strengthen their continued buy-in intothe LDCF project. • Actively involve coastal communities in project implementation through *inter alia: i)* establishing community management committees; ii) liaising with the community management committees and other community members to identify intervention sites for EbA interventions; and iii) developing and implement community-based EbA intervention management plans. • Raise public awareness on the capacity of the restored ecosystems to increase community resilience to climate change. • Foster a bottom-up, grassroots approach throughout the project's development and implementation phases. • Improve capacity building and training of the communities to improve their understanding of the	Social, environmental	P= 2 I= 3

	Description of risk	Potential consequences	Risk rating	Mitigation measures/proposed interventions	Risk category	Probability & Impact (1=low, 5=high)
				adaptation benefits of the EbA activities. • Implement activities that have direct benefits in addition to the ecosystem restoration interventions.		
7	Lack of already established implementing partners at the local level and/or low capacity level for the implementation of local interventions	Low implementation rate; Low capacity of communities engagement;	Medium	• A criteria for site selection during the PPG phase was the presence of suitable implementing partners at intervention sites, so this risk has been significantly minimized. • If local implementing partners are unable to deliver results timeously, national NGOs or partners, such as Development Workshop or ADRA, will be engaged to coordinate project interventions at the project sites.	Technical	
8	Priority interventions implemented are not found to be cost effective.	Project interventions are not upscaled for large-scale EbA programmes.	Low	• Use cost effectiveness as a core principle in the implementation of adaptation measures (EbA and EWS). • Record detailed information on cost effectiveness. Such information will be widely disseminated for use by future projects and research.	Economic	P= 1 I= 3
9	Baseline project activities not achieved as planned.	The LDCF project activities are compromised because of a lack of existing interventions upon which to build.	Medium	• Design activities that build on baseline projects but do not depend entirely on the success of the baseline projects. The activities to be implemented within the LDCF project are designed to be beneficial to the coastal communities even if they are implemented alone.	Economic	P= 3 I= 2
10	Large-scale infrastructure development – such as the Port near Barro do Dande –	Project activities are disrupted or delayed.	Medium	• The project manager and TA will work with appropriate governmental agencies to ensure prioritisation of the LDCF project in the project areas. • The PMU will coordinate with other	Institutional	P= 3 I= 4

	Description of risk	Potential consequences	Risk rating	Mitigation measures/proposed interventions	Risk category	Probability & Impact (1=low, 5=high)
	takes place within project areas.			line ministries to ensure that they are up to date on the location of planned infrastructure development. • A port is to be constructed near Barro do Dande (see site reports in Appendix 15 for further details). Based on stakeholder consultations, the port construction will be geographically removed from the LDCF project intervention sites. However, the PMU will keep track of plans for the port development and if, during the inception phase, the construction of the port is deemed to have a high risk of negatively impacting on the project activities then an alternative site may be selected.		
11	Uncontrolled settlements into the natural ecosystems.	The restoration activities are unsustainable.	High	• Raise awareness of the national and local government on this potential risk, with a focus on coastal sectors. • Raise awareness of communities on the benefits of restored natural ecosystems for adaptation and their livelihoods. • Maximise the economic benefits from sustainable natural resource management.	Social, environmental	P= 4 I= 4
12	Theft and vandalism of early warning and climate monitoring equipment.	The reliability of weather reports, forecasts, and early warnings will be compromised in pilot areas	Medium	• Hold public awareness workshops to sensitise communities on the importance of EWS infrastructure. • Involve local stakeholders in the maintenance of equipment and the collection of data. • Install fencing around equipment in high risk areas.	Social Technical	P= 1 I= 4

	Description of risk	Potential consequences	Risk rating	Mitigation measures/proposed interventions	Risk category	Probability & Impact (1=low, 5=high)
		if a significant proportion of infrastructure is no longer functional.				

3.6. Consistency with national priorities or plans

184. The project is well aligned with a wide range of national policies, strategies and legislation. Stock-taking and consultations during the PPG highlighted additional policies, strategies and plans of relevance that have been added to the project documents. For a complete list of these plans and strategies see Section 2.4 of the UNEP Project Document and Section 2.2.1 of the UNDP Project Document. The LDCF project will promote the inclusion of adaptation in both national plans and budgets through the development of technical guidelines and policy briefs under Component 3. A brief description of the main policies, strategies and plans leading development in Angola and how they relate to the proposed project is presented below.

185. **The National Adaptation Programme of Action (NAPA):** the LDCF project has been developed to address and implement priority activities outlined in Angola's NAPA (2006), including the following NAPA priorities:

- Priority 2: Promote sustainable land management (SLM) for increased agricultural yields – the project will train coastal communities and extension services on climate-resilient land management methodologies.
- Priority 6: Revise sectoral laws for proactive adaptation – the project will propose recommendations for revisions to relevant national laws, sectoral plans and associated budgets to mainstream adaptation.
- Priority 7: Create an EWS for flooding and storms – the project will be supporting the development of a functional EWS in Barra do Dande, working with INAMET and CNPCB.
- Priority 8: National institutional mechanism for adaptation planning and mainstreaming – the project will strengthen the coordination mechanism of CIBAC to encourage effective planning of adaptation interventions in coastal areas of Angola.

186. **Angola's National Biodiversity Strategy and Action Plan (NBSAP):** the LDCF project is aligned with the NBSAP because it supports the restoration and conservation of ecologically important coastal wetland ecosystems. Additionally, the NBSAP strategic objective of improved environmental education is supported through the awareness raising and community engagement interventions of the LDCF project. The climate-resilient land management interventions of the LDCF project – including sustainable agriculture interventions – will also support the NBSAP goal of sustainable biodiversity use.

187. **Angola's 2025 Long Term Development Strategy (LTDS)**: the LDCF project is aligned with the objectives of the LTDS because it reduces the vulnerability of coastal economic sectors – such as the fishery, petroleum and tourism sectors – to climate risks. Additionally, implementation of EbA and sustainable agriculture interventions in pilot coastal communities will contribute to poverty alleviation by diversifying livelihoods.

188. **Angola's Development Programme for 2012–2017 (ADP)**: the LDCF project will contribute to realising ADP priorities. In particular, food security and poverty will be addressed through the implementation of EbA and sustainable agriculture interventions. In addition, through community response plans, coastal communities will have strengthened capacity to adapt to climate-related threats such as flooding and drought. The LDCF project will also help to develop the public sector by promoting improved inter-ministerial coordination of climate change adaptation at a national level.

189. **National Development Plan 2013–2017 (NDP)**: the LDCF project will support climate-resilient economic development by: i) mapping the climate-vulnerabilities of important coastal sectors and providing suggestions for adaptation interventions; and ii) developing and disseminating

guidelines for integrating climate change adaptation into sectoral strategies and budgets to national government stakeholders.

190. **Angola's National Plan for Preparation, Contingencies, Responses and Recovery from Calamities and Natural Disasters 2009-2014**: the LDCF project will support the objectives of this plan by: i) mitigating the effects of floods, mudslides and drought on coastal communities through EbA interventions; ii) developing maps of the vulnerability of relevant sectors in coastal areas to climate change; and ii) improving the EWS system in Barra do Dande. This plan is due to be revised in 2015, and the LDCF project will advocate for the inclusion of EbA approaches as a response to climate change-induced natural disasters.

191. **The Strategic National Programme for the Water 2013–2017** is a short term framework for multi-sector investment in the water sector. It includes investment in the economic, social, environmental, legal and institutional aspects of the water sector in Angola. The main problems facing the water sector are also identified, including floods, droughts, erosion, as well as existing and potential conflicts over water use. This programme will inform the vulnerability and economic assessments conducted by the LDCF project under Components 1 and 3. The results of the vulnerability assessment will be used to advocate for the inclusion of water sector-specific adaptation options into the national programme.

192. **The Tourism Master Plan of Angola for 2011–2020** describes the potential of the domestic and international tourism industry in Angola, as well as barriers to achieving that potential. Identified barriers to the development of the tourism industry include i) inadequate infrastructure; ii) unreliable service; iii) excessive bureaucracy; and iv) lack of human capacity and trained staff in the hospitality and tourism industries. The LDCF project will support the Tourism Master Plan and the general development of the tourism industry by promoting the restoration and conservation of Angola's coastal ecosystems. These activities will increase the aesthetic beauty of Angola's coastal areas and contribute to the development of ecotourism potential. The LDCF project will also promote the inclusion of climate change adaptation options into this plan, based on the results of the tourism sector-specific vulnerability assessment, to safeguard tourism infrastructure.

193. **The Artisanal Fisheries Development Plan 2014–2017** (PDPA) aims to reduce poverty in local artisanal fishing communities. The plan also aims to enhance access to markets for fishing products from artisanal fishermen. Additionally, implementation of the plan will contribute to improving the health, education, living conditions and income of artisanal fishing communities. The LDCF project will promote the inclusion of climate change adaptation options into this plan to protect the livelihoods of vulnerable coastal communities.

3.7. Additional cost reasoning

194. The current and predicted effects of climate change will have negative effects on coastal communities and sectors, such as fisheries, agriculture, transport, energy, water and tourism. In particular, the increasing frequency and severity of extreme weather events – such as floods – are resulting in *inter alia* damage to ecosystems and infrastructure along the coastline. For example, floods in March 2015 caused damage to an estimated 1,770 homes in Viana, Cacuaco and Belas municipalities of Luanda[91]. Local and national INAMET and SNPC staff do not currently have the capacity to improve the adaptive capacity of coastal communities and sectors to climate change. In

[91] Thousands of Homes Damaged by Floods in Luanda, Angola. Davies, R., 11 March 2015, http://floodlist.com/africa/thousands-homes-damaged-floods-luanda-angola [Accessed on 16 March 2015]

particular, these institutions have limited capacity to: i) collate, analyse and disseminate climate data effectively; and ii) implement appropriate responses and interventions for adaptation.

195. The LDCF project will increase the adaptive capacity of the government and coastal communities in Angola to climate change. This will be achieved by: i) strengthening EWS in Barra do Dande; ii) implementing adaptation interventions including EbA in Chiloango, Barra do Dande, Longa and Bero; iii) strengthening technical and institutional capacity of coastal communities at intervention sites and national stakeholders (including the CIBAC) for climate change adaptation. In addition, integration of adaptation into relevant policies, plans and budgets will be promoted, thereby increasing the sustainability of Angola's economic development. A summary of the adaptation alternative and the business-as-usual scenario is represented in the table below.

Table 4: A summary of the adaptation alternative and the business-as-usual scenario

Business-As-Usual		**Adaptation alternative scenario**
Overall		
Rapid population growth – coupled with poor land use planning – and associated environmental degradation along the coast of Angola has resulted in: i) environmental risks to human wellbeing, such as floods; ii) food and livelihood insecurity; and iii) insufficient access to clean water. Climate change impacts, including increased variability in rainfall and temperature and increased frequency and severity of droughts and floods, are exacerbating these problems. While various national projects have been initiated to address these baseline problems, limited technical capacity to predict climate change impacts and assess the vulnerability of local communities to these impacts threatens the ability of these projects to achieve their social and economic development objectives. Furthermore, climate change adaptation is not integrated into the budgets and plans of sectors responsible for addressing these problems (e.g. water, agriculture and fisheries), and currently inter-ministerial capacity to respond to climate change through CIBAC[92] remains limited by operational and technical gaps. At a local level, communities living in the provinces of Cabinda, Bengo, Kwanza Sul and Namibe are currently vulnerable to non-climate related threats such as ecosystem degradation and food insecurity, which are exacerbated by climate change. Under the business-as-usual scenario, these communities do not have the technical capacity to respond to the increase to these threats caused by climate change nor understand the problems posed by climate change.	⇨	To address this problem the GoA – with support from UNEP and UNDP– will implement a climate change adaptation project in the coastal areas of Angola funded from LDCF resources The interventions of the LDCF project will strengthen the technical capacity of local and national government staff to analyse, predict and respond to the effects of climate change. In addition, the capacity of coastal communities to implement adaptation interventions – including EbA – will be strengthened... At a national level, inter-ministerial coordination and institutional capacity for adaptation will be supported through technical support and training of CIBAC. Moreover, public awareness of the effects of climate change – and appropriate adaptation interventions – will be improved through campaigns targeting NGOs, relevant private sector actors and academic institutions.
Outcome 1		
• Angola's coastal sectors – including fisheries, agriculture, transport, energy, water and tourism – are vulnerable to future climate change impacts. These impact include *inter alia* increased: i) flooding; ii) drought; iii) soil erosion; iv) sea level rise; and v) storm surges. • No vulnerability assessments have been carried out to date. • INAMET has insufficient technical capacity to: i) collect climate and hydrological data; ii) analyse the data efficiently; iii) produce	⇨	The LDCF project will strengthen technical capacity of government staff at local and national level to analyse, predict and respond to climate change effects, access policy-relevant data and deliver relevant information to coastal communities. Vulnerability assessments completed through the project will enable the government to prioritise vulnerable areas and identify appropriate adaptation options. Furthermore, through the strengthening of technical capacity and the installation of an EWS in Barro Do Dande, the LDCF project will enable INAMET to deliver

[92] Commission for Biodiversity and Climate Change (CIBAC) was established in 2012 and is attended by ministers of 7 national ministries and their technical advisors. CIBAC is tasked with providing strategic oversight related to climate change in different economic sectors.

flood early warning information products. Additionally, CNPCB and SNPC do not have the technical capacity to disseminate early warnings to coastal communities. • There is limited understanding of the effects of climate change by sectoral ministries hence climate change adaptation is not prioritised into sectoral plans and budgets.		warning to coastal communities and thereby reduce their vulnerability to climate change impacts. This outcome will be achieved through the activities below. • Conducting detailed vulnerability assessments to enhance understanding of the vulnerability of economic sectors operating in the coastal zone. • Strengthening the technical capacity of staff in INAMET, SNPC, local government at project intervention sites and the Ministries of Environment, Fisheries, Tourism and Transport to understand, interpret and replicate climate change vulnerability assessments. • Increasing the adaptive capacity of coastal communities in Barro do Dande by establishing a flood EWS. • Strengthening the technical capacity of extension officers from SNPC and other relevant local government representatives at the selected project intervention site to interpret and translate climate information into early warnings relevant for coastal communities. • Improving the preparedness of coastal communities at the selected intervention sites to respond to early warnings by developing appropriate response plans.
		Cost: US$1,500,000
Outcome 2		
• Coastal ecosystems – including mangroves and wetlands – in Chiloango, Barra do Dande, Longa and Bero are being degraded through unsustainable land use practices (e.g. clearing for agricultural land) and tree felling for construction. These degraded ecosystems are less able to provide the goods and services upon which coastal communities and sectors depend. These services include provisioning, regulatory, flood protection, cultural and recreational services. This degradation will continue to be exacerbated by the effects of climate change, which are predicted to worsen. Such effects include *inter alia* climate-related changes to hydrology and water temperature, which will further degrade the functioning and health of coastal ecosystems as a result of increased incidences of flooding, and changes in salinity. • Coastal communities lack the capacity to restore coastal ecosystems or implement climate-resilient land management techniques. These communities will therefore remain vulnerable to climate		The LDCF project will implement a suite of EbA interventions in Chiloango, Barra do Dande, Longa and Bero to restore coastal ecosystems (including mangroves and wetlands) and to increase the adaptive capacity of coastal communities. These EbA interventions will be complemented by the demonstration of climate-resilient land management techniques, which will reduce human pressure on coastal ecosystems by improving the existing livelihood options of local communities. This outcome will be achieved through the activities below. • Identifying climate-resilient and multi-use plant species for EbA interventions by undertaking biophysical, socio-economic and market assessments at each of the chosen intervention sites. • Developing protocols to guide the implementation of EbA interventions. • Improving local institutional capacity to adapt to climate change by establishing community management committees in pilot communities. These committees will oversee and coordinate community involvement in LDCF interventions.

change. • Ongoing land management projects such as FAO "*Integrating climate resilience into agricultural and agro pastoral production systems through soil fertility management in key productive and vulnerable areas using the farmers field school approach"* promote climate-resilient agriculture and the integration of related interventions into existing agricultural practices. However, no previous or ongoing initiatives implement EbA, and therefore the approach is not demonstrated in Angola's coastal areas. As a result, an understanding of the benefits of EbA among coastal communities – including those living in Chiloango, Barra do Dande, Longa and Bero – is very limited.		• Enhancing the functioning of coastal ecosystems in the four pilot communities by implementing appropriate EbA and climate-resilient agriculture interventions. These functions included increased: i) productivity of fisheries; ii) recreational opportunities for national tourism; and iii) flood attenuation capacity. • Strengthening the adaptive capacity of communities at intervention sites by: i) demonstrating climate-resilient land management techniques; and ii) training local government representatives on EbA and climate-resilient agriculture. • Promoting sustainability of adaptation interventions by developing and implementing community-based EbA intervention management plans. • Promoting upscaling and replication of EbA in Chiloango, Barra do Dande, Longa and Bero by developing EbA project concept notes. These will be disseminated to the public and private sectors through forums such as the Environment Fund.
		Cost: US$3,380,000
Outcome 3		
• CIBAC will continue to meet on an *ad hoc* basis. This will continue to result in inefficiencies in the administration of the forum such as: i) poor coordination of activities; and ii) inadequate follow up of actions and delegation of responsible parties tabled at meetings. • Ministries for fisheries, agriculture, transport, energy, water and tourism will continue to have a limited understanding of the effects of climate change on Angola's coastal zone, despite the vulnerability of these economic sectors. • National government will continue to have limited knowledge of: i) appropriate adaptation interventions for the coastal zone of Angola and ii) the cost-effectiveness of these interventions relative to each other and to no adaptation ,		The LDCF project will increase inter-ministerial coordination and institutional capacity to adapt to climate change in Angola. The project will also propose revisions to sectoral policies/strategies to integrate climate change adaptation into development planning. This outcome will be achieved through the activities below. • Strengthening national institutional capacity for adaptation by providing operational and technical support to the Secretariat of CIBAC to: i) arrange regular meetings of CIBAC; ii) prepare agendas for meetings of CIBAC; iii) advocate for the inclusion of climate change considerations into relevant policies, strategies and legalisation. • Promoting adaptation at an inter-ministerial level by providing technical support to the Secretariat of CIBAC and CCG for the NAP process in Angola. • Increasing the national capacity to access and effectively use climate finance by: i) training the Secretariat of the CIBAC and CCG on the economic impacts of climate change relative to the costs of adaptation in future planning and decision-making; ii) disseminating technical guidelines to policy- and decision-makers on how to integrate adaptation interventions, including EbA, into relevant policies and

		sectoral budgets and propose policy revisions; and iii) hosting follow-up sessions to discuss lessons learned and ensure training efficacy. • Improving understanding the ministries for economic sectors of the effects of climate change on Angola's coastal zone, disaggregated by the respective fisheries, agriculture, transport, energy, water and tourism sectors, by undertaking a vulnerability assessment. • Identifying cost-effective adaptation interventions for coastal areas. • Promoting sustainability of economic sectors on the coast by developing policy briefs that identify entry points at the national and provincial level for the integration of climate change adaptation interventions, including EbA, into relevant policies and sectoral budgets and propose policy revisions.
		Cost: US$500,000
Outcome 4		
• Vulnerable communities and the public have limited awareness and understanding of the effects of climate change and adaptation – including EbA. • MINAMB and the MININT have initiated campaigns on climate change awareness. However, there is insufficient information available on the most effective and appropriate adaptation techniques.	⇨	The LDCF project will improve awareness on climate change effects and adaptation among NGOs, private sector stakeholders and academic institutions. This will be achieved through the activities below. • Conducting an awareness-raising campaign for NGOs, private sector stakeholders, academic institutions working in the coastal zone on: i) climate change effects in Angola; ii) potential interventions for adaptation to climate change, including EbA; and iii) the benefits of EbA for increasing the resilience of livelihoods and coastal communities to climate change. • Promoting national and regional knowledge sharing on lessons learned and information generated by the LDCF project through national and regional networks, such as AAKNET. • Improving awareness of students and staff at local academic institutions through presentation of findings from lessons learned under this LDCF project.
		Cost: US$500,000

3.8. Sustainability

196. The LDCF project was developed through consultation with various stakeholders, including: i) central and local government representatives; ii) delegates of coastal economic sectors such as fisheries, agriculture, transport, energy, water and tourism; iii) NGO's; iv) UNEP and UNDP; and v) coastal communities (see site reports in Appendix 15 of the UNEP project document). Stakeholder consultations that were undertaken during the PPG phase and that will be undertaken during project implementation

will support the sustainability of interventions beyond the duration of the project by prioritising the long-term needs of coastal communities and sectors.

197. The activities of the project include a strong emphasis on capacity-building, training and institutional strengthening, particularly with respect to climate change adaptation. Stakeholders that are targeted for inclusion in the project's capacity-building activities include representatives of local and national government, the private sector, NGOs and academia. It is anticipated that the LDCF investments in strengthening the capacity of these stakeholders will support the sustainability and effectiveness of similar ongoing and future projects in Angola. Further examples of the project's capacity-building activities are detailed further below.

198. Activities that will strengthen the institutional and technical capacity for EWS in Angola, and adaptation interventions, will be undertaken by the LDCF project. This will be achieved by training relevant stakeholders on these approaches. Within Component 1, relevant representatives from government will be trained on the: i) interpretation of climate information; and ii) development of locally relevant climate forecasts and advisories (Output 1.1). This training will complement ongoing capacity building activities of the UNDP-GEF Cuvelai project, resulting in an increased number of government staff being trained on a broader range of topics. As a result, these stakeholders will have strengthened capacity to improve and sustain the EWS in Angola during and beyond the LDCF project. In particular, this strengthened capacity will enable appropriate and timeous responses to climate-related risks and implementation of appropriate adaptation interventions. Additionally, early warning response plans will be developed in consultation with communities at intervention sites, thereby supporting adaptation to climate-induced natural hazards. These communities will also be trained on planning, implementing and maintaining EbA and climate-resilient land management. As a result, these local stakeholders will have the capacity to sustain on-the-ground interventions after the LDCF project is terminated. Moreover, EbA will be designed to provide livelihood benefits for coastal communities, thereby promoting continued ownership amongst these stakeholders.

199. The proposed project will also strengthen national expertise on climate change adaptation interventions and EbA by prioritising the appointment of national consultants. International consultants will be appointed only where local expertise is limited. In such instances, national and international consultants will work together. As a result, of the collaboration between international and national consultants, the knowledge and capacity of the national consultants on international best practice for EbA and EWS will be developed and strengthened. This enhanced knowledge will promote national ownership of the project outcomes, thereby contributing to the overall sustainability of the project's benefits.

200. Within Component 3, programmes will be implemented to improve the awareness of the general public on EWS, climate change and appropriate interventions for adaptation. Moreover, information on lessons learned through the LDCF project will be disseminated through these programmes. Improved awareness of EbA and climate-resilient land management in Angola and benefits of the demonstrations that will be implemented within Component 2 will promote sustainability of these interventions.

201. Under Component 3, the strengthening of national capacities at the highest level of decision-policy-makers for the integration of climate change adaptation into relevant policies and plans will be the cornerstone for the sustainability.

202. Within the LDCF project, research will be undertaken to inform, and strengthen the evidence base for, adaptation options in Angola. This research will include: i) vulnerability assessments – including adaptation options – under Outcome 1 for coastal zones in Angola; ii) assessments on useful and climate-resilient species under Outcome 2; and iii) economic impact assessments under Outcome 3. The knowledge that is generated through this research will promote sustainability of project interventions and

may pave the way for new projects that build on them to address vulnerability issues or research gaps. Moreover, this knowledge will inform the design of future adaptation interventions in Angola. In addition, involvement of academia and students will potentially incentive new research lines at the national level in those related areas.

203. A particularly important aspect of the LDCF project's activities that will support long-term sustainability is the development of EbA concept notes under Output 2.4. These EbA project concept notes will be developed based on lessons learned through the LDCF project and will provide information on: i) the corporate social benefits of this approach; and ii) step-by-step guidelines for implementing EbA including budget requirements and details of material suppliers. Thereafter, the LDCF project will engage the private sector through forums – such as the Environment Fund – to disseminate these notes, thereby promoting public and private investment in EbA. The project will emphasise an approach that highlights the socio-economic and environmental benefits of EbA for the interest of the private sector, particularly large commercial sectors that have substantial corporate social investment budgets. The EbA project concept notes will provide a platform to engage the private sector in the funding and planning of EbA and related activities throughout Angola.

204. Importantly, the LDCF project will benefit from the UN's previous experiences in Angola, particularly the GEF LDCF project – implemented by UNDP – promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angolan's Cuvelai River Basin. The LDCF project will build on the lessons learned from this project – and other initiatives for ecosystem restoration and management – to avoid pitfalls that have been experienced.

3.9. Replication

205. The LDCF project interventions – and the benefits derived from these interventions – are designed to be replicable in other areas of Angola and in other LDCs within the region. To facilitate effective replication by Ministries such as MINAMB and MINAGRI, lessons learned and knowledge generated during the project implementation will be documented and disseminated through appropriate national and regional networks such as the Africa Adaptation Knowledge Network (Output 4.1). Additionally, knowledge and awareness-raising activities will be undertaken to improve the understanding of climate change risks and adaptation among a variety of non-governmental stakeholders including NGOs, the private sector, academia and the public. These activities will promote replication of interventions outside of project sites. Importantly, the project design is also aligned with national policies, strategies, and legislation for Angola (see Section 3.6), which will further facilitate replication.

206. The cost-effectiveness of EbA and climate-resilient land management will promote replication of these approaches amongst: i) vulnerable coastal communities who do not have access to financial capital; and ii) representatives of important economic sectors that will benefit from increased investments in EbA, such as the fisheries and agriculture sectors. Moreover, a participatory approach will be adopted throughout the LDCF project, thereby promoting ownership of interventions amongst local and national stakeholders. This ownership will support the integration of cost-effective adaptation interventions into: i) local planning (e.g. preparation of disaster response plans); and ii) sectoral strategies, budgets and plans.

207. Under Output 2.1, protocols will be developed for EbA implementation. These protocols will incorporate lessons learned and best practices from: i) ongoing ecosystem restoration projects in Angola; and ii) other EbA projects in southern Africa and coastal countries. Importantly, these protocols will contribute to the technical knowledge base on EbA in Angola, thereby facilitating replication. These protocols will be designed for particular ecosystems (i.e. coastal forests, mangroves and wetlands). Consequently, they will promote the use of EbA in similar landscapes throughout Angola in the future.

208. Scaling up of this approach will also be promoted through the EbA concept notes that will be developed for the private sector. These notes will support an enabling environment for the private sector to make social investments using CSR budgets that will generate multiple social, ecological and climate change benefits.

3.10. Public awareness, communications and mainstreaming strategy

209. The limited adaptive capacity of coastal communities in Angola to climate change is a result of inadequate: i) knowledge and awareness of climate change; and ii) implementation of adaptation strategies. Outcome 4 will address this limited awareness by undertaking tailored public programmes for local communities, NGOs and the private sector. This programme will include information on: i) current and future effects of climate change in the area; ii) the role of intact ecosystems for adapting to this change; and iii) the principles and long-term benefits of EbA and climate-resilient agriculture. Information on these topics will be disseminated through: i) radio programmes; ii) newspaper articles in national and local publications; iii) posters in public spaces, such as markets and transport hubs; iv) knowledge-sharing sessions; iv) and pamphlets that will be distributed to coastal communities in the project areas. Importantly, these programmes will use gender-sensitive messaging and will include women-focused media channels, e.g. women orientated radio programmes.

210. Public awareness of EbA will also be improved by: i) training national and local government to plan and implement EbA and climate-resilient agriculture in coastal forests, mangroves and wetlands; and ii) demonstrating the benefits of these interventions.

3.11. Environmental and social safeguards

211. The interventions to be implemented by the LDCF project will have positive environmental impacts. This is because these interventions are aimed at addressing urgent coastal adaptation needs and capacity gaps in Angola. These interventions will include: i) enhancing scientific and technical capacity for adaptation in coastal zone areas; ii) implementing pilot EbA and climate-resilient agriculture interventions in collaboration with coastal communities; and iii) enhancing the institutional coordination for proactive adaptation in Angola. The activities implemented by the project will be designed to improve environmental conditions in the short- to long-term.

212. The UNEP checklist for Environment and Social Safeguards (Appendix 9) reflects the positive environmental and social impacts of the project. The Project Manager, Technical Advisor (CTA), Monitoring and Learning Specialist and UNEP Task Manager (TM) will be responsible for overseeing adherence to these guidelines throughout the implementation of the project. This checklist will be reviewed and updated annually by the PM in conjunction with the UNEP TM.

213. All activities implemented by the project will be designed to improve environmental conditions in the short- to long-term. Consequently, none of the project activities should trigger EIAs, as verified in the PPG phase through stakeholder consultations. Nevertheless, environmental legislation will be reassessed during project inception to verify this. If necessary, assessments will be undertaken to determine the environmental effects generated by the project's interventions. In addition, mitigation measures will be undertaken to ameliorate any related negative social or environmental effects.

In 2013, the National Policy for Gender Equality and Equity was approved. The objective of this policy is discussed in Section 2.4. In accordance with this policy, gender equity – defined here as the equal participation of men and women in project activities – will be considered in each activity of the project. The proportion of women involved in the project activities will be monitored during project implementation. Stakeholder decisions relating to project activities will only be made with a sufficient

representation of women in attendance wherever possible or appropriate. The project results framework has been prepared with specific inclusion of gender-disaggregated indicators. For example, the LDCF project's awareness-raising and technology transfer activities will include at least 30% women.

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

Overview

214. The LDCF project will be implemented over a four-year period (2016–2019). UNEP and UNDP will be the GEF Implementing Agencies (IAs) for the project. UNEP will provide oversight for Component 1 and 2 (Outcomes 1 and 2) of the project. UNDP will oversee Component 3 (Outcomes 3 and 4). Two separate project documents outline the responsibilities of each agency within a common logical framework. For Components 1 and 2 the project will be nationally executed by the Ministry of Environment (MINAMB), although some specific support services may be provided by the UNDP CO on a cost-recovery basis, upon request. For Component 3, the project will be nationally executed by the Ministry of Environment (MINAMB) with UNDP Country Office (CO) direct support in line with the Standard Basic Assistance Agreement (SBAA of 18 February, 1977) and the UNDP Country Programme Action Plan (CPAP 2009–2014) signed between the UNDP and the Government of Angola.

215. Through all three components, the LDCF project will be building capacity for adaptation planning, undertaking pilot EWS and EbA interventions and developing climate change outreach and awareness raising. All of these interventions correspond with areas of work within Sub-programme 1 – Climate Change under the current UNEP Programme of Work (PoW 2014–15). Under this Climate Change Sub-programme the project will be contributing to PoW Output 2 (Technical support provided to countries to implement ecosystem-based adaptation demonstrations and supporting adaptation approaches, and to scale these up through partnerships at the regional and national levels) and Output 4 (Technical support provided to countries to address adaptation planning and reporting requirements under the Framework Convention on Climate Change), under expected accomplishment A (Ecosystem-based and supporting adaptation approaches are implemented and integrated into key sectoral and national development strategies to reduce vulnerability and strengthen resilience to climate change impacts).

216. Through Component 3, the LDCF project will be strengthening institutional capacity to address climate change. These interventions correspond with areas of work within the UNDP Strategic Plan Outcome 5, which focuses on reducing the likelihood of conflict and lowering the risk of natural disasters, including from climate change. The LDCF project will contribute to UNDP's Strategic Plan Outcome 5 and specifically to Output 5.4 (Preparedness systems in place to effectively address the consequences of and response to natural hazards).

Management structure

Executing Agency

217. MINAMB is the Executing Agency (Implementing Partner[93]) of the LDCF project. It will provide overall leadership for the project in close collaboration with: i) INAMET; ii) INARH; iii) the Ministry of Agriculture and Rural Development (MINADER); and iv) the Governments of the Cabinda, Bengo, Kwanza Sul and Namibe Provinces.

218. MINAMB will be responsible for achieving the LDCF project objective and will designate a senior official from the GAC to act as the National Project Director. His/her primary responsibility will be

[93] as per UNDP terminology

to ensure that the LDCF project produces the results specified in the project document to the required standard of quality and within the specified time and cost constraints[94]. The National Project Director will work closely with all partner institutions to link the project with complementary national programmes and initiatives. MINAMB will also designate an alternate that will act as National Project Director in his/her absence to ensure continuity.

Implementing Arrangements

219. As the **executing agency**, MINAMB will have full responsibility to support accountability, transparency, effective management and timely achievement of results.

220. The day-to-day management of the LDCF project will be the responsibility of the **Project Management Unit (PMU),** under the direct supervision of the National Project Director. The PMU will be based in Luanda and will comprise the following fulltime staff: i) National Project Manager; ii) Finance Manager; iii) Project Assistant; and iv) a Technical Advisor. The PMU will be further supported by an international Monitoring and Learning Specialist for the UNEP components.

221. A **National Project Manager** will lead the PMU. The National Project Manager will be recruited[95] on a full-time basis to coordinate the execution of the LDCF project under the guidance of the National Project Director. He/she will be accountable to the National Project Director for *inter alia*: i) the quality, timeliness and effectiveness of the interventions carried out; and ii) the transparent use of project funds[96].

222. The National Project Manager will produce **annual work plans** (with associated cash advance requests/annual budget plan)[97], to be approved by the PSC at the end/beginning of each year. These plans will provide the basis for allocating resources to planned activities. Once the PSC approves the annual work plan it will be sent to the UNEP Task Manager and UNDP Regional Technical Specialist for Climate Change[98] for clearance with respect to GEF funds. Once the annual work plan and associated cash advance requests/annual budget plan is cleared by UNEP/UNDP, GEF funds will be released.

223. The National Project Manager will manage the project in line with all work plans, and in accordance with GEF and UNEP/UNDP guidelines. In addition, he/she will deliver **quarterly progress reports** to the National Project Director, UNEP Task Manager and UNDP CO. These reports will include information on: i) the status of activities; and ii) challenges encountered on the ground during project execution. In particular, the National Project Manager will: i) provide on-the-ground information for UNEP/UNDP progress reports; ii) engage with stakeholders; iii) organise the PSC meetings; iv) provide technical support to the project, including measures to address challenges to project implementation; and v) participate in training activities, report writing and facilitation of expert activities that are relevant to the National Project Manager's area of expertise.

224. The National Project Manager will also produce[99]: i) UNDP and UNEP annual financial reports, with support from the **Financial Assistant**; ii) bi-annual progress reports and PIRs; iii) budget revisions; and iv) any other reports at the request of the PSC. These reports will summarise the progress made by the project against the expected results, explain any significant variances and detail the necessary adjustments. Consequently, they are the main reporting mechanism for monitoring project activities.

[94] within the conditions laid down by the Project Steering Committee and in line with UNEP and UNDP Policies and Procedures
[95] by MINAMB using national rules and regulations and ensuring international standards on recruitment processes
[96] The Executing Agency is also accountable for the use of LDCF project funds.
[97] under the supervision of the Project Director and with support from the rest of the PMU
[98] at the GEF Regional Coordinating Unit (RCU)
[99] under the supervision of the Project Director and with support from the rest of the PMU

225. A national **Project Administrative Assistant** will be hired by MINAMB to directly support the National Project Manager on administrative issues. In addition, a driver for the project will be recruited by MINAMB.

226. Because of the complexity of the project, a **Finance Manager** will be recruited to: i) administer the finances of the LDCF project; and ii) support and capacitate the GAC on financial matters. The Finance Manager will produce the necessary financial reports for both agencies.

227. An international **Technical Advisor** (P3) will be recruited by UNDP (on the explicit request by the GoA). He/she will be based in Luanda with regular field missions to project sites. Under the overall guidance of the UNDP Country Director and direct supervision of the Programme Specialist for Climate Change (UNDP Angola), the Technical Advisor will be responsible for providing overall technical backstopping, monitoring and operational support to the project. This Technical Advisor will be an expert on adaptation and will provide technical support to project activities and to the CCC on related matters. The Technical Advisor will also provide support to the GEF UNDP project entitled 'Promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angola's Cuvelai River Basin' (GEF ID: 5166) on a cost-sharing basis. This TA will not provide any oversight services and is considered project staff.

228. An international **Monitoring and Learning Specialist** will be recruited by UNEP for support of Components 1 and 2 – he/she will be based internationally and will support the PMU on a part-time basis. This support will include in-country missions to Angola at least twice a year. The Monitoring and Learning Specialist will support the PMU with: i) monitoring; ii) reporting; iii) knowledge sharing; and iv) adaptive management.

229. The Project Implementation Support Team will comprise of national and international experts contracted to perform specific tasks required by the project related to *inter alia* climate vulnerability, EWS and ecosystem restoration. In addition, competent organisations – such as NGOs or local consultancies – hired through a competitive process to implement EbA and climate-resilient agriculture[100] will be included in this support team.

Project Management Costs

The PMU, and the duties it will perform, is essential for the successful implementation of the LDCF project. However, the costs related to establishing this unit – including staff salaries, office rent, office equipment and communication costs – will be more than the project management costs specified in the PIF for this project. This due primarily to the high cost of living in Angola. Indeed, Luanda is consistently ranked as the most expensive city in Africa to live in[101] and has amongst the highest salary post-adjustments for any country within the UN system. Despite efforts to reduce project management costs, such as cost sharing with the GEF/UNDP Cuvelai project (GEF ID: 5166)) and finding an efficient alternative that has enabled a reduction of 50% of the office rental budget , project management costs remain high. Therefore, to ensure the successful implementation of the LDCF project management costs have been increased from 5% of the project costs to 7.2% of the project costs (US$414,000).

Project assurance

[100] in partnership with local communities in Chiloango, Barra do Danda, Longa and Bero
[101] Mercer 2014 Cost of Living Survey. http://www.mercer.com/newsroom/cost-of-living-survey.html. Accessed 16 March 2014.

230. UNEP GEF Climate Change Adaptation Unit, the Angolan UNDP Country Office and UNDP-GEF Unit will monitor the project's implementation and achievement of the project outcomes and outputs – and ensure the proper use of UNEP and UNDP GEF funds.

231. UNEP will be responsible for the recruitment of mid-term and terminal evaluators through UNEP's independent Evaluation Office, and the required follow-up. UNDP as co-implementing agency will be consulted for input and comments throughout the evaluation process.

232. As requested by the Government of Angola, the UNDP Country Office will provide the following support services for implementation of this Component 3 of the LDCF project:

- payments, disbursements and other financial transactions;
- recruitment of staff, project personnel and consultants;
- procurement of services and equipment, including disposals;
- organisation of training activities, conferences, workshops;
- travel authorization, GoA clearances ticketing and travel arrangements; and
- shipment, custom clearance and vehicle registration.

233. While the administrative and financial conditions are created for the fully national implementation by the GoA, ad hoc requests for support may be made to the UNDP CO by UNEP if deemed appropriate in order to implement the project as per the work plan, as UNEP is not based in the country. The UNDP cost recovery policy will be applied to these kind of services. Based on the Universal Pricing List, an estimate has been made of these fees and included in the project budget so that they are already accounted for.

Project Steering Committee

234. The PSC is the group responsible for making management decisions by consensus when guidance is required by the National Project Manager. This will include *inter alia* approval of project work plans and any revisions by UNEP, UNDP and the MINAMB. In order to ensure UNEP and UNDP's ultimate accountability, PSC decisions should be held to a standard of cost-effectiveness, fairness, integrity, transparency and effective international competition. Project reviews by this group will be made at designated decision points during the running of a project, or as necessary when raised by the National Project Manager.

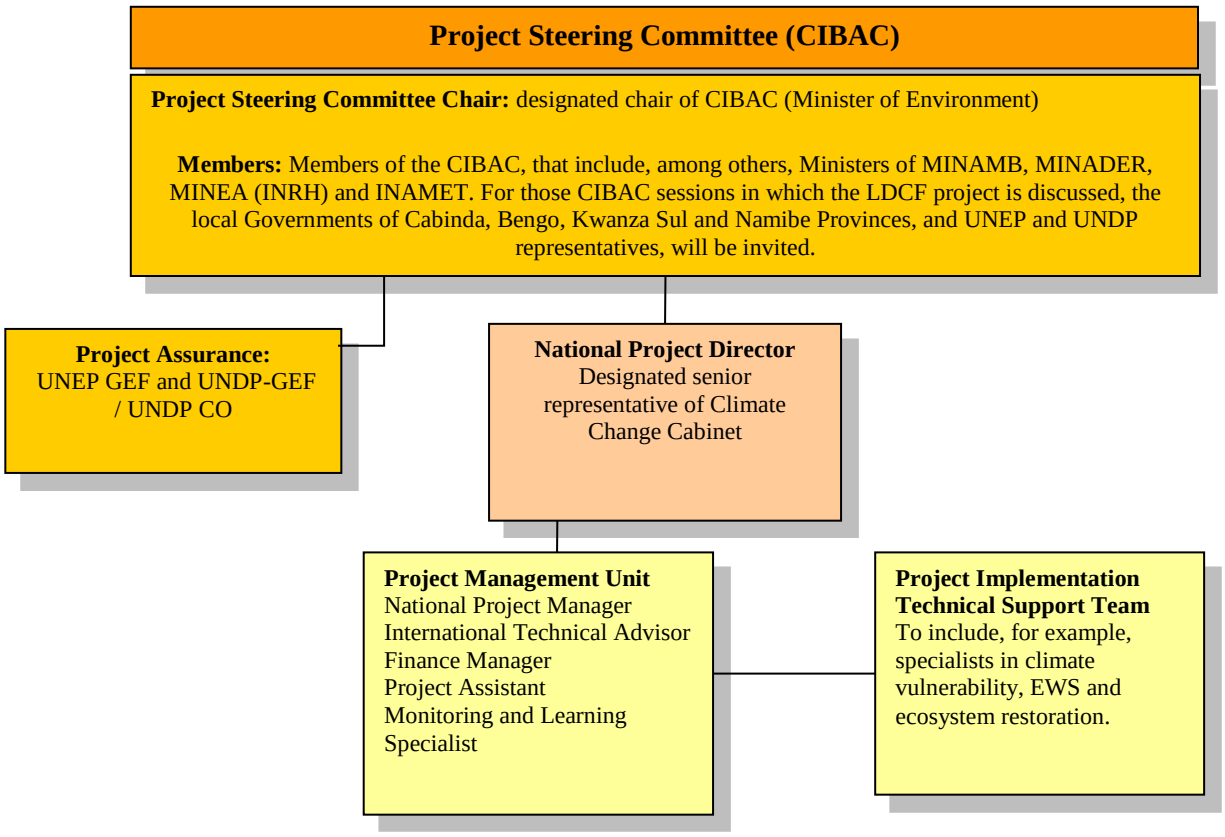

Figure 2: LDCF project management structure

235. The Inter-ministerial Commission for Biodiversity and Climate Change (CIBAC) will provide the forum for the PSC. The PSC will also be comprised of representatives from UNEP and UNDP, and local Governments of Cabinda, Bengo, Kwanza Sul and Namibe Provinces, as illustrated in Figure 2. Reasons that the CIBAC has been chosen include: i) avoiding duplication of current structures; and ii) because this forum is the highest coordination and decision-making body in relation to climate change. Representatives of other stakeholder groups may be included in the PSC, as considered necessary. The PSC will meet at least twice per annum (more often if required). Specific roles of the PSC are outlined in Appendix 11 of the UNEP project document.

Project Support Team

236. Project implementation will be supported by contractors, selected according to UNEP and UNDP procurement rules.

237. The MINAMB may contract other entities – defined as Responsible Parties – to undertake specific project tasks through a process of competitive bidding according to procurement rules and regulations of the GoA. However, if the Responsible Party is another government institution, Inter-governmental Organisation or a United Nations agency, competitive bidding will not be necessary and direct contracting will be applied. Confirmation of direct contracting will need to comply with

comparative advantage, timing, budgeting and quality criteria. If direct contracting criteria cannot be met, the activity will be open to competitive bidding.

Financial procedures

238. UNEP will provide oversight to the financial arrangements and procedures under Components 1 and 2, as per UNEP financial rules and regulations.

239. The financial arrangements and procedures for the project component 3 are governed by the UNDP rules and regulations for National Implementation Modality (NIM)[102] with UNDP CO direct support.

240. For the Component 3 and given the NIM scenario that applies in Angola, most financial transactions will be conducted through direct payment requests made by MINAMB. The National Project Manager – with support from the Project Management Unit – will prepare Request for Direct Payments and Request for Advance of Funds. These will be signed by the National Project Director (or alternate) to be sent to UNDP CO. The LDCF project will be audited in accordance with UNEP and UNDP Financial Regulations and Rules and applicable audit policies.

SECTION 5: STAKEHOLDER PARTICIPATION

241. The implementation strategy for the LDCF-financed project includes extensive stakeholder participation. Details of the stakeholder participation during the PPG phase are provided in Section 2.5 and Appendix 16 of the UNEP PD. Stakeholder engagement will be continuous throughout the project implementation phase, beginning with the project inception workshop. Stakeholders will be consulted throughout the implementation phase to: i) promote community understanding of the project's outcomes; ii) promote local community ownership of the project through engaging in planning, implementing and monitoring of the interventions; iii) communicate to the public in a consistent, supportive and effective manner; and iv) maximise complementation with other ongoing projects. CIBAC will act as forum for project managers from baseline projects and other ongoing initiatives to discuss and develop synergies their projects and the LDCF project. The participation of stakeholders per outcome is detailed in the table below.

Table 5. Stakeholder participation per outcome.

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
1.Strengthened technical capacity of government staff at local and national level to analyse, predict and respond to climate change	1.1 A set of detailed sectoral and localised vulnerability assessments for Angola's coastal zone.	MINAMB	• Climate change adaptation/ vulnerability consultancy • National Industry Experts • INAMET • MINAMB (GAC)	Overseeing: • Coastal climate change vulnerability assessment and sector specific vulnerability assessments. • Disseminated of vulnerability research within various national institutions.

[102] There are two scenarios of NIM: (a) full national implementation, in which national implementing partners directly assume the responsibility for the related output (or outputs) and carry out all activities towards the achievement of these outputs; and (b) national implementation, in which the national implementing partner assumes full responsibility for the related output(s) but where, at the request of the government, UNDP as a responsible party undertakes specific and clearly defined activities for the implementing partner.

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
effects, access policy-relevant data and deliver relevant information to coastal communities.			• Sectoral ministries • CNPCB • Academia – Agostinho Neto University	
	1.2 Operational early warning system developed in a selected project intervention site.	MINAMB	• International meteorological/ EWS specialist • Training/ community engagement consultancy • INAMET • CNPCB • INRH • Ministry of Family and Women Promotion	Coordinating: • Implementation of operational EWS developed in a selected project intervention site. • Training of decentralized CNPCB service providers, extension officers from CNPCB and other relevant local government representatives. • Development of flood early warning response plans with pilot communities. • Promoting gender sensitive training.
2. EbA technologies and climate-resilient land management techniques transferred to coastal communities in Angola to reduce their vulnerability to droughts, rainfall variability and extreme events.	2.1 A suite of EbA interventions, appropriate to local ecosystems, implemented in intervention sites in Chiloango, Barra do Dande, Longa and Bero.	MINAMB	• Implementing organisation • International EbA/ land restoration expert • Community engagement expert • Community management committees • Local fishing cooperatives, NGO groups and religious organisations • Academia – Agostinho Neto University • MINEA • MINPES	Overseeing: • EbA interventions in intervention sites. • Establishment of community management committees in pilot communities. • Development and implementation of community-based EbA intervention management plans.
	2.2 Climate-resilient land management appropriate to local conditions demonstrated in pilot communities in Chiloango, Barra	MINAMB	• Implementing organisations • International EbA/ land restoration expert • Community engagement expert • Community	Overseeing: • Implementation of a range of climate-resilient land management interventions within and around pilot communities. • Establishment of demonstration plots at each

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
	do Dande, Longa and Bero.		management committees • Local fishing cooperatives, NGO groups and religious organisations • MINEA • MINPES • IDA	project intervention site
	2.3 Pilot communities trained on EbA, climate-resilient land management, and early warning response plans.	MINAMB	• Community engagement expert • Training Consultancy • Implementing organisations • Local fishing cooperatives, NGO groups and religious organisations • MINEA • MINPES • IDA	Coordinating: • Training of coastal communities on: i) EbA and the benefits of this approach; ii) climate-resilient land management techniques; iii) methods to implement and maintain both EbA interventions and climate-resilient land management; and iv) early warning response plans. • Hosting of experience-sharing events where people from nearby communities are trained on climate-resilient land management techniques.
	2.4 EbA project concept notes developed for private sector upscaling of EbA interventions.	MINAMB	• MINAMB (GAC) • MINPET • Implementing organisations	Coordinating: • Developing of EbA project concept notes for private sector upscaling of EbA interventions. Implementing: • Engagements with the private sector through relevant forums – such as the Environmental Fund – to disseminate EbA project concept notes and raise awareness about the corporate social investment benefits of such projects.
3. Increased inter-ministerial coordination and institutional capacity to adapt to climate change in Angola.	3.1 Technical support and training provided to the Secretariat of the CIBAC and Climate Change Cabinet to improve inter-ministerial coordination and	MINAMB	• Members of the CIBAC, including, but not limited to, *inter alia*: MINAMB, MINADER, MINEA (INRH) and INAMET • Environmental economic/ policy	Overseeing: • Conducting of a gap assessment on the technical capacity, information-sharing mechanisms, institutional arrangements and coordination mechanisms of the CIBAC. • Provision of operational and technical support to the

Outcome	Output	Lead or coordinating institutions	Important stakeholders/ partners	Key responsibilities
	institutional capacity of the CIBAC.		expert • TA	Secretariat of the CIBAC
	3.2 Policy briefs and technical guidelines produced to support the integration of climate change adaptation into relevant policies and plans, including their related budgets.	MINAMB	• Environmental economic/ policy expert • TA • MINAMB (CCC) • Sectoral Ministries (related to fisheries, agriculture, transport, energy, water and tourism)	Coordinating: • Assessments of the economic impacts of climate change on Angola's coastal zone, disaggregated by sector • Development of policy briefs detailing the economic impacts of climate change in coastal areas, potential adaptation interventions.
4. Improved awareness about climate change impacts and adaptation among non-governmental stakeholders.	4.1 Public awareness programme undertaken to inform non-governmental stakeholders including NGOs, academia and private sector about climate risks and adaptation.	MINAMB	• Communications expert • TA • MINAMB • NGOs • Academia • Private sector	Overseeing: • Awareness raising campaigns for NGOs, relevant private sector stakeholders, academic institutions and the general public. • Disseminating lessons learned and knowledge generated through the project through appropriate national and regional networks.

SECTION 6: MONITORING AND EVALUATION PLAN

242. The project will be monitored through the following M& E activities. The M&E budget is provided in the table below. The M&E framework set out in the Project Results Framework in Part III of this project document is aligned with the AMAT and UNDP M&E frameworks. As described in Management Arrangements, the primary responsibility for overseeing M&E of the project's activities will reside with UNEP programme management. The project's progress towards achievement of objectives specified in the Results Framework will be measured by independent consultants reporting to UNEP Task Manager. All budgeted M&E activities, including Financial Audits, Inception Workshop, and mid-term/terminal evaluations, will be paid by UNEP.

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

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

- Assist all partners to fully understand and take ownership of the project. Detail the roles, support services and complementary responsibilities of UNDP CO and RCU staff vis-à-vis the project team. Discuss the roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff will be discussed again as needed.
- Based on the project results framework and the LDCF related AMAT set out in the Project Results Framework in Section III of this project document, and finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
- Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.
- Discuss financial reporting procedures and obligations, and arrangements for annual audit.
- Plan and schedule PB meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first PB meeting should be held within the first 12 months following the inception workshop.
- An Inception Workshop report is a key reference document and must be prepared and shared with participants to formalize various agreements and plans decided during the meeting.

245. Quarterly:

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

246. Annually:

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

- The APR/PIR includes, but is not limited to, reporting on the following:
- Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
- Project outputs delivered per project outcome (annual).
- Lesson learned/good practice.
- AWP and other expenditure reports
- Risk and adaptive management

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

249. Mid-term of project cycle: The project will undergo an independent Mid-Term Review at the mid-point of project implementation (expected to be at the beginning of 2017). The Mid-Term Review, under UNEP responsibility, will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term review will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term review will be prepared by the UNEP based on consultations with GoA and UNDP. The LDFC/SCCF AMAT as set out in the Project Results Framework in Section III of this project document) will also be completed during the mid-term evaluation cycle.

250. End of Project: An independent Terminal Evaluation, also managed by UNEP, will take place three months prior to the final PB meeting and will be undertaken in accordance with GEF guidance. The terminal evaluation will focus on the delivery of the project's results as initially planned (and as corrected after the mid-term review, if any such correction took place). The terminal evaluation will look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental benefits/goals. The Terms of Reference for this evaluation will be prepared by the UNEP based on consultations with GoA and UNDP. The LDFC/SCCF AMAT as set out in the Project Results Framework in Section III of this project document) will also be completed during the terminal evaluation cycle. The Terminal Evaluation should also provide recommendations for follow-up activities and requires a management response, which should be uploaded to PIMS and to the UNDP Evaluation Office Evaluation Resource Centre (ERC).

251. Learning and knowledge sharing: Results from the project will be disseminated within and beyond the project intervention zone through existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. The project will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future projects.

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

253. Audit: Project/component 3 (expenditures of budget under UNDP responsibility) will be audited in accordance with UNDP Financial Regulations and Rules and applicable audit policies.

SECTION 7: PROJECT FINANCING AND BUDGET

7.1. Overall project budget

Table 6. A breakdown of total project financing.

	LDCF Funds	Co-Financing	Total Costs
Total project cost (US$)	US$6,180,000	US$12 311 467	**US$18,491,467**

7.2. Project co-financing

Table 6. Breakdown of project financing by funder.

	US$	%
LDCF Funds	6,180,000	34
Co-financing		
INAMET Strategic Development Master Plan (SDMP)	6,161,467	33
Support to the Fisheries Sector Project (FSSP)	3,000,000	16
Angola Water Sector Institutional Project (PDISA)	3,000,000	16
Building capacity for coastal EbA in SIDS (UNEP)	150,000	1
Total	**18,491,467**	**100**

7.3. Project cost-effectiveness

254. The LDCF project has been designed with an inherently cost-effective approach. In particular, the project objective will: i) promote integration of climate change adaptation into development planning; and ii) enhance the resilience of communities to climate change. Cost-effective interventions that have been selected during the PPG include *inter alia*: i) establishing a pilot EWS in Barra do Dande; ii) implementing EbA and complimentary climate-resilient land management interventions in Chiloango, Barra do Dande, Longa and Bero; iii) creating EbA project concept notes to promote upscaling of EbA by the private sector; and iv) conducting a range of training and awareness-raising activities for relevant stakeholders. During the process of selecting these interventions, alternative approaches for reducing climate vulnerability of local communities at project intervention sites in Angola were considered. An evaluation of their cost-effectiveness vis-à-vis that of the interventions proposed in Section 3.3 is described below.

255. Importantly, the LDCF project includes technical training for coastal community members on implementing, maintaining and monitoring project interventions. This approach will reduce the overall cost for monitoring project activities. Moreover, it will promote sustainability of the interventions beyond the lifespan of the project

Analysis of project cost-effectiveness of adaptation alternatives

LDCF project interventions are implemented	Alternative 1	Alternative 2
Outcome 1: Strengthened technical capacity of government staff at local and national level to analyse, predict and respond to climate change effects, access policy-relevant data and deliver relevant information to local communities		
EWS is designed for Barra do Dande and piloted in this village. Evidence suggests that investments in EWS for disaster prevention are more cost-effective than spending on disaster relief[103]. In developed countries, the cost of damage from extreme weather events is estimated to be more than 10 times the cost of improved weather services to generate warnings[104]. The total benefits of investments in EWS and climate information are expected to be proportional to: i) the size of the affected population; ii) level of risk; and iii) exposure and vulnerability of infrastructure to climate-related hazards. Considering the density of vulnerable populations that live along the coast of Angola, these cost-benefits of EWS are likely to be greater than the estimated figure for developed countries. Improved access to climate information will also maximise opportunities under conditions of climate change. In particular, agriculture and fisheries sectors can use this type of data to undertake planning that promotes	No improvements are made to the national EWS Without a functional EWS, local communities and associated livelihoods and assets will remain vulnerable to the negative effects of climate change. Flooding in Barra do Dande is already negatively affecting local communities, and the risk of another extreme flood event at the river mouth will continue to increase with climate-related rainfall variability in the future. Extreme flood events have occurred in other parts of Bengo province[105]. For example, in March 2005, the city of Dondo and surrounding areas experienced heavy rains that caused overflowing of Kapacala and Kwanza Norte rivers. This resulted in flooding that caused damage to housing, agriculture and communication systems. Approximately ~1,800 buildings (including schools) were destroyed and a further 1,200 buildings were badly damaged. The GoA had to provide helicopters to assist in the evacuation of people stranded in the flooded areas, adding to the costs of flood remediation.	National-level ("blanket") capacity building is implemented to improve the national EWS Although stakeholders from INAMET, INARH and Civil Protection would benefit from national training on hydrological monitoring, forecasting and warning dissemination, this approach would be costly. Moreover, training of national stakeholders without designing village-specific EWS – that assesses the most effective means of disseminating early warnings to local communities – would undermine the effectiveness of end-to-end EWS.

[103]Healy, A. and Malhotra, N. 2009. Myopic Voters and Natural Disaster Policy. *The American Political Science Review* 103(3): 387-406.
[104]Tsirkunov, V. and Rogers, D. 2010. Costs and benefits of early warning systems. Global Assessment report on Disaster Risk Reduction. The World Bank.
[105] IFRC. 2005. Angola: Flood Interim Final Report. http://www.ifrc.org/docs/appeals/05/05ME016ifr.pdf

increased productivity.		
Outcome 2: EbA technologies and climate-resilient land management techniques transferred to coastal communities in Angola to reduce their vulnerability to droughts, rainfall variability, and extreme events		
<u>EbA and climate-resilient land management interventions are piloted in Chiloango, Barra do Dande, Longa and Bero</u> Ecosystems – including mangroves, wetland and estuaries – facilitate human adaption to climate change by acting as buffers and providing services[106]. The main benefit of mangrove and wetland restoration is reduced income wave and tidal energy through enhanced tidal dissipation in the intertidal zone[107]. Moreover, these ecosystems are capable of undergoing "autonomous" adaptation to SLR through accumulation of sediments. In addition, wetland and restoration provide multiple social and ecological benefits including: i) maintenance of soil fertility; ii) carbon sequestration; and iii) biodiversity and habitat restoration. In the long-term, these benefits will contribute to climate change mitigation. Therefore, EbA is a 'soft' proactive rather than reactive approach for addressing climate change. A growing body of scientific research indicates that increasing numbers of EbA projects will deliver favourable cost-benefit ratios	<u>Implementation of exclusively hard adaption measures for flood risk management</u> In some cases, initiatives have focused on constructing hard infrastructure[108] to protect local communities from climate-related hazards. Hard infrastructure (i.e. protection approaches) along the coast of Angola could include *inter alia* sea walls, sea dykes or groynes. These items would provide physical barriers against climate-related hazards and would reduce beach erosion. However, the cost of construction of this infrastructure is much greater than EbA. For example, the unit cost of constructing 1 km of vertical seawall is estimated to be between US$ 0.4-27.5 million[109].	<u>Relocation of communities living in environmentally high-risk areas</u> There is a risk that economic, environmental and social costs could be incurred through relocating local communities. For example, relocation to new sites could result in lost livelihoods, lost sense of community and social capital, cultural alienation. In some cases, relocation has increased the rate of poverty of the relocated community because of these aforementioned social costs[110].

[106] Jones et al. 2012. Harnessing nature to help people adapt to climate change. *Nature*. Published online: 26 June 1012. DOI: 10.1038/nclimate1463

[107] Linham, M. and Nicholls, R. 2010. Technologies for climate change adaptation: coastal erosion and flloding. TNA Guidebook Series.

[108] including sea walls, irrigation infrastructure and dams

[109] IBID

[110] World Bank. 2010. Safer homes, stronger communities: a handbook for reconstructing after natural disasters. DOI: 10.1596/978-0-8213-8045-1. Accessed on 10 April 2015.

in comparison with projects that use only hard interventions to facilitate adaptation to climate change.		
<u>EbA concept notes are developed and presented to the private sector</u> By developing and presenting EbA concept to the private sector, upscaling and replication of this approach will be promoted. Recently, it has been acknowledged that public- and donor-funded adaptation is not sufficient to meet the pressing needs of climate-vulnerable communities and sectors[111]. Therefore, a mix of funding sources for adaptation – including the private – is the most cost-effective solution in the long term.	<u>EbA interventions are upscaled through public-sector or international donor funding</u> In line with the National Adaptation Planning (NAP) process that was initiated at COP-16 (Cancun), there is a need for countries to move from immediate, isolated and project-driven adaptation to a more integrated approach that supports long-term, sustainable economic development. To advance this process, the GoA should to promote innovative financing mechanisms for adaptation. By only implementing public-sector or donor-funded adaptation, this process will be undermined.	N/A
Outcome 3: Increased inter-ministerial coordination and institutional capacity to adapt to climate change in Angola		
<u>Capacity of line ministries is strengthened to plan and implement EbA and improve EWS</u> Strengthened institutional and technical capacity of climate-vulnerable line sectors will promote sustained adaptation to climate change in Angola. In particular, through training government officials from a number of relevant line ministries, a "diffusion" effect will be promoted within these ministries, whereby knowledge and skills for climate change adaptation are transferred to staff members outside of the training sessions. This is a cost effective approach to	<u>A new inter-ministerial forum for climate change adaptation is established</u> By establishing a dedicated inter-ministerial forum for climate change, knowledge and skills for adaptation would remain isolated within a particular group of people. This would not be a cost-effective and sustainable approach to climate change adaptation in Angola. Moreover, the move towards an integrated approach to adaptation would be undermined. To establish an effective forum, a framework for the forum would need to be established, and forum	N/A

[111] SEI. 2008. Private sector finance and climate change adaptation policy brief. Available online at: http://www.sei-international.org/mediamanager/documents/Publications/Climate-mitigation-adaptation/policybrief-privatesectorfinance-adaptation.pdf. Accessed on 5 April 2015.

strengthening national and inter-ministerial capacity for adaption.	members would need to be trained. The costs of these activities would be greater than training government representatives that would remain within – and transfer knowledge and skills to – existing ministries.	
Outcome 4: Improved awareness about climate change impacts and adaptation among non-governmental stakeholders		
<u>A national awareness campaign on climate change adaptation – including EbA – is implemented</u> By implementing a national awareness for adaption to climate change, information on the effects of climate change and adaptation options will be disseminated to the general public including local communities, NGOs, relevant private sector stakeholders and academic institutions. This is the most cost-effective approach for providing this type of information to the greatest number of stakeholders at a range of levels.	<u>A new online platform for adaptation planning in Angola – including EbA – is developed</u> To disseminate information on the effects of climate change and adaptation options, a number of initiatives have established online platforms such as web portals. Although this in an effective approach to provide information that is readily available and accessible, the target stakeholders are limited to those who can access the platform (e.g. stakeholders or academics that have access to the internet). Moreover, these types of platforms are generally costly to maintain and update, requiring technical expertise. For this reason, the platforms are seldom sustained beyond the lifespan of the project.	N/A

Appendix 1: Budget by project components and UNEP budget lines

ANNEX F-1 - RECONCILIATION BETWEEN GEF ACTIVITY BASED BUDGET AND UNEP BUDGET LINE (GEF FUNDS ONLY US$)														
Project title:			Addressing urgent coastal adaptation needs and capacity gaps in Angola											Notes
Project number:			5276											
Project executing partner:			Ministry of Environment (MINAMB)											
Project implementation period:			Expenditure by project component/activity						Expenditure by calendar year					
From:	**2016**													
To:	**2019**		Outcome 1	Outcome 2	Outcome 3 + 4	PM	M&E	Total	Year 1	Year 2	Year 3	Year 4	Total	
UNEP Budget Line														
10	**PERSONNEL COMPONENT**													
	1100	**Project personnel**												
	1101	National Project Manager	54000	126000	36000			216000	54000	54000	54000	54000	216000	28, 42, 47
	1102	Project driver		72000				72000	18000	18000	18000	18000	72000	34
	1199	**Sub-total**	**54000**	**198000**	**36000**	**-**	**-**	**288000**	**72000**	**72000**	**72000**	**72000**	**288000**	
	1200	**Consultants**												
	1201	National Industry Expert - Agriculture	6000					6000	6000	-	-	-	6000	2
	1202	National Industry Expert - Fisheries	6000					6000	6000	-	-	-	6000	3
	1203	National Industry Expert - Transport	6000					6000	6000	-	-	-	6000	4
	1204	National Industry Expert -	6000					6000	6000	-	-	-	6000	5

		Environment												
	1205	National Industry Expert - Tourism	6000					6000	6000	-	-	-	6000	6
	1206	International meteorological/ EWS specialist	64000					64000	34500	29500	-	-	64000	10
	1207	INAMET technician	3000					3000	3000	-	-	-	3000	11
	1208	National EWS consultant	20000					20000	-	10000	10000	-	20000	19
	1209	International EbA/ agriculture specialist		76640				76640	46917	21473	4400	3850	76640	21
	1210	Community engagement specialist		38880				38880	14144	15552	4592	4592	38880	22
	1211	Monitoring and learning specialist		153000				153000	39500	39500	37000	37000	153000	31
	1212	International Technical Advisor			471074			471074	117769	117769	117769	117767	471074	37
	1213	International Adaptation economics/ Policy Expert			90000			90000	7500	37500	32000	13000	90000	39
	1214	National Adaptation economics/Policy			35000			35000	-	25000	10000	-	35000	39

		Expert												
	1299	**Sub-total**	**117000**	**268520**	**596074**	**-**	**-**	**981594**	**293330**	**296294**	**215761**	**176209**	**981594**	
	1300	**Administrative Support**												
	1301	Finance Manager	42000			126000		168000	42000	42000	42000	42000	168000	15
	1302	Project Assistant				72000		72000	18000	18000	18000	18000	72000	49
	1399	**Sub-total**	**42000**	**-**	**-**	**198000**	**-**	**240000**	**60000**	**60000**	**60000**	**60000**	**240000**	
	1600	**Travel on official business**												
	1601	Travel to EWS sites	3000					3000	1800	1200	-	-	3000	13
	1602	Travel for EbA		31680				31680	7920	7920	7920	7920	31680	36
	1603	Travel for TA			20000			20000	5000	5000	5000	5000	20000	46
	1699	**Sub-total**	**3000**	**31680**	**20000**	**-**	**-**	**54680**	**14720**	**14120**	**12920**	**12920**	**54680**	
1999	**Component total**		**216000**	**498200**	**652074**	**198000**	**-**	**1564274**	**440050**	**442414**	**360681**	**321129**	**1564274**	
20	**SUB-CONTRACT COMPONENT**													
	2100	**Sub-contracts (MOUs/LOAs for cooperating agencies)**												
	2101							-					-	
	2199	**Sub-total**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
	2200	**Sub-contracts (MOUs/LOAs for supporting organizat**												

		ions)												
	2201	National academics		60000				60000	-	20000	20000	20000	60000	30
	2299	**Sub-total**	**-**	**60000**	**-**	**-**	**-**	**60000**	**-**	**20000**	**20000**	**20000**	**60000**	
	2300	**Sub-contracts (for commercial purposes)**												
	2301	Vulnerability assessment consultancy	350000					350000	200000	150000	-	-	350000	1
	2302	Chiloango - professional fees and associated costs		170000				170000	37000	49000	42000	42000	170000	23
	2303	Barra do Dande - professional fees and associated costs		155000				155000	31000	52000	36000	36000	155000	24
	2304	Longa - professional fees and associated costs		165000				165000	30000	55000	40000	40000	165000	25
	2305	Bero - professional fees and associated costs		165000				165000	30000	55000	40000	40000	165000	26

	2306	Communications company			80000			80000	-	30000	40000	10000	80000	42
	2307	Audio Visual and Print Production Costs Outcome 3			30000			30000	-	-	15000	15000	30000	41
	2308	Audio Visual and Print Production Costs Outcome 4			88926			88926	11500	24426	26500	26500	88926	43
								-					-	
	2399	**Sub-total**	**350000**	**655000**	**198926**	**-**	**-**	**1203926**	**339500**	**415426**	**239500**	**209500**	**1203926**	
2999	**Component total**		**350000**	**715000**	**198926**	**-**	**-**	**1263926**	**339500**	**435426**	**259500**	**229500**	**1263926**	
30	**TRAINING COMPONENT**													
	3200	**Group training**												
	3201	Training on vulnerability assessments	28000					28000	-	28000	-	-	28000	7
	3202	Training for extension officers and agro-meteorological services	50000					50000	-	25000	25000	-	50000	18
	3203	Training for EbA		86000				86000	8800	23600	23600	30000	86000	27
	3204	Training, workshops and			55000			55000	-	-	25000	30000	55000	40

		conferences under Outcome 3.												
	3205	Training, workshops and conferences under Outcome 4.			60000			60000	15000	15000	15000	15000	60000	44
	3299	**Sub-total**	**78000**	**86000**	**115000**	**-**	**-**	**279000**	**23800**	**91600**	**88600**	**75000**	**279000**	
	3300	**Meetings/ Conferences**												
	3301	Presentations for vulnerability assessments	24000					24000	-	24000	-	-	24000	9
	3302	Consultations for community response plans	12000					12000	-	6000	6000	-	12000	20
	3303	Community management committee meeting costs		20000				20000	5000	5000	5000	5000	20000	29
	3399	**Sub-total**	**36000**	**20000**	**-**	**-**	**-**	**56000**	**5000**	**35000**	**11000**	**5000**	**56000**	
3999	**Component total**		**114000**	**106000**	**115000**	**-**	**-**	**335000**	**28800**	**126600**	**99600**	**80000**	**335000**	
40	**EQUIPMENT AND PREMISES COMPONENT**													

	4100	**Expendable equipment**												
	4101	Communication materials for vulnerability assessments	18000					18000	-	18000	-	-	18000	8
	4102	Printing costs for EWS communication	15000					15000	5000	5000	5000	-	15000	16
	4103	Office rental				96000		96000	24000	24000	24000	24000	96000	51
	4104	Office equipment				30000		30000	20000	10000	-	-	30000	53
	4105	Telecommunications cost	22000			26000		48000	12000	12000	12000	12000	48000	50
	4199	**Sub-total**	**55000**	**-**	**-**	**152000**	**-**	**207000**	**61000**	**69000**	**41000**	**36000**	**207000**	
	4200	**Non-expendable equipment**												
	4201	Climate and hydrological monitoring equipment	726000					726000	726000	-	-	-	726000	14
	4202	Climate and hydrological monitoring transmission	107000					107000	-	107000	-	-	107000	17

		equipment												
	4203	Chiloango - equipment and EbA inputs		530000				530000	106000	212000	106000	106000	530000	23
	4204	Barra do Dande - equipment and EbA inputs		280000				280000	56000	112000	56000	56000	280000	24
	4205	Longa - equipment and EbA inputs		400000				400000	80000	160000	80000	80000	400000	25
	4206	Bero - equipment and EbA inputs		400000				400000	80000	160000	80000	80000	400000	26
	4207	Management plan inputs		80800				80800	20200	20200	20200	20200	80800	30
	4208	Project vehicle		50000				50000	12500	12500	12500	12500	50000	33
	4299	**Sub-total**	**833000**	**1740800**	**-**	**-**	**-**	**2573800**	**1080700**	**783700**	**354700**	**354700**	**2573800**	
4999	**Component total**		**888000**	**1740800**	**-**	**152000**	**-**	**2758800**	**1141700**	**852700**	**395700**	**390700**	**2780800**	
50	**MISCELLANEOUS COMPONENT**													
	5100	**Operation and maintenance of equipment**												
	5101	Vehicle maintenance		20000				20000	5000	5000	5000	5000	20000	35
	5199	**Sub-total**	**-**	**20000**	**-**	**-**	**-**	**20000**	**5000**	**5000**	**5000**	**5000**	**20000**	
	5200	**Reporting costs**												

	5201	Project Steering Committee Meetings					8000	8000	2000	2000	2000	2000	8000	
	5202	Inception and closure workshop					7000	7000	3500	-	-	3500	7000	
								-					-	
	5299	**Sub-total**	**-**	**-**	**-**	**-**	**15000**	**15000**	**5500**	**2000**	**2000**	**5500**	**15000**	
	5300	**Sundry**												
	5301	Miscellaneous				2000		2000	500	500	500	500	2000	52
	5302	UNDP Cost Recovery Charges				62000		62000	15500	15500	15500	15500	62000	54
	5303	Professional service - Audit fees			12000			12000	3000	3000	3000	3000	12000	55
	5399	**Sub-total**	**-**	**-**	**12000**	**64000**	**-**	**76000**	**19000**	**19000**	**19000**	**19000**	**76000**	
	5400	**Hospitality and entertainment**												
	5401							-					-	
	5499	**Sub-total**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	
	5500	**Evaluation**												
	5501	Baseline evaluation					35000	35000	35000	-	-	-	35000	
	5502	Mid-term evaluation					35000	35000	-	35000	-	-	35000	
	5503	Final evaluation					35000	35000	-	-	-	35000	35000	
	5504	Audit					20000	20000	5000	5000	5000	5000	20000	
	5599	**Sub-total**	**-**	**-**	**-**	**-**	**125000**	**125000**	**40000**	**40000**	**5000**	**40000**	**125000**	
5999	**Component total**		**-**	**20000**	**12000**	**64000**	**140000**	**236000**	**69500**	**66000**	**31000**	**69500**	**236000**	

99	**GRAND TOTAL**		**1568000**	**3080000**	**978000**	**414000**	**140000**	**6180000**	**2019550**	**1923140**	**1146481**	**1090829**	**6180000**	

Budget notes		
#	**Description**	**Activities and Notes**
Component 1		
1	Vulnerability assessment consultancy	<u>This consultancy will:</u> **1.1.1.** Undertake a vulnerability assessment on coastal climate change. This assessment will include: i) desktop analysis of existing climate and vulnerability data; and ii) GIS-based analysis; iii) participatory analysis. $150 000 **1.1.2.** Develop related sector-specific vulnerability assessments, with input from national industry experts and best-practice adaptation recommendations tailored to each sector. $150 000 **1.1.3.** Coordinate and conduct vulnerability assessment training (excluding venue and catering costs) $30 000 **1.1.4.** Oversee the dissemination of the results of the coastal zone and sector-specific vulnerability assessments (including working with site developers to produce interactive vulnerability maps) $20 000 This lump sum will include all data acquisition costs, travel or other costs incurred.
2	National Industry Expert - Agriculture	**1.1.2.** This consultant will be an expert on climate change impacts to the agriculture sector and will provide sector-specific information to the agriculture sector vulnerability assessment. 15 days @ $400/day = $6 000.
3	National Industry Expert - Fisheries	**1.1.2**. This consultant will be an expert on climate change impacts to the fisheries sector and will provide sector-specific information to the fisheries sector vulnerability assessment. 15 days @ $400/day = $6 000.
4	National Industry Expert - Transport	**1.1.2.** This consultant will be an expert on climate change impacts to the transport sector and will provide sector-specific information to the transport sector vulnerability assessment. 15 days @ $400/day = $6 000.
5	National Industry Expert - Environment	**1.1.2**. This consultant will be an expert on climate change impacts to the environmental sector and will provide sector-specific information to the environmental sector vulnerability assessment. 15 days @ $400/day = $6 000.
6	National Industry Expert - Tourism	**1.1.2**. This consultant will be an expert on climate change impacts to the tourism sector and will provide sector-specific information to the tourism sector vulnerability assessment. 15 days @ $400/day = $6 000.
7	Training on vulnerability assessments	**1.1.3.** Training of 1-3 relevant representatives (at least 15 representatives in total per training event) from INAMET, MINAMB, CCC, Sectoral ministries and Civil Protection on climate change and vulnerability assessments. Each training session will span 2-3 days. @ $7000 per training including travel assistance, breakfast and lunch x 4 training sessions. This training sessions will be held in Luanda. The training sessions will include a session on vulnerable groups – including women. 10% of this training budget will be allocated to this session.
8	Communication materials for vulnerability assessments	**1.1.4** Dissemination of the results of the vulnerability assessments. Rollup posters: $300 per poster x 20 (2 for each sectoral ministry, INAMET, Civil Protection and CCC) = $6 000 Development of integrated vulnerability map: $12 000 for web development fees.
9	Presentations for vulnerability assessments	**1.1.4** Presentations to publicise the results of the vulnerability assessments. 6 presentations @ $4000 per event = $24 000. There will be 1 general presentation/workshop to showcase the results of the vulnerability assessment to a broad range of stakeholders, and 5 sector-specific presentations/workshops (for the agriculture, fisheries, transport, environment and tourism sectors).

10	International meteorological/ EWS specialist	This consultant will conduct an equipment assessment, identify and assess sites for the installation of equipment and procure, install and test equipment. He/she will help to set up the technical aspects of an appropriate communication system to transmit meteorological and hydrological information to INAMET and INARH, and transfer flood and drought early warnings from INAMET Forecasting Centre and INARH Flood Forecasting Centre to relevant local authorities. Finally, this consultant will prepare training material for agro-met service providers and extensions officers from SNPCB on interpretation of climate information and translation into locally relevant climate forecasts and advisories. **1.2.1** 10 days in total. (10 DSA@ DSA $250/day, 1 flight @$2500) **1.2.2.** 10 days in total. (10 DSA@ DSA $250/day) **1.2.3** 20 days in total. (20 SA@ DSA $250/day) **1.2.4.** 20 days in total. (20 SA@ DSA $250/day, 1 flight @$2500) **1.2.5.** 20 days in total (80 days total @ $550/day; 60 days in-country @ DSA $250/day; 2 flights @ $2 500 /flight).
11	INAMET technician	This technician will be an employee of INAMET and will assist the International meteorological/ EWS specialist to identify sites for the installation of weather stations and hydrological equipment. 10 days @ $300/day
12	National Project Manager	National Project Manager (@ $4500 per month) costs under Outcome 1.
13	Travel to EWS sites	Travel costs for project team to visit the and assess the EWS equipment installation sites. $600 per visit x 5 visits.
14	Climate and hydrological monitoring equipment	• Install and test 5 Automatic Weather Stations (AWS) and at least 5 rainfall gauges complete with remote data transmission and archiving with display systems at the identified installation sites; Procure 1 spare Automatic Weather Stations (AWS) and 2 spare rainfall gauges complete with remote data transmission and archiving with display systems; Procure and operationalise 1 mobile AWS for sensor's field calibration; integrating existing AWS and interfacing to INAMET central data collection and storage system; Install and test 4 automatic river gauging stations and 4 manual water level stations at the identified installation sites, complete with remote data transmission and archiving with display systems at INAMET, Civil Protection and INARH; Procure 1 spare automatic river gauging stations and 1 spare manual water level stations; Procure and operationalise 1 mobile Hydromet Automatic Station (HAS) for sensor's field calibration. $666 000. • Installation and construction costs for 5 AWS, 5 rainfall gauges, 4 automatic river gauging stations and 4 manual water level stations. $50 000. • Install and test 4 automatic river gauging stations and at least 4 manual water level stations, complete with remote data transmission and archiving with display systems at INAMET, Civil Protection, INARH, Provincial Government and relevant municipal and communal administrations. • 5 VHF-U systems and/or Advanced powerful Walky Talky systems (50km range or plus via retransmitters) using open UHF radio frequencies for data transfer from AWS. @$5 000 each = $25 000. • Stabilise power at 5 AWSs through the provision of dry cells, upgrading solar panels, and batteries. @$5 000 each = $25 000.
15	Finance Manager	The Finance manager will oversee the procurement of all of the climate and hydrological monitoring equipment. Finance Manager (@ $4500 per month) costs under Outcome 1.
16	Printing costs for EWS communication	Editing, printing and publishing protocols, handbooks, policy and information briefs, and/or guidelines

17	Climate and hydrological monitoring transmission equipment	• Telecommunications infrastructure including computers, computer servers and software, radiotelephones, portable telephones, GSM/GPRSGSM/GPRS modems and other equipment for internet access. $72 000 • Communication Facility Radio Transceiver and supporting two way radios. $25 000. • Procure equipment (hardware and software) and ensure connectivity (internet modems and access) for 4 modern forecasting workstations to support INAMET/INARH at project intervention site. @$3 000 each = $12 000
18	Training for extension officers and agro-meteorological services	**1.2.5.** Facilitate in-service capacity programme for at least 15 decentralized agro-met service providers, extension officers from SNPCB and other relevant local government representatives at the selected project intervention site to be trained on interpreting climate information and translating it into locally relevant climate forecasts and advisories. These trainees will function as managers of the Flood Forecasting and Early Warning issuing, dissemination and response actions. 2 sets of in-service training @$25 000 each.
19	National EWS consultant	**1.2.6.** The consultant will develop flood and drought early warning response plans with pilot communities in the selected project intervention sites. This lump sum will include all material costs, travel or other costs incurred.
20	Consultations for community response plans	**1.2.6. 4** x training/consultation sessions with community @ $3000 per session, including, venue, breakfast and lunch. These training/consultations will be held at the project site, and will be used to develop flood community response plans, in consultation with local government officials and community management structures. This total cost also includes budget for transporting participants to the venue if necessary.
Component 2		
21	International EbA/ agriculture specialist	<u>This consultant will:</u> **2.1.1** Undertake a biophysical, socio-economic and market assessments at each project site. Total cost $10 073 **2.1.2** Identify species for EbA interventions. Total cost $10 073 **2.1.3.** Develop protocols to guide implementation of EbA interventions. Total cost $10 073 40 days in total **2.1.4**. Support the National Project Manager to identify and contract organisations to implement interventions at each of the 4 pilot sites. Total cost = $3 825 **2.2.1**. Identify the appropriate climate-resilient agriculture techniques to be implemented in each site. 16 days in total = $12 873 **2.1.8.** Collaborate with the Community Engagement Expert and community management committees to develop community-based EbA intervention management plans. 28 days in total = $21 473 **2.4.3**. Collaborate with the Community engagement specialist and contractors to collate lessons learned and best practices at the end of the process. 7 days in total = $3 850 **2.4.4.** and **2.4.5** Develop EbA project concept notes for private sector upscaling of EbA interventions in collaboration with the Community Engagement Expert and the TA. 8 days in total = $4 400 Total travel costs are included in the above figures. (104 days @ $550/day; 52 days in-country @ DSA $250 day; 2 international flights @ $2 500 /flight, local flights - Cabinda $320 x 2 and Namibe $400 x 2) DSA depends on the site of the EW intervention. Have selected Cabinda DSA as a guideline: http://apps.who.int/bfi/tsy/PerDiem.asp

22	Community Engagement specialist	<u>This consultant will:</u> **2.1.5.** Collaborate with contractors to establish community management committees in pilot communities. 30 days in total = $12 000 **2.1.6.** Liaise with the community management committees and EbA expert to identify pilot sites for EbA interventions. 20 days in total days in total = $8 000 **2.1.8.** Collaborate with EbA expert and community management committees to develop community-based EbA intervention management plans. 30 days in total = $12 000 **2.4.3.** Collaborate with EbA expert and contractors to collate lessons learned and best practices at the end of the process. 5 days in total = $2 000 **2.4.4.** Develop EbA project concept notes for private sector upscaling of EbA interventions in collaboration with the International EbA/ agriculture specialist and the TA. 5 days in total = $2 000 Total travel costs = $2880 (split over 2.1.5, 2.1.6, 2.1.8 = $960 each) 90 days @ $400/day; local flights - Cabinda $320 x 4 and Namibe $400 x 4
23	Consultancy sub-contracts for EbA and climate-resilient land restoration in Chiloango (Cabinda)	**2.1.7**. Implement appropriate EbA interventions. Professional fees and associated costs = $135 000 and Equipment and EbA inputs = $450 000 Interventions under 2.1.7 will include *inter alia:* • Conduct an Environmental Impact Assessment, if required, for the proposed EbA and climate-resilient land restoration activities in Chiloango ($20,000). • Establish a community-lead nursery for climate-resilient plant species identified in Activity 2.1.2. • Restore 400 ha of degraded wetlands using labour from local communities. • Assess the wetland ecosystem and create a cost effective strategy for its restoration in consultation with the community management committee. • Restore the wetland using workers from local communities. Activities will include inter alia: i) digging of new water channels; ii) clearing of existing water channels; and iii) planting with climate-resilient species to stabilise banks. **2.2.2.** Establish demonstration plots at each project intervention site to demonstrate climate-resilient agricultural techniques. Professional fees and associated costs = $10 000 and Equipment and EbA inputs = $20 000 **2.2.3.** Implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. Professional fees and associated costs = $25 000 and Equipment and EbA inputs = $60 000 **2.4.3.** Collaborate with the Community engagement specialist and contractors to collate lessons learned and best practices at the end of the process. Professional fees and associated costs include: restoration design, management and administration. Equipment and EbA inputs include: procurement and payment for goods and services including planting equipment and uniforms; wages for community labour; and hard costs of establishing nurseries and demonstration plots.

24	Consultancy sub-contracts for EbA and climate-resilient land restoration in Barra do Dande (Kwanza Sul)	**2.1.8**. Implement appropriate EbA interventions. Professional fees and associated costs = $100 000 and Equipment and EbA inputs = $150 000 Interventions under 2.1.7 will include inter alia: • Conduct an Environmental Impact Assessment, if required, for the proposed EbA and climate-resilient land restoration activities in Barro do Dande ($20,000). • Establish a community-lead nursery for climate-resilient plant species identified in Activity 2.1.2. • Restore 10 ha of degraded wetlands in Barra do Dande using labour from local communities. **2.2.2.** Establish demonstration plots at each project intervention site to demonstrate climate-resilient agricultural techniques. Professional fees and associated costs = $10 000 and Equipment and EbA inputs = $20 000 **2.2.3**. Implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. Professional fees and associated costs = $25 000 and Equipment and EbA inputs = $60 000 **2.4.3.** Collaborate with the Community engagement specialist and contractors to collate lessons learned and best practices at the end of the process. Professional fees and associated costs include: restoration design, management and administration. Equipment and EbA inputs include: procurement and payment for goods and services including planting equipment and uniforms; wages for community labour; and hard costs of establishing nurseries and demonstration plots.
25	Consultancy sub-contracts for EbA and climate-resilient land restoration in Longa (Kwanza Sul)	**2.1.9.** Implement appropriate EbA interventions. Professional fees and associated costs = $115 000 and Equipment and EbA inputs = $300 000 Interventions under 2.1.7 will include *inter alia:* • Conduct an Environmental Impact Assessment, if required, for the proposed EbA and climate-resilient land restoration activities in Longa ($20,000). • Establish a community-led nursery for climate-resilient plant species identified in Activity 2.1.2. • Restore 41 ha of degraded wetland in Longa using labour from local and nearby communities. • Assess the wetland ecosystem and create a cost effective strategy for its restoration in consultation with the community management committee. • Restore the wetland and riverine area using workers from local communities. Activities will include inter alia: i) digging of new water channels; ii) clearing of existing water channels; and iii) planting with climate-resilient species to stabilise river banks. **2.2.2.** Establish demonstration plots at each project intervention site to demonstrate climate-resilient agricultural techniques. Professional fees and associated costs = $10 000 and Equipment and EbA inputs = $20 000 **2.2.3.** Implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. Professional fees and associated costs = $45 000 and Equipment and EbA inputs = $110 000 **2.4.3**. Collaborate with the Community engagement specialist and contractors to collate lessons learned and best practices at the end of the process. <u>Professional fees and associated costs include</u>: restoration design, management and administration. <u>Equipment and EbA inputs include:</u> procurement and payment for goods and services including planting equipment and uniforms; wages for community labour; and hard costs of establishing nurseries and demonstration plots.

26	Consultancy sub-contracts for EbA and climate-resilient land management in Bero (Namibe)	**2.1.10.** Implement appropriate EbA interventions. Professional fees and associated costs = $115 000 and Equipment and EbA inputs = $300 000 Interventions under 2.1.7 will include *inter alia*: • Conduct an Environmental Impact Assessment, if required, for the proposed EbA and climate-resilient land restoration activities in Bero ($20,000). • Assess the estuary, wetland and river ecosystem and create a cost effective strategy for its restoration in consultation with the community management committee. • Restore 110ha of wetland (including riverine) areas using workers from local communities. Activities will include inter alia: i) digging of new water channels; ii) clearing of existing water channels; and iii) planting with climate-resilient species to stabilise river banks. • Restore estuarine areas using workers from local communities. Activities will include inter alia digging of new water channels, clearing of silt and sediment, removal of litter and detritus. **2.2.2.** Establish demonstration plots at each project intervention site to demonstrate climate-resilient agricultural techniques. Professional fees and associated costs = $10 000 and Equipment and EbA inputs = $20 000 **2.2.3.** Implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. Professional fees and associated costs = $40 000 and Equipment and EbA inputs = $80 000 **2.4.3**. Collaborate with the Community engagement specialist and contractors to collate lessons learned and best practices at the end of the process. Professional fees and associated costs include: restoration design, management and administration. Equipment and EbA inputs include: procurement and payment for goods and services including planting equipment and uniforms; wages for community labour; and hard costs of establishing nurseries and demonstration plots.
27	Training for EbA	**2.3.1.** Development of training programmes and related materials for 2.3.2, 2.3.3 and 2.3.4 : 30 days in total x $300 p/d = **total cost $9 000** **2.3.2.** 4 x training for local government representatives on EbA and climate-resilient land management: 4 x (1 training day @ 600 (2 trainers) + 3000 for local venue and catering) = **total cost $14 400** **2.3.3.** 4 x training for community management committees on EbA and climate-resilient land management: 4 x (1 training day @ 600 (2 trainers) + 3000 for local venue and catering) = **total cost $14 400** **2.3.4.** 4 x training for community management committees on EWS: 4 x (1 training day @ 600 (2 trainers) + 3000 for local venue and catering) = **total cost $14 400** **2.3.5.** 4 x training for community management committees on maintenance of EbA and climate-resilient land management:4 x (1 training day @ 600 (2 trainers) + 3000 for local venue and catering) = **total cost $14 400** **2.3.6** 4 x experience sharing events: 4x (500 for transport costs, 600 for facilitators/ trainers (2 trainers), 500 for educational material printing) = **total cost $6400** Production of detailed training reports, with recommendations, for all trainings - **total cost $5 000** Where no local venue is available, a gazebo should be rented to accommodate the trainees. Where trainees require transport to a central location for training, budget for this should be taken out of the venue fee and a venue chosen accordingly. Lump sum for transport (should cover 4 trips or 2 trainers to all project sites to conduct training) = **total cost $8000** The project will ensure that at least 30% of people trained on EbA and climate-resilient

		land management are women. Therefore 30% of this budget is allocated towards the training of women specifically.
28	National Project Manager	National Project Manager (@ $4500 per month) costs under Outcome 2. The PM role will include recruitment of consultancies to manage EbA and climate-resilient land management.
29	Community management committee meeting costs	An allowance to be used as needed for transport of community members, token venue hire (small meeting would ideally be hosted in someone's home or a free local venue), stationary/printing costs, and catering. 4 meetings per year @ $1000 per meeting x 4 years = **$20 000**
30	Management plan inputs	This is an annual stipend for carrying out activities identified in the community management plan. These interventions are likely to include inter alia: - Facilitated market access for NTFPs from EbA interventions and crops produced from climate-resilient agriculture = $52 000 - $150 p/m for each community management committee for patrols of restored land = $7 200 x 4 years = $28800
31	Monitoring and learning specialist	The monitoring and learning specialist will be responsible for offering technical advice and support to the project unit, local and international consultants. 60 days @ $550/day; days per year = $33 000 x 4 years = $132 000 24 days in-country @ DSA $250 = $6 000 6 international flights @ $2 500 /flight = $15 000
32	National academics	Contract for national academic team to visit project sites twice annually in year 2, 3 and 4 and document the progress of EbA and climate-resilient land management interventions. Outputs of this contract will include: I) detailed reports of project progress; and ii) peer reviewed publications related to LDCF interventions across the various areas. Lessons learned from this M&E process will be integrated into **2.4.2.** $20 00 per year over 3 years = $60 000
33	Project vehicle	Under Component 2 the project vehicle will be used for site visits of TA and PM to Bingo and Kwanza Sul.
34	Project driver	Under Component 2 the project driver will drive the TA and PM interventions sites in Bingo and Kwanza Sulk, as required. $1 500 x 12 x 4 years = $72 000
35	Vehicle maintenance	Under Component 2 the project vehicle will be used for site visits of TA and PM to Bingo and Kwanza Sulk.
36	Travel for EbA	Petrol allowance: 1lt per 10km = $1 p/l = $300 per month for travel in Luanda, Dander and Longa x 12 x 4 = 14 400 Flights to Namibia $400 return economy class x 6 flights per year = $9 600 Flights to Cabinda $320 return economy class x 6 flights per year = $7 680
37	International Technical Advisor	Cost for an International Technical Advisor under Outcome 3. International Technical Advisor (total annual salary of $235 537 x 2 years). The International Technical Advisor be an expert on adaptation and will oversee deliverables of all Components. S/he will also provide additional technical input under Outcome 3. The International Technical Advisor will also provide support to the GEF UNDP project entitled 'Promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angola's Cuvelai River Basin' (GEF ID: 5166) on a cost-sharing basis. The TA is responsible for the following activities under Outcome 3: 2.4.3. Engage with the private sector through relevant forums to disseminate EbA project concept notes.

		3.1 (all activities). Technical support and training to CIBAC and Climate Change Cabinet. 3.2.1. Supervise and assist the National and International Adaptation Economics/Policy Expert to produce and present economic assessments. 3.2.3. Supervise and assist the National and International Adaptation Economics/Policy Expert to produce and present policy briefs. 3.2.4 Supervise and assist the National and International Adaptation Economics/Policy Expert to produce and present technical guidelines.
38	National Project Manager	National Project Manager (@ $4500 per month) costs under Outcome 3.
39	National and International Adaptation Economics/Policy Expert	International Adaptation Economics/Policy Expert ($45 000 x 2 years = $90 000) National Adaptation Economics/ Policy Expert ($17 500 x 2 years = $35 000) The International and National Adaptation and Economics/ Policy Expert will work together closely on the following activities: 3.1.5 Provide training to the Secretariat of the CIBAC and Climate Change Cabinet on climate change adaptation finance and climate change adaptation investment appraisal. 3.2.1 Undertake and present assessments of the economic impacts of climate change on Angola's coastal zone, disaggregated by sector. 3.2.2 Identify entry points at the national and provincial level for the integration of climate change adaptation interventions, including EbA, into relevant policies and sectoral budgets and propose policy revisions. 3.2.3 Develop a coastal zone adaptation plan and mainstream the plan into relevant sectoral, regional and national development plans. 3.2.4 Develop technical guidelines for GAC, sectoral ministries and the CIBAC on how to assess, plan and finance climate change adaptation interventions.
40	Training, workshops and conferences under Outcome 3.	Training and workshops under Outcome 3. 3.1.5. 6 x training workshops @ $5000 per workshop for the secretariat of the CIBAC, technical staff of member ministries, and the GCA. 3.2.1. 5 x workshop to present economic assessments and related policy briefs @ $5000 per workshop, including travel assistance, breakfast and lunch. The workshop could also relate to any of the other relevant content produced under Output 3.2.
41	Audio Visual and Print Production Costs Outcome 3	3.2.3 Costs for printing and disseminating policy briefs produced under @ $15 000. 3.2.4 Costs for printing and disseminating technical guidelines produced @ $15 000. Printing budget could also be used to cover any of the other relevant content produced under Output 3.2.
42	Communications Company	Communications company @ $375 x 160 days 4.1.1. Design and implement awareness-raising campaigns in partnership with the TA. This will include inter alia: liaising with print and television media, conceptualising a short film, designing electronic and print materials. 4.1.2. Disseminate lessons learned and knowledge generated through the project through appropriate national and regional networks, such as Africa Adaptation Knowledge Network.
43	Audio Visual and Print Production Costs Outcome 4	4.1.1 and 4.1.2 Printing of materials (such as posters, summaries of lessons learned): $10 426 Production and dissemination of short video clip: $63 000 Layout, translation and formatting of communication materials: $15 000 Multi-media such as talk shows, TV and Radio spots, billboards on the national road and other means of raising awareness: $24 500 Dissemination of knowledge through online platforms such as AAKNET and Adaptation Learning Mechanism: $10 000

44	Training, workshops and conferences under Outcome 4.	4.1.1 Conferences and meetings for awareness-raising activities. Talks: venue, speaker, catering: $5000 x 10 per year. 4.1.3 Conferences and workshops at academic institutions. 10 seminars from national consultants at local academic institutions @ $1000 per seminar.
45	International Technical Advisor	Cost for an International Technical Advisor under Outcome 4. International Technical Advisor (total annual salary of $235 537 x 2 years) The International Technical Advisor be an expert on adaptation and will oversee deliverables of all Components. S/he will also provide additional technical input under Outcome 4. The International Technical Advisor will also provide support to the GEF UNDP project entitled 'Promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angola's Cuvelai River Basin' (GEF ID: 5166) on a cost-sharing basis. The TA is responsible for the following activities under Outcome 4: 4.1.1 Meet with NGOs, relevant private sector stakeholders, academic institutions and the general public at project intervention sites to engage with them on: i) climate change impacts on the coastal zone; ii) potential climate change adaptation interventions; and iii) the benefits of EbA for increasing the resilience of livelihoods and communities to climate change. 4.1.2 Disseminate lessons learned and knowledge generated through the project through appropriate national and regional networks, such as Africa Adaptation Knowledge Network and support the development of an e-library. 4.1.3 Arrange for relevant national consultants hired through the project to present the findings of their assessments or studies at local academic institutions.
46	Travel for TA	Travel budget for the TA to visit project sites and meet with relevant private sector stakeholders, academic institutions and general public to increase awareness of climate change among these non-governmental stakeholders. This travel will also allow the TA to provide technical oversight on the implementation of project activities under Component 2. Travel in Luanda, Dande and Longa = $2000 per year x 4 =$8 000 Flights to Namibe $400 return economy class x 4 flights per year = $6 400 Flights to Cabinda $350 return economy class x 4 flights per year = $5 600
47	National Project Manager	National Project Manager (@$4500 per month) costs under Outcome 4.
48	Finance Manager	Finance Manager $3 500 p/m x 12 = $42 000 x 4 years **One year of the Finance Manager salary is included under Component 1**
49	Project Assistant	Project Assistant $1 500 p/m x 12 = $18 000 x 4 years
50	Telecommunications cost	Telecommunications cost including telephone and internet. $1 000 p/m x 12 = $12 000 x 4 years
51	Office rental	Office rental $4 000 p/m (inclusive) x 12 = $48 000 x 4 years
52	Miscellaneous	Miscellaneous costs. $550 per year x 4 years.
53	Office equipment	Office equipment. Including, desks, chairs, computers, office supplies. $30 000 over the duration of the project
54	UNDP Cost Recovery Charges	UNDP Cost Recovery charges. Estimated @10 000 per year x 4 years. Includes: I) Staff selection and recruitment; ii) Staff HR & Benefits Administration & Management:; iii) Consultant recruitment; iv) Payment process associated with consultants; v) Low value procurement; and vi) High value procurement and disposal of equipment. Recruitment and Contracting of personnel: Selection and recruitment process - 3 x $674 = $2,022 F10 settlement - $32.45 x 5 F10/staff/year = $1,947

		Processing direct payments: Payment process - $36.39 x 5 direct payment requests x 198 weeks = $36,026
55	Professional service - Audit fees	Fees for annual financial audits (USD 3,000 per year)

Component 3		
37	International Technical Advisor	Cost for an International Technical Advisor under Outcome 3. International Technical Advisor (total annual salary of $235 537 x 2 years). The International Technical Advisor be an expert on adaptation and will oversee deliverables of all Components. S/he will also provide additional technical input under Outcome 3. The International Technical Advisor will also provide support to the GEF UNDP project entitled 'Promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angola's Cuvelai River Basin' (GEF ID: 5166) on a cost-sharing basis. The TA is responsible for the following activities under Outcome 3: 2.4.3. Engage with the private sector through relevant forums to disseminate EbA project concept notes. 3.1 (all activities). Technical support and training to CIBAC and Climate Change Cabinet. 3.2.1. Supervise and assist the National and International Adaptation Economics/Policy Expert to produce and present economic assessments. 3.2.3. Supervise and assist the National and International Adaptation Economics/Policy Expert to produce and present policy briefs. 3.2.4 Supervise and assist the National and International Adaptation Economics/Policy Expert to produce and present technical guidelines.
38	National Project Manager	National Project Manager (@ $4500 per month) costs under Outcome 3.
39	National and International Adaptation Economics/Policy Expert	International Adaptation Economics/Policy Expert ($45 000 x 2 years = $90 000) National Adaptation Economics/ Policy Expert ($17 500 x 2 years = $35 000) The International and National Adaptation and Economics/ Policy Expert will work together closely on the following activities: **3.1.5** Provide training to the Secretariat of the CIBAC and Climate Change Cabinet on climate change adaptation finance and climate change adaptation investment appraisal. **3.2.1** Undertake and present assessments of the economic impacts of climate change on Angola's coastal zone, disaggregated by sector. **3.2.2** Identify entry points at the national and provincial level for the integration of climate change adaptation interventions, including EbA, into relevant policies and sectoral budgets and propose policy revisions. **3.2.3** Develop a coastal zone adaptation plan and mainstream the plan into relevant sectoral, regional and national development plans. **3.2.4** Develop technical guidelines for GAC, sectoral ministries and the CIBAC on how to assess, plan and finance climate change adaptation interventions.
40	Training, workshops and conferences under Outcome 3.	Training and workshops under Outcome 3. **3.1.5.** 4 x training workshops @ $5000 per workshop for the secretariat of the CIBAC, technical staff of member ministries, and the GCA. **3.2.1.** 4 x workshop to present economic assessments and related policy briefs @ $5000 per workshop, including travel assistance, breakfast and lunch. The workshop could also relate to any of the other relevant content produced under Output 3.2.
41	Audio Visual and Print Production Costs Outcome 3	**3.2.3** Costs for printing and disseminating policy briefs produced under @ $15 000. **3.2.4** Costs for printing and disseminating technical guidelines produced @ $15 000. Printing budget could also be used to cover any of the other relevant content produced under Output 3.2.

42	Communications Company	Communications company @ $375 x 160 days 4.1.1. Design and implement awareness-raising campaigns in partnership with the TA. This will include inter alia: liaising with print and television media, conceptualising a short film, designing electronic and print materials. 4.1.2. Disseminate lessons learned and knowledge generated through the project through appropriate national and regional networks, such as Africa Adaptation Knowledge Network. The awareness-raising campaign will specifically target women to ensure that at least 50% of the people reached are female. Therefore 50% of this budget is allocated towards promoting gender equity.
43	Audio Visual and Print Production Costs Outcome 4	**4.1.1 and 4.1.2** Printing of materials (such as posters, summaries of lessons learned): $10 426 Production and dissemination of short video clip: $63 000 Layout, translation and formatting of communication materials: $15 000 Multi-media such as talk shows, TV and Radio spots, billboards on the national road and other means of raising awareness: $24 500 Dissemination of knowledge through online platforms such as AAKNET and Adaptation Learning Mechanism: $10 000
44	Training, workshops and conferences under Outcome 4.	**4.1.1** Conferences and meetings for awareness-raising activities. Talks: venue, speaker, catering: $5000 x 10 per year. **4.1.3** Conferences and workshops at academic institutions. 10 seminars from national consultants at local academic institutions @ $1000 per seminar.
45	International Technical Advisor	Cost for an International Technical Advisor under Outcome 4. International Technical Advisor (total annual salary of $235 537 x 2 years) The International Technical Advisor be an expert on adaptation and will oversee deliverables of all Components. S/he will also provide additional technical input under Outcome 4. The International Technical Advisor will also provide support to the GEF UNDP project entitled 'Promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angola's Cuvelai River Basin' (GEF ID: 5166) on a cost-sharing basis. The TA is responsible for the following activities under Outcome 4: **4.1.1** Meet with NGOs, relevant private sector stakeholders, academic institutions and the general public at project intervention sites to engage with them on: i) climate change impacts on the coastal zone; ii) potential climate change adaptation interventions; and iii) the benefits of EbA for increasing the resilience of livelihoods and communities to climate change. **4.1.2** Disseminate lessons learned and knowledge generated through the project through appropriate national and regional networks, such as Africa Adaptation Knowledge Network and support the development of an e-library. **4.1.3** Arrange for relevant national consultants hired through the project to present the findings of their assessments or studies at local academic institutions.
46	Travel for TA	Travel budget for the TA to visit project sites and meet with relevant private sector stakeholders, academic institutions and general public to increase awareness of climate change among these non-governmental stakeholders. This travel will also allow the TA to provide technical oversight on the implementation of project activities under Component 2. Travel in Luanda, Dande and Longa = $2000 per year x 4 =$8 000 Flights to Namibe $400 return economy class x 4 flights per year = $6 400 Flights to Cabinda $350 return economy class x 4 flights per year = $5 600
47	National Project Manager	National Project Manager (@$4500 per month) costs under Outcome 4.

48	Finance Manager	Finance Manager $3 500 p/m x 12 = $42 000 x 4 years
49	Project Assistant	Project Assistant $1 500 p/m x 12 = $18 000 x 4 years
50	Telecommunications cost	Telecommunications cost including telephone and internet. $1 000 p/m x 12 = $12 000 x 4 years
51	Office rental	Office rental $4 000 p/m (inclusive) x 12 = $48 000 x 4 years
52	Miscellaneous	Miscellaneous costs. $550 per year x 4 years.
53	Office equipment	Office equipment. Including, desks, chairs, computers, office supplies. $30 000 over the duration of the project
54	UNDP Cost Recovery Charges	UNDP Cost Recovery charges. Estimated @10 000 per year x 4 years. Includes: I) Staff selection and recruitment; ii) Staff HR & Benefits Administration & Management:; iii) Consultant recruitment; iv) Payment process associated with consultants; v) Low value procurement; and vi) High value procurement and disposal of equipment.

Appendix 2: Co-financing by source and UNEP budget lines

ANNEX F-1 - RECONCILIATION BETWEEN GEF ACTIVITY BASED BUDGET AND UNEP BUDGET LINE (GEF FUNDS ONLY US$)								
Project title:			Addressing urgent coastal adaptation needs and capacity gaps in Angola					
Project number:			5276					
Project executing partner:			Ministry of Environment (MINAMB)					
Project implementation period:			4 years					
From:				National Government - INAMET SDP	Support to the Fisheries Sector Project	UNEP - Building capacity for coastal EbA in SIDS	Angola Water Sector Institutional Project	
To:								
UNEP Budget Line				Grant	Grant	Grant	Grant	**Total**
10	**PERSONNEL COMPONENT**							
	1100	**Project personnel**						
	1101	National Project Manager	216 000	500000	-	-	-	**500000**
	1102	Project driver	72 000	222249	-	-	-	**222249**
	1199	**Sub-total**	**288 000**	**722249**	**-**	**-**	**-**	**722249**
	1200	**Consultants**						
	1201	National Industry Expert - Agriculture	6 000	-	-	-	100000	**100000**
	1202	National Industry Expert - Fisheries	6 000	-	341899	-	100000	**441899**
	1203	National Industry Expert - Transport	6 000	-	-	-	100000	**100000**
	1204	National Industry Expert - Environment	6 000	-	-	-	100000	**100000**
	1205	National Industry Expert - Tourism	6 000	-	-	-	100000	**100000**

	1206	International meteorological/ EWS specialist	64 000	-	-	-		**-**
	1207	INAMET technician	3 000	-	-	-	-	**-**
	1208	National EWS consultant	20 000	-	-	-	-	**-**
	1209	International EbA/ agriculture specialist	76 640	-	-	-		**-**
	1210	Community engagement specialist	38 880	-	-	-		**-**
	1211	Monitoring and learning specialist	153 000	-	-	50000	-	**50000**
	1212	International Technical Advisor	471 074	-	-	-	400000	**400000**
	1213	International Adaptation economics/ Policy Expert	90 000	-	-	-	400000	**400000**
	1214	National Adaptation economics/Policy Expert	35 000	-	-	-	300000	**300000**
	1299	**Sub-total**	**981 594**	**-**	**341899**	**50000**	**1600000**	**1991899**
	1300	**Administrative Support**						
	1301	Finance Manager	168 000	-	141232	-	-	**141232**
	1302	Project Assistant	72 000	-	141232	-	-	**141232**
	1399	**Sub-total**	**240 000**	**-**	**282464**	**-**	**-**	**282464**
	1600	**Travel on official business**						
	1601	Travel to EWS sites	3 000	-	-	-	-	**-**
	1602	Travel for EbA	31 680	-	-	-	-	**-**
	1603	Travel for TA	20 000	-	-	-	-	**-**
	1699	**Sub-total**	**54 680**	-	-	-	-	**-**
1999	**Component total**		**1 564 274**	**722249**	**624363**	**50000**	**1600000**	**2996612**
20	**SUB-CONTRACT**							

	COMPONENT							
	2100	**Sub-contracts (MOUs/LOAs for cooperating agencies)**		-	-	-	-	-
	2199	**Sub-total**						
	2200	**Sub-contracts (MOUs/LOAs for supporting organizations)**		-	-	-	-	-
	2201	National academics	60 000					
	2299	**Sub-total**	**60 000**					
	2300	**Sub-contracts (for commercial purposes)**						
	2301	Vulnerability assessment consultancy	350 000	-			500000	**500000**
	2302	Chiloango - professional fees and associated costs	170 000	-	-	-	-	-
	2303	Barra do Dande - professional fees and associated costs	155 000	-	-	-	-	-
	2304	Longa - professional fees and associated costs	165 000	-	-	-	-	-
	2305	Bero - professional fees and associated costs	165 000	-	-	-	-	-
	2306	Communications company	80 000	-	-	50000	400000	**450000**
	2307	Audio Visual and Print Production Costs Outcome 3	30 000	-	-	-	-	-
	2308	Audio Visual and Print Production Costs Outcome 4	88 926	-	-	-		-
	2399	**Sub-total**	**1 203 926**	**-**	**-**	**50000**	**900000**	**950000**
2999	**Component total**		**1 263 926**	**-**	**-**	**50000**	**900000**	**950000**

30	**TRAINING COMPONENT**							
	3200	**Group training**						
	3201	Training on vulnerability assessments	28 000	-	-	-	200000	**200000**
	3202	Training for extension officers and agro-meteorological services	50 000	5070	-	-	-	**5070**
	3203	Training for EbA	86 000	-	341898	-	-	**341898**
	3204	Training, workshops and conferences under Outcome 3.	55 000	-	282464	-	-	**282464**
	3205	Training, workshops and conferences under Outcome 4.	60 000	-	250000	-	-	**250000**
	3299	**Sub-total**	**279 000**	**5070**	**874362**	**-**	**200000**	**1079432**
	3300	**Meetings/Conferences**						
	3301	Presentations for vulnerability assessments	24 000	-	-	-	200000	**200000**
	3302	Consultations for community response plans	12 000	-	-	-	-	**-**
	3303	Community management committee meeting costs	20 000	-	-	-	-	**-**
	3399	**Sub-total**	**56 000**	**-**	**-**	**-**	200000	**200000**
3999	**Component total**		**335 000**	**5070**	**874362**	**-**	**400000**	**1279432**
40	**EQUIPMENT AND PREMISES COMPONENT**							
	4100	**Expendable equipment**						

	4101	Communication materials for vulnerability assessments	**18 000**	-	-	-	100000	**100000**
	4102	Printing costs for EWS communication	**15 000**	-	-	-	-	**-**
	4103	Office rental	96 000	-	-	-	-	**-**
	4104	Office equipment	30 000	-	-	-	-	**-**
	4105	Telecommunications cost	48 000	-	-	-	-	**-**
	4199	**Sub-total**	**207 000**	**-**	**-**	**-**	**100000**	**100000**
	4200	**Non-expendable equipment**						
	4201	Climate and hydrological monitoring equipment	726 000	1431923	-			**1431923**
	4202	Climate and hydrological monitoring transmission equipment	107 000	4002225	-			**4002225**
	4203	Chiloango -equipment and EbA inputs	530 000	-	300255			**300255**
	4204	Barra do Dande - equipment and EbA inputs	280 000	-	300255			**300255**
	4205	Longa - equipment and EbA inputs	400 000	-	300255			**300255**
	4206	Bero - equipment and EbA inputs	400 000	-	300255	-	-	**300255**
	4207	Management plan inputs	80 800	-	300255	50000	-	**350255**
	4208	Project vehicle	50 000	-	-	-	-	**-**
	4299	**Sub-total**	**2 573 800**	**5434148**	**1501275**	**50000**	**-**	**6985423**
4999	**Component total**		**2 780 800**	**5434148**	**1501275**	**50000**	**100000**	**7085423**

50	**MISCELLANEOUS COMPONENT**							
	5100	**Operation and maintenance of equipment**						
	5101	Vehicle maintenance	20 000	-	-	-	-	-
	5199	**Sub-total**	**20 000**	**-**	**-**	**-**	**-**	**-**
	5200	**Reporting costs**						
	5201	Project Steering Committee Meetings	8 000	-	-	-	-	-
	5202	Inception and closure workshop	7 000	-	-	-	-	-
	5299	**Sub-total**	**15 000**	-	-	-	-	-
	5300	**Sundry**						
	5301	Miscellaneous	2 000	43533				**43533**
	5302	UNDP Cost Recovery Charges	62 000					-
	5303	Professional service - Audit fees	12 000					
	5399	**Sub-total**	**76 000**	**43533**	**-**	**-**	**-**	**43533**
	5400	**Hospitality and entertainment**						
	5401							-
	5499	**Sub-total**	**0**	**-**	**-**	**-**	**-**	**-**
	5500	**Evaluation**						
	5501	Baseline evaluation	35 000	-	-	-	-	-
	5502	Mid-term evaluation	35 000	-	-	-	-	-
	5503	Final evaluation	35 000	-	-	-	-	-
	5504	Audit	20 000					-

	5599	**Sub-total**	**125 000**	-	-	-	-	-
5999	**Component total**		**236 000**	**-**	**-**	**-**	**-**	**43533**
99	**GRAND TOTAL**		**6 180 000**	**6161467**	**3000000**	**150000**	**3000000**	**12311467**

Appendix 3: Results Framework

	Indicator	Baseline	Target	Means of verification
Objective: To reduce vulnerability to climate change of national government and coastal communities along the coast of Angola.	1. Total number of direct beneficiaries (and % of which are women) of the project's EWS and EbA activities.	0	At least 2500 direct beneficiaries (50% of which are women), including: 750[112] beneficiaries of the EWS and 1800[113] beneficiaries of EbA and climate-resilient land management interventions.	Attendance registers from training sessions and training reports. Registers of community beneficiaries kept by the organisation implementing EbA and climate-resilient land-management interventions at each project site. Survey results and reports.
Outcome 1. Strengthened technical capacity of government staff at local and national level to analyse, predict and respond to climate change effects, access policy-relevant data and deliver relevant information to coastal communities (overseen by UNEP).	1. Number of relevant government staff within each targeted national and local institution (INAMET, local government at Chiloango, Barra do Dande, Longa and Bero) with the technical capacity to analyse and respond to climate change effects.	Low. Few government technicians have the capacity to analyse climate change information and develop appropriate adaptation responses. Baseline values to be quantified during the baseline assessment.	At least 15 relevant government staff within targeted institutions (3 within INAMET, 3 each within local government at Chiloango, Barra do Dande, Longa and Bero) have the technical capacity to analyse and respond to climate change effects by the end of the project.	Attendance registers from training sessions and training reports. Capacity scorecard assessments. An assessment of capacity will be done using the following criteria: 1. Ability to analyse data from weather stations and generate early warning. 2. Ability to assess vulnerability to climate change. 3. Capacity to deliver early warning to relevant coastal communities. 4. Ability to assess the effectiveness of EWS. The following scoring scale will be used: 1 = Very limited or no evidence of capacity 2 = Partially developed capacity 3 = Fully developed, demonstrated capacity

[112] There are 1540 people living in and around Barra do Dande, the site of the EWS installation. It is assumed that at least half of this population will benefit from the EWS.
[113] There are a total of 3678 people living in the four project intervention sites. It is assumed that at least half of this population will benefit from the project's EbA and climate-resilient land management interventions.

				An overall score is calculated, with a maximum score of 12 given for the four criteria. These criteria will be further validated at inception phase. Government staff that have score at least 8/12 will be considered to have the technical capacity to analyse and respond to climate change effects.
	2. Number of detailed sectoral and localised climate change vulnerability assessments produced.	No climate change vulnerability assessment specific to Angola's coastal zone or coastal sectors have been completed. A biodiversity vulnerability assessment of Angola's coast has been produced. Climate change vulnerability assessments have been undertaken in major cities including Luanda and Benguela.	At least 1 climate change vulnerability assessment for Angola's coastal zone completed and at least 4 detailed sectoral climate change vulnerability assessments (which may include the agricultural, fisheries, energy, water and tourism sectors) completed by the end of the project.	Vulnerability assessments produced and reported on in Angola's Climate Change Reports, National Communication. Vulnerability assessments shared on MINANB website and climate change e-library. Interviews with PMU.
	3. Establishment of an operational flood early warning system at Barra do Dande.	There is currently no early warning system at Barra do Dande.	1 operational flood early warning system is established at Barra do Dande by the end of the project, comprised of at least 5 weather stations and 4 hydrological monitoring stations[114].	Field visits to verify that weather stations and hydrological monitoring equipment has been installed and is operational. Interviews with INAMET and INARH. Review of the early warning system established. The degree to which the EWS will be deemed operational can be verified as follows: 1. Is data being successfully collected using monitoring equipment?

[114] EWS equipment is listed in budget note 14 and includes, *inter alia*: 5 Automatic Weather Stations (AWS) and at least 5 rainfall gauges complete with remote data transmission and archiving at the identified installation sites; 1 spare Automatic Weather Stations (AWS) and 2 spare rainfall gauges complete with remote data transmission and archiving; 1 mobile AWS for sensor's field calibration; 4 automatic river gauging stations and 4 manual water level stations at the identified installation sites, complete with remote data transmission and archiving at INAMET, Civil Protection and INARH; 1 spare automatic river gauging stations and 1 spare manual water level stations; and 1 mobile Hydromet Automatic Station (HAS) for sensor's field calibration.

				2. Is the data being transferred successfully to the INAMET data analysis centre? 3. Are INAMET technicians able to analyse the data to produce early warnings? 4. Are relevant local stakeholders receiving the early warnings timeously? 5. Are these stakeholders communicating the early warnings to affected community members timeously? If the answer to at least four of the five questions above is "yes", then the EWS will be considered operational.
	4. Development of an early warning community response plan.	No early warning community response plan has been developed at Barra do Dande.	1 early warning community response plan has been developed by the end of the project.	Interviews with INAMET and INARH. Interviews with community members at Barra do Dande. Review of early warning community response plan.
Outcome 2. EbA technologies and climate-resilient land management techniques transferred to coastal communities in Angola to reduce their vulnerability to droughts, rainfall variability, and extreme events (overseen by	1. Number of people (and % of women) at Chiloango, Barra do Dande, Longa and Bero who have been trained and are practicing EbA interventions and climate-resilient land management.	EbA interventions and climate-resilient land management have so far not been implemented in the target communities.	At least 500 people, 30% of which are women, at Chiloango, Barra do Dande, Longa and Bero who have been trained in and are practicing EbA interventions and climate-resilient land management by the end of the project.	Registers of community beneficiaries kept by the organisation implementing EbA and climate-resilient land-management interventions at each project site. Surveys and interviews with local community members at project intervention sites. Site visits to verify EbA interventions and climate-resilient agriculture techniques.

UNEP).	2. Number of hectares of wetland rehabilitated using EbA interventions at Chiloango, Barra do Dande, Longa and Bero.	0 hectares of wetland have been restored. There are currently 400 hectares of degraded wetland in Chiloango, 10 hectares in Barra do Dande, 41 hectares in Longa and 110 hectares in Bero	By the end of the project, at least 400 hectares of wetland rehabilitated using EbA interventions in Chiloango, at least 10 hectares of wetland rehabilitated in Barra do Dande, at least 41 hectares of wetland rehabilitated in Longa and at least 110 hectares of wetland rehabilitated in Bero.	Site implementation reports produced by the relevant implementing organisation at each project intervention site. Field visits to verify the extent of EbA interventions. Interviews with local community members. Interviews with relevant implementing organisation at each project intervention site.
	3. Number of climate-resilient land management techniques adopted at Chiloango, Barra do Dande, Longa and Bero.	Noclimate-resilient land management techniques are being implemented at the project intervention sites.	At least 3 climate-resilient land management techniques adopted per pilot site. This will include *inter alia*: i) climate-resilient agriculture crops and techniques; ii) waste management interventions to promote ecosystem and human health; and iii) subsistence hunting and harvesting practices to promote sustainable livelihoods under climate change.	Site implementation reports produced by the relevant implementing organisation at each project intervention site. Field visits to verify the extent of climate-resilient land management interventions. Interviews with local community members. Interviews with relevant implementing organisation at each project intervention site.
	4. Number of local community members (and % of women) trained on the implementation and maintenance of EbA interventions and climate-resilient land management.	0 local community members from the project intervention sites have been trained on implementation and maintenance of EbA interventions and climate-resilient land management.	At least 400 local community members (30% of which are women) trained on the implementation and maintenance of EbA interventions and climate-resilient land	Attendance registers from training workshops. Interviews with local community members. Interviews with the PMU.

			management by the end of the project.	
	5. Number of EbA project concept notes to promote the upscaling of EbA developed and presented to private sector stakeholders.	No EbA project concept notes have been developed. Outreach projects implemented by the private sector (petroleum industry) generally focus on education (e.g. school construction) or biodiversity conservation.	At least 3 EbA project concept notes to promote the upscaling of EbA have been developed and presented to private sector stakeholders by the end of the project.	Review of EbA project concept notes produced. Interviews with the PMU. Attendance registers and reports of presentations to private sector stakeholders.
Outcome 3. Increased inter-ministerial coordination and institutional capacity to adapt to climate change in Angola (overseen by UNDP).	1. Degree to which institutional capacity and arrangements to lead, coordinate and support the integration of climate change into relevant policies and plans is strengthened – for CIBAC and the CIBAC secretariat .	Current estimated level of overall institutional capacity is 4 (out of 10). CIBAC was established in 2012 to coordinate climate change at an inter-ministerial level. The committee is attended by Ministers of various climate-sensitive or relevant ministries and therefore includes some authority over sector-specific budget allocations. However, the Secretariat of CIBAC has not yet been properly constituted and does not have a clear mandate. The committee is therefore not functioning optimally and climate change adaptation has not been fully integrated into sectoral strategies and plans. Baseline values to be verified during the baseline	CIBAC and the Secretariat of CIBAC has progressed by at least 3 steps in their institutional capacity and arrangements score assessment framework by the end of the project.	A scoring methodology as suggested by the GEF AMAT will be adopted. The scoring is based on five criteria expressed as questions (these criteria will be further validated at inception phase): 1. Are there institutional arrangements in place to coordinate the integration of climate change adaptation into relevant policies, plans and associated processes for coastal areas? 2. Are those arrangements based on (a) clear and strong mandate(s) and supported by adequate budget allocations? 3. Do those arrangements include authority over the budgets of climate-sensitive sectors? 4. Do those arrangements include broad stakeholder participation across relevant, climate-sensitive sectors? 5. Are those arrangements effective, i.e. is climate change adaptation coordinated across key national and sectoral decision-making processes? Each question is answered with an assessment and score for the extent to which the associated criterion has been met: not at all (= 0), partially (= 1) or to a large extent/ completely (= 2). An overall score is calculated, with a maximum score of 10 given five criteria.

		assessment using the AMAT score criteria. Quantitative assessment of the baseline for this indicator will be conducted at inception stage.		
	2. Number of proposed revisions to integrate climate change into existing policies/strategies/plans included on the agenda of CIBAC meetings.	0 proposed revisions to integrate climate change into existing policies/strategies/plans have been included on the agenda of CIBAC to date.	2 proposed revisions to integrate climate change into existing policies/strategies/plans included on the agenda of CIBAC meetings by the end of the project.	Agendas of CIBAC meetings. Minutes of CIBAC meetings.
	3. Establishment of a permanent secretariat of CIBAC with a clearly defined role/mandate.	The secretariat of CIBAC is currently convened on an *ad hoc* basis. The composition of members varies and it does not have a clearly defined mandate.	A permanent secretariat of the CIBAC is established with a clearly defined role/mandate by the end of the project.	Agendas of CIBAC meetings. Minutes of CIBAC meetings. Review of mandate of the secretariat of the CIBAC.
	4. Assessment of the economic impacts of climate change on Angola's coastal zone, disaggregated by sector.	0 economic assessments of climate change impacts on Angola's coastal zone have been conducted.	An assessment of the economic impacts of climate change, disaggregated by sector, on Angola's coastal zone produced by the end of the project.	Review of economic assessment produced.
Outcome 4. Improved awareness about climate change impacts and adaptation among non-governmental stakeholders (overseen by UNDP).	1. Number of people (and % of women) who are informed about climate change impacts and adaptation through the project's awareness programme.	No awareness raising programme on climate change has been undertaken.	At least 1000 people (of which at least 50% are women) are informed about climate change and adaptation through the public awareness programme by the end of the project. This will	Reports from awareness raising activities undertaken, including attendance registers. Attendance registers from seminars/presentations

			include: 250 people from NGOs; 250 people from the private sector; 250 people from academia; and 250 people from CBOs.	

Appendix 4: Workplan and timetable

Work plan: lead consultant for each activity	
	INDUSTRY EXPERT
	Vulnerability Assessment Consultancy
	International Meteorological/ EWS Specialist
	National EWS Consultant
	International EbA/ agriculture Specialist
	Community Engagement Specialist
	Consultancies overseeing EbA/ climate-resilient land management
	Training consultancies for EbA
	Monitoring and Learning Specialist
	National Academics
	International Technical Advisor
	International Adaptation economics/ Policy Expert
	National Adaptation Economics/Policy Expert
	Communications Company

		Annual breakdown				Quarterly breakdown															
						Year 1				Year 2				Year 3				Year 4			
Activity		Y 1	Y 2	Y 3	Y 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
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Appendix 5: Costed M&E plan

The M&E framework set out in the Project Results Framework in Annex A is aligned with the AMAT and UNEP and UNDP M&E frameworks. Please see Section 6 of the UNEP and UNDP project documents for the full M&E plan. As described in Management Arrangements, the primary responsibility for overseeing M&E of the project's activities will reside with UNEP programme management who will coordinate the MTR and TE through UNEP's independent Evaluation Office. The project's progress towards achievement of objectives specified in the Results Framework will be measured by the Monitoring and Learning Specialist, who will report to the UNEP Task Manager. All budgeted M&E activities, including Financial Audits, Inception Workshop, and mid-term/terminal evaluations, will be paid by UNEP. The M&E budget is presented in the table below.

Type of M&E activity	**Responsible Parties**	**Budget US$** *Excluding project team staff time*	**Time frame**
Inception Workshop and Report	• Project Manager (MEE) • PIU • UNDP CO, UNDP GEF, UNEP	Indicative cost: 7,000	Within first two months of project start up
Measurement of Means of Verification of project results.	• UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members. • PIU, esp. M&E expert	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required
Measurement of Means of Verification for Project Progress on output and implementation	• Oversight by Project Manager (MEE) • PIU, esp. M&E expert • Implementation teams	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	• Project manager (MEE) • PIU • UNEP TM • UNDP CO • UNDP RTA • UNDP EEG	None	Annually
Periodic status/ progress reports	• Project manager and team	None	Quarterly
Baseline Evaluation	• Project manager (MEE) • PIU • UNEP TM • UNDP CO • UNDP RCU • External Consultants (i.e. evaluation team)	Indicative cost: 35,000	
Mid-term Evaluation	• Project manager (MEE) • PIU • UNEP TM • UNDP CO • UNDP RCU • External Consultants (i.e. evaluation team)	Indicative cost: 35,000	At the mid-point of project implementation
Terminal Evaluation	• Project manager (MEE)	Indicative cost: 35,000	At least three months before the

Type of M&E activity	**Responsible Parties**	**Budget US$** *Excluding project team staff time*	**Time frame**
	• PIU • UNEP TM • UNDP CO • UNDP RCU • External Consultants (i.e. evaluation team)		end of project implementation
Audit	• UNDP CO • UNEP TM • Project manager (MEE) • PIU	Indicative cost: 20,000	Yearly
Visits to field sites	• UNDP CO • UNDP RCU (as appropriate) • Government representatives	For GEF supported projects, paid from IA fees and operational budget	Yearly for UNDP CO, as required by UNDP RCU
TOTAL indicative COST Excluding project team staff time		US$ 140,000 (+/- 2% of total GEF budget)	

Appendix 6: Summary of reporting requirements and responsibilities

Reporting requirements	Due date	Responsibility
Inception Workshop Report	One month after Project Inception Workshop.	NPD NPM TA UNEP Task Manager (TM)
Expenditure report accompanied by explanatory notes		NPM FM
Cash Advance request and details of anticipated disbursements		NPM FM
Supervision Plan	Before the end of the LDCF-financed project's inception phase.	UNEP TM
Progress reporting	Quarterly	NPM TA
Audited report for expenditures for year ending 31 December	Yearly on or before 30 June.	Executing partners
Inventory of non-expendable equipment	Yearly on or before 31 January.	NPM FM
Co-financing report	Yearly on or before 31 July.	NPM
PIR	Yearly	NPM PIST TA UNEP TM

Minutes of PSC meetings	Quarterly (or as relevant).	NPM PA
Completion report	Within six months of project completion date.	NPM UNEP TM
Final inventory of non-expendable equipment		NPM
Equipment transfer letter		NPM
Final expenditure statement	Within three months of project completion date.	NPM UNEP TM
Mid-term evaluation/Review	Midway through project lifetime.	NPM UNEP TM External Expert (PIST)
Terminal evaluation	At least three months prior to the project end date.	NPM TA UNEP TM External Expert (PIST)
Final audited report for expenditures of project	Within three months prior to project completion date.	FM
Annual audit	Annually	NPM UNEP TM External Expert/company

Appendix 7: Site Selection

		Bero (Namibe)	Chiloango (Cabinda)	Longa (Kwanza Sul)	Barra do Dande (Bengo)	Soyo (Zaire)	Barra do Kwanza (Luanda)	Giraúl (Namibe)
Coastal								
Climate change vulnerability		High	High	High		ow	High	Med–low
Presence of target ecosystems		Wetlands	Wetlands and mangroves	Mangroves and densely vegetated areas	Wetlands	Wetlands and mangroves	Wetlands and mangroves	Wetlands
Community vulnerability (e.g. poverty, access to basic services, level of education)		High	High	High	High	Med-low	High	Low
Absence of other projects addressing similar issues		Absence	Absence	Absence	Absence	Absence	Absence	Absence
Presence of existing community management structures (e.g. cooperatives, field schools) to facilitate implementation, especially those run by women		One agricultural cooperative	Unlikely	Local leader	A number of cooperatives and associations	Fishermen from Moitaseca village	None	None
Number of beneficiaries, disaggregated by gender	Direct	**	*	***	***	*	*	*
	Indirect	**	****	***	****	*	*	*
Accessibility (cost-effectiveness)				○				X
Potential for private-sector investment		Likely	Likely	Likely	Likely	Unlikely	Likely	Unlikely
Biodiversity co-benefits								
		Selected	**Selected**	**Selected**	**Selected**	**Not selected**	**Not Selected**	**Not Selected**

Key: Number of beneficiaries, disaggregated by gender

Symbol	Number (individuals)

*	0–100
**	101–5000
***	5001–20000
****	>20000

Key: Accessibility (cost-effectiveness)

Symbol	Category of accessibility
	Well tarred road
	By 4x4 or boat only, or the combination of both
X	Inaccessible

Appendix 8: Standard Terminal Evaluation TOR

Below are the standard Terminal Evaluation TORs of UNEP.

Objective and Scope of the Evaluation

The objective of the terminal evaluation is to: i) examine the extent and magnitude of any project impacts to date; and ii) determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results.

Methods

This terminal evaluation will be conducted as an in-depth evaluation using a participatory approach whereby the UNEP Task Manager, key representatives of the executing agencies and other relevant staff are kept informed and consulted throughout the evaluation. The consultant will liaise with the UNEP and the UNEP Task Manager on any logistic and/or methodological issues that can compromise an independent review. The draft report will be circulated to UNEP Task Manager, main representatives of the executing agencies and the UNEP. Any comments or responses to the draft report will be sent to UNEP for collation and the consultant will be advised of any necessary or suggested revisions.

Key Evaluation principles

In attempting to evaluate any outcomes and impacts of the project, evaluators must remember that the project's performance should be assessed by considering the difference between the answers to two simple questions ***"what happened?***" and ***"what would have happened anyway?"***. These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition, it implies that there should be plausible evidence to **attribute** such outcomes and impacts **to the actions of the project**.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases, this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgments about project performance.

Appendix 9: Checklist for Environmental and Social Safeguards

Environmental and Social Safeguards Checklist

As part of the GEFs evolving Fiduciary Standards that Implementing Agencies have to address 'Environmental and Social Safeguards'. To fill this checklist:

- STEP 1: Initially assess E&S Safeguards as part of PIF development. The checklist is to be submitted for the CRC.
- STEP 2 : Check list is reviewed during PPG project preparation phase and updated as required.
- STEP 3 : Final check list submitted for PRC showing what activities are being undertaken to address issues identified

UNEP/GEF Environmental and Social Safeguards Checklist

Project Title:	**Addressing Urgent Coastal Adaptation Needs and Capacity Gaps in Angola**		
GEF project ID and UNEP ID/IMIS Number	5230	***Version of checklist***	One
Project status (preparation, implementation, MTE/MTR, TE)	Preparation	***Date of this version:***	18 February 2015
Checklist prepared by (Name, Title, and Institution)	Nina Raasakka, Task Manager, GEF CCAU, DEPI UNEP.		

In completing the checklist both short- and long-term impact shall be considered.

Section A: Project location
If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	*Comment/explanation*
Is the project area in or close to:		
densely populated area	Yes	Coastal areas in Angola are densely populated relative to the interior, as over ~50% of the population lives in coastal provinces. The EbA interventions of the project will be carried out in collaboration with four village-scale communities in Angola's coastal zone. These include: i) Chiloango (population of ~34 000); ii)

		Barra do Danda (population of ~24 000); iii) Longa (population of ~ 1700); and iv) Bero (population of ~200).
cultural heritage site	No	
protected area	No	None of the pilot sites are located in a protected area.
wetland	Yes	Chiloango is in the proximity of a wetland. The project aims to build resilience of communities by rehabilitating and demonstrating the adaptation potential of welands using an EbA approach. Consequently, there is no expected negative impact.
mangrove	Yes	The following of the selected intervention sites are in the proximity of mangroves: i) Longa; ii) Chiloango;iii) Barra do Dande. The project aims to build resilience of communities by rehabilitating and demonstrating the adaptation potential of mangroves using an EbA approach. Consequently, there is no expected negative impact.
estuarine	Yes	The following of the selected intervention sites are in the proximity of an estuarine area: i)Bero river mouth; ii) Longa; and iii) Barro do Dande. The project aims to build resilience of communities by rehabilitating and demonstrating the adaptation potential of coastal ecosystems using an EbA approach. Consequently, there is no expected negative impact
buffer zone of protected area	No	
special area for protection of biodiversity	No	
will project require temporary or permanent support facilities?	Yes	Infrastructure for EWS will be included in the project interventions.
If the project is anticipated to impact any of the above areas an Environmental Survey will be needed to determine if the project is in conflict with the protection of the area or if it will cause significant disturbance to the area.		

Section B: Environmental impacts

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N. A.	*Comment/explanation*
Are ecosystems related to project fragile or degraded?	Yes	The project aims to rehabilitate and build resilience of degraded coastal ecosystems such as mangroves and wetlands.
Will project cause any loss of precious ecology, ecological, and economic functions due to construction of infrastructure?	No	The project seeks to enhance ecological functions. The installation of weather and hydrological monitoring stations are physically small in size. Additionally, these stations will promote long term ecological and economic health through assisting climate planning and preparation as response to climate change and variability – i.e. early warning.
Will project cause impairment of ecological opportunities?	No	This project seeks to increase ecological opportunities. Short-, medium- and long-term impacts will be beneficial for local ecosystems.
Will project cause increase in peak and flood flows? (including from temporary or permanent waste waters)	No	Project activities such as ecological restoration will reduce the likelihood of flooding and will regulate the flow of water. No temporary wastewater will be generated by project activities. Therefore, the resilience of local communities to floods will be increased.
Will project cause air, soil or water pollution?	No	No pollution will be generated by the project activities.
Will project cause soil erosion and	No	Soil stability and water infiltration will be enhanced through reforestation and vegetation at pilot sites. This will reduce erosion and sedimentation.

siltation?		
Will project cause increased waste production?	No	No pollution will be generated by the project activities.
Will project cause Hazardous Waste production?	No	No pollution will be generated by the project activities.
Will project cause threat to local ecosystems due to invasive species?	No	The project will focus on the control of invasive species. It will promote planting indigenous and/or non-invasive tree species instead of exotic tree species.
Will project cause Greenhouse Gas Emissions?	No	Project activities are likely to reduce the emissions of greenhouse gases in identified pilot sites through the restoration of degraded ecosystems – such as mangroves and wetlands – thereby increasing soil and plant carbon sequestration.
Other environmental issues, e.g. noise and traffic.	No	The project might result in a temporary increase in traffic because of the transport of materials to sites.
Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.		

Section C: Social impacts

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	*Comment/explanation*
Does the project respect internationally proclaimed human rights including dignity, cultural property and uniqueness and rights of indigenous people?	Yes	All project interventions have been developed in accordance with internationally proclaimed human rights, in conformity with UN guidelines. In addition, all activities were developed together with various stakeholders to ensure that no rights or laws are infringed by the proposed activities.
Are property rights on resources	Yes	The project facilitates participatory approaches for avoiding any conflicts. In

such as land tenure recognized by the existing laws in affected countries?		addition, the project will adhere to national and local laws on land rights and land tenure.
Will the project cause social problems and conflicts related to land tenure and access to resources?	No	The project will promote a community-based natural resources management approach. Consultations with community members will be continued throughout the implementation phase to avoid any problems or conflicts. The project will adhere to national and local laws on land rights and land tenure.
Does the project incorporate measures to allow affected stakeholders' information and consultation?	Yes	The project seeks to reduce the vulnerability of stakeholders by providing information on climate risks and opportunities and of promoting participatory practices in the rehabilitation of ecosystems. This occurred during the PPG and will occur throughout all implementation phases. Additionally, all on-the-ground activities are implemented by local communities, and are preceded by and include stakeholder consultations together with training and information workshops. Technical briefs will be prepared to ensure that all stakeholders are fully informed.
Will the project affect the state of the targeted country's (-ies') institutional context?	Yes	The project will be beneficial to Angola's institutional context as it seeks to enhance the systemic capacity of the country for adaptation to climate change. New institutional mechanisms will be established to respond to climate change during implementation. Local institutions will also be provided with EbA training.
Will the project cause change to beneficial uses of land or resources? (incl. loss of downstream beneficial uses (water supply or fisheries)?	No	
Will the project cause technology or land use modification that may change present social and economic activities?	No	
Will the project cause dislocation or involuntary resettlement of people?	No	
Will the project cause uncontrolled in-migration (short- and long-term) with opening of roads to areas and possible overloading of social infrastructure?	No	

Will the project cause increased local or regional unemployment?	No	The project, through various activities and interventions, will generate employment at local levels. Community members will be employed for short periods to achieve specific project objectives where necessary. Livelihoods of communities in project sites will be enhanced in order to improve community resilience under conditions of climate change.
Does the project include measures to avoid forced or child labour?	Yes	The project conforms to all national and international guidelines and laws regarding forced labour. Extensive community engagement will prevent the use of forced labour, and all required labour (short term employment only for establishing specific objectives) will be provided through community engagement and remunerated in accordance with national law.
Does the project include measures to ensure a safe and healthy working environment for workers employed as part of the project?	Yes	The project will conform to all national and international guidelines and laws regarding health and safety for workers employed as part of the project. Community training will ensure that health and safety regulations are understood.
Will the project cause impairment of recreational opportunities?	No	The project aims to increase the ecological opportunities and ecosystem services despite the negative impacts of climate change. Short-, medium- and long-term impacts will be beneficial for local ecosystems. As such, it is expected that the project will create improved recreational opportunities.
Will the project cause impairment of indigenous people's livelihoods or belief systems?	No	All project implementation will be carried out after stakeholder consultation and in accordance with local belief systems. Livelihoods of people in project sites will be improved through the project activities. In addition, the project will enhance understanding of the climate system, thereby allowing local communities to adapt to climate change effectively.
Will the project cause disproportionate impact to women or other disadvantaged or vulnerable groups?	No	Women's rights will be promoted in accordance with national legislation, appropriate strategies and UN guidelines for interaction within Angola. Gender has been taken into account throughout the project design and document including. Gender disaggregated indicators have also been incorporated. Additionally, the involvement of women in the project is considered in the results based management framework. Additionally, the project will help reduce the exposure of climate vulnerable groups including women, youth, farmers and artisanal fisherman.
Will the project involve and or be complicit in the alteration, damage or removal of any critical cultural heritage?	No	No cultural heritage will be impacted through project operations.
Does the project include measures	Yes	As per UNEP's norms and standards, all project disbursements will be monitored

to avoid corruption?		by UNEP administrative structures. Regular reporting by the project management team will promote financial and transparency throughout the project. Corruption within the selected EA is limited due to strong internal governance and stringent protection measures.
Only if it can be carefully justified that any negative impact from the project can be avoided or mitigated satisfactorily both in the short and long-term, can the project go ahead.		

Section D: Other considerations

If negative impact is identified or anticipated the Comment/Explanation field needs to include: Project stage for addressing the issue; Responsibility for addressing the issue; Budget implications, and other comments.

	Yes/No/N.A.	*Comment/explanation*
Does national regulation in affected country (-ies) require EIA and/or ESIA for this type of activity?	No	During the PPG, national stakeholders have stated that EIAs are not necessary for project interventions.
Is there national capacity to ensure a sound implementation of EIA and/or SIA requirements present in affected country (-ies)?	N/A	
Is the project addressing issues, which are already addressed by other alternative approaches and projects?	No	The project will implement activities that are additional to baseline activities.
Will the project components generate or contribute to cumulative or long-term environmental or social impacts?	No	The project will promote only positive, cumulative environmental and social impacts through EbA and climate-resilient land management. .
Is it possible to isolate the impact from this project to monitor E&S impact?	N/A	

Appendix 10: UNEP Comparative Advantage

UNEP has experience in implementing approximately 80 projects on climate change adaptation at global, regional and national levels. These projects develop innovative solutions for national governments and local communities to adapt to the predicted effects of climate change in an environmentally sound manner. This is achieved by: i) providing methods and tools to support decision making; ii) addressing barriers to implementation; iii) testing and demonstrating proposed solutions; and iv) enhancing climate resilience by restoring valuable ecosystems that are vulnerable to climate change. UNEP has accumulated an impressive body of knowledge and experience from its implementation of previous and on-going projects. The agency will draw upon this experience during the implementation of this LDCF project. Furthermore, UNEP has been known for its strong technical and scientific background in the field of climate change. Finally, UNEP's experience in community-based projects and natural resource management is well recognised worldwide. As such, it is an appropriate agency for providing implementation support and capacity development for enhancing climate resilience within Angola.

UNEP's Flagship Programme, Ecosystem-based Adaptation (EbA), represents a ground-breaking shift in focus in the realm of climate change adaptation. In 2011, this programme was commended at the 17th meeting of the Conference of the Parties to the UNFCCC (CoP17). It has also been endorsed by IUCN, the EC and GEF through the Operational Guidelines on "Ecosystem-Based Approaches to Adaptation" GEF/LDCF.SCCF.13/Inf.06 October 16, 2012. The EbA approach is multidisciplinary in nature. It involves managing ecosystems to enhance their resilience. In addition, it uses ecosystem services to promote climate change adaptation and disaster risk management. Furthermore, it provides a platform for engaging a broad range of stakeholders and sectors in the adaptation process. The adaptation interventions proposed in this LDCF project are well within the scope of UNEP's current work on climate change.

The GEF Council paper (C.31/15) outlines the comparative advantages of UNEP. These include providing GEF with the best available science and knowledge upon which to base investments, provision of expertise on environmental and climate change matters. UNEP also has considerable experience in the piloting of successful innovative approaches and the implementation of adaptive learning. The proposed LDCF project builds upon this comparative advantage. In addition, GEF Council paper (C.28/18) mentions UNEP's comparative advantage of "developing and using climate information to effect changes in relevant sectoral policies based on climate science" which is an area that is addressed by the LDCF project.

UNEP has undertaken many projects where innovative solutions and methodologies are demonstrated at inter-regional, national and local levels. All such projects comply with the mandate from the UNEP Governing Council, as detailed in the Bali Strategic Plan for Technology Support and Capacity-building.

The majority of the infrastructure and restoration interventions will be linked to and benefit from the Green Economy paradigm led by UNEP. The project will also benefit from ongoing work within UNEP towards analysing and documenting the ecological foundation of food security. Additionally, the PROVIA programme of UNEP provides insight into the economic assessment of ecological services, EbA and tools for urban and coastal planning. Finally, the LDCF project will also benefit from research and demonstration efforts undertaken within the UNEP-led Integrated Marine & Coastal Environment and Resource Management project. This project provides tools for integrated sustainable management of coastal zones.

UNEP is uniquely positioned to undertake this innovative environmental work. Importantly the adaptation interventions of this LDCF project hinge around knowledge of a wide range of ecosystems. Other parts of the LDCF project such as enhancing water supplies, increasing agricultural productivity and developing alternative community livelihoods are attached to the central theme of managing ecosystems appropriately. UNEP's core business is providing technical advice on managing environments in a sustainable manner and thus has a significant comparative advantage in implementing the LDCF project. The technical and scientific knowledge that UNEP brings to the LDCF project will be fundamental for its success. In particular, ecological science will need to drive Outcome 2's demonstration activities to ensure that the information generated is based on rigorous evidence. UNEP's experience in revising policy will be important for translating the information generated into appropriate policy, strategy and legislative documents.

UNEP has a long-standing engagement with many Southern African countries in helping them to address climate change impacts. UNEP has a good and long-standing partnership with the Ministry of Environment of Angola built through the implementation of other projects. Previous and on-going experience with this Executing Agency demonstrates its strong capacity to implement this type of project. The project will capitalise upon the existing human capacity dealing with climate change issues as well as nature protection within the Ministry of Environment, Climate Change Cabinet, National Institute of Meteorology and relevant programmes and projects. The implementation supervision role will be exercised directly from UNEP HQ office in Nairobi.

Appendix 11: Terms of Reference for key project groups, staff and sub-contractors

A 5.1 Terms of Reference for Project Steering Committee (PSC)

Background
The PSC will be responsible for undertaking management-related and technical decisions for the project in accordance with this ToR and providing guidance and direction for the project when required.

Tasks of the PSC will include *inter alia* approval of project plans, Annual Work Plans (AWPs) and revisions by UNEP, UNDP and the MINAMB. The committee will ensure a continued cohesion between the project and the mandate of the MINAMB. It will also provide additional linkages and interactions with high-level policy components within the Government. The PSC will approve the responsibilities of the Project Manager and intervene when conflicts within the project and between project members arise.

The PSC will comprise the following members:
- Secretary MINAMB (Chair);
- Members of CIBAC, including:
  - MINAMB;
  - MINAGRI;
  - MINEA (INRH);
  - INAMET;
- Government representatives of Cabinda, Bengo, Kwanza Sul and Namibe Provinces;
- Representatives of coastal communities; and
- UNEP and UNDP TM.

Scope of Work
Specific responsibilities of the PSC are as follows:
- Setting a strategic direction, reinforcing government leadership of the programme and coordinating all interventions.
- Providing guidance and agreeing on possible countermeasures/management actions to address specific risks.
- Approving the work plans prepared by the National Project Manager (prior to approval by UNEP and UNDP).
- Conducting regular meetings to review the progress of the LDCF project and providing direction and recommendations to ensure that the agreed deliverables are produced to a satisfactory standard.
- Reviewing and approving all activities that are supported by the project based on the project objectives, work plan and availability of funding.
- Providing technical advice to create synergy and uniformity between supported activities, policies and alignment projects.
- Monitoring and evaluation of programme activities through periodic meetings and occasional site visits.
- Receiving reports on all activities supported by the programme to serve as an additional basis for monitoring and assessing the LDCF project's performance and delivery.

A 5.2 Terms of Reference for Project Manager (PM)

Scope of Work

The National Project Manager will be recruited by MINAMB on a full-time basis to coordinate the implementation of the LDCF project under the guidance of the National Project Director. He/she will be accountable to the National Project Director for *inter alia*: i) the quality, timeliness and effectiveness of the interventions carried out; and ii) the use of project funds[115].The PM will report to the TA and the PSC.

Particular responsibilities of the PM include:

- Head the PMU.
- Report to the TA and the PSC regarding project progress.
- Oversee and manage project implementation, monitor work progress, and ensure timely delivery of outputs in accordance with GEF and UNEP/UNDP guidelines.
- Ensure timely preparation of detailed AWPs and budgets for approval by PSC.
- Ensure timely preparation of detailed AWPs and budgets for approval by PSC.
- Organise the PSC meetings.
- Deliver quarterly progress reports to the National Project Director, UNEP Task Manager and UNDP.
- Provide on-the-ground information for UNEP/UNDP progress reports.
- Provide technical support to the project, including measures to address challenges to project implementation.
- Supervise, coordinate and facilitate the work of the Project Administrative Assistant (PA), the Financial Manager (FM), the Technical Advisor (TA), field officers and the technical support unit (including national and international experts).
- Participate in training activities, report writing and facilitation of expert activities that are relevant to the National Project Manager's area of expertise.
- Establish linkages and networks with the ongoing activities of other government and non-government agencies. This will include meeting quarterly with the Project Manager of the Cuvelai Project to support alignment between the two GEF projects.
- Liaise and coordinate with UNEP TM on a regular basis.

Qualifications

- Master's degree in environment, natural resources management, coastal restoration or a closely related field.
- A minimum of 10 years relevant work experience including at least 6 years' experience as a lead project manager in relevant sectors.
- Demonstrated solid knowledge of adaptation to climate change, ecological restoration and sustainable exploitation of natural resources.
- Experience in the public participation development process associated with environment and sustainable development is an asset.
- Experience in working and collaborating within governments is an asset as well as experience in GEF projects.
- Fluent in Portuguese and English including writing and communication skills.

Reporting

The PM will work closely with the PSC, TA and the UNDP and UNEP TMs to ensure the availability of information on progress and performance regarding the implementation of the project. The PM will deliver progress reports on a monthly basis to the TMs and the TA. These reports will include: i) status of activities; and ii) challenges encountered on the ground during project execution.

[115] The Executing Agency is also accountable for the use of LDCF project funds.

A 5.3 Terms of Reference for the Technical Adviser (TA)

The TA will provide technical guidance on the implementation of Component 3 to the PM. The position of TA will be filled by an international expert. The TA will work on a cost-sharing basis with the UNDP Cuvelai Project.

Duties and Responsibilities
Under the overall guidance of the UNDP Country Director and direct supervision of the Programme Specialist for Climate Change (UNDP Angola), the Adaptation to Climate Change Specialist (ACCS) will be internationally recruited by UNDP and she/he will be responsible for providing overall technical backstopping, monitoring and operational support to the above Projects. Among other specific tasks, the ACCS will coordinate the provision of the required technical inputs, reviewing and preparing Terms of Reference and reviewing the outputs of consultants and other sub-contractors. He/she will provide technical support to the National Project Director (Director of Climate Change Cabinet – Ministry of Environment) and to UNDP Angola on Adaptation issues. The ACCS also will lead in gathering information, analysis, and reporting to the Country Office and its partners.

To facilitate his/her functions, she/he will be based in Luanda with frequent travels to field sites.

Duties and Responsibilities

1. Provide technical and strategic assistance for project activities, including planning, monitoring and site operations;
2. Prepare and implement a capacity development plan on climate change adaptation;
3. Prepare Terms of Reference for consultants and sub-contractors, and assist in the selection and recruitment process;
4. Ensure quality control of interventions/outcomes/deliverables;
5. Support the Manager/national project coordinator, consultants and sub-contractors for the timely delivery of expected outputs, with international quality standards, and effective synergy among the various sub-contracted activities;
6. Assist the National Project Manager/coordinator by providing technical inputs during the preparation and revision of the Management Plan, Annual Work Plans, periodic reports such as the Combined Project Implementation Review/Annual Project Report (PIR/APR), inception report, technical reports, quarterly reports for submission to UNDP, the GEF, other donors and Government Departments, as required;
7. Assist the National Project Director (Director of Climate Change Cabinet – Ministry of Environment) in other Adaptation to climate change related issues, ensuring coordination among national interventions in the sector in liaison with project partners, donor organizations, NGOs and other groups to ensure effective coordination of project activities;
8. Assist in undertaking revisions in the implementation program and strategy based on evaluation results and orientations received from the National Director and the PSC;
9. Document lessons from project implementation and make recommendations to the Steering Committee for more effective implementation and coordination of project activities; and
10. Perform other tasks as may be requested by the National Project Director and/or by the UNDP CO.

Competencies
- Interacts, establishes and maintain effective working relation with a diverse team
- Displays a good understanding of issues related to protected areas and stakeholders engagement in GEF projects
- Works toward creative solutions by analyzing problems carefully and logically

- Sets priorities, produces quality outputs, meets deadlines and manages time efficiently
- Writes and speaks clearly and convincingly
- Practices attentive and active listening
- Responds positively to critical feedback and differing point of view
- Ability to communicate effectively in order to communicate complex, technical information to technical and general audiences
- Skills in negotiating effectively in sensitive situations
- Skills in achieving results through persuading, influencing and working with others
- Skills in facilitating meetings effectively and efficiently and to resolve conflicts as they arise

Required skills and experience
- At least an advanced post-graduate at or above M.Sc. level in climate change adaptation or a related Advanced university degree (Master or PhD) in a relevant field (ecology, natural resources management, rural development, meteorology, agronomy, etc.) with consistent professional specialization in issues of Adaptation to climate change (ACC).
- Extensive knowledge of ACC issues, including community involvement and capacity development, vulnerability assessments, integration of climate component into policies and strategies, ecosystem based adaptation, etc. Have at least 5 years of proven experience in the mentioned field;
- Previous experience on projects implementation (more than 4 years); with GEF funded projects will be an advantage;
- Previous experience in Africa; previous experience in Angola will be an advantage;
- Fluent in Portuguese and English (oral and written) is a requirement; candidates fluent in Spanish/English (oral and written) will be also taken into consideration.

The TA will cooperate with the PM to ensure the availability of information on progress and performance in the implementation of the project. In the performance of his/her duties, the TA will work in close collaboration with Monitoring and Learning Specialist, and update him/her on the progress of interventions under the UNDP component of LDCF resources.

A 5.4 Terms of Reference for the Monitoring and Learning Specialist (MLS)

Scope of Work
The MLS will be recruited by UNEP and probably be an International. She/he will be based in Luanda with regular field missions to project sites. He or she will manage the UNEP reporting requirements.

Responsibilities
- Provide quality assurance and technical review of project outputs.
- Undertake technical review of project outputs (e.g. studies and assessments).
- Write ToRs for technical consultancies with the NPM.
- Supervise the work of national and international experts.
- Assist in monitoring the technical quality of project (including AWPs, indicators and targets).
- Conduct the financial administrative reporting and the PIR.
- Provide advice on best suitable approaches and methodologies for achieving project targets and objectives.
- Provide a technical supervisory function to the work carried out by the national and international experts hired by the project.
- Assist in knowledge management, communications and awareness raising.

- Facilitate the development of strategic regional and international partnerships for the exchange of skills and information related to climate change adaptation.

Qualifications
- At least an advanced post-graduate at or above MSc level in climate change adaptation or a related discipline such as disaster risk reduction, environmental management, natural resources management, agriculture, water resources management.
- A minimum of 5 years' experience in a senior technical lead position with planning and management of climate change adaptation and/or natural resources management programmes in developing countries.
- A minimum of 5 years in a senior technical position involved in institutional strengthening and capacity building.
- Previous similar experiences in provision of technical support to complex projects.
- Experience in the Southern African region would be an advantage.
- Good communication and computer skills.
- Fluent in spoken and written Portuguese and English.

Reporting
The MLS will report to the chair of the NPM. In addition, the MLS will cooperate with the NPM and TA to ensure the availability of information on progress and performance in the implementation of the project. In the performance of his/her duties, the MLS will work in close collaboration with the UNDP and UNEP TMs to update them on the project's progress.

A 5.5 Terms of Reference of the Finance Manager (FM)

The FM will be nationally recruited and report to the NPM. The FM will be familiar with both UNEP and UNDP financial administration procedures and financial reporting requirements. He or she will produce the necessary financial reports for both agencies.

Responsibilities
- Standardise the finance and accounting systems of the project while maintaining compatibility with the government and UNDPs financial accounting procedures.
- Prepare revisions of the budget and assist in the preparation of the AWPs.
- Comply and verify budget and accounting data by researching files, calculating costs and estimating anticipated expenditures from readily available information sources.
- Prepare status reports, progress reports and other financial reports.
- Process all types of payment requests for settlement purposes including quarterly advances to the partners upon joint review.
- Prepare periodic accounting records by recording receipts, disbursements (ledgers, cashbooks, vouchers, etc.) and reconciling data for recurring or financial reports and assist in preparation of annual procurement plans.
- Undertake project financial closure formalities including submission of terminal reports, transfer and disposal of equipment, processing of semi-final revisions, and support professional staff in preparing the terminal assessment reports.
- Assist in the timely issuance of contracts and assurance of other eligible entitlements of the project personnel, experts, and experts by preparing annual recruitment plans.

Qualifications
- At least a post-graduate degree in accounting, financial management or a related discipline such as.

- A minimum of 5 years' experience in a senior finance position.
- Previous similar experiences working for International Organisations. Working for an UN agency would be an advantage.
- Experience with procurement processes an advantage.
- Good communication and computer skills.
- Fluent in spoken and written Portuguese and English.

A 5.6 Terms of Reference for the Project Administrative Assistant (PA)

Under the supervision of the NPM, a PA will be hired to directly support the National Project Manager with administrative tasks.

Responsibilities
- Report to the NPM
- Assist the NPM with PIRs, Project reports and the Project closure workshop.
- Assist the NPM with the preparation of visits to the project demonstration sites.
- Assist the NPM with daily administrative and logistical tasks.

Qualifications
- Bachelor degree in the field of natural resource management, environment or a related field.
- Experience working in the field of environment and sustainable development an asset.
- Experience in working and collaborating with local authorities an asset.
- Excellent knowledge of English and Portuguese including writing and communication skills.

A 5.7 General Terms of Reference for International Experts of the Support Team

Project implementation will be supported by **contractors**, selected according to UNEP and UNDP procurement rules. The MINAMB can contract other entities – defined as Responsible Parties – to undertake specific project tasks through a process of competitive bidding. However, if the Responsible Party is another government institution, Inter-governmental Organisation or a United Nations agency, competitive bidding will not be necessary and direct contracting will be applied. Confirmation of direct contracting will need to comply with comparative advantage, timing, budgeting and quality criteria. If direct contracting criteria cannot be met the activity will be open to competitive bidding.

The international experts will be hired to perform the following tasks:
- Collect data.
- Provide advice relevant to their field.
- Monitor interventions.

Additionally, the international consultants must be experts in their field. In addition, the international experts should have good knowledge and understanding of Angola's climate change risks. They should have an appropriate MSc degree and a minimum of 5 years' experience or an appropriate bachelor's degree and 10 years' experience in their field of expertise. Fluency in spoken and written Portuguese and English is required.

A 5.8 General Terms of Reference for National Experts of the Support Team

Local expertise will be sourced where possible in place of international expertise in order to strengthen in-country capacity. National experts will be hired by the project to:
- Collect data.

- Provide advice relevant to their field.
- Monitor interventions.

Additionally, the national experts must be experts in their field. Additionally, they should have good knowledge and understanding of Angola's climate change vulnerability and an appropriate MSc degree and a minimum of 5 years' experience or an appropriate bachelor's degree and 10 years' experience in their field of expertise. National experts need to be fluent in spoken and written Portuguese and English.

The hiring procedures to be followed for both international and national experts must include a transparent and competitive process based on normal UNEP and UNDP procedures.

Appendix 12: Endorsement letters of GEF National Focal Points

Republic of Angola
Ministry of Environment

20 th December 2012

To:Maryam Niamir-Fuller
Director, GEF Coordination Office
UNEP, Nairibi

Subject: **Endorsement for Addressing Urgent Coastal Adaptation Needs and Capacity Gaps in Angola.**

In my capacity as Focal Point Operational to the GEF of the Republic of Angola, I confirm that the above project proposal: (a) is in accordance with the government's national priorities (incluinding, if available, the priorities identified in the National Adaptation Plan of Action and/or National Capacity Self-Assessment) and our commitment to the relevant global environmental conventions; (b) and was discussed with relevant stakeholders, including the Global Environmental Convention Focal Points.

I am pleased to endorse the preparation of the above project proposal with support of the GEF Agency listed below. If Approved, the proposal will be prepared and implemented by UNEP. I request the GEf Agency(ies) to provide a copy of the project document before it is submitted to the GEF Secretariat for CEO endorsement.

The total finance /from GEFTF, LDCF and / or SCCF) being requested for this project is **US$ 6.931.350,00** inclusive of project preparation grant (PPG), if any Agency fees for project cycle management services associated with the GEF grant. The financing requested for Angola is detailed in the Table below:

Source of Funds	GEF Agency	Focal Area	Amount (in USD)			
			Preparartion Project	Project	Fee	Total
LDCF	UNEP	CC	150.000,00	5,180.000,00	506.350,00	5.836.350,00
(LDCF)	(UNDP)	(CC)		1.000.000,00	95.000,00	1.095.000,00
(select)	(select)	(select)				
(select)	(select)	(select)				
Total GEF Resources			**150.000,00**	**6,180.000,00**	**601.350,00**	**6.931.350,00**

Sincerely,

Dr. Carlos Avelino Manuel Cadete

National Director of Statistics, Planning and Studies Gabinet

Appendix 13: Co-financing commitment letters from project partners

REPÚBLICA DE ANGOLA
MINISTÉRIO DA ENERGIA E ÁGUAS
GABINETE DO MINISTRO

AO
GABINETE DE
SUA EXCELÊNCIA
SENHORA MINISTRA DO AMBIENTE

LUANDA

REF.ª 1763/GAB.MINEA/15

ASSUNTO: PROJECTO "ANGOLA NECESSIDADE DE DIRIGIR-SE URGENTEMENTE A ADAPTAÇÃO DAS ORLAS COSTEIRAS E AS LACUNAS DE CAPACITAÇÃO EM ANGOLA"

Fazemos referência ao vosso ofício 685/10.22/GAB.MINAMB/15, datado de 06 de Novembro de 2015, sobre o assunto em epígrafe.

Por incumbência de Sua Excelência Ministro da Energia e Águas, somos a solicitar-vos, que por vosso intermédio seja enviado o ofício em anexo, dirigido a Exma. Senhora, Naoko Ishii.

Sem mais de momento, queira aceitar, os nossos

Distintos cumprimentos

GABINETE DO MINISTRO DA ENERGIA E ÁGUAS, EM LUANDA, AOS 20 DE NOVEMBRO DE 2015.

A DIRECTORA DE GABINETE

TERESA DIAS DOS SANTOS

1 - Org. Moké, Lda

REPÚBLICA DE ANGOLA
MINISTÉRIO DA ENERGIA E ÁGUAS
GABINETE DO MINISTRO

Á
EXMA
SENHORA
NAOKO ISHII
DIRECTORA EXECUTIVA DO FUNDO
GLOBAL PARA O AMBIENTE
WASHINGTON, D.C.
U.S.A.

REF.ª 1743/GAB.MINEA/15

ASSUNTO: PROJECTO "ANGOLA: NECESSIDADE DE DIRIGIR-SE URGENTEMENTE A ADAPTAÇÃO DAS ORLAS COSTEIRAS E AS LACUNAS DE CAPACITAÇÃO EM ANGOLA"

Exma. Senhora,

O Ministério da Energia e Águas está a implementar o Projecto de Desenvolvimento Institucional do Sector de Água em Angola (PDISAA) financiado pela Associação Internacional de Desenvolvimento (AID) do Banco Mundial (BM). O projecto iniciou em 2010 e será implementado ao longo de um período de cinco anos. PDISAA fortalecerá a capacidade institucional e a eficiência das agências no sector da água para melhorar o acesso e a confiabilidade do fornecimento de água.

O projecto é composto por 4 componentes: i) o desenvolvimento de instituições no abastecimento de água e subsector de saneamento; ii) a gestão de recursos hídricos; iii) a reabilitação dos sistemas de abastecimento de água; e iv) a capacitação e gerenciamento de mudanças para fortalecer a habilidade do governo em melhorar o abastecimento de água.

O PDISAA, conforme descrito acima, está bem alinhado com o projecto financiado pelo GEF LDCF intitulado: "Necessidade de dirigir-se urgentemente a adaptação das orlas costeiras e as lacunas de capacitação em Angola". Particularmente, a componente 4 do PDISAA vai directamente ao encontro do projecto GEF LDCF.

Mod. 1 – Org. Moké, Lda

MINISTÉRIO DA ENERGIA E ÁGUAS

Esta carta tem como finalidade confirmar que o Ministério de Energia e Água apoiará com USD 3.000.000,00 através da AID como co-financiamento para o projecto GEF LDCF em Angola. Esta colaboração proporcionará benefícios mútuos e reforço dos resultados para ambos os projectos.

Aproveitamos a oportunidade para reiterar-lhe os protestos da nossa elevada estima e consideração.

GABINETE DO MINISTRO DA ENERGIA E ÁGUAS, EM LUANDA AOS 16 DE NOVEMBRO DE 2015.

O MINISTRO

JOÃO BAPTISTA BORGES

REPÚBLICA DE ANGOLA
MINISTÉRIO DAS TELECOMUNICAÇÕES E TECNOLOGIAS DE INFORMAÇÃO
GABINETE DO MINISTRO

Á
SUA EXCELÊNCIA
MINISTRA DO AMBIENTE
DRª MARIA DE FATIMA JARDIM

LUANDA

S/Referência: S/Comunicação: N/Ref: 182/GAB.MTTI/2015

Assunto: PROJECTO ``ANGOLA: NECESSIDADE DE DIRIGIR-SE URGENTEMENTE A ADAPTAÇÃO DAS ORLAS COSTEIRAS E AS LACUNAS DE CAPACITAÇÃO EM ANGOLA´´

Em atenção ao **ofício n.º 683/10.21/GAB.MINAMB/15**, somos a informar que, foi aprovado pelo Executivo, através do **Decreto Presidencial o Plano de Desenvolvimento Estratégico (PDE)**, para o **INAMET** financiado pelo Governo de Angola. O plano estará operacional durante o período de **2012-2018**. O objectivo primário é o de tornar o Instituto Nacional de Meteorologia e Geofísica **(INAMET)** em uma Instituição Pública moderna e capaz de dar suporte ao desenvolvimento sustentável do País.

Consequentemente, o **PDE** tem 3 prioridades:

i. **Promoção da boa governação e reforço da capacidade técnica do INAMET;**
ii. **Aplicação de dados climáticos e geofísicos, para apoiar diversas actividades socioeconómicas;**
iii. **Concepção de uma política de recursos humanos no INAMET, capaz de tornar o Instituto numa Instituição de investigação científica.**

O **PDE** descrito acima está, portanto alinhado com o projecto financiado pelo **GEF LDCF** intitulado: ``Necessidade de dirigir-se urgentemente a adaptação das orlas costeiras e as lacunas de capacitação em Angola´´.

Reiteramos o nosso compromisso no apoio ao desenvolvimento do projecto com os meios disponiveis e com as dotações refletidas no Orçamento Geral do Estado do Sector para 2016, nos seguintes projectos de actividade:

1. **Est portal agrometereologico on line de apoio a Agricultura;**
2. **Estruturação do sistema de previsão do tempo;**
3. **Formação e capacitação de quadros;**
4. **Massificação do uso das TICs;**
5. **Operacionalização das infra-estruturas Institucionais;**
6. **Promoção e regulação do Desenvolvimento da Ciência e Tecnologia.**

Cujo montante global dos projectos referenciados é de **922.429.051,00Kz (novecentos e vinte e dois mil e quatrocentos e vinte e nove mil e cinquenta e um Kwanza)**

Queira aceitar as nossas cordiais Saudações.

GABINETE DO MINISTRO DAS TELECOMUNICAÇÕES E DAS TECNOLOGIAS DE INFORMAÇÃO, *em Luanda, aos 29 de Dezembro de 2015.-*

O MINISTRO

JOSÉ CARVALHO DA ROCHA

UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement | Programa de las Naciones Unidas para el Medio Ambiente
Программа Организации Объединенных Наций по окружающей среде | برنامج الأمم المتحدة للبيئة
联合国环境规划署

UNEP

Reference : DEPI/GEFCCAU 1 March, 2016

Subject: UNEP co-financing commitment to the LDCF project *"Addressing Urgent Coastal Adaptation Needs and Capacity Gaps in Angola"*

UNEP helps developing countries to reduce vulnerabilities and build resilience to the impacts of climate change. UNEP builds and strengthens national institutional capacities for vulnerability assessment and adaptation planning, and supports national efforts to integrate climate change adaptation measures into development planning and ecosystem management practices. The project entitled "Addressing Urgent Coastal Adaptation Needs and Capacity Gaps in Angola" is built upon and contributes to the on-going projects and programs implemented by UNEP.

More specifically, this LDCF project will be aligned and build upon and provide mutual benefits to the UNEP-European Commission project on 'Building Capacity for Coastal Ecosystem-based Adaptation in Small Island Developing States (SIDS)' (2014-2016). This project will assist countries and regions develop and apply ecosystem-based adaptation approaches to maintain and enhance the resilience of tropical coastal ecosystems and the services they provide to coastal communities in SIDS. This project will contribute to building a knowledge portal and advisory tool for helping communities select EbA options. It has also produced a guide on 'Options for Ecosystem-based Adaptation in Coastal Environments' which will be promoted as a planning tool in this project as a broader guide for EbA interventions in Angola.

This letter serves to confirm UNEP's commitment to the above-mentioned GEF LDCF project to provide co-financing through the project detailed here. This project will contribute 150,000 USD in co-financing towards the LDCF project *"Addressing Urgent Coastal Adaptation Needs and Capacity Gaps in Angola"*.

We look forward to your continued cooperation.

Yours sincerely,

Keith Alverson
Coordinator, Climate Change Adaptation & Terrestrial Ecosystem Branch

DIVISION OF ENVIRONMENTAL POLICY IMPLEMENTATION (DEPI)
P.O. Box 30552-00100, Nairobi, Kenya
Tel: (+254 20) 762 6707
Email: keith.alverson@unep.org

UNITED NATIONS ENVIRONMENT PROGRAMME
Programme des Nations Unies pour l'environnement Programa de las Naciones Unidas para el Medio Ambiente
Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة
联合国环境规划署
UNEP

Dr. Naoko Ishii
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Global Environment Facility
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Washington DC 20433, USA
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P.O. Box 30552-00100, Nairobi, Kenya
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Appendix 14: Tracking Tools

Tracking Tool for Climate Change Adaptation Projects

Project Identification			
Project title:	Addressing Urgent Coastal Adaptation Needs and Capacity Gaps in Angola		
Country:	Angola	GEF Project ID:	5230
GEF Agency	UNEP, UNDP	Agency Project ID:	
Executing Partners:	MINAMB	Council/CEO Approval date	
Project status at submission		Tool submission date:	

Project baselines, targets and outcomes						
Objective 1: Reduce the vulnerability of people, livelihoods, physical assets and natural systems to the adverse effects of climate						
Outcome 1.3: Climate resilient technologies and practices adopted and scaled up						
Indicator	**Unit of measurement**	**Baseline at CEO Endorsement**	**Target at CEO Endorsement**	**Actual at mid-term**	**Actual at completion**	**Comments (e.g. specify unit of measurement**
Indicator 4: Extent of adoption of climate-resilient technologies/practices	number of people	0	500			
	% female	0	30%			
	% of targeted	To be determined from site reports	~1%			
	number of ha (mangrove restored)	0	561			
	% of targeted	0	N/A			

Objective 2: Strengthen institutional and technical capacities for effective climate change adaptation						
Outcome 2.1: Increased awareness of climate change impacts vulnerability and adaptation						
Indicator	**Unit of measurement**	**Baseline at CEO Endorsement**	**Target at CEO Endorsement**	**Actual at mid-term**	**Actual at completion**	**Comments (e.g. specify unit of measurement**
Indicator 5: Public	Yes/No	No	Yes			

awareness activities carried out and population reached	number of people	0	1000			
	% female	0	50			

Objective 3: Integrate climate change adaptation into relevant policies, plans and associated processes						
Outcome 3.1: Institutional arrangements to lead, coordinate and support the integration of climate change adaptation into relevant policies, plans and associated processes established and strengthened						
Indicator	**Unit of measurement**	**Baseline at CEO Endorsement**	**Target at CEO Endorsement**	**Actual at mid-term**	**Actual at completion**	**Comments (e.g. specify unit of measurement**
Indicator 11: Institutional arrangements to lead, coordinate and support the integration of climate change adaptation into relevant policies, plans and associated processes	Frequency of annual meetings of CIBAC inter-ministerial commission on biodiversity and climate change	No regular, systematic meetings	At least 3 CIBAC meetings planned per year			

Appendix 15: Site reports by National Consultant

These are available as separate files accompanying the project document.

Appendix 16: Inception Mission Report for PPG Phase

Republic of Angola

Ministry of Environment

Inception Mission Report

Prepared by:
Nicholas Tye and Zoë Visser
C4 EcoSolutions, Cape Town, South Africa

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Image 1: Visit to fishing community in Barro do Dande

Image 2: International consultant with Ministry of Environment colleagues at Barro do Kwanza

Acknowledgements

UNEP, UNDO and C4 EcoSolutions (C4) consultants would like to thank all of those who participated in the stakeholder consultations and Project Team Meeting. Your knowledge, experiences and recommendations are greatly appreciated and will enable the project to meet the most urgent needs in the coastal zone area of Angola, and to maximise the benefits of the project activities.

Brief Summary of the mission

The mission was undertaken to support the Angolan Ministry of Environment (MoE), UNEP and UNDP to engage with line ministries and other key stakeholders in the design of the project titled 'Addressing Urgent Coastal Adaptation Needs and Capacity Gaps in Angola', to be financed by GEF-LDCF. The primary objectives of this mission were to: i) update the outcomes, outputs and activities designed at the PIF stage; ii) identify potential baseline projects and co-financing; iii) identify and select potential interventions; and iv) develop indicative financing/budget for proposed project activities, including GEF grant funding, co-financing amounts from the baseline project and any additional local funding that may be available. To achieve these objectives; the C4 consultants and the project team conducted meetings with key stakeholders in government, development agencies and NGOs. Additional information was collected through visits to potential pilot areas and meeting with local community members. An inception workshop with key stakeholders had been planned, but overlap with national budgetary meetings and unforeseen delays in sending out workshop invitations necessitated the delay of the workshop until late January 2015. Instead the project team – including the UNFCCC focal point, members of the Climate Change Cabinet, UNDP, national consultants and C4 consultants – met for a morning to discuss project design, site selection, and team deliverables (see Appendix 3).

A further purpose of the inception mission was to inform stakeholders about the project objectives and to generate consensus with regards to the selection of interventions. Particularly, meetings during the inception mission aimed to:

i) provide an understanding of the project, including the project components;
ii) verify that the interventions and project components reflect the priority needs for the coastal zone area;
iii) generate discussion to identify risks to successful project implementation; and
iv) build ownership of the project.

A field mission was organised to familiarise the C4 consultants with coastal ecosystems and local communities that are vulnerable to the effects of climate change (see image 1 and 2). The field mission focused on Luanda South (Barra do Kwanza) and Bengo North (Barra do Dande).

Stakeholder consultation programme during the inception mission

The information collected during the meetings listed below is presented in Appendix 2.

Date	Stakeholder	Institution/Project
12 Novmber	Allan Cain Paul Robson Zia Tiago	Development Workshop (NGO)
13 November	Ana Maria Carvalho	World Bank
13 November	Luis Constantino	Climate Change Cabinet
13 November	Manuel Enock	Institute of Agricultural Development
13 November	David Tunga	Cabinet of Food Security
13 November	Mamoudou Diallo	FAO
13 November	Nelvina Barreto-Gomes Mateus Felisberto	African Development Bank
14 November	Arnaldo Andrade	Ministry of Transport, Marine Institute
14 November	Maria Alvaz	Ministry of Fisheries, Institute of Aquaculture
14 November	Dr Filomena Vas Velho	National Institute for Fisheries Research
14 November	Nkosi Luyeye	Institute for Artisanal Fisheries
14 November	David Naseimento	INAMET
16 November	Manuel Xavier Junior	Ministry of Petroleum

Appendix 1: List of participants and contact details

#	Name	Institution/Agency	Email address
1.	Allan Cain	Development Workshop	allan.deveworks@angonet.org
2.	Paul Robson	Development Workshop	paul.robson@angonet.org
3.	Zia Tiago	Development Workshop	Josetiago.dworg@angonet.org
4.	Ana Maria Carvalho	The World Bank	acarvalho1@worldbank.org
5.	Luis Constantino	Climate Change Cabinet	luconsta@hotmail.com
6.	Manuel Enock	Institute of Agricultural Development	enockmanuel@hotmail.com
7.	David Tunga	Food Security Cabinet	tunga100565@gmail.com
8.	Mamoudou Diallo	FAO	mamoudou.diallo@fao.org
9.	Lisa Angeli	FAO	lisa.angeli@fao.org
10.	Paulo Vincente	FAO	paulo.vincente@fao.org
11.	Nelvina Barreto-Gomes	African Development Bank	n.barretogomes@afdb.org
12.	Mateus Felisberto	African Development Bank	f.mateus@afdb.org
13.	Arnaldo Andrade	Ministry of Transport, Martine Institute	arteimand274@hotmail.com
14.	Maria Alvaz	Institute for Aquaculture	mariaalvaz66@hotmail.com
15.	Dr Filomena Vas Velho	National Institute for Fisheries Research	menavelho@gmail.com
16.	Nkosi Luyeye	Institute for Artisanal Fisheries	
17.	David Naseimento	INAMET	domingos.nascimento@inamet.gov.ao
18.	Manuel Xavier Junior	Ministry of Petroleum	manuel.junior@minpet.gov.ao

Appendix 2: Information collected during the stakeholder consultations

12 November 2014

Development Workshop
Allan Cain – Director
Paul Robson – Senior Researcher, Advisor and Trainer
José Tiago – Head of Climate Change Adaptation Research

- During the war, many people migrated from the interior to the coastal strip of Angola. Between 60 and 70% percent of the population currently live along the coastal strip.
- DWA has a strong urban focus, and believe that climate change will affect poorly planned and over-crowded urban areas more intensely than rural areas.
- Is currently in the third year of a three year project: Climate Change, Water Supply and Coastal Settlements in Post-War Angola, funded by IDRC CRDI (USD 600 000). DW would like our project to offer some continuity with research that they have already started in Namibe, Cabinda and Luanda.
- Emphasised high degree of climate variability in coastal areas and the limitations on climate monitoring within Angola. They are putting together historical data in order to form a better picture of variability within pilot settlements. There is a lack of environmental statistics from 1974 onwards – Angola has only just caught up with the number of weather stations that they had in the 1930's.
- From their data it seems that there are increasingly rapid cycles of flooding and drought. Methodology includes focus groups, household surveys and GIS mapping.
- One challenge is that in many coastal cities there is a rapid migration from the city centres (which are becoming gentrified) to the more environmentally high risk areas on the city margins (often in flood plains).
- Climate change is exacerbating existing endemic health problems such as malaria and diarrheal diseases.
- DW are about to start testing the use of basic phones for communicating water monitoring information from local communities to a central database.
- NGO networks include the Land Network and the REDE Maiombe Network.
- Cabinda is coping better with flooding than Luanda. There is less intensity of rainfall and better waste water management.
- An EWS systems could be useful for residents of cities positioned at river mouths, allowing time for people to respond to the threat from heavy rainfall upstream. They have installed three flow monitors in Benguela province.
- DW has land tenure software that could assist in identifying relevant community stakeholders in environmentally sensitive areas. Approximately 10% of people have land titles, for the rest their ownership is occupation-based.

13 November 2014

World Bank
Ana Maria Carvalho – Operations officer and acting Country Director

- Ana suggests that we speak to FAO country representative subcontracted by the Ministry of Agriculture to implement the Agriculture Project. The agriculture project is meant to have ended this year but has been extended for one year.

- The Local Development Project (LDP) has three components: i) construction and rehabilitation of basic infrastructure; ii) an economic development pilot; and iii) capacity building of local government.
- World Bank has been requested to provide additional funding to the government of Angola. If this funding comes through there will be a USD 250 million investment in agriculture.
- Ana agrees in principle that the LDP project could contribute co-financing and is willing to sign a co-financing letter, pending discussions with the Ministry of Agriculture.

Climate Change Cabinet
Luis Constantino – Director of Drought and Desertification Unit

- The Ministry of Civil Protection deals most with climate-related catastrophes.
- In his experience with working with INAMET, EWS systems can be low cost. For example, flow monitoring can just be a measuring device that is monitored by a municipal government employee such as an extension officer. He or she would not be paid more to perform this service, but would be capacitated to do so as part of his or her current portfolio of tasks.
- Local communities are generally keen to cooperate with regards to weather monitoring, as they recognise the need for an EWS service.
- Current means of communicating with local communities by INAMET office include: T.V, newspapers, bulletins and radio. Community radio stations are not a viable option for political reasons. Importantly, flags are used in remote rural areas and also in cities to warn people of different environmental threats. For example, in Luanda flags are used on beaches to denote safe/ unsafe swimming. Communities are trained to understand the meaning of different flags and to respond appropriately.
- Vandalism of weather stations is a low risk, in his opinion.
- There are two different ministerial groups that relate to the environment: the inter-ministerial Commission for Climate Change and Biodiversity(CNACB) attended by deputy ministers and the Multi-sectoral Commission for Environment (CMA), attended by Ministers.

Institute of Forestry Development (Ministry of Agriculture)
Manuel Enock – Deputy Director

- The mission of this ministry is to manage forests, including mangroves.
- Currently they are implementing two projects:
    1. Conservation of forests in coastal areas and combatting desertification, financed by GoA and an Israeli NGO. This is being implemented in collaboration with an Israeli group who are providing technical assistance. It is a public investment project. Sites: Started in Namibe and will soon be implemented in Benguala and Kwanza Sul.
    2. Integrated project for the protection and development of Angolan coastal forests (PIPDEFA), financed by EU and COSPE (~EUR 1.2 million) is focussed on the management of natural resources by local communities, with a focus on improving community livelihoods. In particular, they want to give communities income streams from NTFPS, to reduce the impact of charcoal production on forested areas. Conservation agriculture practices being taught include agro-forestry, retention of vegetation and water management. NTFPS include honey, mushrooms, roots and tubers. Most of these are for subsistence but they are exploring the potential of linking honey production to markets. The honey houses established by the project will remain assets of the communities after the project has ended.
- Neither of these projects deal with erosion control or mangroves, so the Deputy Director is keen to build synergies with our project to fill this gap.

- The Ministry of Planning coordinates all the projects being run through the government. They will be a good source of co-financing letters.

Food Security Cabinet (Ministry of Agriculture)
David Tunga – Director

- Considers Namibe the area most effected by climate change due to desertification.
- The Cabinet has a project to detect and manage food insecurity.
- The Cabinet has installed 150 rain gauges and 20 automatic weather stations across the country in collaboration with the Ministry of Energy and Water.
- Grass roots research across the country has helped the Cabinet to understand patterns of vulnerability across different regions. This information is downscaled to a village level because of the village-level methodology. This data assists with the distribution of food aid.
- FEWSNET no longer has country offices, but they have a regional presence, based in South Africa.
- Cassava is a drought resilient crop.
- The movement of people between areas of Angola during the war has also changed agricultural patterns. For example, beans, cassava and cattle are now cultivated across more of the country.
- One intervention to combat drought in dryer provinces is the digging of boreholes.
- Education is a big part of food security. For example, people in Namibe and Cunene like to retain their cattle for status, rather than selling them to improve their financial position and to prevent overstocking.
- Food security cabinet works closely with the Institute of Agricultural Development and the Institute of Forestry Development.

FAO
Mr. Mamoudou Diallo – Director
Lisa Angeli
Paulo Vincente

- FAO has a strong farmer field school methodology. They have established field schools in Namibe and Cunene.
- Animal/human conflict is an issue in Cabinda (rhinos and elephants).
- In Cabinda mangrove destruction is an issue that is not being addressed. They are open to creating synergies with us in this regard.
- They are engaged in a project related to cattle in Namibe and Cunene. Grazing routes have been disrupted by fences and structures in this area, preventing farmers from accessing the fodder necessary to sustain their livestock. Livestock are dying. The project is helping to manage conflict over pasture land and also to improve the quality of the pastures available.
- ADRA (NGO) are another important organisation to speak to with regards to the establishment of farmer field schools.

African Development Bank
Nelvina Barreto-Gomes Country Programme Officer
Mateus Felisberto Senior Economist

- AfDB are undertaking two main projects in Angola:
    - One is the Support to the Fisheries Sector Project (SFSP) which has recently been approved.
    - The other is the Environmental Sector Support Programme (ESSP), which has been identified as a baseline project in our PIF. A fourth component has been developed using GEF funding: a PIF has been approved and PPG phase is underway (Full sized project, #5231, USD 4.416

million). This component relates to climate change and land management practices. Research facilities will be developed in various provinces and will be equipped with laboratory equipment. This is likely to have implications for the amount of cofinancing still available from the ESSP and SFSP for our project.

14 November 2014

Ministry of Transport, Marine Institute
Arnaldo Andrade – Maritime Inspector (environmental focal point)

- A new port is being developed in Bengo, one of the biggest projects currently under the Ministry of Transport.
- A passenger terminal is being developed at Masulu Island to try to deal with the problem of transport into the CBD from residential parts of the city further out.
- Mangrove destruction is a pressing issue.
- EIAs are essential for all development projects, but they are not always enforced or effective in protecting the environment.
- New legislation governing marine areas includes climate change. To pass legislation in Angola one must engage with government, NGOs, private sector. Working groups are often formed to discuss the proposed legislation.
- Works with the Benguela Current Commission (BCC). The BCC meets once a month. 14 ministries are involved. The Minister of Environment is the coordinator of the BCC.
  1.

Ministry of Fisheries, Institute of Aquaculture
Maria Alvaz – National Director of Aquaculture

- The Institute of Aquaculture is in the process of starting various inland and coastal aquaculture initiatives. They aim to involve local communities, with a focus on women, youth, ex-soldiers and war veterans. An idea in exploration is that co-operatives could start small aquaculture initiatives and sell the fish directly to communities.
- Fresh water fish used in aquaculture include catfish and tilapia. Salt water fish include grouper. One of the coastal projects involves releasing live carapou young back into the ocean to address the collapse of the species.
- There is an offshore aquaculture project being planned for Cabinda.
- There is a big local market for fish.
- An action plan for aquaculture is currently in the approval process.

Ministry of Fisheries, INIP (National Institute for Fisheries Research)
Dr Filomena Vas Velho – Director

- There is a report on the state of fisheries resources which contains a large amount of biological information.
- The Institute has monitoring programmes collecting biological information from 7 monitoring sites. They take samples for physical parameters such as temperature, salinity and oxygen. There are fixed stations at Luanda, Benguela and Namib that have been monitored twice a week for 20 years.
- An EU project has showed an interest in data for climate change analysis.
- A barrier to research is that they lack a research vessel, so they are collecting data around two times of the year rather than four.

- The Institute does not yet have capacity to analyse the data, and are recieving training in this regard.

Ministry of Fisheries, Institute for Development of Artisanal Fisheries and Aquaculture
Nkosi Luyeye – Director General

- Along the 1650 km of Angolan coastline there are communities 100% dependent on artisanal fisheries. They are very vulnerable.
- There is a government programme starting next year to generate awareness about mangrove cutting in coastal communities.
- IDPAA also wants to build capacity to do extension work. IDPAA is in charge of monitoring catch along the coast, but they only have six representatives in each coastal province.
- The plan to develop artisanal fisheries has a budget of USD 24 million. Luanda will be the first pilot.
- Fishers are moving away from associations to cooperatives as a means of organising themselves. A law will soon be approved at the national assembly to strengthen the cooperative as a legal entity, allowing more government funding support.
  2.

INAMET
David Nascimento, Director General

- INAMET currently has a strategic plan, approved by government, outlining the expansion of the MET network, including coastal areas.
- Currently there are automated meteorological stations at Cabinda (1), Bengo (1), Luanda (2), Benguela (3) and Namibe (1). There are also rain gauges in each of those provinces. There is good historical data for each of those five provinces – stations are working perfectly, except for the one at Bengo.
- External support to develop this network is welcomed, but the director asks that we work closely with INAMET so that they can advise us on the type of equipment that is compatible with their network. The data can therefore be shared.
- They use Campbell and Lambridge units in their system (the latter is of a higher quality). The costs of a unit will vary, depending on the number of sensors used. INAMET is happy to share technical information with us regarding their requirements.
- In terms of EWS, the data is analysed and sent to the Ministry of Civil Protection. There is a video conferencing link set up so that the two ministries can communicate at any time.
- The Food Security Cabinet programme has installed weather monitoring equipment that is not currently integrated into the INAMET network.
- The currently have 3 IT staff, which is not enough to meet the needs of INAMET.

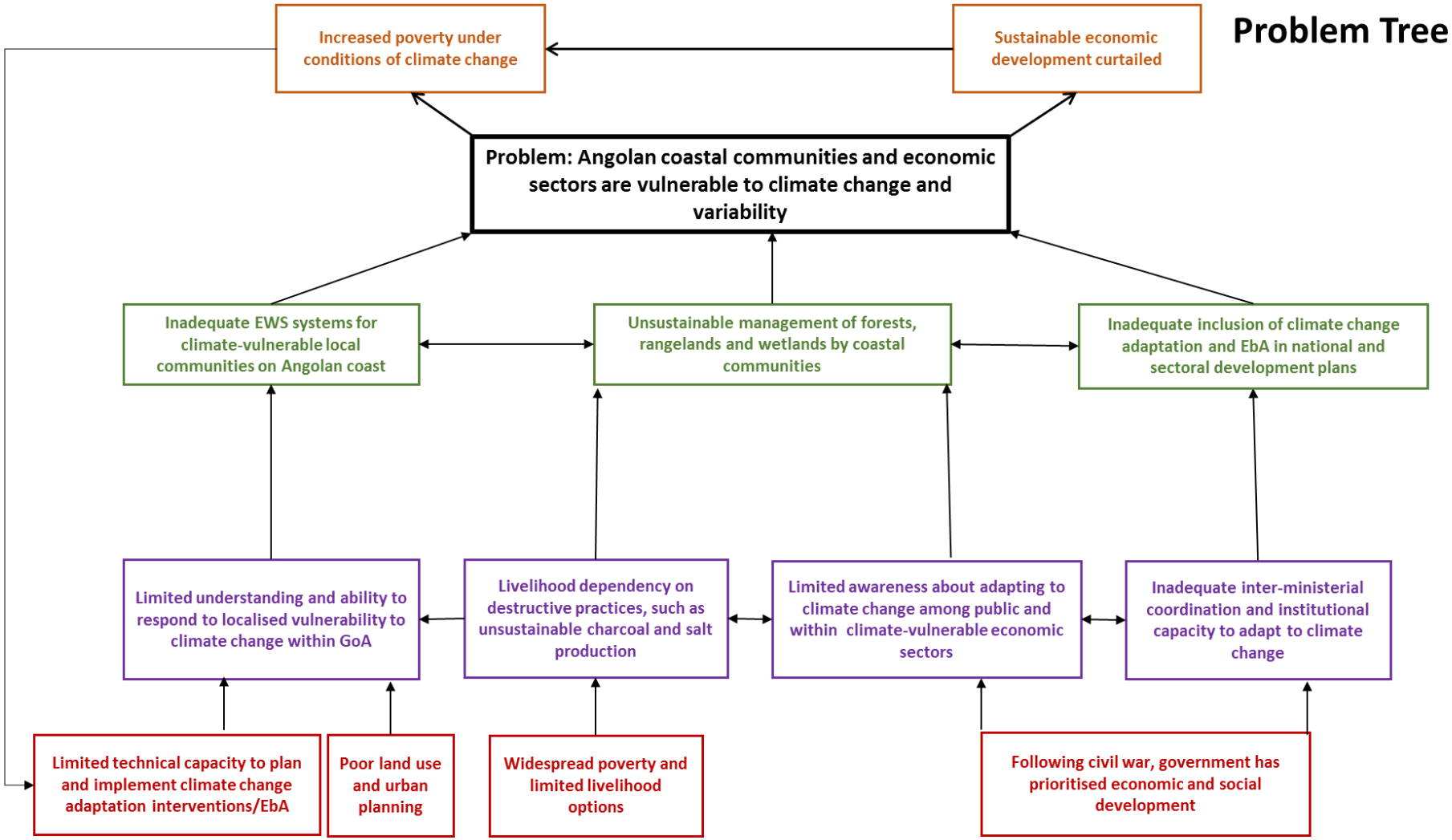
Ministry of Petroleum
Manuel Xavier Junior – National Director of Safety, Emergencies and Environment

- Most of Angola's aquatic pollution comes from offshore petroleum activities. The Director's job is to regulate and monitor environment and safety issues related to the petroleum extraction process.
- EIAs are required for any extractive project that petroleum companies want to develop.
- A National Oil Spill Contingency Plan has been developed so that the most sensitive environmental and social areas can be attended to first in case of an environmental emergency. The first phase (Cabinda to Luanda) has been completed. Local communities are involved in this response plan, e.g. the boats of local fishers will be used to deploy booms into the sea.

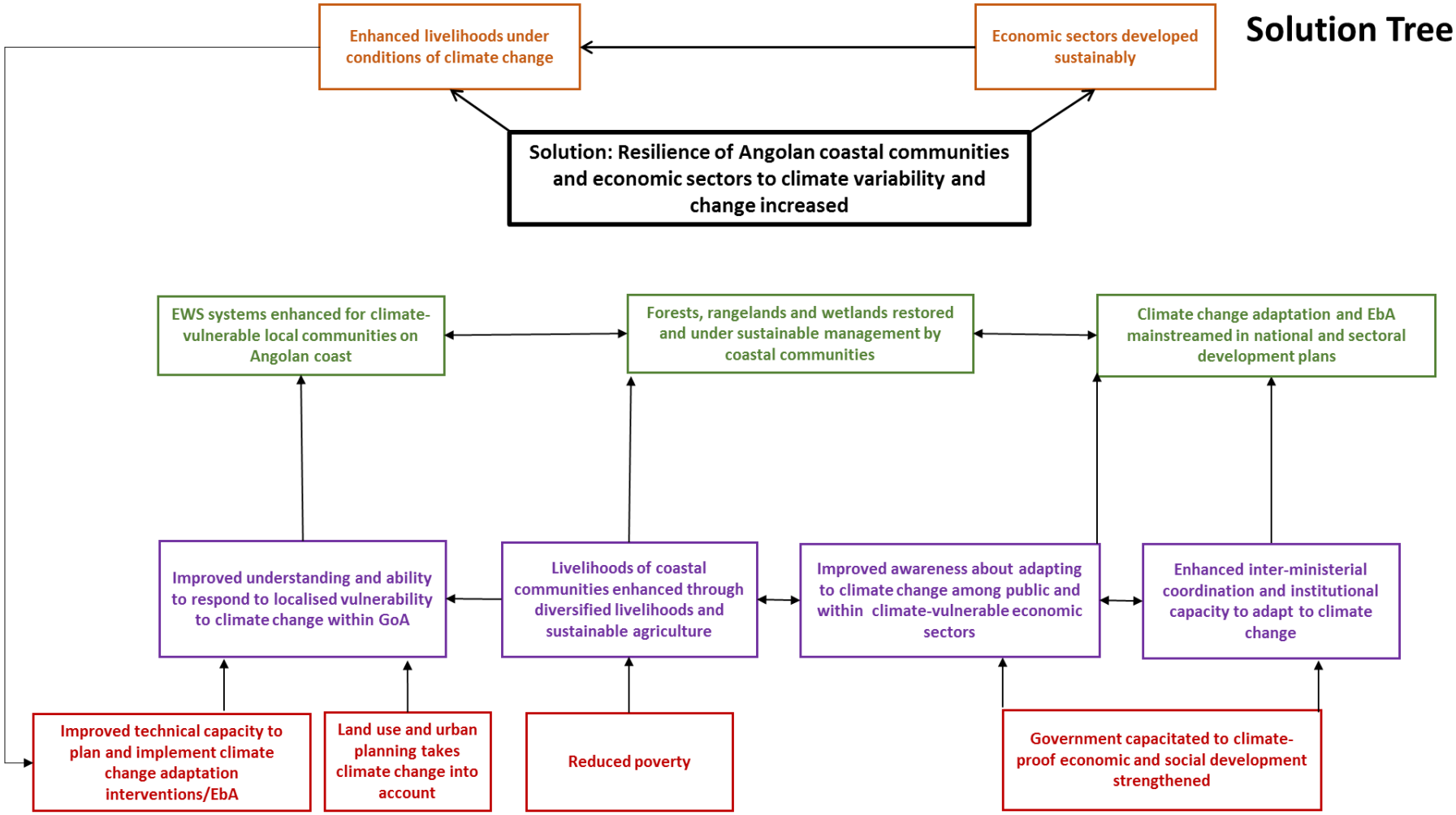
- The Ministry of Transport and Ministry of Civil Protection are also involved in the steering committee that oversees petroleum issues in Angola.
- The Director has a database of oil companies, restaurants, bars, hotels and fisheries associations working in the coastal strip.
- Corporate Social Investment (CSI) is not legislated for oil companies, but it is built into their contracts. CSI projects – such as building of schools – are not just in the coastal strip. However some oil companies do prefer projects in areas where they are operating. Sonangol, the national oil company, is responsible for identifying these CSI projects.

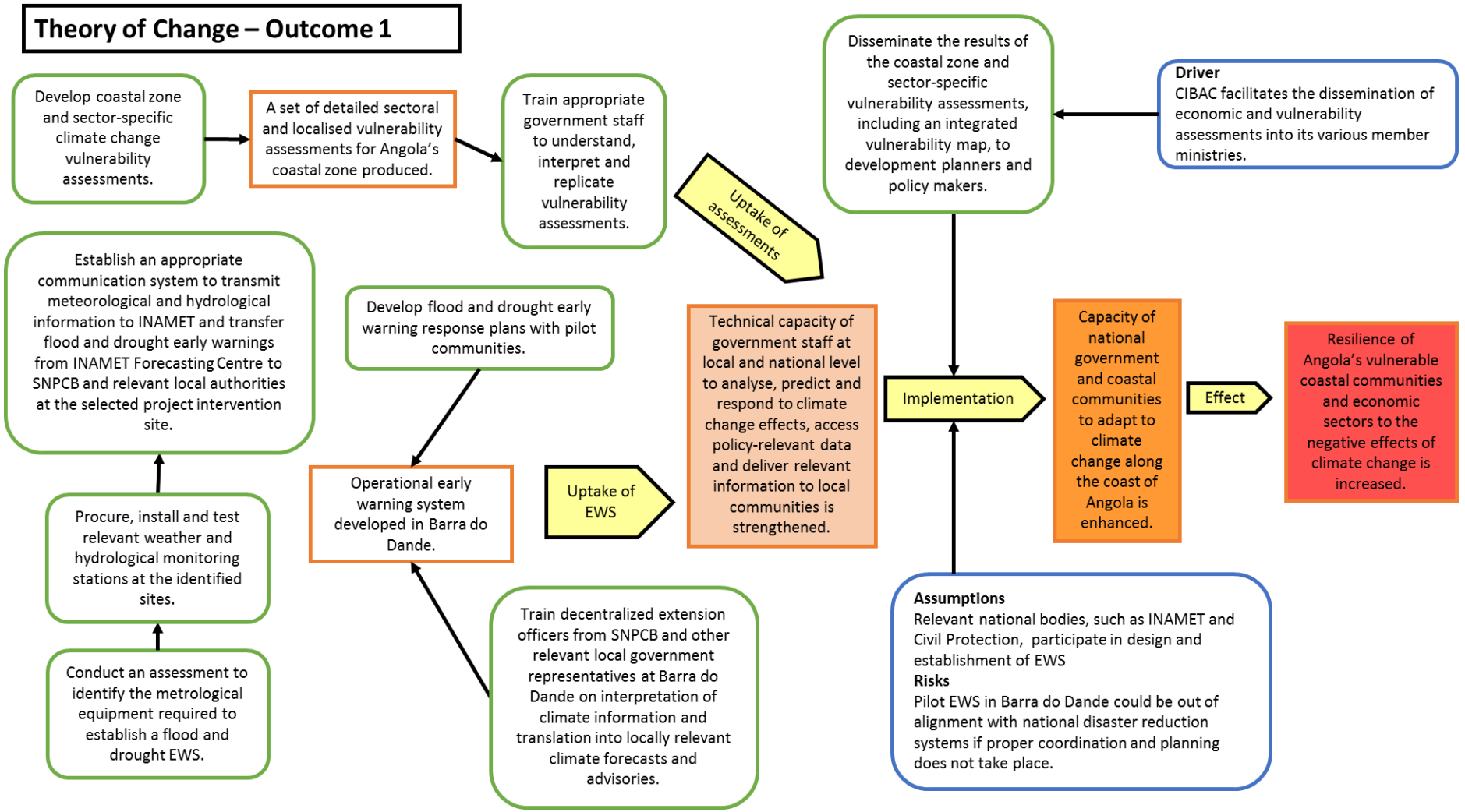
The MoP wants to legislate CSI for oil companies, and this is likely to come into effect next year. Once this happens, the MoP is likely to be the entity that identifies potential CSI projects.

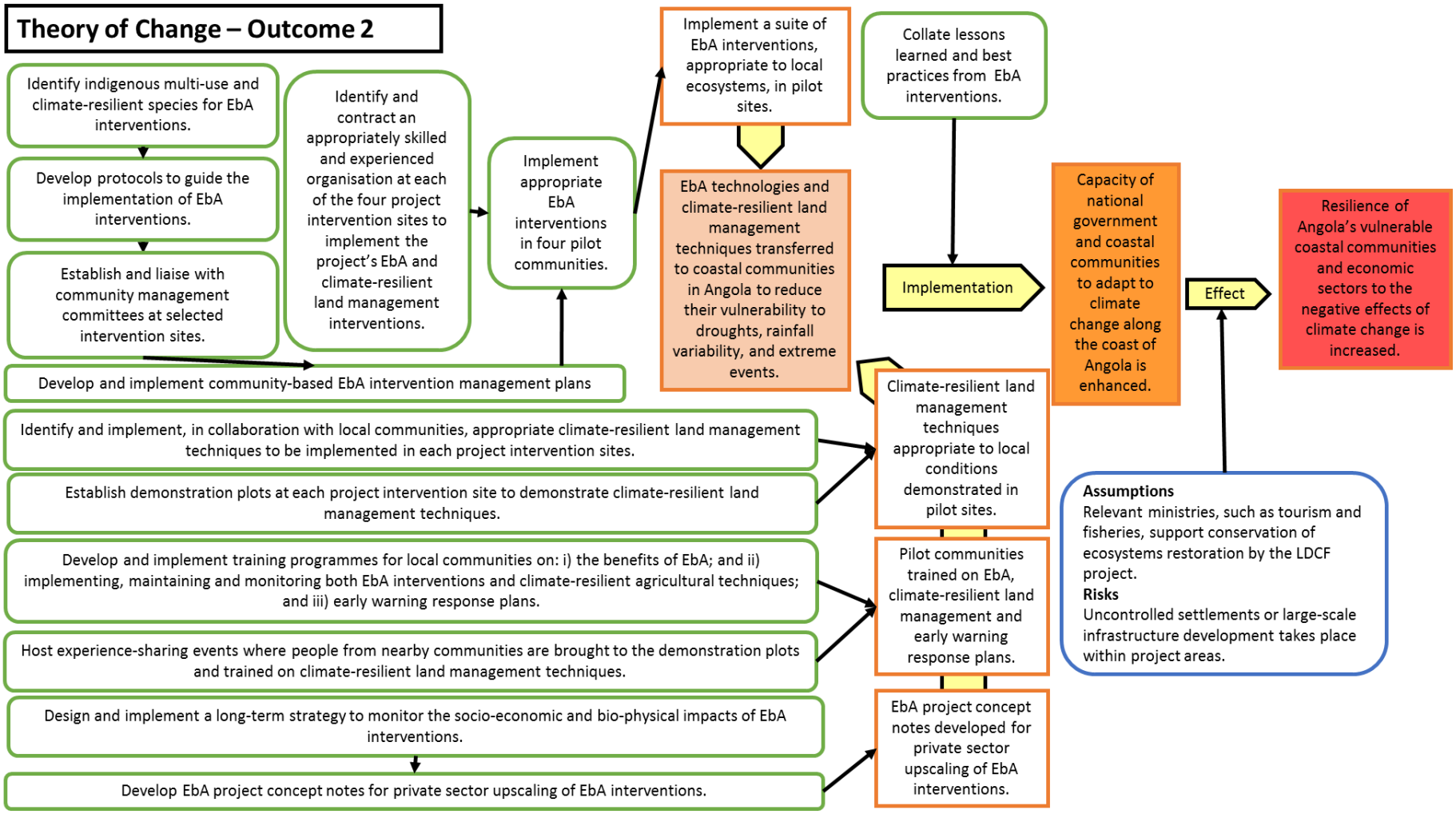
Appendix 17: Theory of Change diagrams

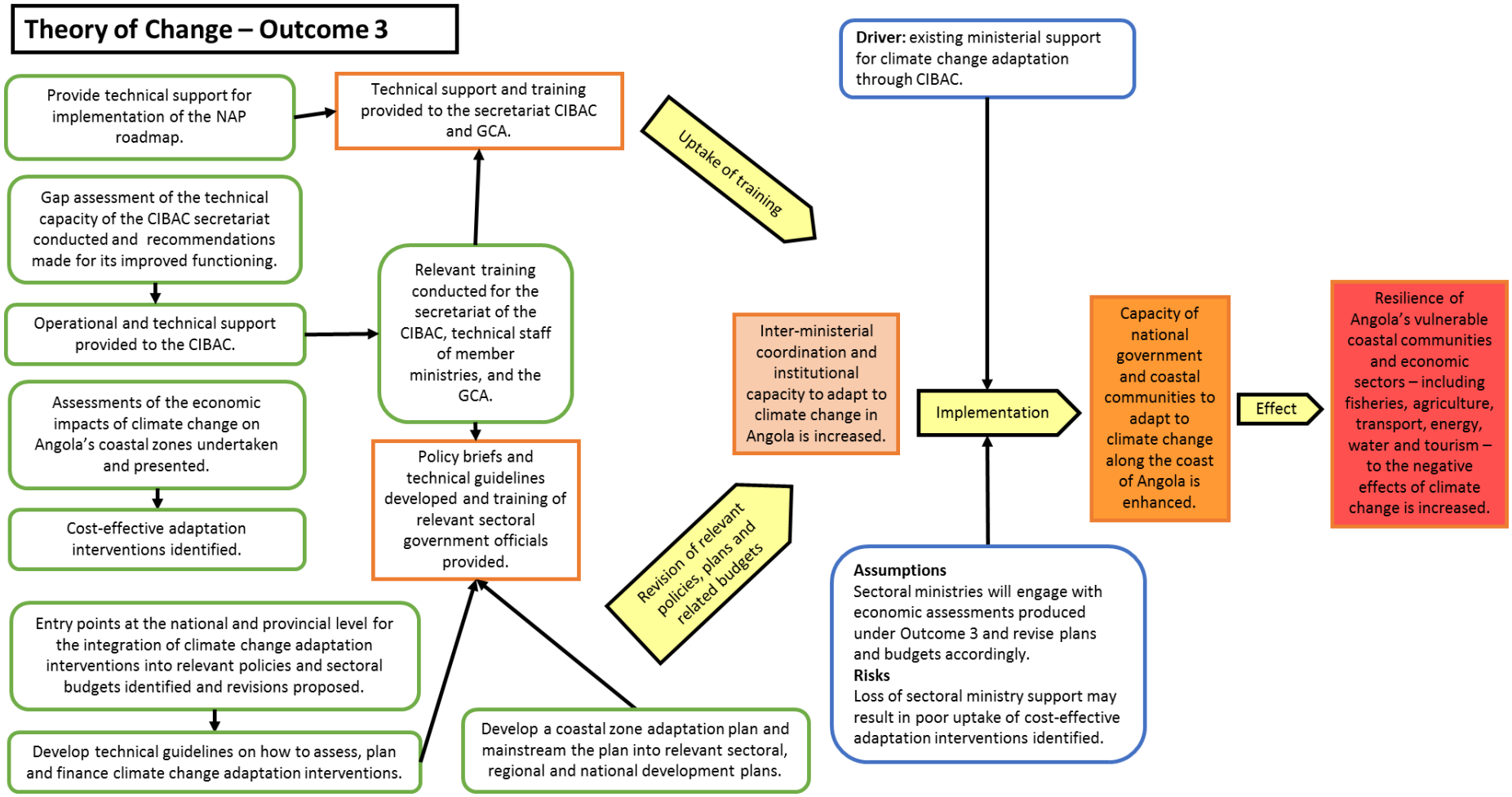


Solution Tree

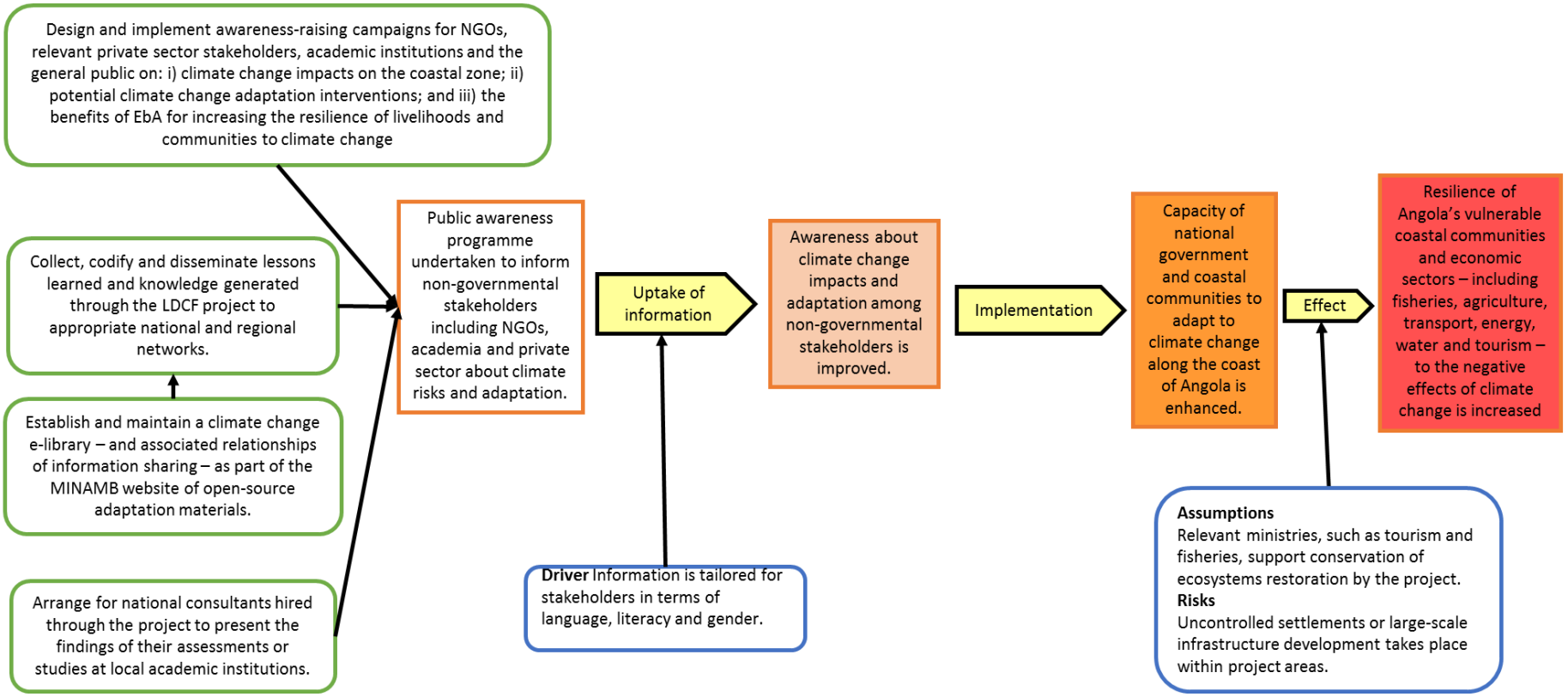



Theory of Change – Outcome 1
Develop coastal zone and sector-specific climate change vulnerability assessments.
A set of detailed sectoral and localised vulnerability assessments for Angola's coastal zone produced.
Train appropriate government staff to understand, interpret and replicate vulnerability assessments.
Uptake of assessments
Disseminate the results of the coastal zone and sector-specific vulnerability assessments, including an integrated vulnerability map, to development planners and policy makers.
Driver
CIBAC facilitates the dissemination of economic and vulnerability assessments into its various member ministries.
Establish an appropriate communication system to transmit meteorological and hydrological information to INAMET and transfer flood and drought early warnings from INAMET Forecasting Centre to SNPCB and relevant local authorities at the selected project intervention site.
Develop flood and drought early warning response plans with pilot communities.
Technical capacity of government staff at local and national level to analyse, predict and respond to climate change effects, access policy-relevant data and deliver relevant information to local communities is strengthened.
Implementation
Capacity of national government and coastal communities to adapt to climate change along the coast of Angola is enhanced.
Effect
Resilience of Angola's vulnerable coastal communities and economic sectors to the negative effects of climate change is increased.
Procure, install and test relevant weather and hydrological monitoring stations at the identified sites.
Operational early warning system developed in Barra do Dande.
Uptake of EWS
Conduct an assessment to identify the metrological equipment required to establish a flood and drought EWS.
Train decentralized extension officers from SNPCB and other relevant local government representatives at Barra do Dande on interpretation of climate information and translation into locally relevant climate forecasts and advisories.
Assumptions
Relevant national bodies, such as INAMET and Civil Protection, participate in design and establishment of EWS
Risks
Pilot EWS in Barra do Dande could be out of alignment with national disaster reduction systems if proper coordination and planning does not take place.


Theory of Change – Outcome 2
Identify indigenous multi-use and climate-resilient species for EbA interventions.
Develop protocols to guide the implementation of EbA interventions.
Establish and liaise with community management committees at selected intervention sites.
Identify and contract an appropriately skilled and experienced organisation at each of the four project intervention sites to implement the project's EbA and climate-resilient land management interventions.
Implement appropriate EbA interventions in four pilot communities.
Develop and implement community-based EbA intervention management plans
Implement a suite of EbA interventions, appropriate to local ecosystems, in pilot sites.
EbA technologies and climate-resilient land management techniques transferred to coastal communities in Angola to reduce their vulnerability to droughts, rainfall variability, and extreme events.
Collate lessons learned and best practices from EbA interventions.
Implementation
Capacity of national government and coastal communities to adapt to climate change along the coast of Angola is enhanced.
Effect
Resilience of Angola's vulnerable coastal communities and economic sectors to the negative effects of climate change is increased.
Identify and implement, in collaboration with local communities, appropriate climate-resilient land management techniques to be implemented in each project intervention sites.
Establish demonstration plots at each project intervention site to demonstrate climate-resilient land management techniques.
Develop and implement training programmes for local communities on: i) the benefits of EbA; and ii) implementing, maintaining and monitoring both EbA interventions and climate-resilient agricultural techniques; and iii) early warning response plans.
Host experience-sharing events where people from nearby communities are brought to the demonstration plots and trained on climate-resilient land management techniques.
Design and implement a long-term strategy to monitor the socio-economic and bio-physical impacts of EbA interventions.
Develop EbA project concept notes for private sector upscaling of EbA interventions.
Climate-resilient land management techniques appropriate to local conditions demonstrated in pilot sites.
Pilot communities trained on EbA, climate-resilient land management and early warning response plans.
EbA project concept notes developed for private sector upscaling of EbA interventions.
Assumptions
Relevant ministries, such as tourism and fisheries, support conservation of ecosystems restoration by the LDCF project.
Risks
Uncontrolled settlements or large-scale infrastructure development takes place within project areas.


Theory of Change – Outcome 3
Provide technical support for implementation of the NAP roadmap.
Technical support and training provided to the secretariat CIBAC and GCA.
Uptake of training
Driver: existing ministerial support for climate change adaptation through CIBAC.
Gap assessment of the technical capacity of the CIBAC secretariat conducted and recommendations made for its improved functioning.
Operational and technical support provided to the CIBAC.
Relevant training conducted for the secretariat of the CIBAC, technical staff of member ministries, and the GCA.
Inter-ministerial coordination and institutional capacity to adapt to climate change in Angola is increased.
Implementation
Capacity of national government and coastal communities to adapt to climate change along the coast of Angola is enhanced.
Effect
Resilience of Angola's vulnerable coastal communities and economic sectors – including fisheries, agriculture, transport, energy, water and tourism – to the negative effects of climate change is increased.
Assessments of the economic impacts of climate change on Angola's coastal zones undertaken and presented.
Cost-effective adaptation interventions identified.
Policy briefs and technical guidelines developed and training of relevant sectoral government officials provided.
Revision of relevant policies, plans and related budgets
Entry points at the national and provincial level for the integration of climate change adaptation interventions into relevant policies and sectoral budgets identified and revisions proposed.
Develop technical guidelines on how to assess, plan and finance climate change adaptation interventions.
Develop a coastal zone adaptation plan and mainstream the plan into relevant sectoral, regional and national development plans.
Assumptions
Sectoral ministries will engage with economic assessments produced under Outcome 3 and revise plans and budgets accordingly.
Risks
Loss of sectoral ministry support may result in poor uptake of cost-effective adaptation interventions identified.

Theory of Change – Outcome 4



Appendix 18: Procurement Plan

UNEP/GEF Project Procurement Plan

Project title: Addressing urgent coastal adaptation needs and capacity gaps in Angola
Project number: 5230

UNEP Budget Line		List of Goods and Services required	Budget (in US$)	Year {Note 1}	Brief description of anticipated procurement process {Note 2}
1100	**Project personnel**				
1101	National Project Manager	This budget will be used to hire a National Project Manager (PM). Responsibilities of the PM include, *inter alia*: • Heading the PMU. • Overseeing and managing project implementation, monitor work progress, and ensure timely delivery of outputs in accordance with GEF and UNEP/UNDP guidelines. • Providing technical support to the project, including measures to address challenges to project implementation. • Supervising, coordinating and facilitating the work of the Project Assistant, the Financial Manager, the Technical Advisor, field officers and the technical support unit (including national and international experts).	216 000	Years 1,2, 3 and 4	The Project Steering Committee will draw up ToRs and put out an advertisement for the position of PM as required by the project. Applications and CVs of interested PMs will be reviewed. The consultant will be selected depending upon experience and availability.
1102	Project driver	This budget will be used to hire a project driver. The driver will support the Project Management Unit in their day-to-day activities. Under Component 2 the project driver will drive the TA and PM to interventions sites in Bengo and Kwanza Sul, as required.	72 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for the position of project driver as required by the project. Applications and CVs of interested drivers will be reviewed. The consultant will be selected depending upon experience and availability.
1200	**Consultants**				
1201	National Industry Expert – Agriculture	This budget will be used to contract a national agriculture industry expert. This consultant will be an expert on climate change impacts to the agriculture sector and will provide sector-specific information to the agriculture sector vulnerability assessment.	6 000	Year 1	The PM will draw up ToRs and put out an advertisement for the position of National Industry Expert (Agriculture) as required by the project. Applications and CVs of interested experts will be reviewed. The consultant will be selected depending upon qualification and experience.

1202	National Industry Expert - Fisheries	This budget will be used to contract a national fisheries industry expert. This consultant will be an expert on climate change impacts to the fisheries sector and will provide sector-specific information to the fisheries sector vulnerability assessment.	6 000	Year 1	The PM will draw up ToRs and put out an advertisement for the position of National Industry Expert (Fisheries) as required by the project. Applications and CVs of interested experts will be reviewed. The consultant will be selected depending upon qualification and experience.
1203	National Industry Expert - Transport	This budget will be used to contract a national transport industry expert. This consultant will be an expert on climate change impacts to the transport sector and will provide sector-specific information to the transport sector vulnerability assessment.	6 000	Year 1	The PM will draw up ToRs and put out an advertisement for the position of National Industry Expert (Transport) as required by the project. Applications and CVs of interested experts will be reviewed. The consultant will be selected depending upon qualification and experience.
1204	National Industry Expert - Environment	This budget will be used to contract a national environment industry expert. This consultant will be an expert on climate change impacts to the environmental sector and will provide sector-specific information to the environmental sector vulnerability assessment.	6 000	Year 1	The PM will draw up ToRs and put out an advertisement for the position of National Industry Expert (Environment) as required by the project. Applications and CVs of interested experts will be reviewed. The consultant will be selected depending upon qualification and experience.
1205	National Industry Expert - Tourism	This budget will be used to contract a national tourism industry expert. This consultant will be an expert on climate change impacts to the tourism sector and will provide sector-specific information to the tourism sector vulnerability assessment.	6 000	Year 1	The PM will draw up ToRs and put out an advertisement for the position of National Industry Expert (Tourism) as required by the project. Applications and CVs of interested experts will be reviewed. The consultant will be selected depending upon qualification and experience.
1206	International Meteorological/ EWS Specialist	This budget will be used to contract an International Meteorological/ EWS Specialist to conduct an equipment assessment, identify and assess sites for the installation of equipment and procure, install and test equipment. He/she will help to set up the technical aspects of an appropriate communication system to transmit meteorological and hydrological information to INAMET, and transfer flood and drought early warnings from INAMET Forecasting Centre to relevant local authorities. Finally, this consultant will prepare training material for extension officers from SNPCB on interpretation of climate information and translation into locally	64 000	Year 1 and 2	The PM will draw up ToRs and put out an advertisement for the position of International Meteorological/ EWS Specialist as required by the project. Applications and CVs of interested experts will be reviewed. The specialist will be selected depending upon qualification and experience.

		relevant climate forecasts and advisories.			
1207	INAMET technician	This budget will be used to contract an INAMET technician. This technician will be an employee of INAMET and will assist the International Meteorological/ EWS Specialist to identify sites for the installation of weather stations and hydrological equipment.	3 000	Year 1	The PM will draw up ToRs and put out an advertisement for the position of INAMET technician as required by the project. Applications and CVs of interested experts will be reviewed. The technician will be selected depending upon qualification and experience.
1208	National EWS consultant	This budget will be used to contract a national EWS consultant. The consultant will develop flood and drought early warning response plans with pilot communities in the selected project intervention sites. This lump sum will include all material costs, travel or other costs incurred.	20 000	Year 2 and 3	The PM will draw up ToRs and put out an advertisement for the position of national EWS consultant as required by the project. Applications and CVs of interested experts will be reviewed. The consultant will be selected depending upon qualification and experience.
1209	International EbA/ Agriculture Specialist	This budget will be used to contract an international EbA/ Agriculture Specialist who will *inter alia*: • Undertake a biophysical, socio-economic and market assessments at each project site and identify species for EbA interventions. • Develop protocols to guide implementation of EbA interventions. • Support the National Project Manager to identify and contract organisations to implement interventions at each of the 4 pilot sites. • Identify the appropriate climate-resilient agriculture techniques to be implemented in each site. • Collaborate with the Community Engagement Expert and community management committees to develop community-based EbA intervention management plans. • Develop EbA project concept notes for private sector upscaling of EbA interventions in collaboration with the Community Engagement Expert and the TA.	76 640	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for the position of international EbA/ Agriculture Specialist as required by the project. Applications and CVs of interested experts will be reviewed. The specialist will be selected depending upon qualification and experience.
1210	Community Engagement Specialist	This budget will be used to contract a community engagement specialist. This expert will collaborate with contractors to establish community management committees in pilot communities. This expert will contribute to the process of	38 880	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for the position of community engagement specialist as required by the project. Applications and CVs of interested

		identifying pilot sites for EbA interventions and collaborate with EbA expert and contractors to collate lessons learned and best practices at the end of the process. He or she will also be partly responsible for the development and production of EbA project concept notes for private sector upscaling of EbA interventions.			experts will be reviewed. The specialist will be selected depending upon qualification and experience.
1211	Monitoring and learning specialist	This budget will be used to contract a monitoring and learning specialist. This specialist will be responsible for offering technical advice and support to the project unit as well as local and international consultants under Component 2. He or she will also work closely with the International Technical Advisor to ensure that the activities under all three project components are properly coordinated.	153 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for the position of Monitoring and Learning Specialist as required by the project. Applications and CVs of interested experts will be reviewed. The specialist will be selected depending upon qualification and experience.
1212	International Technical Advisor	This budget will be used to contract an International Technical Advisor (ITA) to be an expert on adaptation. He or she will provide technical input under Outcomes 3 and 4 and will be responsible for a number of activities under these outcomes. The ITA will also work closely with the Monitoring and Learning Specialist to ensure that the activities under all three project components are properly coordinated. This ITA will also provide support to the GEF UNDP project entitled 'Promoting climate-resilient development and enhanced adaptive capacity to withstand disaster risks in Angola's Cuvelai River Basin' (GEF ID: 5166) on a cost-sharing basis.	471 074	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for the position of ITA as required by the project. Applications and CVs of interested experts will be reviewed. The consultant will be selected depending upon qualification and experience.
1213	International Adaptation Economics/Policy Expert	This budget will be used to contract an International Economics/ Policy expert. The International and National Adaptation and Economics/ Policy Expert will work together closely to: • Provide training to the Secretariat of the CIBAC and Climate Change Cabinet on climate change adaptation finance and climate change adaptation investment appraisal. • Undertake and present assessments of the economic impacts of climate change on Angola's coastal zone, disaggregated by sector. • Identify entry points at the national and provincial level for the integration of climate change adaptation interventions, including EbA, into relevant policies and sectoral budgets and propose policy revisions.	90 000	Year 1, 2,3 and 4	The PM will draw up ToRs and put out an advertisement for the position of National and International Adaptation Economics/Policy experts as required by the project. Applications and CVs of interested experts will be reviewed. The consultants will be selected depending upon qualification and experience.
1214	National Adaptation Economics/Policy Expert		35 000	Year 1, 2 and 4	

		• Develop a coastal zone adaptation plan and mainstream the plan into relevant sectoral, regional and national development plans. • Develop technical guidelines for GAC, sectoral ministries and the CIBAC on how to assess, plan and finance climate change adaptation interventions.			
1300	**Administrative support**				
1301	Finance Manager	This budget will be used to contract a finance manager. The FM will be familiar with both UNEP and UNDP financial administration procedures and financial reporting requirements. He or she will produce the necessary financial reports for both agencies.	168 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for the position of finance manager as required by the project. Applications and CVs of interested managers will be reviewed. The manager will be selected depending upon qualification and experience.
1302	Project Administration Assistant	This budget will be used to contract a Project Administrative Assistant (PA). The PA will be hired to directly support the National Project Manager with administrative tasks, under his direct supervision.	72 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for the position of Project Administrative Assistant as required by the project. Applications and CVs of interested managers will be reviewed. The assistant will be selected depending upon qualification and experience.
2200	**Sub-contracts (MOUs/LOAs for supporting organizations)**				
2201	National academics	This budget will be used to contract a national academic team to visit project sites twice annually in year 2, 3 and 4 and document the progress of EbA and climate-resilient agriculture interventions. Outputs of this contract will include: i) detailed reports of project progress; and ii) peer reviewed publications related to LDCF interventions across the various areas.	60 000	Year 2,3 and 4	The PM will draw up ToRs and put out an advertisement for the contract for a team of national academics required by the project. Applications and CVs of interested managers will be reviewed. The assistant will be selected depending upon qualification and experience.
2300	**Sub-contracts (for commercial purposes)**				
2301	Vulnerability	This budget will be used to contract a consultant/consultancy	350 000	Year 1 and	The PM will draw up ToRs and put out an

	Assessment Consultancy	specialising in vulnerability assessments who will undertake a vulnerability assessment on coastal climate change in Angola. This consultancy will also develop sector-specific vulnerability assessments and conduct vulnerability assessment training. In addition, the consultancy will oversee the dissemination of the results of the coastal zone and sector-specific vulnerability assessments. Budget costs for this consultancy include data acquisition costs, travel and other potential costs incurred.		2	advertisement for a Vulnerability Assessment Consultancy as required by the project. Applications and CVs of interested companies will be reviewed. The company will be selected depending upon qualification and experience
2302	Consultancy sub-contracts for land restoration and climate-resilient agriculture in Chiloango (Cabinda)	This budget will be used to sub-contract a consultancy (which could be an NGO or a private company) for land restoration and climate-resilient agriculture in Chiloango (Cabinda). This organisation will implement appropriate EbA interventions at the site and establish demonstration plots at each project intervention site to demonstrate climate-resilient agricultural techniques. In addition, the consultancy implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. Finally, the consultancy will collaborate with the community engagement specialist and contractors to collate lessons learned and best practices at the end of the process. Professional fees and associated costs are also included in this budget. These professional fees and associated costs include *inter alia*: restoration design, management and administration.	185 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for an appropriate consultancy as required by the project. Applications and CVs of interested companies will be reviewed. The company will be selected depending upon qualification and experience.
2303	Consultancy sub-contracts for land restoration and climate-resilient agriculture in Barra do Dande (Kwanza Sul)	This budget will be used to sub-contract a consultancy (which could be an NGO or a private company) for land restoration and climate-resilient agriculture in Barra do Dande (Kwanza Sul). This consultancy will implement appropriate EbA interventions at the site and establish demonstration plots at each project intervention site to demonstrate climate-resilient agricultural techniques. In addition, the consultancy implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. Finally, the consultancy will collaborate with the community engagement specialist and contractors to collate lessons learned and best practices at the end of the process.	155 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for an appropriate consultancy as required by the project. Applications and CVs of interested companies will be reviewed. The company will be selected depending upon qualification and experience.

		Professional fees and associated costs are also included in this budget. These professional fees and associated costs include: restoration design, management and administration.			
2304	Consultancy sub-contracts for land restoration and climate-resilient agriculture in Longa (Kwanza Sul)	This budget will be used to sub-contract a consultancy (which could be an NGO or a private company) for land restoration and climate-resilient agriculture in Longa (Kwanza Sul). This consultancy will implement appropriate EbA interventions at the site and establish demonstration plots at each project intervention site to demonstrate climate-resilient agricultural techniques. In addition, the consultancy implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. Finally, the consultancy will collaborate with the community engagement specialist and contractors to collate lessons learned and best practices at the end of the process. Professional fees and associated costs are also included in this budget. These professional fees and associated costs include: restoration design, management and administration.	175 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for an appropriate consultancy as required by the project. Applications and CVs of interested companies will be reviewed. The company will be selected depending upon qualification and experience.
2305	Consultancy sub-contracts for land restoration and climate-resilient agriculture in Bero (Namibe)	This budget will be used to sub-contract a consultancy (which could be an NGO or a private company) for land restoration and climate-resilient agriculture in Bero (Namibe). This consultancy will implement appropriate EbA interventions at the site and establish demonstration plots at each project intervention site to demonstrate climate-resilient agricultural techniques. In addition, the consultancy implement a range of climate-resilient land management interventions identified in Activity 2.3.1 within and around pilot communities. Finally, the consultancy will collaborate with the community engagement specialist and contractors to collate lessons learned and best practices at the end of the process. Professional fees and associated costs are also included in this budget. These professional fees and associated costs include: restoration design, management and administration.	175 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for an appropriate consultancy as required by the project. Applications and CVs of interested companies will be reviewed. The company will be selected depending upon qualification and experience.

2306	Communications company	This budget will be used to contract a communications company to prepare and undertake awareness-raising campaigns in partnership with the TA. This will include *inter alia*: liaising with print and television media, conceptualising a short film, designing electronic and print materials. In addition the company will disseminate lessons learned and knowledge generated through the project through appropriate national and regional networks.	60 000	Year 1,2,3 and 4	The PM will draw up ToRs and put out an advertisement for a communications company as required by the project. Applications and CVs of interested consultancies/companies will be reviewed. The consultancy/company will be selected depending upon qualification and experience.
2307	Audio Visual and Print Production Costs Outcome 3	This budget will be used to cover the costs for printing and disseminating policy briefs and disseminating technical guidelines. Printing budget could also be used to cover any of the other relevant content produced under Output 3.2.	30 000	Year 2, 3 and 4	The PM will draw up ToRs and put out an advertisement for Audio Visual and Print Production company as required by the project. Applications and CVs of interested consultancies/companies will be reviewed. The consultancy/company will be selected depending upon qualification and experience.
2308	Audio Visual and Print Production Costs Outcome 4	This budget will be used to cover the costs of: i) printing materials (such as posters, summaries of lessons learned); ii) production and dissemination of short video clip; iii) layout, translation and formatting of communication materials; iv) production of multi-media such as talk shows, TV and radio spots, and billboards on the national roads; and v) dissemination of knowledge through online platforms.	122 926	Year 1, 2, 3 and 4.	
3200	**Group training**				
3201	Training on vulnerability assessments	This budget will be used for the training of 1-3 relevant representatives (at least 15 representatives in total per training event) from INAMET, MINAMB, CCC, Sectoral ministries and Civil Protection on climate change and vulnerability assessments. Budget for this training also includes venue, travel assistance, breakfast and lunch at each training session. Training sessions will be held in Luanda.	28 000	Year 1 and 4	The Vulnerability Assessment Consultancy will organise the training sessions with support from the PM.
3202	Training for extension officers	This budget will be used for the training of extension officers and other relevant local government representatives at the selected project intervention sites on interpreting climate information and translating it into locally relevant climate forecasts and advisories.	50 000	Year 2 and 3	The PM will organise the training for EbA with assistance from the International EbA/ Agriculture Specialist.
3203	Training for EbA	This budget will be used for training for EbA including: development of training programmes and related materials for various activities; training for local government representatives	86 000	Year 1, 2, 3 and 4	The PM will organise the training for EbA with assistance from the International EbA/ Agriculture Specialist.

		and community management committees on EbA and climate-resilient land management; training for community management committees on EWS; training for community management committees on maintenance of EbA and climate-resilient land management; and experience sharing events. The budget will also be used for associated costs including *inter alia*: printing, facilitators, catering, venue hire, trainee transport and production of detailed training reports.			
3204	Training, workshops and conferences under Outcome 3	This budget will be used for training, workshops and conferences under Outcome 3. This will include 4 training workshops for the secretariat of the CIBAC and Climate Change Cabinet on i) financing climate change adaptation; and ii) climate change adaptation investment appraisal. In addition, a workshop on policy briefs and technical guidelines will be held in Luanda and will be facilitated/trained by the TA and the Economic expert. Included in the workshop budget are costs pertaining to travel assistance, breakfast and lunch.	40 000	Year 3 and 4	The TA will organise the training sessions with support from the PM.
3205	Training, workshops and conferences under Outcome 4	This budget will be used for training, workshops and conferences under Outcome 4. This will include conferences and meetings for awareness-raising activities. Budget allocation has also beed made for venue, speaker, catering at these conferences and meetings. In addition, conferences and workshops will be held at local academic institutions. This will include 10 seminars from national consultants.	60 000	Year 1,2,3 and 4	The TA will organise the training sessions with support from the PM.
4100	**Expendable equipment**				
4101	Communication materials for vulnerability assessments	This budget will be used for dissemination of the results of the vulnerability assessments and development of integrated vulnerability map.	18 000	Year 2	The PM will oversee this payment and the procurement of related services.
4102	Printing costs for EWS communication	This budget will be used for editing, printing and publishing protocols, handbooks, policy and information briefs, and/or guidelines	15 000	Year 1,2,3 and 4	The PM will oversee this payment and the procurement of related services.
4103	Office rental	This budget will be used for payment of office rental.	192 000	Year 1,2,3 and 4	The PM will oversee this payment and the procurement of related services.

4104	Office equipment	This budget will be used for payment for office equipment, including, desks, chairs, computers, office supplies.	30 000	Year 1 and 2	The PM will oversee this payment and the procurement of related services.
4105	Telecommunications cost	This budget will be used for payment of telecommunications costs, including telephone and internet.	48 000	Year 1,2,3 and 4	The PM will oversee this payment and the procurement of related services.
3300	**Meetings/Conferences**				
3301	Presentations for vulnerability assessments	This budget will be used for presentations for vulnerability assessments. These presentations will publicise the results of the vulnerability assessments to a broad range of stakeholders and relevant sectors.	24 000	Year 2	The Vulnerability Assessment Consultancy will organising these presentations with support from the PM.
3302	Consultations for community response plans	This budget will be used for training/consultation sessions with relevant communities (including venue, breakfast, lunch and participant transportation costs). These consultations will be held at the project implementation site.	12 000	Year 2 and 3	The Community Engagement Specialist will organising these consultations with support from the PM.
3303	Community management committee meeting costs	This budget will be used for community management committee meeting costs pertaining to transport of community members, token venue, stationary/printing costs, and catering.	20 000	Year 1,2,3 and 4	The Community Engagement Specialist will organising these consultations with support from the PM.
4200	**Non-expendable equipment**				
4201	Climate and hydrological monitoring equipment	This budget will be used for the procurement and installation of climate and hydrological monitoring equipment at the identified installation sites. • Install and test 5 Automatic Weather Stations (AWS) and at least 5 rainfall gauges complete with remote data transmission and archiving with display systems at the identified installation sites; Procure 1 spare Automatic Weather Stations (AWS) and 2 spare rainfall gauges complete with remote data transmission and archiving with display systems; Procure and operationalise 1 mobile AWS for sensor's field calibration; integrating existing AWS and interfacing to INAMET central data collection and storage system; Install and test 4 automatic river gauging stations and 4 manual water level stations at the identified installation sites, complete with remote data transmission and archiving with display systems at INAMET, Civil Protection and INARH; Procure 1 spare automatic river gauging stations and 1 spare manual water level stations; Procure and operationalise 1 mobile Hydromet Automatic Station (HAS) for sensor's field calibration, integrating	630 000	Year 1	The International Meteorological/ EWS Specialist, INAMET technician and National EWS consultant will work together to identify, procure and oversee the installation of appropriate climate and hydrological equipment.

		existing and recently INARH stations. • Install and test 4 automatic river gauging stations and at least 4 manual water level (at the X and X rivers) stations, complete with remote data transmission and archiving with display systems at INAMET, Civil Protection, INARH, Provincial Government and relevant municipal and communal administrations. • 5 VHF-U systems and/or Advanced powerful Walky Talky systems (50km range or plus via retransmitters) using open UHF radio frequencies for data transfer from AWS. • Stabilise power at 5 AWSs through the provision of dry cells, upgrading solar panels, and batteries.			
4202	Climate and hydrological monitoring transmission equipment	This budget will be used to procure climate and hydrological monitoring transmission equipment, including inter alai telecommunications infrastructure. The budget will also be used to procure Communication Facility Radio Transceiver and supporting two way radios.	107 000	Year 2	The International Meteorological/ EWS Specialist, INAMET technician and National EWS consultant will work together to identify, procure and oversee the installation of appropriate climate and hydrological equipment.
4203	Chiloango – equipment and EbA inputs	This budget will be used for equipment and EbA inputs at Chilango to allow for the implementation of appropriate EbA interventions. Demonstration plots will also be established at each project intervention site to demonstrate climate-resilient agricultural techniques. The budget includes allocations for professional fees and associated costs.	530 000	Year 1,2,3 and 4	Consultancy sub-contracted for land restoration and climate-resilient agriculture in Chiloango will manage the procurement of these goods and services with oversight by the Monitoring and Learning Specialist.
4204	Barra do Dande – equipment and EbA inputs	This budget will be used for equipment and EbA inputs at Barra do Dande. This includes procurement and payment for goods and services including planting equipment and uniforms; wages for community labour; and hard costs of establishing nurseries and demonstration plots.	280 000	Year 1,2,3 and 4	Consultancy sub-contracted for land restoration and climate-resilient agriculture in Barra do Dande will manage the procurement of these goods and services with oversight by the Monitoring and Learning Specialist.
4205	Longa - equipment and EbA inputs	This budget will be used for equipment and EbA inputs at Longa. This includes procurement and payment for goods and services including planting equipment and uniforms; wages for community labour; and hard costs of establishing nurseries and demonstration plots.	400 000	Year 1,2,3 and 4	Consultancy sub-contracted for land restoration and climate-resilient agriculture in Longa will manage the procurement of these goods and services with oversight by the Monitoring and Learning Specialist.
4206	Bero - equipment and EbA inputs	This budget will be used for equipment and EbA inputs at Bero. This includes procurement and payment for goods and services including planting equipment and uniforms; wages for community labour; and hard costs of establishing nurseries and	400 000	Year 1,2,3 and 4	Consultancy sub-contracted for land restoration and climate-resilient agriculture in Bero will manage the procurement of these goods and services with oversight by

		demonstration plots.			the Monitoring and Learning Specialist.
4207	Management plan inputs	This is an annual stipend for carrying out activities identified in the community management plan. These interventions are likely to include *inter alia*: i) facilitated market access for NTFPs from EbA interventions and crops produced from climate-resilient agriculture; and ii) budget for each community management committee for patrols of restored land.	80 800	Year 1,2,3 and 4	The PM will oversee the administration of the annual stipend and its expenditure by community management committees.
4208	Project Vehicle	This budget will be used to procure a project vehicle for site visits of the TA and Om to Bengo and Kwanza Sul.	50 000	Year 1,2,3 and 4	The PM will oversee this payment and the procurement of related services.
5200	**Reporting costs**				
5201	Project Steering Committee Meetings	This budget will be used to host Project Steering Committee meetings during the project lifespan.	8 000	Year 1,2,3 and 4	The PM will organise these meetings.
5202	Inception and closure workshop	This budget will be used to host the inception and closure workshop.	7 000	Year 1 and 4	The PM will organise these meetings.
	GRAND TOTAL		**5 092 320**		

Note 1 - Year when goods/services will be procured

Note 2 - Based on your organisation's procurement procedures, and in compliance with UNEP rules and procedures, briefly explain how the service provider/consultant/vendor will be selected