United Nations Development Programme

Country: _Mozambique

PROJECT DOCUMENT[1]

Project Title: Adaptation in the coastal zones of Mozambique

UNDAF Outcome(s): #3: Sustainable and effective management of natural resources and disaster risk reduction benefit all people in Mozambique, particularly the most vulnerable.

UNDP Strategic Plan Environment and Sustainable Development Primary Outcome: Strengthened capacity of developing countries to mainstream climate change adaptation policies into national development plans.

UNDP Strategic Plan Secondary Outcome: MDG-based national development strategies promote growth and employment and reduce economic, gender and social inequalities.

Expected CP Outcome(s):

(Those linked to the project and extracted from the country programme document)

3.1 Institutions strengthened to develop and improve policies, strategies and plans for climate change, environmental management, and disaster risk reduction.

3.2 Integrated info systems strengthened for decision-making on disaster risk reduction, climate change and environmental management

Implementing Partner: MICOA

Responsible Partners: INGC, MINAG, (DNAE, SDAE), MAE(DNPDR), IIAM, INAM, UNCDF

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

Brief Description

The coastal zone of Mozambique is likely to experience significant impacts as a result of climate change in the course of this century, even if the efforts expected from the international community to stabilise atmospheric greenhouse gas concentrations eventuate. Mean sea levels are expected to rise, wave climates are likely to alter ; and the frequency and intensity of storms are projected to change.

More than 60% of the population lives in coastal areas either in urban or rural settings, placing significant pressure on coastal resources and natural capital. The combination of the inherent dynamic nature of coastlines, exposure to destructive maritime hazards, SLR, inadequate land-use planning and high population pressure on natural resources in coastal zones renders the Mozambican coastline highly vulnerable to the impacts of climate change, particularly climate change-induced coastal erosion.

Ecosystem services, for example, those provided by mangrove swamps, dune systems and coral reefs, are critical in providing resilience against SLR and destructive maritime hazards (storm surges, tsunamis and tropical cyclones). So too is addressing the widespread poverty in coastal areas, which drives much of the degradation of ecosystems. Managed retreat, accommodation and protection are the three types of strategies available to manage sea level rise and storm surges. Each of the pilot sites has a specific set of problems and circumstances that render one of these three strategies more or less suitable. Recommendations are contained in section 2.2 and annex 5. In addition, addressing the vulnerability of communities is critical in helping to relieve pressure on ecosystem resources. Livelihoods diversification is a key aspect of this project.

The project will tackle barriers in relation to weak inter-sectoral policy coordination and development, low institutional and individual capacity to plan for climate change, and financial constraints..

The project has two Outcomes relating to the development of adaptive capacity to manage the effects of climate change on coastal resources. The project has four indicators and targets that measure adaptive capacity, in line with the GEF V Results Framework. The project will support the development of human, social, natural, physical and financial capitals to enable communities and government to continue the results delivered with this project grant.

Programme Period:	2012 - 2015
Atlas Award ID:	00062383
Project ID:	0079862
PIMS #	4069
Start date:	1 January 2012
End Date :	30 September 2015
Management Arrangements	NIM
PAC Meeting Date	Sep 2011

Total resources required	14,110,000
Total allocated resources (GEF):	4,433,000
• Regular (TRACK)	200,000
• Other:	
○ Government (Cash)	170,000
○ GOV (In-kind)	657,000
○ Grant/parallel	8,650,000

Agreed by (Government):

Date/Month/Year

Agreed by (Executing Entity/Implementing Partner):

Date/Month/Year

Agreed by (UNDP):

Date/Month/Year

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List of Acronyms

AAP	Africa Adaptation Programme
AAS	Agrometeorological Advisory Service
ALM	Adaptation Learning Mechanism
ADF	French Development Agency
APR	Annual Project Report
BCPR	Bureau for Crisis Prevention and Recovery
BIFSMO	Building Inclusive Financial Sector in Mozambique Project
CBO	Community-based Organisation
CC	Climate Change
CCA	Climate Change Adaptation
CC-CAIK	CC Coastal Adaptation Information Kit
CC DARE	Climate Change Adaptation & Development Programme
CCTAM	Climate Change Training and Adaptation Modules
CDD	Common Digital Database
CDS-ZC	The Centre for the Sustainable Development of Coastal Zones
CEPAM	Centre for Marine and Coastal Research
CERUM	INGC multiple use centres
CES	Climate based Extension Service
CIA	Central Intelligence Agency
CMS	Community Multisector Schemes
CVA	Community Vulnerability Assessment
CZM	Coastal Zone Management
DANIDA	Danish International Development Agency
DG	Director General
DFID	Department for International Development (UK)
DNA	Directorate of Water
DNEA	National Directorate for Agriculture Extension Services
DNGA	National Directorate of Environmental Management
DNPDR	National Directorate for the Promotion of Rural Development
DNTF	National Directorate of Forestry and Wildlife
DPCA-CD	Provincial Directorate for the Coordination of the Environment - Cabo Delgado
EACC	Economics of Adaptation to Climate Change
EC	European Commission
EIA	environmental Impact Assessment
ENSO	El Niño/La Niña-Southern Oscillation
ESCMC	College of Marine and Coastal Sciences
FAO	Food and Agriculture Organisation
FSP	Full-Sized Project

GDP	Gross Domestic Product
GEF	Global Environment Facility
GEF-SGP	Global Environment Facility – Small Grant Programme
GIS	Geographic Information System
GOM	Government of Maldives
GoM	Government of Mozambique
GTZ	German Technical Cooperation
HH	Numbers of Households
ICAM-VC	WWWeb-based platform
ICS	Media Institute
ICZM	Integrated Coastal Zone Management
IDPPE	Development of Small Scale Fishing
INAM	National Meteorology Institute
INAHINA	National Institute of Hydrography and Navigation
INE	National Statistics Institute
INGC	National Disaster Management Institute
IPCC AR4	Intergovernmental Panel on Climate Change-Fourth Assessment Report
IUCN	International Union for Conservation of Nature
IT	Information Technology
IUCN	International Union for the Conservation of Nature
IW	Inception Workshop
JICA	Japan International Cooperation Agency
JP-DRR	Joint Programme in Disaster Risk Reduction
LDCs	Least Developed Countries
LDCF	Least Developed Country Facility
LDRMC	Local Disaster Risk Management Committees
M&E	Monitoring and Evaluation
MAE	Ministry of State Administration
MFIs	Microfinance Institutions
MICOA	Ministry for the Coordination of the Environment
MDG	Millennium Development Goals
MINAG	Ministry of Agriculture
MOF	Ministry of Finance
MPD	Ministry of Planning and Development
MPPMND	Master Plan for Prevention and Mitigation of Natural Disasters
NAPA	National Adaptation Programme for Action
NEMP	National Environmental Management Program
NGO	Non Governmental Organisation
NORAD	Norwegian Agency for Development Cooperation
NPC	The National Project Coordinator

PAC	Project A C meeting
PARPA	Poverty Reduction Strategy Paper
PB	Project Board
PEI	Poverty and Environment Initiative
PIR	Project Implementation Report
PM	Project Manager
PPCR	Pilot Programme for Climate Resilience
PPG	Project Preparation Grant
RTA	Regional Technical Advisor
SCCF	The Special Climate Change Fund
SCW	Stakeholders Consultation Workshop
SDAE	District Services for Economic Activities
SEA	Strategic Environmental Assessment
SLR	Sea Level Rise
SLR-CCRISYS	Sea Level Rise-Climate Change Risk Information Centre
SST	Sea Surface Temperatures
SGP	Small Grants Programme
SNC	Second National Communication
SUE	MINAG's Unified Extension System
TC	Tropical Cyclone
TNA	Training Needs Analysis
UEM	University of Eduardo Mondlane
UN	United Nations
UNCDF	The United Nations Capital Development Fund
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UN HABITAT	United Nations Human Settlement Programme
UNIDO	United Nations Industrial Development Programme
VCA	Vulnerability and Capacity Assessment
WFP	World Food Programme
WWF	World Wide Fund for Nature.

List of Annexes

1. SITUATION ANALYSIS

1.1 Country overview

Mozambique has an estimated population of 22.9 million (World Bank 2010), with an annual growth rate of 2.3%. Overall population density is low, although pockets of overpopulation exist with the urban population of Mozambique accounting for 38% of the total population. Mozambique's economy has two key areas : (i) agriculture which accounts for 31.5% of the countries GDP (2009) with main exports including sugar, copra, cashews, tea and tobacco and (ii) Industry including mining of processing of minerals such as bauxite for aluminium accounting for 23.6% of GDP (2009)

Mozambique (10º27';26º 52' S Lat. & 30º 12'; 40º 51' E Long.), borders the Republic of Tanzania (N), Malawi, Zambia, Zimbabwe, South Africa and Swaziland (W), and South Africa (S) and has the third longest maritime coast in the African continent extending about 2,700 kilometres along the Indian Ocean (Figure 1). The coast is characterized by a vast variety of ecosystems such as estuaries, dunes, mangrove forests, coastal lakes, banks and coral reefs, marine weed and swamps. These ecosystems represent critical habitats for various species of ecological importance and economic value.

Figure 1: Mozambique and its location in the world map

The country spans an area of about 799,380 square kilometres, of which 786,380 square kilometres is land and 13,000 square kilometres is surface water. The total population (2001 est.) is estimated to be 22,948,858 with 45.9% (male 5,295,776/female 5,245,485) between 0-14 years old; 51.1% (male 5,550,501/female 6,174,668) between 15-64 years old; 3% (male 313,892/female 368,536) with 65 years old and over[2].

[2] The online World Fact book CIA

The majority of the Mozambican territory is located in the inter-tropical zone with four discrete climate zones: humid tropical, dry tropical, semi-arid tropical and an altitude modified tropical climate. Predominantly the country as a whole experiences humid tropical conditions characterised by two distinct seasons: a cool and dry season (April – September) followed by a hot and humid season (October – March). Rainfall is most intense in this season particularly between December and February. Average precipitation ranges from 300 mm in subtropical belt in Pafúri, the Gaza province, in the South up to 2,000 mm in mountain areas of Tacuane in the Central province of Zambézia. Daily mean air temperatures vary with the season and warm to hot conditions prevail during October – March period with maximum temperature reaching values close to 40°C in some location in eastern edge and lower coastal areas of central-south provinces. Physiographic characteristics of the country have a strong influence on temperature variation across the region with average temperatures varying from 18-20 °C in mountain areas to 22-24 °C in plateaus of north and central regions and up to 24-26 °C in eastern flank and lower lying areas of central and north regions[3].

The major climate hazards to which Mozambique is exposed regularly include tropical cyclones, drought and floods. These phenomena happen generally across the country with tropical cyclones occurring particularly in the coastal zone of central-northern regions, while droughts are commonplace in the southern areas, and floods in the central and southern region mainly along the river basins, lower lying areas and zones with inadequate drainage system. The time scales of these phenomena are quite different, with drought prevailing for long periods of time (3 to 4 years); floods lasting up to some months, whilst cyclones last for a few days. Cyclones are considered as the most damaging meteorological phenomena in Mozambique because of the associated heavy rainfall, storms, flooding, landslides and widespread erosion, particularly along the impacting coastal shoreline.

1.2 Climate change - induced problem

Current and future climate-related risks to Mozambique and key areas of vulnerability have been analyzed in the country's First National Communication to the United Nations Framework Convention on Climate Change (UNFCCC)[4] and the National Adaptation Programme of Action (MICOA, 2007). Climate risks are also considered to some extent in recent assessments of disaster risks, poverty and vulnerability (INGC, 2009[5]; UNDP, 2009[6]). Climate change is expected to increase sea surface temperatures (SST) and increase the frequency and intensity of existing climate hazards particularly cyclones and long-term sea level rise (SLR). Higher sea levels mean stronger storm surge. A higher "launch point" for the surge increases both the areal extent of surge, all else being equal, and the depth of surge in areas already vulnerable to coastal storms (World Bank, 2009)[7]. The risk of coastal impacts in low-lying and subsiding areas will significantly increase due to SLR caused by climate change. Long-term effects of rising sea levels include increased shoreline erosion, saltwater intrusion into aquifers, and loss of coastal crop lands. These climate change effects will undoubtedly challenge the existing coping mechanisms of the population; especially those communities living in coastal zones of Mozambique.

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[3] MICOA (Ministry for Co-Ordination of Environmental Affairs) (2007), National Adaptation Programme of Action (NAPA). December, Maputo, Mozambique. 62p.

[4] MICOA (Ministry for Co-Ordination of Environmental Affairs) (2003). The Initial National Communications to the UNFCCC is published officially as the First National Communications of The Republic of Mozambique. 120p. April 2003. UNDP–Project MOZ/97/G32 – "Enabling Mozambique to Prepare its First National Communication to the UNFCCC".

[5] INGC, 2009. Study on the Impact of Climate Change on Disaster Risk in Mozambique: Main Report. Maputo, Mozambique. 321p.

[6] UNDP (2009). Africa Adaptation Programme. Mozambique Prodoc Final. Climate Change Adaptation Action and Mainstreaming in Mozambique. 101p.

[7] World Bank (2010). Economics of adaptation to climate change. Country Report. Mozambique. 104p.

Mozambique has limited time series sea level data with gauge data at Maputo dating back to 1961. Some attempts have been made to compute future sea level trends based on this data by Ruby et al (2008), although the derived values should be treated with caution due to the limited time series data. Church et al (2004) however noted that records from Maputo are generally consistent with estimates of regional trends and identified trends such as the IPCC AR4 (Table 1).

Table 1. The IPCC AR4 projected temperature, rainfall and mean sea level in the Southern African region under the A1B scenario to the 2100 time frame

Variable	Value
Temperature (A1B)	
Annual	2.5 – 3.0°C
Summer (DJF)	2.5 – 3.0°C
Winter (JJA)	2.5 – 3.0°C
Precipitation (A1B)	
Annual	+5% to +10%
Summer (DJF)	+5% to 0%
Winter (JJA)	-10% to -20%
Mean Sea Level	
[8]A1FI	0.26-0.59m
[9]A1B	0.21-0.48m

Source: Climate change adaptation in the coastal zone of Mozambique, Dr Travers, April 2011.

The impacts of sea level rise on the coastline will be two-fold: land lost directly through flooding, but also indirectly through coastal erosion. Long term cumulative impact of SLR on the Mozambican coastline can be drawn from the above predictions based on Bruun's Rule[10] which yields an order of magnitude of estimated of erosion and gradual coastal set-back ranging from: 16-38m (2050), 40-126m (2100) to 18-59m (World Bank, 2010; IPCC, 2007). Furthermore, earlier results to compare the impacts of SLR with storm surges found that a 10% future change in cyclone intensity could mean that the south east African region (including Mozambique) could experience an incremental impact loss of 3,268 km^2 of land area which is approximately 40% of the coastal zone (Dasgupta el al., 2009[11]). The assessment did not consider future changes in storm intensity or frequency, which could add to loss of land. Any of these future prospects for the Mozambican low-lying coastline will put an enormous pressure on communities and their livelihoods.

With the onset of climate change in the early years of the 21st century, tropical cyclones remain the principal threat, and their potential impact will possibly grow though an increase in their intensity and

[8] The IPCC AR4 projected scenarios to the 2100 time frame: A1FI= fossil-intensive fuel sources i.e the most pessimistic IPCC emissions scenario (production of the highest emissions).
[9] The IPCC AR4 projected scenarios to the 2100 time frame: (A1B)= where alternative directions of technological change in the energy system balance across all sources i.e (balanced fuel sources and production of lowest emissions).
[10] The Brunn's rule is one of the few existing models developed to address the impacts of the mean sea level variation on the resection/accretion of the shore line. Bruun's Rule provides an order of magnitude estimate of erosion and coastal set-back at 100 times the rise in sea level.
[11] Dasgupta, S., Laplante, B., Murray, S. and Wheeler, D. 2009. Climate Change and the Future Impacts of Storm-Surge Disasters in Developing Countries. Center for Global Development, Washington, D.C. 28p

their interaction with the expected rates of sea level rise. These climate change effects will aggravate underlying coastal erosion problems, and increase the vulnerability of populations and settlements to strong winds, high waves, and flooding which are already detrimental to livelihoods of more than 60% of the population living in the first 50 kilometres of the country's continental coastal zone. As extreme weather events continue to hit Mozambique, the Government of Mozambique will increasingly face decisions about how to manage people at risk and on the move due to environmental factors (Forced Migration Review, 2008[12]).

The low-lying coastal areas of Mozambique are especially vulnerable to both cyclone-induced extreme rainfall and ocean-induced flooding, due to both short-term changes in sea level such as storm surges and swell waves, as well as the long term SLR projected scenarios. Recent analysis of sea level rise (World Bank 2010) give a global mean sea level rise of 160-380mm (2050), 400-1260mm (2100). These are higher estimates than earlier IPCC LSR Scenario for 2090-2100 relative to 1980-1999, which predicts sea level rise from 180mm to 590mm by 2100 (IPCC, 2007[13]), depending on the level of atmospheric carbon concentration.

Currently, along the coastal zone of Mozambique it is estimated that 90% of the erosion is caused by natural forces, and 10% caused by human factors, mainly in the coastal areas that are occupied by coastal cities (MICOA, 2007). Coastline changes caused by erosion, whether it is caused by natural or human induced factors, is a critical issue for the entire Mozambican coastline with severe social and economic consequences. Natural causes include changes in meteorological and oceanographic conditions (winds, waves and currents, barometric pressure), modifications of the sediment budget and sea level rise. Anthropogenic causes include mining of sand and gravel from estuaries, beaches and directly from the continental shelf, dredging activities, construction of building and other infrastructure along the coasts and climate change (due to increased atmospheric greenhouse gases concentrations). The construction of dams has been shown to lower sediment loads in rivers that reach the coast by up to 40%, thus reducing sediment available to replace that eroded or extracted in the coastal zone[14]. Erosion rates in Southern Mozambique have been indicated to range from 0.11 and 1.10 metres/ year between 1971-1975 and 1999-2004. However, recent *in situ* inspection of other hotspot locations along the northern, central and southern portions of the coastline of Mozambique, during the PPG phase of this LDCF project, have show erosion rates close to 2 metres/year (Travers, 2011[15]).

The different 'types' of coast identified around Mozambique have associated levels of inherent susceptibility to change as a result of their geology and geomorphology (Table 2). This susceptibility considered in the context of exposure to forcing factors dictates the level of contemporary *physical* vulnerability of a given coastal zone (Figure 2). Although an elucidation of detailed hydrodynamic relationships under current conditions for the coast of Mozambique is beyond the scope of the work being reported on here, it is possible to provide a brief overview of the direction of change within large-scale coastal sectors (north, central and southern coasts). This overview is based on a review of the available literature on coastal change for the Mozambique coast in conjunction with an understanding of the morphodynamics of the key coastal 'types' that characterize each of the regions.

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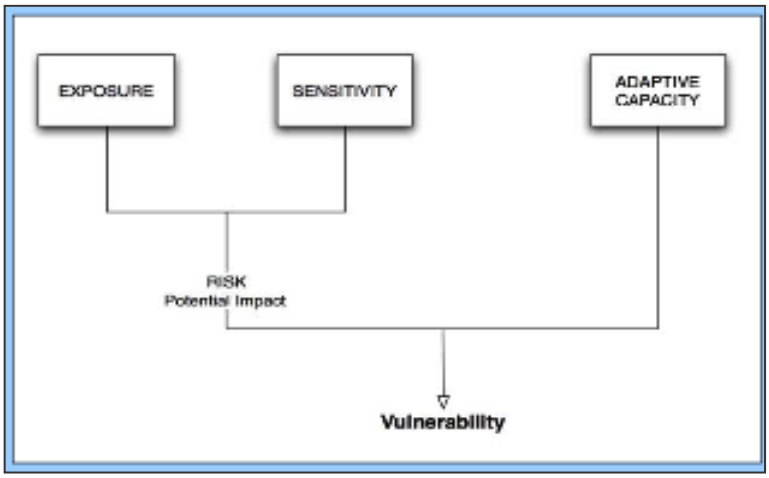
[12] Forced Migration Review (2008). Special issue on climate change and displacement. Volume 31, Oct 2008.

[13] IPCC, 2007: Summary for Policymakers. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA;

[14] Wellens-Mensah (1994) – quoted in Africa Environmental Outlook (2000).

[15] Travers, A., 2011. Climate Change Adaptation in the Coastal Zone of Mozambique: Coastal Zone Management Expert Report. April 2011.

Figure 2: Vulnerability as a function of exposure, sensitivity, and adaptive capacity.



Sources: Nicholls *et al.* 2007[16]; Allen Consulting Group 2005.

Extreme events, sea-level-rise, and changes in precipitation all cause second level outcomes that include damages to housing, industrial, and transport infrastructure.

Key sectors impacted in the coastal zone will include:

- **Fisheries and aquaculture** – sea-level rise, ocean acidification and changes in rainfall, groundwater and river flows will affect the quality and productivity of coastal and offshore waters with repercussions for the viability orf fisheries and aquaculture.
- **Infrastructure and building** – intense rainfall events, increased flood risk and sea level rise may increase the risk of infrastructure damage, including roads. Critical coastal infrastructure, communities situated close to the coastal as well as seaports will be exposed to coastal flooding, and storms may provoke impacts on maritime transport and related infrastructure.
- **Tourism** – coastal tourism will be affected because of accelerated coastal erosion and changes in the marine environment and marine water quality, with fewer fish and more frequent jellyfish and algae blooms.
- **Water supply and sanitation services** – climate change affects the function and operation of existing water infrastructure, including hydropower, structural flood defences, drainage and irrigation systems, as well as water management practices.

The coast of Mozambique can be divided into three distinct segments according to their physiographic structure and coastal erosion characteristics. The first of these segments is the “region of bays” which is about 670 km long and lies between the mouth of river Rovuma and Mozambique Island in the North of Mozambique. The coast consists mainly of sedimentary bedrock (calcarenites, limestone, and sandstone) and coral reefs, and therefore is relatively stable (MICOA, 2003). Erosion rates are believed to be of a less intense nature, since the area is protected by coral reefs which form an almost continuous perimeter (MICOA, 2007). However, *in situ* site inspections during the PPG phase of this LDCF project have now shown the contrary with a very intense erosion processes occurring, particularly in the western coastline of Pemba.

[16] Nicholls RJ & de la Vega-Leinert AC (eds.). 2007. Implications of sea-level rise for Europe’s coasts. *J. Coast. Res.*, Special Issue.

Table 2: Coastal dimensions of exposure and sensitivity to climate change events from exposure to hazards to outcomes (Source: World Bank 2010).

Climate Change Events – Exposure to Hazard	1st Level Sensitivity Determinants (this determines for instance the extent of flooding – outcome I)	Outcome I Biogeophysical Impacts	Sectors Exposed to Outcome I	2nd Level Sensitivity Determinants	Outcome II Impacts on socioeconomic system
1. Extreme events – storms 2. Sea level rise	Biogeological features of the coasts • Relief • Geology • Coastal landform • Coastal retreat • Tidal range	• Erosion • Beach migration • Coastal dune destabilisation • Flood (from upstream watershed) • Changes in run-off due to upstream extreme rainfall events or droughts • Inundation (storms and sea level rise) • Saltwater intrusion	Ecological systems • biodiversity Economy • Ag-forestry • Fisheries • Aquaculture • Industry (e.g. tourism) Infrastructure • Ports shipping • Housing • Roads • Water sector • Energy sector Health	• Population density • Number of marine/coastal protected areas • Fishery and aquaculture % of national GDP • Revenues from tourism as % of GDP • Historical/cultural importance	• Loss of lives • Loss of property • Damage to infrastructure • Increased risk of diseases Economic lossed: damage to agriculture, fisheries etc • Loss of cultural resources • Forced migration • Loss of ecosystem goods and services
3. Heavy extreme rainfall events in upstream terrestrial areas 4. Droughts in upstream terrestrial areas	State of the water basin • Physical, geographical and hydrogeological catchment features • Amount of lake or groundwater storage				
5. Sea temperature rise Sea water acidification	Modelling considers necessary parameters	Direct changes to sea: impacts on biodiversity and fisheries			Fisher/biodiversity impact

Key: White cells represent the exposure and sensitivity of the natural systems. Blue cells represent the socio-economic system.

In fact, existing reports (MICOA, 2011[17]) indicate that these erosive processes have become intense in the last 2-4 years, partially due to anthropogenic factors of which mangrove logging is the primary concern. The coral reef is already stressed from increasing populations and generated marine pollution, coastal development, and marine-transported litter. Mining of coral and sand for use in construction is also damaging habitats. Moreover, intensive tourism will potentially impose damages to reef habitats by pollution from boats, hotels and other facilities, and by anchor damage, trampling and removal of coral as souvenirs. The Vulnerability and Capacity Assessment (VCA) field consultations revealed that most of the coastal communities in rural and remote village dwellers in Pemba experience with unusual frequency flood events, strong winds (locally known as "Kussi"), sea water invasion, strong coastal erosion and cyclones. These new climatic variations and impacts mean that communities have to deal with situations that challenge traditional approaches to daily livelihoods, particularly farming and fishing.

The next southwards coastal segment is the Central region, also known as the "Region of Rivers" which lies between Mozambique Island and Bazaruto Island and is about 900 km long. This region is characterized by a relatively wide and flat coastal plain, with many large rivers that drain into sea through estuarine systems and deltas, a dynamic sediment-rich muddy and sandy coastline, and wide and very shallow offshore tidal flats. In this region, the coastline is very unstable due to the deposition of silt brought by rivers and the erosion of the river edges by strong currents towards the mouth. Numerous deltas have developed extensive low lying plains with widths of over 100 km. The continental shelf is wide in the Bight of Sofala but becomes narrow near Nacala up north. There are recent low lying deltaic and associated beach plains. The tides are large (up to 7m in range), and the coast is the most subject to tropical cyclones (6 in 16 years). Erosion processes in this coastline are physically powerful and constitutes a serious problem in some locations, particularly in the city of Beira where much property and infrastructure (e.g. roads, houses) has already been lost. Locally, the bay has semi-diurnal tides with a daily inequality of 0.4 m. The mean spring and mean neap tidal ranges are about 5.7 m and 1.7 m, respectively[18]. The currents are very strong reaching up to 5 knots in the dredged channels. There are locations where the coastline has retreated or advanced as much as up to 1 m per year in the last 40 years (MICOA, 2003), as for example Chinde in the Zambezi Delta. Coastal communities along this region rely on marine natural resources for their livelihoods. Fishing, coastal subsistence farming, exploitation of coconut plantation and wood collection are some of the activities developed by these communities. Furthermore, tourism and aquaculture are some of the newly introduced industrial activities occurring in these coastal areas, which represent an alternative employment to already economically disadvantaged communities. Coastal ecosystems have been ruined (PPG fact finding) with widespread logging of mangroves and casuarinas; dune erosion is accelerating both due to human activities. SLR will potentially put people's livelihoods, economic security and health at higher risk in the extensive estuary and delta areas of the Centre.

The last coastal segment in the South region is "The region of Lagoons", extending from Bazaruto Island to Ponta d'Ouro beach and is characterized by a relatively narrow coastal plain, with some large rivers, a sandy coastline which becomes muddy close to the rivers, and a shallow bight in Maputo Bay. Here, the tides are moderate (2m in range), and the coast is subject (INGC, 2009) to

[17] MICOA., 2011. ANEXO: Perfil Ambiental do Município de Pemba. Ministério para a Coordenação da Acção Ambiental, DNGA & DPCA-CD, Moçambique. 92p

[18] Most of the Mozambique's shoreline is subject to semi-diurnal tides, with tidal excursions (the difference in levels between High Water and Low Water) ranging from less than 2 m at Neaps to about 4 m at Springs. These coasts are classified as mesotidal. The coast of southern Mozambique has a higher tidal excursion - 6.4 m at Springs in the Bight of Sofala, while the range at Springs locally on the west coast of Mozambique is 7 m. Tidal currents are generally weak on exposed shorelines, but in creeks and estuaries, and, in lagoonal channels, tidal currents may reach as high as 2 m/s, in places playing a significant role in shoreline change. These local processes tend to be exacerbated by SLR leading to aggravated coastal erosion phenomena.

occasional tropical cyclones (4 in the past 16 years). Flood risk of the large rivers (lower Limpopo River south-east of Xai-Xai, the lower Incomati River north-east of Maputo, the estuary at Maputo and the lower Maputo River) is higher when the cyclones coincide either with upstream dam discharge or spring tides. In this coastal region of southern Mozambique, the average erosion rate of the coast line has been between 0.11 and 1.10 metres/ year from 1971-1975 to 1999-2004 in sheltered and exposed beaches respectively. However, in certain areas anthropogenic causes of these processes are dominant and include urban and port expansions, and more recently the expansion of tourism. For example, the Ponta d'Ouro beach, a well known touristic spot, shows an erosion rate of 0.95 to 1.75 metres/year (MICOA, 2007).

This "region of bays" is becoming more susceptible to tropical cyclones and probably impacted from SLR. Furthermore, climate change is expected to affect the coral ecosystem with the rising SST (Sea Surface Temperature). Warmer waters will result in a reduction in the effectiveness of the coral ecosystem in providing protection to the coast, which will become exposed to the full force of any extreme event, leading to increased erosion and set back of the coastline. In addition, the reefs are also threatened by climate-change related increases in oceanic CO_2, which will further impair their ability to keep pace with SLR. Past examples show that a rise of SST by 1-2ºC above normal during two months during ENSO 1997-1998 there was a 90-95% mortality of corals at most impacted sites of the Indian coast with 30% mortality on a regional scale[19].

Given the three distinct coastline segments into which the coast of Mozambique is divided according to their physiographic structure and coastal erosion characteristics the project demonstration sites will be established in three different provinces representative of these coastline segments Therefore, project sites will be located in Pemba in the north, Pebane in the centre and Závora in the south. The corresponding numbers of households are as follows (Table 3):

Table 3: The project sites and numbers of households (HH) are as follows:

Pemba	No of HH	Inharrime	No of HH	Pebane	No of HH	TOTAL HH
Community 1: Chuiba (East coast)	1006	**Community 4: Shiane (inland from Zavora Beach)**	411	**Community 5: Malua/Porto (Harbour)**	2715	
Community 2: Paquite (North coast)	2220			**Community 6: Quichanga (Beach)**	556	
Community 3: Chiuabuare (West coast)	3230			**Community 7: Macuacuarne (coconut village)**	590	
Total HH	**6446**		**411**		**3861**	**10,718**

[19] Obura, D., Suleiman, M., Motta, H., & Schleyer, M., (2000) 'East Africa'. In: Wilkinson, C., (ed.) *Status of Coral Reefs of the World: 2000*. Townsville: Global Coral Reef Monitoring Network, Australian Insitute of Marine Science

The impact of the 21 February 2000 Tropical Cyclone (TC) Eline on the Mozambican coasts underscores the country's extreme vulnerability to natural hazards, and provides a good indication of the possible impacts of future climate change-induced natural disasters **given the current baseline problems and expected interaction with climate change (Table 4)**. The resulting floods caused severe damage to physical infrastructure in many sectors of the country's southern coastal zones, setting back the high levels of economic progress and prosperity achieved by the country over recent years. The simultaneous damage caused by TC Eline and TC Hudah in 2000 reached 12% of GDP (INGC, 2009), from which the country took several years to recover.

Table 4. Summary of the baseline problems and expected interaction with climate change for each of the provincial sites.

Current Issues	Estimated Directions of Change (2011-2070)	Summary of Likely Impacts
	PEMBA	
• Shoreline erosion due to natural tendency and removal of vegetation, eg mangroves, in foreshore areas • Saltwater intrusion • Inadequate/unrestricted beach access • Lack of beach services • Unplanned/illegal development • Poor access via unsurfaced road • Sand mining • Beach and water pollution • Intensive and uncontrolled fishing • Sea wall that once protected the harbour now destroyed • Livelihoods range from subsistence agriculture, fishing, mangrove exploitation, trades and services. • Marginalised informal settlements at extremely high risk.	• Documented history and observed current trend of erosion likely to continue • Projected rises in sea level will likely result in a decreased beach width and 'pinching' of the area. • Loss of illegal and unplanned development in the dune area • Decrease in sustainability of current fishing practices giving altered hydrodynamics (more energetic waves, decreased intertidal habitat) • North: Coastal road providing access to harbour at risk from coastal erosion; likely inundation of the majority of area even with minor SLR • East: Risk of inundation of dune areas and buildings in coastal buffer; Decreased beach amenity value due to erosive foreshore (exposed tree roots, vegetation debris, organic matter/black sand, reduced beach width and sand volume) • West: High risk of inundation of coastal plane.	• SLR and coastal erosion lead to inundation of low lying dune areas • Damage to coast roads (currently unsurfaced but only access provision to area) • Loss of illegal/unplanned development in dune area • Decreased beach recreational value • Decrease in viability of subsistence fisheries
	Inharrime	

Current Issues	Estimated Directions of Change (2011-2070)	Summary of Likely Impacts
• Shoreline erosion • Inadequate/unrestricted beach access • Lack of beach services • Unplanned/illegal development on sandy dunes and exposure of historic development (circa 1950's) due to ongoing erosion of foreshore) • Poor access via unsurfaced road • Extensive lakes, swamps and marshes that make managed retreat and setbacks problematic. • Local economy has grown around tourism which depends on the infrastructure and quality marine environment.	• Erosion of dunes likely to continue, particularly at the Lodge area where sediment supply is restricted and the natural buffer is absent • Projected rises in sea level will likely result in a decreased beach width and 'pinching' of the area. • SLR and reduction in water table may lead to saltwater intrusion • Decreased beach amenity value due to erosive foreshore (exposed tree roots, vegetation debris, organic matter/black sand, reduced beach width and sand volume) • Increase in beach hazard due to more energetic wave climate resulting from decreased wave dampening from reef and potential slope instability associated with erosion of infrastructure and scarping on dunes • Decrease in sustainability of current fishing practices giving altered hydrodynamics (more energetic waves, decreased intertidal habitat)	• Erosion of infrastructure (private residences, tourist lodgings & facilities and boat access/pedestrian access points) • Damage and destruction of dune ecosystem and encroachment into backing wetland habitats • Degradation of marine ecosystem (coral reef and associated protective function/diving amenity; manta ray, whale, turtle and fish populations) • Decreased beach recreational value • Decrease in viability of subsistence fisheries
	PEBANE	
• Low lying sandy dune area is subject to progressive erosion and undergoes inundation during high energy events; • Headland is eroding severely through a combination of terrestrial and marine pressure • Livelihood dependent on subsistence agriculture and fishing. • Pressures on livelihoods are due to are a) over-fishing b) degradation of foreshore and dune environments and c) coastline unstable due to deposition of materials by rivers and erosion of river edges by strong currents. Shoreline change can be as much as 1m/yr. • Communities live in transient dune system. Attempts at re-location in 2003 were unsuccessful. • Communities live in mangrove area. • High coconut tree mortality. • Degraded harbour infrastructure.	• SLR will lead to increased bank erosion and instability of channel • Marine erosion as a result of scouring and undercutting under elevated water levels will combine with pressure from unregulated boat access on the channel banks and terrestrial pressure from run-off during the wet season to exacerbate alluvium wash out and create large-scale gullies. • Inundation of the relatively low lying areas adjacent to the shoreline (currently inhabited by fishers) • Continued damage and destruction of coastal infrastructure (e.g. remedial measures along the bank are currently ineffective and will be destroyed under projected rises in sea level; Pier and adjacent make-shift walling will continue to be undermined and eventually undergo complete collapse.	• Erosion of infrastructure (private residences, tourist lodgings & facilities and boat access/pedestrian access points) • Degradation of mangrove ecosystem and associated services. • Damage and destruction of dune ecosystem and encroachment into backing wetland habitats • Degradation of marine ecosystem (coral reef and associated protective function/diving amenity; manta ray, whale, turtle and fish populations) • Decreased beach recreational value • Decrease in viability of subsistence fisheries

1.3 Root causes

Inherent Physical Vulnerability and Resilience

The geographic and geophysical characteristics of Mozambique make its coastline intrinsically vulnerable to climate and other natural hazards. Mozambique's coastline is characterized by a high number of ecosystems namely estuaries, dunes, mangrove forests, coastal lakes, sand banks and coral reefs, marine weed and swamps. Furthermore, many international rivers flowing into the Indian Ocean converge in this coast line of which a significant proportion of its land area is at or below sea level. Therefore, the coastline of Mozambique is almost in its entirety exposed to climate hazards, particularly tropical cyclones and depressions that are formed in the Indian Ocean, crossing the Mozambique Channel.

The economic and biological values of the coral reefs in the northern portion of the country have long been recognized for their important role in protecting the local coastal zones from the impacts of extreme weather events. The coral reefs represent the country's first line of defence against a range of natural hazards including climate risks. Regrettably, this has been found disturbed after the El Nino-related bleaching event of 1998 (Obura et al., 2000). Moreover, most recently, coral bleaching due to climate change-induced high SST has further impaired its protective role to the coastline in Mozambique.

Threats arising from current land use and development practice

Development planning does not take on board the need to protect coastal zones for the ecosystem services they provide. In the past, abundant native coastal vegetation, mangroves forests, coastal coconut plantations, extensive coastal sand ridges and coral ecosystems provided a natural protection to coastal areas against historical patterns of climate hazard. Today, these natural defences are all being degraded. Widespread concessions of coastal sand mining or coastal land reclamation, ends up in levelling coastal sand ridges. Natural coastal habitats such as wetlands and mangroves are often converted for urban or agricultural uses, reducing the ability of such ecosystems to provide a natural barrier or buffer against wave action and storm surges, which results in further and increased erosion and other impacts such as flooding. Mangroves are exploited for fuel wood (cooking and smoking fish) and for building purposes. In recent times (MICOA, 2011 [20] ; MICOA, 2010 [21]), coastal ecosystems of Mozambique have been degraded because of widespread mangrove logging; lethal illness of coastal coconut plantations, and beach sand mining, considerably lowering the natural resilience of coastlines in Mozambique. Population densities around urban and rural coastal areas often mean that critical physical infrastructure is sited in vulnerable locations. Current methods of controlling erosion and flooding rely on coastal engineering and hard physical structures such as sea walls and groynes, which are very expensive and therefore difficult to maintain or replicate widely.

[20] MICOA, 2011. ANEXO: Perfil ambiental do Município de Pemba. Ministério para a Coordenação da Acção Ambiental, DNGA & DPCA-CD, Moçambique. 92p.

[21] MICOA, 2010. Plano de Gestão Ambiental do Município de Pemba. Ministério para a Coordenação da Acção Ambiental, DNGA & DPCA-CD, Moçambique. Conselho Municipal da Cidade de Pemba. 51p.

[21] The GOM/GEF/UNDP supported Atoll Ecosystem Conservation (AEC) Project in Baa Atoll has contributed to the expansion of the country's marine protected areas network and is generally strengthening biodiversity conservation efforts in the Maldives (see Section 2.3).

Poverty levels

Mozambique is a low-income country, with 55.2% of its population live below the poverty line. Only about 54% of the population aged over 15 years old have basic literacy skills, 14.2% of babies born will die before reaching the age of five, and the average life expectancy is just 48 years. Mozambique's ranking on the Human Development Index (HDI) is 165th out of 169 countries (2010) Its current public debt stands at 40.8% of GDP (2010 est.) and it has an average unemployment rate of 21% (1997 est.)[22] – higher still in rural coastal areas. Adding to this, malnutrition, HIV/AIDS, and endemic diseases restricts the adaptive capacity and capability of coastal communities. Poverty is a major threat to the stewardship of coastal areas. Coastal resources are the source of food, income, construction materials and much more for rural coastal communities, with no space for adaptation. Adaptation in the coastal zone needs poverty to be adequately addressed. It would be difficult to engage coastal communities in climate change adaptation (CCA) activities unless there is adequate support at a micro economic level to guarantee their livelihoods.

1.4 Long-term solution and barriers to achieving the solution

Ecosystem services, for example those provided by mangrove swamps, dune systems and coral reefs, are critical in providing resilience against SLR and destructive maritime hazards (storm surges, tsunamis and tropical cyclones). There are three types of strategies to address sea level rise and storm surges: managed retreat, accommodation of change or protection.

(Planned) Retreat – The impacts of sea-level rise are allowed to occur, and human impacts are minimized by pulling back from the coast via land use planning, development control, set-back zones, etc.

Accommodation – The impacts of sea-level rise are allowed to occur and human impacts are minimized by adjusting human use of the coastal zone to the hazard via increasing flood resilience (e.g., raising homes on pilings), early warning and evacuation systems, risk-based hazard insurance, etc.

Protection – The impacts of sea-level rise are controlled by soft or hard engineering (e.g., nourished beaches and dunes or seawalls), reducing human impacts in the zone that would be affected without protection. However, a residual risk always remains, and complete protection cannot be achieved. Managing residual risk is a key element of a protection strategy that has often been overlooked in the past.

Examples of options associated with each of these strategies are presented in Table 5. Each of the pilot sites has a specific set of problems and circumstances that render one of these three strategies more or less suitable. The analysis is contained in Table 5 and Annex 5.

Addressing the widespread poverty in coastal areas, which drives much of the degradation of ecosystems and ultimately makes communities more vulnerable to climate change is essential. Many coastal communities' livelihoods are based on subsistence agriculture, coconut plantations, fishing and mangrove forest exploitation. Livelihoods diversification towards climate-resilient livelihoods is essential in tackling the drivers of ecosystem degradation.

[22]The online World Fact book-Mozambique (CIA, 2011): https://www.cia.gov/library/publications/the-world-factbook/geos/mz.html

Table 5: Three strategies (a combination of policy and technological options) for adaptation to SLR and storm surges

Protect	Manage	Retreat
• Dikes, levees, floodwalls • Seawalls, bulkheads • Groynes • Floodgates and tidal barriers • Detatched breakwaters • Wetland restoration • Afforestation • Wooden walls • Stone walls	• Emergency planning • Insurance • Modification of buildings to cope with floods (Strengthen and raise) • Improved drainage • Strict regulation in hazard zones • Modification of land use planning	• Increase of establish retreat zones • Relocate threatened buildings • Phase out or ban development in areas susceptible to flooding • Rolling easements, erosion control easements • Upland buffers

1.5 Barriers

The Government and the general public have increasingly become aware of the extreme coastal erosion in low lying areas of central Mozambique (Beira) and the south (Maputo), and the vulnerability they face. The Government of Mozambique (GoM) has adopted several measures to protect the country's coral reefs, including a ban on coral mining, environmental safeguards on tourism development and, more recently, the establishment of marine protected areas.[23] However, anthropogenic pressure on the reefs and mangroves continues. There are a number of constraints to modifying existing approaches to land use planning, coastal protection and development in the Mozambique due to weak intersectoral policy coordination and development in the management of SLR and coastal erosion which results in fragmented and unclear policies; limited institutional and individual capacity for planning, including gaps in technical knowledge and know-how; and financial constraints. These are considered briefly below.

<u>Weak intersectoral policy coordination and development</u>

Mozambique has undergone a relatively politically stable period, but there has been, over the years, major restructuring of government ministries. Many policies are under development or review with insufficient inter-sectoral coordination to ensure overall policy coherence. Laws, regulations and mandates are inadequate and are often in conflict, resulting in a lack of understanding regarding the limits and responsibilities of individual agencies. Furthermore, laws that are enacted to protect and manage coastal zones suffer from *ad hoc* enforcement regimes for managing coastal environments. In general, limited action has been taken to implement a sustainable and integrated coastal zone planning framework, such that the national ICZM plan has not been endorsed with clear budget allocations, responsible institutions or accountability system resulting in a lack of an integrated approach to address coastal threats. The NEMP (National Environmental Management Program) is the master plan for environmental

management in Mozambique, and provides a framework for coordination, for example, the National Coastal Zone Management Committee led by MICOA. However, this has largely been inactive, with Committee members lacking clear roles, resulting in a low level of cross–sectoral coordination that would be necessary to implement any ICZM measures and policies.

Coordination of CC adaptation strategies is currently weak and/or unsystematic. MICOA, INGC and the Eduardo Mondlane University (UEM) have all carried out projects in the coastal zone issues in a stand-alone way. In addition some ministries (such as transport and public works) not directly related to the environment are still of the view that CC belongs in the environmental ministry docket only. Centrally-placed Ministries of Planning and Development (MPD), Ministry of State Administration (MAE) and Ministry of Finance (MoF) realise that CC and CCA are central to their interests but their capacity is too limited to take a leadership role. Finally, this lack of cross–sectoral coordination in government and amongst other development actors is reflected at the local level, often resulting in weak/inadequate organizational structure to implement and enforce the legislation.

Ministries work in silos and there is limited culture of knowledge sharing. Cutting edge risk analysis that has integrated information from across sectors (INGC[24], 2009) has not been readily absorbed by other institutions. There are insufficient mechanisms in place for data and information exchange, which have resulted in a potential mischaracterization of climate change related threats. Two key elements are currently lacking to help in overcoming the existing barriers : i) A focal point within Mozambique for CCA information where the public, development partners and other interested parties can access and share information (research studies, lessons learnt, best practices) collected from the country and regionally; and ii) The emergence of an effective institutional "champion to promote adaptation.

Limitations in institutional and individual capacities to plan for climate change

There is a severe shortage of skilled and professional staff within the environment sector and the picture is worse for SLR and coastal erosion. There is limited knowledge and technical know-how about climate risk management in relation to the coastlines of Mozambique. National agencies do not have the technical capacity to monitor and address climate change risks (especially sea level rise), assess vulnerability, or design and implement adaptation measures. As in any Least Developed Country (LDC), specialised training programmes are limited particularly in CC issues, although Mozambique has recently introduced several higher education degrees in environmental science, spanning from Meteorology, Climatology and Geography to Oceanography courses taught at the various public and private universities. If at national level institutional and individual capacities are lacking, the capacity for climate change adaptation planning at the sub-national and municipal level is even lower.

Whilst government documents like the past PARPA II and next PARP and the Government Action Plan have acknowledged the role of good environmental stewardship in poverty reduction, they have not yet been explicit in articulating climate change and adaptation. This can be partly attributed to the fact that, across the board, agencies responsible for coastal zone management lack the climate risk assessment abilities needed to identify and integrate climate risks and appropriate adaptation response measures into the policy, regulatory and legal frameworks for coastal zones.

[24] Study on the Impact of Climate Change on Disaster Risk in Mozambique: Main Report. *National Institute for Disaster Management.* June 2009. 338p

Decision makers in the Ministries of Planning and Development, and Finance are currently not yet adequately equipped with skills that can effectively negotiate and coordinate CCA investments through a common framework. This has led to development partners funding different CC interventions with different sectoral ministries in an uncoordinated way. This can bring about a duplication of CC interventions resulting in a diminished impact on the target communities. Priorities for funding have also been biased towards short term goals e.g. focusing on relief efforts or service delivery in sectors such as education and health as opposed to preparedness, mitigation measures and adaptation strategies that are longer term in nature. Thus awareness of the short and long term consequences of climate change to key ministries such as transport, agriculture, fisheries, health, public works and impact on gender relations in relation to CCA is still weak and matter for concern as a potential barrier to effective CCA.

Financial Constraints

The Government of Mozambique is aware that urgent action is needed to address the threats posed by climate change to the country's population and continued sustainable development. In the poverty reduction programme (PARP) the GoM acknowledges that "by preventing disasters, we can make communities and territories less vulnerable to the various threats". However, like other Least Developed Countries (LDCs), Mozambique has high adaptation costs relative to GDP. Adaptation costs are especially high, because of the geography of the country with a coastline of >2700 km and the scattered distribution of more than 60% of total population across many little towns and villages along the coastal zone. Currently, the country is facing a range of economic problems including the impacts of the global recession and country's dependence on imports of food, oil and manufactured products. Therefore, budgetary resources for the country's development plan for the next five years are already severely constrained and there are limited resources to meet the additional costs of adaptation. The GoM has shown impressive GDP growth over the past decade ranging from 6.4% (2009) to 7.7% (2011) with poverty rate declining from 69.4% of the population in 1997 to 55% in 2010. However, even so, poverty remains widespread and now worsening, highlighting the weak linkages between macroeconomic performance and the bulk of the population in Mozambique[25]. This wide-spread rural poverty limits the adaptive capacity and capability of individuals, farmers and villagers to respond to natural disasters, flooding, and droughts. Poor farmers/fishermen have limited opportunities to improve yields, increase income, and/or to develop alternative, appropriate farming systems with greater in-built resilience to climate hazards.

1.6 Stakeholder baseline analysis

During the consultation process from March to June 2010, approximately 200 professionals were engaged at national, sub-national, municipal and community levels. Key stakeholders with a major direct role in the project were identified and consulted at different stages during the Project Preparation Grant (PPG) phase to obtain their inputs and feedback for designing the project. The majority of key stakeholders at the national level are from various departments and divisions of GoM (Table 6).

The other major stakeholders outside the capital Maputo are the provincial, district and municipal authorities, both the civil servants and elected officials, as well as the local communities in the target areas, and their various community-based organisation (CBOs). Consultations were held with district representatives and provincial representatives in the

[25]African Economic Outlook, 2011 - http://www.africaneconomicoutlook.org/en/countries/southern-africa/mozambique/).

northern province of Pemba (Pemba), Central province of Zambezia (Pebane) and in the south province of Inhambane (Závora) of Mozambique to assess their level of commitment and willingness to support the planned project activities. Consultations were also held with target communities and local authorities during the Vulnerability and Capacity Assessment (VCA) that took place during the PPG phase of the project.

A number of other stakeholders likely to have an interest in the project's results but without an active role in the project were also identified. Both primary and secondary stakeholders are shown in Table 6 below along with details of those parts of their mandate most relevant to the project's objective as well as, where applicable, a brief summary of their proposed role in the project. The importance of strong engagement by NGOs, community-based organizations and communities in the project was flagged at the second stakeholder consultation workshop, including the need to ensure that future consultations capture the full range of perspectives, including those of minorities, less vocal groups and village residents who may not have been present at the time of the consultation. The importance of gender equity and other gender aspects was emphasized throughout the consultation process.

Bilateral consultation throughout the PPG process
The PPG Phase (March to July 2011) included a series of bilateral meetings between members of the PPG Team and representatives and resource persons from other projects, GoM agencies, NGOs and other organizations including main Universities.

Outcome: During these meetings CC related information, ideas and thoughts were collected; opinions on useful approaches and strategies were exchanged, and the evolving NAPA follow-up project structure was presented.

Inception Workshop (IW) - Information and consultation session at Girassol Hotel conference room in Maputo.
A first public information and consultation session on the NAPA follow up project was organized on 10th of March 2011 at the Girassol Hotel conference room in Maputo with the attendance and joint organisation of MICOA/UNDP.

Outcome: The session informed potential stakeholders about the project PIF. Initial guidance and useful advice related to PPG process, stakeholder identification, strategy and approach, technical issues, and site selection was gathered by the team. A major pending issue related to the 3rd project selected site of Chinde in Zambezia Province was discussed and through a highly participative process a consensus was reached to abandon the referred site due to difficult accessibility. Instead the locality of Pebane in the same Province was select as the potential site. During the same forum, the role of INGC, as one of the major partners in the project was discussed and agreed on their immediate inclusion in the list of project stakeholders.

Stakeholders Consultation Workshop (SCW) - National planning workshop on central level at Girassol Hotel conference room in Maputo on 26th of May 2011.
The national planning workshop was organized to present the project framework, to identify core problems/causes, strategies/desired responses and potential stakeholders at national level. Goal was to present results for the Coastal Zone Management (CZM) Expert site visits were organised to; assess the coastal erosion baseline conditions at the project sites, the Vulnerability and Capacity Assessment (VCA) to establish the baseline of Communities' vulnerability towards CC SLR and induced coastal erosion, the CC Capacity Assessment (CCA); to establish the baseline capacity stakeholders, and to provide inputs for the eventual revision of the existing project Result Framework (logframe).

Outcome: A better understanding of the project site's baseline information, the structure of the project document and the Result Framework among key stakeholders was achieved. Additionally, an analysis of project situation was undertaken, potential strategies and national stakeholders were identified. Inputs for a revised project Result Framework were provided and valuable recommendations for project design, implementation and management received. In addition the Project's Outputs Lead Institutions and their partner as well as the choice of the 3rd site for project demonstration was validated by the attending stakeholders.

Table 6: Primary and Secondary Stakeholders of the Project

Stakeholders	Interests/ role in the project
MICOA (Ministry for the Coordination of Environmental Affairs)	The Ministry for the Coordination of Environmental Affairs (MICOA) is the coordinating institution for environmental issues management created in order to enable better coordination of all sectors of activity, and encourage a proper planning and use of natural resources. From all national directorates, three are of great relevance to climate change management, such as the National Directorate for Environmental Management, the National Directorate on Territorial Ordination and Planning and the National Directorate for Environmental Impact Assessment. *MICOA is the Implementing Partner for the project. The Coastal Zone Management department of MICOA will coordinate all activities of the project in partnership with other project stakeholders. MICOA will also be take responsibility for implementing Outputs 1.4 & 1.6 (policy mainstreaming), and output 2.3 (implementation) and Outputs 2.4 & 2.5 (knowledge dissemination).*
INGC (National Institute for Disaster Management)	The National Institute for Disaster Management is a public institution with administrative autonomy directed to the prevention and mitigation of natural disasters. It has three fundamental areas of action: (i) prevention and mitigation; (ii) support to development in arid and semi-arid zones; and (iii) administration and human resources. Under its institutional mandate INGC is supposed to (i) direct and coordinate disaster management, namely, prevention and mitigation; (ii) reduce people, infrastructure and assets vulnerability. *INGC will be the Responsible Party for the implementation of Output 1.1; 1.2; 1.3, 1.5 & 1.9 (development of climate risk profiles).*
MINAG (Ministry of Agriculture)	The Ministry of Agriculture is the institution responsible for agricultural issues and Extension Services in the country. Through its Rural Development Strategy, it aims at (i) Increased competitiveness, productivity and rural wealth accumulation; (ii) Productive and sustainable management of natural resources; (iii) Growth in human capital, innovation and technology; (iv) Diversification in social capital, institutional efficiency and effectiveness; and, (v) Good governance and market planning. *MINAG will be the Responsible Party for the development of climate-based extension services: Output 1.7 & 1.8 (seasonal forecasts and agriculture) The project will use MINAG's unified extension system that works to strengthen producer organisations in order to have better access to markets and agricultural and extension services, such as on technology packages developed by*

Stakeholders	Interests/ role in the project
	research, crop and livestock production, post-harvesting and natural resource conservation.
INAM (National Institute of Meteorology)	The National Institute of Meteorology is an institution created to (i) plan, install and ensure the functionality of meteorological stations; (ii) register, record, archive, analyse and publicize the observation results; (iii) promote and ensure the functionality of the Centres of Analysis and Meteorological Forecast; and (iv) conduct studies and research in the field of meteorology and climatology. *INAM will be the Responsible Party for developing and supplying Agromet Advisory information to Agricultural Extension Services: Output 1.7, under the leadership of MINAG. INAM will also provide inputs to developing climate impact analysis and also supporting the development of the Climate Change Risk Information Centre: Outputs 1.2 and 1.3 in the systematic collection and communication of meteorological data under the leadership of INGC.*
MAE/DNPDR (Ministry of State Administration/National Directorate for the Promotion of Rural Development)	The National Directorate for the Promotion of Rural Development, under the Ministry of State Administration, is a public institution created for the promotion of community participation, coordination of all interventions for rural development and decentralization processes. *DNPDR under the overall leadership of MAE will be the Responsible Party for implementation of Outputs 2.2 on developing community-based climate change adaptation investment plans.*
IIAM (Institute for Agronomic Research)	The Institute for Agronomic Research is a public institution under the Ministry of Agriculture responsible for generating knowledge and technological solutions for sustainable development of agro-business and food and nutritional security. As such, this institution is responsible for implementing research activities that contribute to the development of strategies for biodiversity conservation, environmental protection and sustainable utilization of natural resources. *IIAM, under the overall leadership of MINAG will be the Responsible Party for implementation of Outcome 1: Output 1.7 & 1.8 in relation to supporting the development of a training programme.,*
CDS-ZC (Centre for the Sustainable Development of Coastal Zones)	The Centre for the Sustainable Development of Coastal Zones is a public institution, under MICOA, related to technical support to all institutions working in coastal management. It has the objective of coordinating and promoting research, training and develops pilot activities for the management of coastal, marine and lacustrine environments, contributing to the development of coastal zones. Under its institutional mandate, CDS-ZC is directed to promote integrated planning and implementation of good practices for environmental management in collaboration with other institutions, promote and assist the monitoring process of the state of the environment and conservation and utilization of natural resources and biodiversity in the coastal zone, including databases development and collect, compile and disseminate technical and scientific information relevant to coastal zones. *This institution is integrated in the project as a research institution providing inputs for Output 1.4, 1.6 & 2.3 under the overall leadership of MICOA & for outputs 1.1 & 1.5 under the leadership of INGC and providing technical support to the implementation process, monitoring and evaluation.*
CEPAM (Centre for	The Centre for Marine and Coastal Research is a public institution under the

Stakeholders	Interests/ role in the project
Marine and Coastal Research)	Ministry for the Coordination of Environmental Affairs created to develop research programs on the marine and coastal ecosystems, contribute to integrated planning and implementation of good practices in the coastal and marine environments, implement experimental activities and demonstrations on the conservation and sustainable utilization of coastal and marine environments, regularly monitor and evaluate these ecosystems and organize and implement capacity building programs on the protection and sustainable utilization of coastal and marine ecosystems. *This institution is integrated in the project as a research institution providing inputs for Output 1.4,, 1.6 & 2.3 under the overall leadership of MICOA and Output 1.1 & 1.5 under the leadership of INGC) and providing technical support to the implementation process, monitoring and evaluation in northern sites in Pemba..*
ESCMC (College of Marine and Coastal Sciences)	The College of Marine and Coastal Sciences, under the Eduardo Mondlane University, is designed to create capacity for the sustainable utilization and exploitation of the sea and coastal zones for community benefit and country development trough training, research and extension services. Under its mandate, ESCMC should conduct research and multidisciplinary extension activities focusing on key strategic aspects for protection, conservation and sustainable exploitation of the sea and coastal areas, contribute for the development of local coastal communities by means of partnerships with communities, and scientists and generate capacity for rational utilization of coastal resources towards social well-being and economic development. *ESCME will support INGC in developing climate change induced-coastal erosion profiles: Output 1.1, and under the leadership of MICOA for Outputs 1.4 & 1.6, 2.3, 2.4 and 2.5). It will also support all the activities conducive to the restoration/ conservation of marine ecosystems affected by coastal erosion and anthropogenic activities in Pemba, Pebane and Závora).*
UNCDF (United Nations Capital Development Fund)	The United Nations Capital Development Fund (UNCDF), under UNDP, offers a unique combination of investment capital, capacity building and technical advisory services to promote microfinance and local development in the Least Developed Countries (LDCs) by means of microfinance programmes that provide poor households and enterprises with enhanced access to a wide range of financial services by promoting inclusive financial sectors and providing investment capital for emerging microfinance institutions (MFIs) and other financial service providers (FSPs) in the LDCs and through local development programmes that support national decentralization strategies in the LDCs and seek to improve social services, governance and pro-poor economic infrastructure at the local level by providing technical assistance and investment capital directly to local authorities. *UNCDF will be a Responsible Party in implementing Outcome 2, Output 2.1, to extend MFI coverage to the pilot sites for disbursement of CCA financing and capacity development to local communities, using the successful BIFSMO programme in Mozambique. The purpose will be to enhance and diversify livelihoods for a reduction in vulnerability to climate change.*

2. STRATEGY

2.1 Project rationale and policy conformity

The Government of Mozambique (GoM) requests the Least Developed Countries Fund (LDCF) to support a Full-Sized Project (FSP) to implement NAPA Priority 3 “Reduction of climate change impacts in coastal zones”.

The objective of the project is to develop the capacity of communities living in the coastal zones of Mozambique to manage climate change by: i) developing the capacity for climate risk analysis, generating climate change risk analysis and mainstreaming it into policies, investment plans, sector budgets and livelihood strategies at the national and sub-national level ii) piloting measures to improve livelihood resilience to climate change.

The Project is distinctly action-oriented and country-driven from the very first days of the PPG process. Additionally, it sets clear priorities for urgent and immediate adaptation activities as identified by the GoM/ MICOA.
The preparation of this NAPA follow-up project was guided by a comprehensive and extensive participatory process involving all stakeholders, including local communities, a multidisciplinary approach (professionals from different sectors participated); and a complementary approach, building upon existing plans and programmes, including national action plans and national sectoral policies.

The project is well timed to strengthen and support the further roll-out of GoM and donor activities under the recent Government’s Five Year Plan and the Poverty Reduction Strategy Paper (PARP). Therefore, the LDCF project will seek to generate policy-relevant information to help mainstream climate change adaptation into the national planning processes. One of the Government plans relevant to the proposed LDCF project is the National Action Plan on Erosion. This nationwide action plan covers all forms of erosion, and acts as an important baseline but does not have a particular focus on climate change-induced erosion and the impacts of climate change on the coastline. Additionally, the government (led by MICOA) is about to engage in the development of a Strategic Environmental Assessment (SEA) which will focus on the entire coastline of Mozambique. This will be undertaken over the next three years, will involve extensive data collection and stakeholder involvement from all sectors and will, once completed, inform land-use decision-making and territorial planning at all levels (local, sub-national and national) in coastal zones. The proposed LDCF project’s focus on coastal zones and climate change-induced erosion is consistent with these plans and processes and will contribute knowledge to them.

This project will address urgent and immediate climate change adaptation needs and leverage co-financing resources from bilateral and other multilateral sources. The project is country-driven, cost-effective, and will integrate climate change risk considerations into land-use planning, coastal management and disaster risk reduction initiatives, which are priority interventions eligible under the LDCF guidelines. The project focus of safeguarding Mozambique’s coastal communities and ecosystems against future climate risk by pursuing a range of coastal adaptive practices is aligned with the scope of expected interventions supported by the LDCF.

The NAPA follow-up project significantly contributes to sustainable development in Mozambique. It was and remains country-driven in further design and final implementation, and will

demonstrate sound environmental management while being as cost-effective. Whilst participatory in the coordination arrangements, simplicity of technical adaptation action on the ground is a key feature of the project.

2.1.1 Eligibility Country

LDCF conformity

The LDCF was created with the objective of funding urgent and immediate adaptation needs in the LDCs as identified in the NAPAs. The project conforms to the LDCF's eligibility criteria, namely: i) undertaking a country driven and participatory approach; ii) implementing the NAPA priorities; iii) supporting a "learning-by-doing" approach; iv) undertaking a multi-disciplinary approach; v) promoting gender equality; and vi) undertaking a complementary approach, as described below:

- **Country drivenness and undertaking a participatory approach:** The project design was formulated as a result of extensive stakeholder consultations. The draft proposal was presented to a wide range of stakeholders (national/Provincial and Municipality scales) at a National workshop in May 2011 and their inputs were used to further develop the project design and the core of the Project Document (minutes of meeting in Annex 4). Three missions were carried out to the target Provinces to establish the baseline of Communities' vulnerability towards CC SLR and induced coastal erosion (March 2011) and to find out about community priorities for adaptation (April 2011) (Annex 7). A local government CC Capacity Assessment (CCA) was also undertaken early May 2011 (Annex 6). Stakeholders described as Responsible Parties will be leading project outputs and will coordinate activities among governmental units at the Municipality and Community levels. See Annex 2 for the full list of project stakeholder analysis and consultations.

- **Implement NAPA priorities:** the project will address NAPA adaptation priorities 3 primarily, with a contribution to NAPA priority 2.

- **Supporting a "learning-by-doing" approach:** the project will demonstrate effective adaptation approaches to CC SLR coastal erosion and also coastal land planning to inform national development plans and policies. Co-production of local knowledge and scientific assessments will be piloted to explore applied methods of producing climate risk assessments of greater accuracy, utility for planners and to build local ownership of climate change as an issue. The project will include generate evidence on the cost-effectiveness of adaptation interventions to make the case for policy and budgetary adjustments. The project will demonstrate how investments in climate-resilient livelihoods can be profitable, thereby promoting changes to micro-financing practice in Mozambique to make it climate-resilient. With increased awareness of the market opportunities related to adaptation to climate change, the project would be promoting further investments in adaptation. The project will pilot an innovative approach to community-level adaptation planning which will empower local communities to determine their adaptation priorities and implementation modalities.

- **Multi-disciplinary approach:** Outcome 2 of the project, which takes the majority of the budget, will be looking at building adaptive capacity to manage climate change from a number of angles: 1. livelihoods enhancement 2. livelihoods diversification 3. eco-system protection

and enhancement 4. community-level infrastructure projects. These approaches will build up financial, natural, physical and social capital of the pilot communities and will require expert input from a range of disciplines, see Table M for the range of stakeholder input expected. Community level investment plans will necessarily require an integrated view of solutions given the limited budget per community.

- **Gender equality:** project outcomes will contribute to an understanding of how adaptation responses can be designed to strengthen gender equality. The project indicators are to be tracked with data that are disaggregated by gender. The project is designed so that adaptation measures will be implemented in a participatory approach with women leading the project interventions. Women will be major beneficiaries of the LDCF project, building on the baseline BIFSMO project. The latter has supported women in a couple of ways. Firstly it supports a micro-financing organization: Development Fund for Women (Fundo de Desenvolvimento da Mulher - FDM), which offers group-lending products for women. Secondly, all BIFSMO-supported micro-financing institutions have a target to reach 50% women as beneficiaries. The performance to date is positive: currently, all financial service providers under BIFSMO have reached that 50% of women at mid contract. Finally, as the illiteracy rate in Mozambique is higher amongst women, the project planned awareness-raising activities will be achieved mainly through community-organised debates and information dissemination via radio community networks.

- **Complementary approach:** The LDCF project will demonstrate innovative ways of generating co-produced information on climate risk assessments, combining local knowledge and action and scientific assessments. Likewise, it will show how CCA investment plans can be developed at the community level by communities using participatory methods. This will complement the top-down modeling and planning approaches being done by PPCR and other initiatives. The LDCF project will generate information on the cost effectiveness of different adaptation approaches in coastal zone, which will feed into environment and climate change policy processes coordinated by MICOA. This will be complementary to other projects which may be generating similar information for other areas of Mozambique or for other types of adaptation interventions, eg the Poverty Environment Initiative. The project will benefit from the BIFSMO technical architecture, including a Chief Technical Advisor, Programme Officer, and Programme Associate, as well as the network of financial service providers, monitoring mechanisms, experience and links to national policy makers that will enable sustainability of the project. Micro-finance institutions have the know-how and information networks necessary to track a large number of small transactions. This is particularly relevant in the context of adaptation, which will require financing of thousands of actions involving changes and adjustments to existing practices.

Overall GEF conformity

The project has been designed to meet overall GEF requirements in terms of implementation and design. For example, the following requirements will be addressed:

- **Sustainability:** Financial sustainability for climate-resilient enterprise development will be promoted by channelling support through micro-financing institutions, based on the successful BIFSMO model (financial products plus business development) that will help communities to establish climate-resilient livelihoods, based on the principles of inclusive finance. Community-level infrastructure investments such as eco-system protection or water harvesting structures undergo a financial feasibility assessment during the prioritisation

process to ensure sustainability. The project builds mainly upon existing institutional structures of the government. For example the functions of the Project Board will be taken on by a pre-existing project review and coordination structure that exists within MICOA at central level. An extensive programme of capacity building will accompany the implementation of climate change adaptation measures and site demonstrations of adaptation techniques and practices in a learning-by-doing approach. This will build a cadre of skills and experience at sub-national level that will be able to support ongoing adaptation beyond the project period. The capacity building activities through stakeholder consultations, mobilization, networking and field-level presence will help achieve social sustainability of the project.

- **Replicability:** The project will demonstrate how investments in climate-resilient livelihoods can be profitable, thereby promoting the extension of micro-financing services beyond the project sites. With increased awareness of the market opportunities related to adaptation to climate change, the project would be promoting further investments in adaptation. Climate risk information will be integrated into land-use guidelines, coastal zone management regulations and development plans at national, provincial and community levels to replicate the project approach in the other seven Coastal Provinces. The process achieving this will build up political awareness of the need for adaptation and will promote dialogue among policy-makers for the other coastal Provinces in Mozambique. The project's work on training and capacity building of GoM staff can be replicated comparatively easy through the government's own workplan. Sharing of methodologies, results and lessons learned will be compiled and disseminated to other Districts and Provinces through the project's web-based platform and through a range of communication media via the ALM and other knowledge networks. A public awareness campaign and field demonstrations will be organized for the pilot communities and beyond.

- **Monitoring and evaluation (M&E):** The project has been design with a SMART Results Framework, which is aligned to the GEF Results-based Management Framework for Adaptation to Climate Change and aims to contribute to Objectives 1, 2 and 3 by:
    - Building capacity for conducting climate risk and vulnerability assessments and building these into climate-compatible developing planning at sub-national levels;
    - Building capacity for targeted local communities to use climate data to inform risk-reducing land use decision-making;
    - Identifying and transferring appropriate adaptation technologies that can support autonomous adaptation.

- **Stakeholder involvement:** The project design was formulated as a result of extensive stakeholder consultations. The draft proposal was presented to a wide range of stakeholders (national/Provincial and Municipality scales) at a National workshop in May 2011 and their inputs were used to further develop the project design and the core of the Project Document (minutes of meeting in Annex 4). Three missions were carried out to the target Provinces to establish the baseline of Communities' vulnerability towards CC SLR and induced coastal erosion (March 2011) and to find out about community priorities for adaptation (April 2011) (Annex 7). A local government climate change capacity assessment was also undertaken early May 2011 (Annex 6). Stakeholders described as Responsible Parties will be leading project outputs and will coordinate activities among governmental units at the Municipality and Community levels. See Annex 2 for the full list of project stakeholder analysis and consultations.

2.1.2 Country ownership: country eligibility and country drivenness

The Government of Mozambique became a signatory to the UNFCCC in June 1992 and ratified the Kyoto Protocol on 18 January 2005. The proposed project has been designed to address the most urgent and immediate adaptation priorities identified in the NAPA, which analyzed the multiple climate risks and vulnerabilities of Mozambique (MICOA 2003; MICOA 2007). The NAPA indicates four specific objectives that contribute to the above goal and are as follows:

1. Identify, characterize and map the eroded land and coastal vegetation;
2. Identify rehabilitation techniques for dunes and mangroves to mitigate the effects of erosion;
3. Identify participative actions for erosion mitigation and
4. Develop strategic actions to sensitise and disseminate good practices in coastal communities.

The project, which will address all the above adaptation needs, was designed specifically to meet the objectives of Priority Activity 3 of the NAPA ("*Reduction of climate change impacts in coastal zones").* By addressing these urgent priorities, the project will contribute to the long-term planning solutions that the country urgently requires to prepare for the inevitable impacts of climate change.

The project is aligned with the Government's Five Year and the PARP. Amongst these priorities are the sustainable use of natural resources (including water), and transparent mechanisms for the management and rational exploitation of those resources. The proposed project is also in line with country NAPA, which have analyzed the multiple climate risks and vulnerabilities of Mozambique (MICOA 2003; MICOA 2007). Both these reports have identified that sustainable development of the coastal area through the reduction of social and economic climate change impacts via coastal integrated management systems based on the community needs, and increased education of state officials and community institutions on coastal zone vulnerabilities

Mozambique has acknowledged that future economic growth continues to rely on the sustainable use of natural resources and increased capacity of communities and economical agents to adapt to climate change challenges. The Government of Mozambique has drafted and implemented a wide-range of policies that directly or indirectly relate to climate change and community adaptation to climate change. Important policies and policy documents produced so far include:

The ***Environment Law 20/97 of 01.10.97***, which defines the legal basis for use and proper management of the environment and its components. Its intention is the creation of sustainable development of the country, to ensure an integrated overview of the environment, citizen participation, equality between men and women in its use, legal responsibility for those who degrade the environment to repair the damage and compensate. It also includes specific measures of environmental protection, including the environmental heritage and biodiversity. It defines prohibitions for the establishment of housing infrastructure, or other, which may cause significant adverse impact to the environment. It sets parameters and the minimum content of environmental impact assessments. The environmental law requires that the Government prepare a National Environmental Management Program, and establishes a consultative National Council for Sustainable Development (CONDES). The framework law provides for the adoption of a number of acts and regulations to enable its implementation, including acts and regulations on *environmental impact assessment*, *environmental auditing*, *environmental quality standards* and *hazardous wastes*.

The ***Presidential Decree No. 2 / 94, December 21st***, which establishes the Ministry for the Coordination of Environmental Action (MICOA) in order to have better coordination of all sectors of activity, and encourage a proper planning and use of natural resources.

The ***Law 20/97 of October 1st***, which establishes the National Council for Sustainable Development (CONDES) with the purpose of ensuring effective and proper coordination and integration of the principles and activities of environmental management in country development.

The ***Resolution No. 5 / 95 of August 3rd***, which establishes the National Environmental Policy, the basis for sustainable development in Mozambique, taking into account the specific conditions of the country, focuses on the eradication of poverty, improvement of quality of life and reducing damage to the environment, through an acceptable and realistic compromise, between economic progress and environmental protection. It is the instrument through which the Government acknowledges the clear and unambiguous terms that define the interdependence between development and environment.

The ***Council of Ministers Resolution No. 18/99 of June 10th***, which establishes the National Policy for Disaster Management, providing a systemic approach to indicate a system of prevention, rescue and rehabilitation, which requires harmonization and effective multi-sector coordination. It considers prevention, rescue, rehabilitation and reconstruction as services that the State must provide, and takes a proactive approach instead of a reactive one. It proposes general and specific objectives, strategies, plans and standards for institutional complementarity. It aims to attain a greater degree of harmonization and the development of a new legal framework consistent with current reality, which seeks to integrate the prevention and management of disasters with the global efforts for socioeconomic development.

The ***Territorial Ordinance Law*** **(19/2007)** provides the legal framework for regional planning. It delegates specific competencies for regional planning to the State and municipalities. The *Regulation of the Territorial Ordinance Law* (Decree 23/2008) enacts the provisions of the law and establishes guidelines for the different categories of regional land uses.

The ***Land Law*** **(19/97)** and the ***Land Law Regulation*** **(68/98)** affirms that land is the property of the State and cannot be sold or otherwise alienated, mortgaged or encumbered. The Law establishes the terms under which the creation, exercise, modification, transfer and termination of the rights of land use and benefits operate. The right of land use and benefit for purposes of economic activities is subject to a maximum term of 50 years (which may be renewable for an equal period on application). In respect of “areas that are intended for nature conservation or ... protected areas” (“total or partial protection zones”) the Law states that these areas are part of the public domain and no rights of land use and benefit can be acquired, although licenses may be issued for specific activities. The law and its regulation lays the foundation for the definition of clear roles for local communities in the management of natural resources and co-management and development activities in the buffer zones of protected areas.

Article 7 of the ***Tourism Law*** **(4/2004)** requires that development of tourism activities has to observe principles of sustainable use and development. Article 9 goes on to define the type of activities that may be undertaken in protected areas. It attempts to clarify the relationship between tourism and the conservation management of protected areas.

The project will help Mozambique to achieve MDG 1-Eradicate extreme Poverty and Hunger; MDG 3-Promote gender equality and empower women; 3: Promote gender equality and

empower women; MDG 7-Ensure environmental sustainability and UNDAF Outcome 1 ("By 2011, the livelihoods of poor, vulnerable and food insecure populations are enhanced through sustainable development within the MDG framework").

2.2 Design principles and strategic considerations

NAPA priorities addressed

This project addresses primarily NAPA priority 3 which is to develop strategies to arrest coastal erosion and its impacts on livelihoods and the economy, expected to worsen under climate change. The objectives of the NAPA priority were four fold: to develop a coastal erosion map, identify rehabilitation options, develop participatory ways of preventing further coastal erosion and develop strategic approach to disseminating good practice among coastal communities. These elements constitute the framework for this LDCF project.

The LDCF project also addresses some of the priorities contained in NAPA priority 2: strengthening capacities of agricultural producers to cope with climate change, in relation to activities around rainwater harvesting and irrigation, use of drought-tolerant crops, community management of forests, erosion management, conservation agriculture, and alternative livelihoods.

There is a substantive link between NAPA priorities 3 and 2: communities often deforest mangrove forests to generate income, but this removes an important natural buffer to SLR and storm surges, which further worsens the vulnerability of local communities. Thus an important aim of this project is to provide alternative and diversified livelihoods, which combined with community awareness and participation in adaptation planning and ecosystem restoration, should promote the sustained re-forestation and protection of coastal vegetation. In addition, it is known that the daily household energy need is an intrinsic feature of subsistence farming in coastal areas and elsewhere in Mozambique. These energy sources are to provide cooking/lighting energy and energy for drying fish in the case of coastal communities. In these communities, the main source of energy is base on charcoal production particularly from mangrove logging. Though the issue cannot be handled in its full length in this project, this LDCF project will nevertheless bring in, as supporting action, expertise to demonstrate to local communities alternative methods of rural energy sources. In this context, under the leadership of MICOA this project will collaborate with ongoing research activities of the UEM in testing new approaches to alternative energy sources for the drying, freezing of fish and household use (complementing with output 2.3).

Identification of adaptation priorities

A two-pronged approach was implemented during the PPG phase to scope out adaptation options to address coastal erosion and climate change. Community-level vulnerability and capacity assessments were under taken in all seven pilot communities, focusing on protection of livelihoods from expected effects of climate change. The second was an assessment of adaptation options related to ecosystem protection and enhancement to address the expected effects of climate change on the coastline.

The vulnerability and capacity assessment was conducted in April 2011 to understand the climate change problem as the communities experience it and to prioritise solutions in a participatory manner. The VCA methodology and workplan and the summary result is attached

at Annex 7. Table 7 summarises the adaptation priorities from the communities that were surveyed.

An ecosystem-based adaptation options analysis was carried out covering both built and natural adaptation solutions for three Provinces where the Project will be based. The CZM consultant and other members of the Project Team visited the selected sites during a Field Mission to Mozambique from March 9th – March 21st, 2011.[26] The purpose of these site visits was to appraise the problems at each location (coastal erosion and climate change impacts) and develop a typology of potential solutions, taking into account capacity needs and levels of affordability of the beneficiary communities. The key focus of the work was on the physical coastal impacts of climate change (erosion and inundation) and as such the recommendations provided are largely related to the physical environment and ecosystems maintenance. The findings were therefore considered alongside the recommendations of the Community Vulnerability Assessment (CVA).

The vulnerability and capacity assessment conducted in April 2011 clearly showed that fishing and subsistence agriculture were the two major economic based livelihoods amongst all 7 targeted communities. The lately observed, frequent cyclone impacts together with SLR exacerbated coastal erosion phenomena. The high variability of weather conditions has resulted in acute droughts/flood cycles impacting on the thin sandy soils of Mozambique's coastal strip causing salt intrusion and drought. These two CC drivers have a major effect on community livelihoods, particularly in reducing crop yields and fish catching levels locally. The planned activities of this LDCF project will address these two major issues at national and local levels. At national level, the project will strengthen the GoM weak attempts to deal with coastal adaptation and reduction of vulnerability of coastal communities. Economically the project financial support will release precious GoM funds which otherwise would be required to channel to local municipal governments to face adaptation measures. In addition, the institutional and capacity building provided by the project will enable key Government agencies and Departments to be better equipped to implement Integrated Coastal Zone Management in addressing the forthcoming CC scenarios. At local level the benefits from the LDCF project are unquestionable as it will address the key adaptation priorities identified by the communities that were assessed. Amongst others, these priorities are:

- Replant trees, grass and mangrove along coastline to thwart coastal erosion and break the force of cyclones/strong winds;
- Establish tailored agricultural extension services to master/access agricultural techniques adapted to increased climate variability;
- Deliver training and equipment for construction of small-scale water management works for irrigation (water pumps, reservoirs;
- Strengthening Community Disaster Risk Management support (including establish/equip local committee for disaster risk management

Table 7. Vulnerability and capacity assessment: results of community prioritization of climate change adaptation interventions

1. Chuiba (Pemba site)
2. Paquitequete (Pemba site)

[26] For further details refer to NAPA Inception Workshop Report

3. Chuibuabuare (Pemba site)
4. Macuacuane (Pebane site)
5. Quichanga (Pebane site)
6. Malaua/Porto (Pebane site)
7. Sihane (Inharrime site)

Project Intervention (Pilot Demonstration Adaptation Action)	***Community preferences for adaptation measures***						
	1	**2**	**3**	**4**	**5**	**6**	**7**
1. Facilitate/Enable transition to alternative climate-resilient livelihoods	✓	✓	✓	✓	✓	✓	✓
2. Replant trees, grass and mangrove along coastline to thwart coastal erosion and break the force of cyclones/strong winds	✓	✓	✓	✓	✓	✓	✓
3. Tailored agricultural extension services to master/access agricultural techniques adapted to increased climate variability (drought & flood)	✓			✓	✓	✓	✓ **(to drought only)**
4. Provide training and equipment for construction of small-scale water management works for irrigation (water pumps, reservoirs)	✓			✓	✓	✓	✓
5. Community Disaster Risk Management support (including establish/equip local committee for disaster risk management).	✓ (establish)	✓ (establish)		✓ (establish)	✓ (equip existing local DRM committee & community radio)	✓ (establish)	✓ (establish)
6. Identification & mapping of Climate risks to support planning and programming at local, district, municipal levels:	✓	✓	✓	✓	✓	✓	✓

7. Establishment of a Sea Level Rise Monitoring/surveillance system	✓	✓	✓	✓	✓	✓	✓
8. Decision-making planning informed by knowledge of risks (develop and implement urban climate risk management plan, public awareness campaigns)	✓	✓	✓				
10. Dig a new canal/drainage ways to take care of problem of stagnant waters and soil erosion		✓		✓	✓	✓	
11. Administer cure for dying coconut trees, reservoir of nutrition, knowledge and cultural identity for the local community				✓	✓	✓	
12. Capacity-building of community leadership to develop community- based adaptation plan; awareness-raising programs.	✓	✓	✓	✓	✓	✓	✓
13. Capacity-building of district leadership to carry out district-wide awareness-raising programs on CC risks				✓	✓	✓	✓

While some of the communities identified in the VCA analysis are not located along the actual coastline, they do rely on the coast for their livelihoods and thus the physical coastline adaptation options scoped are still valid. The community specific analyses were collated into a series of report cards (presented in Annex 5) summarizing the key coastal climate change issues facing each community and outlining the range of potential treatment options within 3 timeframes (short, medium and long-term) and 3 cost ranges (low, medium and high cost). Options summarized in the report cards in Annex 5 have been considered within an integrated and holistic approach for each of the target communities in keeping

with a 'systems' framework for best practice. Recommended coastal protection adaptation options for coastal communities at Pemba, Inharrime and Pebane is summarized in Tables 8, 9 and 10 respectively.

Table 8. Recommended coastal protection adaptation options for 3 coastal communities at Pemba

Community	Location	Management Concern	Problem Summary	Options
1. Chiuba	East Coast	Ecosystems and Livelihoods	Progressive and Episodic shoreline erosion increasing from the South to the North	Active Dune Management; EbA with livelihood co-benefits; Ecotourism & ultimately managed retreat
2. Paquitequete	North Coast	Human Safety & Built Infrastructure Exposure	Geotechnical instability Erosion of coastal road High population density and lack of vacant land	Shoreline protection; Managed retreat
3. Chuibuabuare*	West Coast	Human Safety Ecosystems and Livelihoods	Progressive and Episodic shoreline erosion and extensive cutting/degredation of Mangroves	Managed retreat as a priority with subsequent EbA with livelihood co-benefits

Table 9. Summary of coastal protection adaptation Options for Inharrime

Community	Location	Management Concern	Problem Summary	Options
Shiane*	Zavora Beach	Exposure of Built Infrastructure Ecosystems & livelihoods	Residential/Tourist accommodation present within the coastal buffer Coastal road under threat Pristine marine environment with flagship species at risk	Managed retreat Shoreline protection Dune management Fisheries best practice Marine protected areas Sustainable ecotourism

Table 10. Summary of coastal protection adaptation Options for Pebane:

1. **Pebane Harbour – Malua/Porto Community**

Community	Management Concern	Problem Summary	Options
Malaua/Porto Community PEMBA HARBOUR	Exposure of built environment/Ecosystems & livelihoods	Access issues: terrestrial runoff	Surface and install drainage channels along access
		Channel bank erosion/undercutting	Logging/walling and reinforcement along eroding channel banks

		Mangrove degradation (access/cutting)	Mangrove replanting and custodianship program
		Fisher settlements located in coastal buffer adjacent to mangrove	Managed retreat and resettlement of coastal fisherman Fisheries management and diversification
		Damage to harbour infrastructure	Logging/walling and reinforcement along eroding channel banks Install climate resistant infrastructure

2. Pebane Beach - Quichanga Community

Community	Management Concern	Problem Summary	Options
Quichanga	Ecosystems & Livelihoods	Tourist infrastructure in dune	Dune management Planting Fencing Managed realignment
		Exposed tree roots and evidence of acute foreshore erosion	Dune management Planting Fencing Managed realignment
		Unstable foredune with blowouts	Dune management Planting Fencing Managed realignment

3. Matire Beach - Macuacuane Community

Community	Management Concern	Problem Summary	Options
Macuacuane	Ecosystems and Livelihoods	Village is indicative of settlement types along this stretch of coast Traditional accommodations built from natural materials	Managed realignment and designation of soft coastal areas Tree planting in coastal buffer in conjunction with active dune management (access, nourishment, planting and fencing) Beach nourishment (to be carried out at pertinent times to buffer against HWL events) Potential for planned eco-tourism initiative Coconut rehabilitation and/or alternative species plantation
		Low primary and secondary dune with swale that is regularly inundated	
		Evidence of progressive erosion along foreshore up incipient dune vegetation along the area	
		Areas of dune instability/blow outs exacerbated by unregulated access	
		Ares of coconut/Casuarina planting in foredune are more stable	
		High coconut tree mortality	

Complementarity to other initiatives

The LDCF project will contribute information and experiences in relation to climate change adaptation which will complement experiences being generated in other Provinces and for other types of adaptation approaches. This should help MICOA and line ministries to build up a repository of experience and knowledge on cost-effective ways to adapt. Some of these complementary efforts are as follows:

UNDP (further elaborated in the next section)

- Building Inclusive Financial section in Mozambique (BIFSMO)
- Africa Adaptation Programme
- Joint Programme of Environment and Climate change
- Poverty and Environment Initiative
- Coping with Drought and Climate Change (SCCF)
- Strengthening national capacities and frameworks for disaster risk reduction and climate change adaptation

Pilot Programme on Climate Resilience (PPCR)

The Mozambique Pilot Programme on Climate Resilience, with implementation support by the World Bank, will provide USD $100 million of support in the following areas of intervention: climate resilient management of unpaved roads, coastal cities, transforming the hydro-meteorological services, sustainable land and water management, enhancing the climate resilience of agricultural production and food security and working with the private sector to promote investments in agriculture and peri-urban water sectors and in forest management. The LDCF project will complement the PPCR programme in the following ways: a) a focus on eco-system protection and enhancement of the coastline where the PPCR will focus on infrastructure solutions b) promoting *integrated* climate risk analysis combining 'bottom-up' assessments of climate change risk with modeling c) a focus on capacity development at the community level to promote community driven interventions on improving livelihood-resilience. It will work with the PPCR on institutional coordination of climate risk assessments and to mainstream such information in sectoral policies and planning processes. The LDCF project will contribute information and experiences in relation to climate change adaptation which will complement those experiences being generated by the PPCR programme sites.

Project benefits

The proposed project will promotion four types of adaptation intervention: 1. livelihoods enhancement 2. livelihoods diversification 3. eco-system protection and enhancement 4. community-level infrastructure projects. These approaches will build up financial, natural, physical and social capital of the pilot communities. In relation to community-level investments,. the project will benefit over 10,000 households in seven communities in three coastal Provinces in Mozambique. In relation to climate-resilient enterprise development, the project will benefit 5000 households, using a proven micro-financing model in Mozambique, which will disburse financial support *and capacity development*. The main indicator of vulnerability reduction will be changes in income, and the project target will be an increase in income by 50% in 50% of households.

The vulnerability and capacity assessment conducted in April 2011 in the seven pilot communities clearly showed that fishing and subsistence agriculture were the two major types of livelihoods affected by climate change. Other problems that communities face regularly:

- Unemployment;
- Malaria epidemics and other vector-borne diseases due to stagnant waters from rainfall events which are becoming more variable, and from water storage facilities;
- Poor drainage of water following rain events and, coupled with no latrines, leads to diseases;
- Flooding of roads destroys houses, house contents, uproots trees and electrical lines and interrupts children's schooling;
- In Paquite (Pemba) monthly high tides in June and July enter the communities flooding everything. Mothers have to hoist children on their hips for three hours while the water subsides. Tide invasions are reportedly becoming more frequent.
- In Chibuarebuare. tidal invasions happen every 15 days for 2 to 3 hours, and communities take 2 to 3 days to recover
- Canals are sometime obstructed with rubbish preventing drainage of flood waters;
- Delayed rains can coincide with high tides with aggravated flooding consequences;
- Walking 40 to 50 kms to find adequate agricultural land;
- Houses become destroyed by the strong winds.

The LDCF project will address these problems and build resilience to climate change impacts at the household and community levels, so that benefits are expected to be:

- Higher incomes;
- Empowered communities;
- Higher agricultural yields and fish catches;
- Reduced burden of disease;
- Houses and community level infrastructure that is durable and enables communities to continue with their lives even during flood events;
- Reduced hours in walking to agricultural plots, freeing up time for productive activities.

The project will quantify these benefits as much as possible as implementation progresses for reporting in the PIRs and in project evaluation reports.

At national level, the project will strengthen the GoM weak attempts to deal with coastal adaptation and reduction of vulnerability of coastal communities. The institutional and capacity building provided by the project will enable key Government agencies and Departments to be better equipped to implement adaptation planning.

2.3 UNDP comparative advantage

The UNDP Country Programme Document (CPD) 2012 – 2015, currently being finalised, sets out three Outcomes which are aligned to the UNDAF 2012-2015. The LDCF project is relevant to two of the three Outcomes of the CPD: Outcome 3: UNDP will focus on the closely linked concerns of disaster risk reduction, adaptation to climate and environment and natural resource management, with the aim of strengthening the legislative framework, and planning and management capacities at national and local government level; and Outcome 2: to help increase economic opportunities for micro, small and medium enterprises in rural and peri-urban

areas through inclusive market strategies and availability of financial through inclusive and innovative micro-finance products and services in collaboration with the UN Capital Development Fund. These two components have a programme budget of US$5,250 over four years.

The proposed project is aligned with UNDP's comparative advantage, as articulated in the GEF Council Paper C.31.5 "*Comparative Advantages of GEF Agencies*", in the area of capacity building, providing technical and policy support as well as expertise in project design and implementation. At the national level, UNDP's comparative advantage for the proposed project lies in its strong track record of working with GoM on complex environmental and disaster management projects. On Climate Change, UNDP has facilitated Mozambique in the preparation of the Initial National Communication to the UNFCCC and the Country's National Adaptation Programme of Action (NAPA), and is overseeing the implementation of a SCCF adaptation project: Coping with Drought and Climate Change. .

At the level of the UNDAF/CPD, the project is in line with UNDAF Outcome 3: Sustainable and effective management of natural resources and disaster risk reduction benefit all people of Mozambique, particularly the most vulnerable. It is also specifically contributing to UNDAF action plan: *Output 3.1 INGC and MICOA have an integrated and operational policy and regulatory framework for effective coordination and implementation of DRR and CCA Output 3.2. Local communities informed and active in risk reduction activities and natural resources management in district at risk*.

The LDCF project proposes to use micro-financing as a vehicle to facilitate household-level adaptation in rural communities, specifically through enterprise development, using the successful micro-financing and capacity development BIFSMO model. UNDP in partnership with UNCDF has been active in providing policy advice, technical assistance, and investment funds to promote an inclusive financial sector since 2007 through the Building Inclusive Finance in Mozambique (BIFMO) project. The project aims to enhance access to financial services to the vast majority of the population, mainly in rural areas. The overall strategy of BIFSMO is to facilitate and invest in a participatory and nationally-owned process to broaden, deepen, and improve access to diverse financial services through professional microfinance institutions. This is achieved by:

- Providing support at the macro-level through its government counterpart to adopt and implement a National Strategy for Financial Inclusion that enhances the sustainable access to financial services by the majority of the population;
- Reinforcing the meso-level by strengthening the technical infrastructure supporting financial service providers. So far the project is facilitating access to training of trainers programmes in partnership with different specialized international training institutes to create a pool of local expertise in microfinance. Complementary to this training, the strategy is to reinforce the National Microfinance Association (AMOMIF) so that it can develop robust trainings or curricula for Mozambican financial services providers.
- Providing support at the micro-level to financial service providers to provide a full range of financial services at a reasonable cost to households and small and medium enterprises. The innovations supported at the micro-level include mobile banking, business development services and the designing of products that specifically address the needs of agricultural producers like contract farming. The financial services include savings, short and long-term credit, insurance, financial products for youth, local money transfers, international remittances, and leasing and factoring.

BIFSMO has partnered with seven Microfinance Institutions (MFIs), with almost USD $1,25 million invested as grants and loans to MFIs. BIFSMO has reached more than 52000 clients with a leveraged portfolio of more than $3 million where 55% of women are beneficiaries. Four financial services providers have or will reach sustainability in 2011 when the rest are expected to reach financial sustainability by 2013. The BIFSMO project will continue until 2016.

The SmartAid for Microfinance Index[27] measures and rates the way micro-finance funders work. UNCDF received 83 out of 100 points, meaning that overall it has 'very good' systems in place to support micro-finance. On indicator 5 (performance indicators) and indicator 9 (appropriate instruments) UNCDF received the highest scores compared to other agencies participating in SmartAid 2009 and 2011. On quality assurance, project identification system and performance-based agreements, UNCDF is on par with the highest scores reached in SmartAid so far.

The UNEP – UNDP – Mozambique Poverty and Environment Initiative (PEI) aims to enhance the contribution to poverty reduction, sustainable economic growth and achievement of the Millennium Development Goals through sustainable management of the environment and natural resources. The project is led by the Ministry for the Coordination of Environment Affairs. The intended outcome is the integration and operationalisation of environmental sustainability into national and sectoral policy planning and budget processes - including through some provincial and district level activities - to assist in the implementation of the National Action Plan for the Reduction of Absolute Poverty. The LDCF project will work with the PEI to extend its capacity development process to include adaptation, particularly in relation to contributions of methods and information developed by the LDCF project on climate risk assessments in the coastal zone to the PEI analytical studies to improve awareness of poverty-environment linkages, development of joint knowledge products and capacity development of GoM officials in MICOA and other relevant ministries.

The UNDP Country Office has a track record in supporting climate change adaptation and disaster risk reduction, notably the Africa Adaptation Programme (AAP), its projects on 'Coping with Drought' (SCCF), the Joint Programme on Environment and Climate Change, the Joint Programme on Disaster Risk Reduction.

The AAP seeks to mainstream climate change adaptation in the national policy, development and investment frameworks. The focus of the project is capacity building of beneficiaries from government (national and provincial), industry, civil society and communities. The expected outputs of the project intervention include:
(i) establishment of long term planning mechanisms that will address the most pressing climate change risks in Mozambique; (ii) strengthened CCA leadership and institutional frameworks to manage climate change risks and opportunities; (iii) An enhanced adaptation policy framework, including climate resilient polices and measures in priority sectors; small scale pilot adaptation projects will generate lessons learnt on successful adaptation in Mozambique, (iv) National adaptation financing options established, with Ministry of Finance in the lead; (v) generation and dissemination of climate change knowledge to communities, the public and decision makers.

The 'Coping with Drought and Climate Change' project aims to reduce vulnerability to drought in farming and pastoral communities by a) guaranteeing water supply b) training the communities to grow drought-resistant crops, like sweet potato, cassava or sorghum c) diversifying income

[27] Developed by CGAP. The CGAP is an independent policy and research centre dedicated to advancing financial access for the world's poor. It is supported by over 30 development agencies and private foundations who share a common mission to alleviate poverty. It is housed at the World Bank.

opportunities d) making weather forecast and climate information available to communities. The project is focused on farmers/pastoralists and communities in Guijá, situated in the central part of Gaza province. The project sites belong to the semi-arid regions of the Limpopo River Basin, which are among the poorest and most drought-prone areas of the country.

The Joint Programme on Environment Mainstreaming and Adaptation to Climate Change is being implemented in the Gaza Province along the Limpopo Basin, in the Chicuacuala district – the poorest and most marginalized area. It has two components: Component 1: environment and climate change mainstreaming and Component 2: implementation of adaptation interventions. UNDP efforts have focused on integrating climate change adaptation into district-level strategic development plans.

In support of the government efforts to address disaster and climate change issues, UNDP and other agencies have been instrumental in strengthening capacities for emergency preparedness and risk reduction and in bringing climate change concerns to the forefront of the development agenda. UNDP is one of the implementing agencies of the UN Joint Programme (JP) developed for both DRR and CCA, operational from 2008 to 2011. The DRR JP focused on developing policies and plans, training and capacity building, and support to information management while the UN Joint Programme for CCA focused on pilot adaptation measures in specific districts and in informing policy documents.

Going forwards, a new programming effort on disaster risk reduction and climate change is currently being designed, to be operational from 2012 – 2015. The purpose of the project will be to support government institutions, civil society institutions and the general population to reduce disaster risk within the country and to adapt to the negative effects of climate change, in order to guarantee development gains for the country as a whole, and especially for those most vulnerable. In this respect, UNDP will leverage its comparative advantage across the following areas:

- Policy and Advocacy
- Normative and technical support
- Capacity Development
- Civil Society partnerships
- Relationship with government

The specific project outputs will be as follows:

Policies and Plans

1. **Project Output 1:** National disaster management law approved and disseminated to a wide range of stakeholders to raise awareness on the concept of DRR/CCA and their roles in building resilient communities.
2. **Project Output 2:** Climate change sectoral strategies harmonised with the national strategy for climate change.
3. **Project Output 3:** DRR policy and master plan revised, and disseminated to improve decision making processes and development programmes.
4. **Project Output 4:** Tools developed to monitor and keep record of DRR/CCA related PARP indicators/components .

Information Management

5. **Project Output 5:** National Risk Information system improved with integrated DRR and Climate Risk Assessment

a. Disaster risk assessment (continuation of Global Risk Identification Programme - GRIP).
b. Climate risk assessment: drought, coastal erosion, wildfire, sea level rise, inundation.
c. National Early warning system enhanced for climate-related hazards.

Community resilience

6. **Project Output 6**: Local risk management committees trained and engaged in DRR and CCA initiatives.

Emergency Management and Early Recovery

7. **Project Output 7**: National capacities for emergency management and early recovery strengthened (to include emergency kits to local committees).

In collaboration with the UNDP governance unit, additional work will be undertaken to ensure that DRR and CCA components are included in district development plans. See project output 1 from programme "*Support to the implementation of the Decentralization Policy, Decentralized Planning and the Establishment Local Governance Knowledge Management System*"

2. 4 Project Objective, Outcomes and Outputs/activities

The **goal** of the project is to make Mozambique climate-resilient by integrating adaptation in the coastal zone in the development policies, plans, projects and actions. The project **objective** is to develop the capacity of communities living in the coastal zone to manage climate change risks. The project's outcomes are as follows:

Outcome 1: Coastal climate change risks integrated into key decision-making processes at the local, sub-national and national levels.

Baseline

National data and information relevant to coastal erosion and climate change risk management is currently very limited. Some climatic records focusing on a few weather parameters are held in government departments, but detailed records of more complex variables such as stream flow and sediment transport which can help development of a more robust CC risk profile of coastal zones are few in number. There are a number of Meteorological Stations installed in coastal areas but they do not all record, store, retrieve and transmit data in the same way, making it cumbersome and costly to use the data for the production of climate risk assessments. Some of the weather stations are not electronic and so the climate records are not in digital format. Few studies have been carried out to link sea level rise (SLR) induced coastal erosion risk, adaptation needs of the coastal settlements and coastal land use planning. Furthermore, the available data and information is dispersed across various ministries and institutions and has not yet been comprehensively assembled or analysed as a whole or shared and disseminated.

Lack of data and poor management of physical coastal data presents a barrier to adequate monitoring and forecasting of the impacts of climate change on coastal zones. This means that the applied response strategies are reactive rather than anticipatory with little consideration for the long-term effects of climate change. Indeed, present efforts to address climate change in coastal zones are *ad hoc*, limited in extent and predominantly focused on hard engineering

structures to protect urban centres. Activities are based on plans that are not guided by rigorous science or multi-sectoral strategic interests.

A key need is to be able to generate a diagnostic of the coastal vulnerability by knowing how the actual CC SLR risk and induced coastal erosion will impact Mozambique's long coastal lines; and how this risk and associated impact will evolve in the forthcoming CC scenarios. Updating of guidelines and norms for rural and urban development in the coastal zone should be based on these climate change and coastal erosion risk profiles. In addition, the GoM has already stated the necessity of an inventory of the data and information on coastal zones of Mozambique and the creation of a data centre and data bank to store them (MICOA, 2003).

Responsibility for development and implementation of coastal land use planning legislation and relevant regulatory frameworks is also fragmented and duplicated across different sectors and government departments. Existing laws often are not applied or enforced. For that reason the control of land-use in the coastal zone and the development of strategies for the protection against erosion is becoming an urgent concern.

Decision-makers at national, sub-national and at local level seem not to be informed and trained to extract/use environmental data and information, particularly that related to SLR and coastal erosion, to adjust municipal land use regulations and investment planning for CC coastal risk management. Furthermore, agricultural planners and disaster management professionals are presently not able to efficiently translate climate risk projections into resilient planning that translate into long-term improved food and income security for local communities.

Mozambique has established an effective institutional structure to cope with environmental threats and disaster management, as illustrated by the existence of the National Council for Sustainable Development, the Disasters Management Coordination Council, the Ministry for the Coordination of Environmental Affairs, the National Institute for Disaster Management and the National Institute of Meteorology. All these institutions are established at the provincial level, for example the Local Disaster Risk Management Committees (LDRMC), providing support to the implementation process of all strategic activities on-ground. The Capacity Assessment carried during the PPG phase, which focused on functional capacities for CCA among local authorities, indicated that the ten priority capacity improvements requested were in relation to the following: the capacity i) to engage in stakeholder dialogue to understand needs and priorities for CCA ii) the capacity to develop a climate risk problem analysis and create a vision and mandate for CCA initiatives iii) to formulate policy and strategy on CCA initiatives 4) the capacity to budget, manage and implement CCA initiatives.

Access to mass media and other IT communication systems in rural areas is low, and illiteracy rates are high which pose a challenge to the dissemination of climate risk information. Average illiteracy level in Mozambique is about 56.7%, but much higher among women (71.2%). Furthermore, the most illiterate people live in the rural areas (INE, 2009). In the absence of LDCF support, valuable new and locally relevant adaptation knowledge and experiences will not be systematically compiled, analyzed and, most importantly, effectively shared with others who would benefit from such information both nationally and internationally. It is important therefore to set up a mechanism through which this exchange of lessons learned can take place.

Based on activities identified in the NAPA and other existing action plans, a number of Government-led activities are underway which focus (fully or partially) on coastal erosion. These include a number of activities led by the Centre for Sustainable Development of Coastal Zones

under MICOA, such as: i) a project focused on hard engineering solutions to erosion in Beira (a concept note regarding this project has been sent to JICA); ii) a project in the Limpopo River Basin which started in January 2009, focusing on saline intrusion, erosion and general environmental management; and iii) a project in Govuro District (Inhambane Province) on awareness of climate change, which includes mapping of the coastline, and is due to commence in early 2010. Furthermore, the Oceanography Department at the University of Eduardo Mondlane (UEM) is undertaking a number of technical pilot studies in coastal areas on *inter alia* developing: i) alternative energy sources for the drying and freezing of fish; ii) small-scale water desalinisation plants; and iii) small aquaculture projects. These UEM pilot projects are aimed to provide sustainable solutions, and may be of relevance in the proposed LDCF pilot sites.

Adaptation alternative

The proposed LDCF project will develop climate risk information, mainstream it into land-use planning guidelines, develop adaptation policy guidance and strengthen local and national capacity to manage climate change impacts in the coastal zone. This will be achieved through seven outputs.

Outputs 1 to 3: Climate change and coastal erosion data and information collected, synthesised and stored and climate risk profiles developed.

A dynamic monitoring system for dunes, beaches, mangroves and sea level rise will be established to measure topographtic, oceonagraphic, chemical and biological indicators. This will be done with community involvement to monitor key parameters such as shoreline change. Climate records from meteorological stations along the coastline will be digitized and harmonized and systems put into place for data transfer. Field officers from MICOA, INGC and MINAG will be trained in GIS mapping and in conducting community level vulnerability assessments. All data from electronic automatic weather stations will be stored and managed in a common system. Climate data recorded on paper will be digitized and integrated into the common data system. Where necessary, meteorological equipment will be installed to measure climate parameters to improve the knowledge base for future climate risk assessments.

A climate change risk information centre will be made operational within an existing institution in Mozambique. This will involve convening one cross-ministerial meeting to agree where the information repository should be developed, identifying where data gaps are for adaptation planning in the coastal zone, establishing an institutional mechanism for data and information handling, and streamlining of digital information and making it freely available through the internet to help Government planners, investors and coastal managers, to help promote adaptation planning in other coastal zones in Mozambique.

Climate risk mappings and assessments will be co-produced between local communities and scientists to improve the accuracy and utility of the climate risk information produced. Building on existing capacity and experience used in generating the national risk analysis (INGC, 2009) coastal erosion risk profiles will be produced for a single or multiple coastal segments of 2 km of extension directly related to the three selected pilot districts. Profiles based on GIS techniques could make use of modelling exercises for 100-year return period and other ancillary data such as:

- Bathymetric and topographic information obtained from Common Digital Database (CDD) and topographic maps;
- Long-term erosion trends obtained from Old aerial photographs and CC and SLR projections;
- Data from any previous erosion studies in the area or vicinity;
- Anecdotal evidence of past erosion events including community questionnaires;
- Wave data and local surveys.

The erosion hazard maps produced for the testing sites would be a valuable tool for the country as they would map both the erosion expected with the worst 100-year return period waves and a very conservative long-term erosion shoreline retreat value. These profiles would allow the identification of special features influencing coastal erosion rates (e.g. breaks in the barrier reef), areas along the shoreline that are more prone to erosion hazards facilitating future land use planning for coastal areas. Conservative, long-term erosion shoreline retreat values and other key erosion hazards will be established to help land-use planning in coastal areas.

Outputs 4 to 5: Capacity of national level planners strengthened to use climate risk information in policy and investment planning.

The project will strengthen the capacity of decision-makers and planners to understand how to integrate data and information on the expected impacts of climate change, SLR and coastal erosion on communities and ecosystems. Ultimately, the aim would be for policy-makers to be able to adjust sector budgets appropriately to support effective adaptation in coastal zones. Training will be delivered at appropriate levels of technical sophistication and at national, provincial and municipal level. Training needs analysis will be carried out in each of the target groups Climate change training and adaptation modules will be developed addressing all key aspects of climate change adaptation issues in general, and in particular SLR and coastal erosion impacts on community livelihoods, ecosystems health and land planning, within the framework of the forthcoming CC scenarios.

This LDCF project will support coordinated activities with all GoM Departments (e.g. Ministry Agriculture & Forestry Department, Ministry of Public Works, Ministry of State Administration, national agencies (MICOA, INGC, INAM, INAHINA), universities (UEM-Faculty of Marine Science) and international agencies (UNDP, IUCN, WWF, DANIDA, NORAD, GTZ) to:

1. Comprehensively review all actual guidelines, recommendations and Acts related to CC and environmental issues to identify gaps, ambiguities and shortfalls in order to adapt to new aspects of CC developments, especially SLR and coastal erosion and;
2. Review the relevance of existing laws which often are not applied or enforced;
3. Based on coastal erosion risk profiles and Vulnerability Assessment (ground-based surveys) of coastal zones generated for Pemba, Pebane and Závora, develop new science-based guidelines to be submitted to the GoM for legislative consideration in**:**
    - Developing a regulatory system for land planning, including risk zoning for the design and construction of infrastructures;
    - Definition of shoreline setbacks or buffer zones around vulnerable coastlines to avoid loss of human life as well as damage to infrastructure in case of natural hazards;

- Minimum height restriction for development of coastal Infrastructures/services to guarantee an area where natural processes have the space to develop themselves without interference.

A toolkit will be developed to outline the methodologies used to assess climate change risks (ie co-production of scientific data and local knowledge), adaptation planning, cost effectiveness analysis and a replication plan for Mozambique, which will be developed consultatively and disseminated to other municipalities in the other seven coastal Provinces.

Outputs 6 to 7: Capacity of coastal communities strengthened to use climate risk information for livelihood planning.

The project will support the establishment of a climate based Extension Service (CES) package which will strengthen/develop the capacity of vulnerable local communities in Pemba, Pebane and Inharrime to transition to climate-resilient livelihoods, in close cooperation with the Ministry of Agriculture (District Services for Economic Activities (SDAE) and Mozambique Institute for Agrarian Research (IIAM)).

The project will also support the Agrometeorological Advisory Service to partner with INAM and the Media Institute (ICS) to help in the broadcasting, through community radio network, of weather forecasts and adaptation advice such as: adapted planting calendar (sowing/planting/harvesting time), resilient farming methods (plant density, drought resistant varieties of local crops, suitable seed provision, mulch application, etc.), and low-cost water conservation/irrigation technologies in areas prone to diminishing or highly variable rainfall during crop growing season;

The Local Disaster Risk Management Committees are community structures specialized in reducing vulnerability to droughts at the district level. The project will support the strengthening of activities of LDRMC by delivering capacity development in CC risk based knowledge. The LDRMC will work in partnership with the climate-based extension services through an established community radio network which will help community households to benefit of essential information in the local language on:

a. techniques for reducing vulnerability to droughts and; and
b. both disaster prevention and preparedness for which they empowered.

All the above steps will be implemented through a highly participative approach depicted in Figure 3. Total Outcome project value is shown in Table 11.

Table 11: Total project value for Outcome 1

Projects	Budget ($)
PEI	650,000
MICOA in-kind	108,000
LDCF project grant	**641,150**
Total project value	**1,399,150**

Outputs and activities

Output 1.1. A dynamic monitoring system for dunes, beaches, mangroves and sea level rise established to measure topographic, oceanographic, chemical and biological indicators (INGC).

Indicative activities

1.1.1 Create an integrated system for monitoring of coastal zone of pilot sites, with community involvement, in particular women and youth, to monitor key parameters such as shoreline change. This will also involve developing countrywide integration of all Met/Maritime stations (at least those along the coastline); establishment of adequate communication system for data transfer; harmonization of data format and handling; digitization of all historical records concerning Met/sea/maritime variables and info;

1.1.2 Training of field officers in GIS mapping and in conducting community level vulnerability assessments;

1.1.3 Installation of metereological equipment to measure climate parameters;

Output 1.2. A Climate Change Risk Information Centre made operational within an existing institution to facilitate production of climate risk assessments in other coastal zones in Mozambique*. (INGC)*

Indicative activities

1.2.1 Convene cross-ministerial meeting to agree where climate change risk information data centre is to be located;

1.2.2 Identify major data gaps for a climate risk reduction planning process;

1.2.3 Establish an institutional mechanism for data and information handling with indication of: information flow, forms, formats, time frame, responsibilities;

1.2.4 Streamlining of digital information and make it freely available to government planners, investors and coastal managers.

Output 1.3 Coastal erosion risk profiles prepared for multiple coastal segment of 2 km of extension (INGC)

Indicative activities

1.3.1 As part of the National Risk Assessment methodology (GRIP) and in collaboration with research institutes, conduct climate and vulnerability assessments in the pilot Districts;

1.3.2 Develop community-based climate risk mapping and a dynamic GIS integrating SLR, winds, beach erosion and changes in the coastal zone, and water quality parameters under different climate scenarios and together with land use.

1.3.3 Scenarios for SLR and induced coastal erosion in Mozambique assessed on the basis of local expertise (Provincial offices of INGC and MICOA, UEM and others), regional and global Climate Change models, downscaling and extending results work into the three specific Provinces of concern to this project: Pemba, Zambezia and Inhambane;

1.3.4 Develop coastal risk profiles based on community-level data and using GIS techniques and integrated modelling exercises for 100-year return period and other ancillary data;

1.3.5 Establish conservative long-term erosion shoreline retreat value and other key erosion hazards to help land use planning in coastal areas.

Output 1.4 Land-use planning guidelines developed that incorporate the coastal erosion risk profiles. (MICOA)

Indicative activities

1.4.1 Review current land use planning guidelines and processes (fragmented across different sectors and government departments) to identify gaps and shortfalls;
1.4.2 Convene Government meetings to discuss how the results of the climate risk and vulnerability profiles should be used to adjust regulations and policies governing the coastal zone;
1.4.3 Carry out training needs analysis for each relevant Ministry and deliver training;
1.4.4 Use Risk Mapping output and other ancillary data from CRP, CVA to develop land use planning guidelines and processes.

Output 1.5 Toolkit developed outlining methodologies used to assess climate change risks, adaptation planning and implementation, cost effectiveness analysis and a replication plan for Mozambique. *(INGC).*

Indicative activities

1.5.1. Cost-effectiveness analysis developed for each type of adaptation measure implemented and project information sheets produced to document the results, and disseminated;
1.5.2 Bring together methodological approaches and results from Outputs 1.1, 1.3 and 1.4 into one publication;
1.5.3 Convene a stakeholder meeting to validate toolkit messages.

Output 1.6. Agricultural extension Services trained to support vulnerable communities in Pemba, Pebane and Závora to transition to climate-resilient livelihoods (MINAG; INAM; IIAM).

Indicative activities

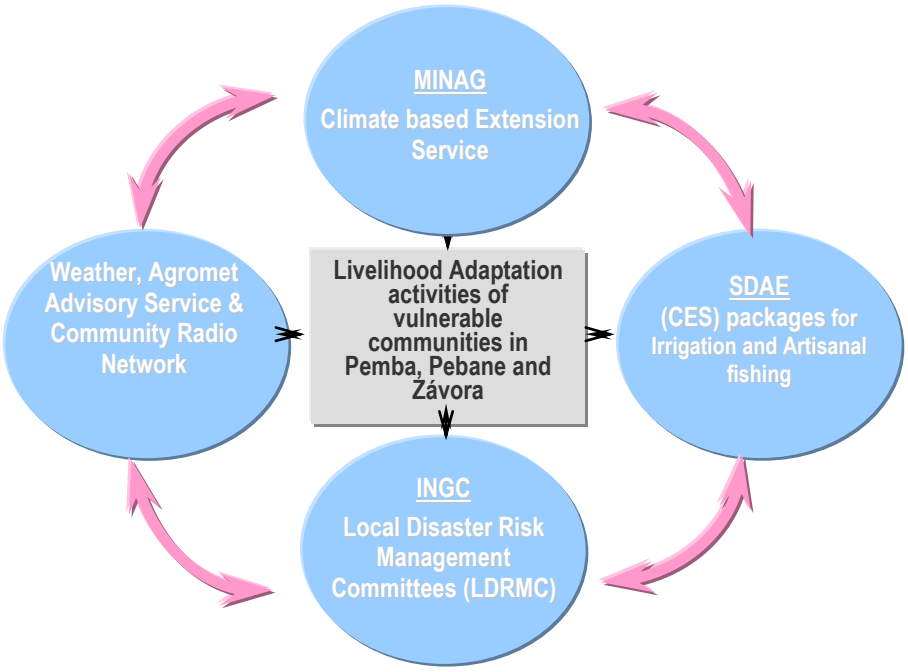
1.7.1 Identification adaptation-related elements of subsistence farming system to incorporate into climate based Extension Service (CES) training with support of the Ministry of Agriculture, IIAM and INAM-Agromet Advisory Service (AAS);
1.7.2 Develop a training programme to be delivered to agricultural extension officers working within SDAE to aid the adaptation of extension techniques to allow for climate change risks and impacts;
1.7.3 Deliver climate based (risk and opportunities) Extension Service (CES) package to strengthen/develop the capacity of vulnerable local communities and local disaster risk management communities in Pemba, Pebane and Inharrime.

Output 1.7. Partnership established between INAM- Agromet Advisory Service (AAS), CES and the Media Institute (ICS) to broadcast through community radio climate forecasts and adaptation advice (MINAG; IIAM, INGC).

Indicative activities

1.8.1 Tailored Agromet Advisory Service (AAS), including climate forecasts and adaptation advice for coastal communities produced with partnership between CES and INAM;
1.8.2 Tailored AAS, climate forecasts and adaptation advice broadcast through ICS community radio network;

Figure 3. Diagram of participative approach in the implementation of climate based Extension Service (CES) packages to strengthen/develop the capacity of vulnerable local communities in Pemba, Pebane and Závora to transition to climate-resilient livelihoods.



Outcome 2: Adaptive capacity of coastal communities improved and coastal zone resilience to climate change enhanced.

Baseline

Historical records from 1960-2005 point to a warming trend, particularly in central and north Mozambique of 1.1-1.6 ºC in maximum temperatures which can be significantly higher for the lowland coastal areas. In addition the analysis of these past records also indicates significant increases in duration of heat waves, as well as a delay in the start of the rainfall season. Furthermore to this, maximum temperatures are expected to increase by 2.5-3.0 ºC in the interior by 2040-2060. Thus, the future weather is expected to exacerbate current climate variability, leading to more intense droughts, unpredictable rains, which will undoubtedly affect water availability to agriculture activity particularly small scale subsistence farming which lacks adequate infrastructural support to irrigation practice. Subsistence farming in coastal areas with thin sandy soils will be severely hit by water shortage, requiring strategic planning for integrated water management. This will involve the development of supplementary rural water storage capacity either through underground extraction or rain water harvesting techniques coupled with small scale irrigation systems.

More than 60% of the population lives in coastal areas either in urban or rural settings, placing significant pressure on coastal resources and natural capital. This fact and the combination of the inherent dynamic nature of coastlines in Mozambique, exposure to destructive maritime hazards such as cyclones, storms, SLR, inadequate land-use planning in coastal zones renders the Mozambican coastline highly vulnerable to the impacts of climate change, particularly climate change-induced coastal erosion.

The higher intensity of CC hazards particularly cyclones, floods, droughts and SLR induced coastal erosion will negatively affect coastal communities' livelihoods. More intensive rainfall events subsequent to longer dry periods will increase tendencies of land degradation, and changes in the distribution and severity of extreme drought and flooding events will increase vulnerability in hazard-prone agricultural areas. The majority of farmers in coastal areas of Mozambique rely on subsistent rain-fed cassava, beans, ground-nut, rice farming for their daily staple, and on poultry and aquatic resources for their source of animal protein. Dynamic changes and inconsistencies in the climatic variables locally, makes difficult for smallholder farmers to be able to cope and adapt, influencing their crop's yield and health.

A recent World Bank report (World Bank, 2010) indicates that, without adaptation to climate change in the coastal zone, Mozambique could lose up to 4,850 km^2 of land from today (or up to 0.6 percent of national land area) due to coastal erosion, and a cumulative total of 916,000 people could be forced to migrate away from the coast (or 2.3 percent of the 2040s population) in the 2040s. Economically, this represents over USD $103 million per year in the 2040s, with the forced migration being a large contributor to that cost. These damages and costs are spread all along the coastal line with the major proportion concentrated in the Provinces of Zambezia, Nampula, Sofala, and Maputo provinces, reflecting their low-lying topography and relatively high population (World Bank, 2010). The same report hints that a superior resilience option for coastal areas in Mozambique is likely to include a phased approach to protection of key coastal economic assets (e.g. ports and cities) combined with improved land use planning and "soft" infrastructure. "Hard" adaptation options, particularly expensive ones are discouraged and should be subjected to scrutiny (World Bank, 2010).

The VCA conducted during the PPG phase revealed that in the seven target communities more than 85% of the adult population is highly dependent of subsistence agriculture and fishing activities. Field consultations revealed that the degradation of the shoreline is the major factor impacting their agricultural livelihoods when the wind, rain and tidal waves hit their coastline. More than 80% of women interviewed have agriculture as their primary source of income. Thus, women are particularly vulnerable to climate hazards that affect agricultural incomes. Communities are aware of the need of replant trees along the coastlines, though they lack resources. Resettlement of communities has been tried by the GoM in the past without success. Communities in general are not willing to freely move away from their livelihoods apparently for fear of landmines and lack of income generating activities further inland.

Artisanal fishing in Mozambique is a widespread activity along the coastline producing more than 100,000 ton/ year of fish and prawns. It is a significant part of the total export with potential earnings of more than USD $50 million . Field consultations (VCA) carried out during the PPG phase of the project showed that the source of income for the great majority (>70%) of men living in the targeted coastal communities was shared between agriculture and fishing. In addition all interviewed fishermen revealed that in the last few years strong rains and wind had become a significant risk to fishing, affecting fish catches.

There is a general lack of awareness about good practice in community-based approaches to address climate change risks in relation to agricultural-based livelihoods. There is no documented experience in how to address coastal erosion through sand dune re-vegetation, mangrove reforestation, coastal protection works ("soft" or "hard" interventions) in the three provinces where the project will be located. There are no systems or mechanisms in place to facilitate such knowledge capture and sharing amongst the other coastal provinces and indeed amongst the various GoM Departments and Agencies.

Adaptation alternative

The main impact of Outcome 2 achievement will come from the implementation of household-level and community-level adaptation measures. Micro-financing institutions will be the delivery agents at the household level, providing credit and other financial products such as insurance to start-up climate resilient enterprises that can generate livelihoods and income less affected by climate change. For community-level adaptation measures, grants will be supplied for infrastructure and eco-system protection and enhancement.

Output 1 will see micro-financing extended to the seven pilot communities as per BIFSMO established process. Technical assistance will be provided to the given micro-financing institutions to ensure that their lending activities and offerings of other financial services enable adaptation to climate change.

Output 2 will be the development of community level adaptation investment plans that would comprise of priority community level infrastructure and or/ecosystem enhancement and protection measures. The measures will necessarily have to be small-scale, targeted and prioritized as the budget for community-level adaptation measures each of the seven pilot communities will be $170,000. The investment plans will be developed on the basis of cost and technical feasibility analysis. Capacity development needs to run and maintain the community level measures will be scoped and the necessary training and support will be provided.
Under Output 3, the LDCF project will implement pilot demonstrations in a total of seven communities in the Pemba, Pebane and Inharrime municipalities in relation to the following i) household-level livelihoods' resilience including livelihoods diversification and ii) community level adaptation measures.

The LDCF project will oversee a participatory planning process by communities, which is critical to promote ownership of the adaptation measures. Communities will be involved in the monitoring and evaluation schemes to gauge the actual effectiveness of the 'soft' coastal stabilization measures.

i) Household level livelihoods' resilience to climate shocks including livelihoods diversification

The seven pilot coastal communities interviewed (Pemba in Northern Mozambique, Pebane in Central and Inharrime in Southern Mozambique), during the PPG phase clearly expressed the need for a transition to alternative climate-delinked and higher income-generating activities as the necessary condition for a successful adaptation to CC impact on coastal livelihoods. Priorities include the diversification of crops, the introduction of drought- and flood-resilient crop options, and strengthening fishing capacity to adapt fishing practices to the changing patterns of climate variability. Based on appeals from the coastal communities and their leadership, it is

believed that small-scale activities would facilitate livelihood transition and would transform lives, maintaining income flows during difficult times when climate shocks are experienced.

With regard to the tools, skills, and means to generate sustainable income for the communities, the project will set up an adaption fund in each of the project sites. This fund will be managed through an existing financial mechanism that was set up by UNDP and UNDCF to support financial inclusion through innovation (this existing mechanism has been operating as the Building Inclusive Finance in Mozambique project since 2007). Access to the financial services through this fund for individuals or groups will allow the communities to undertake micro and small activities to generate alternative incomes. These innovations (products and services, or means of distribution) could include the use of adaptation technologies like drought resistance seeds, insurance products to manage risk or provision of mobile banking. Existing Financial Service Providers (FSPs) (microfinance banks, associations, etc.) will be invited to expand into the pilot communities. The applicant FSP's organizational and institutional capacity to deliver results will be assessed. An investment committee (consisting of UNCDF, UNDP and government) will decide on the proposals sent by the FSPs. Funds will be allocated on a cost–sharing or co–financing basis.

The LDCF project will benefit from the tools, technical capacity and systems already in place (BIFSMO project) to disburse the adaptation funding and also to build household level capacity to establish climate-resilient livelihoods. The fund will be leveraged with other funds from UNCDF and UNDP and their partners.

ii) Community-level adaptation measures

Ecosystem protection and enhancement: The Implementing Partner: MICOA for Output 2.3 with inputs from MICOA-CDS and MICOA-CEPAM will establish sizable plant nurseries in each of the pilot sites. The project will invest mainly in local vegetative species which can constitute a viable bio-shield coastal structure complemented by sea grass type of vegetation that help in binding process in dune rehabilitation[28]. Moreover, other species can be use to shield specific sites to thwart the force of winds and rain blowing against community crop stands and household structures[29]. Nursery practices for commonly used coastal shelterbelt species such as casuarinas and coconut have been standardized by the Agriculture Department in Mozambique and training can be provide to community members in establishing nurseries. Special attention will be given to mangrove nurseries as this species require specific site and management conditions. Sites for establishment of mangrove nurseries have to avoid limnatic conditions (salinity below 0.5‰ i.e. freshwater) and only coastal land sites with oligohaline conditions must be used (0.5 to 5‰ salinity range and above). Therefore, specialist knowledge should be brought in to establish community mangrove nurseries and help in the long term management of mangrove forest. The planting activity on identified coastline areas with appropriate species, sourced by nursery yields, will follow technical recommendations and guidance from local climate based Extension Service (CES) Team for the establishment of vegetative species for coastal bio-shield[30]

[28] These include casuarinaceae (*casuarina equisetifolia* Forst) and palmae (*cocos nucifera* L.) species.

[29] Poaceae species (*Bambusa arundinacea* (Retz.) known as Spiny or Thorny bamboo and anacardiaceae (*Anacardium occidentale* L*.) known as* Cashew nut tree

[30] Selvam V., Ravishankar T., Karunagaran, V.M., Ramasubramanian, R., Eganathan, P., Parida, A. K. (2005). Toolkit for establishing Coastal Bioshield. M.S. Swaminathan Research Foundation Chennai. 120p

Infrastructure: Some 'hard' interventions such as walling and reinforcement may be prioritized by the communities in Pemba and Inharrime, as the coastal segments serving these communities are highly vulnerable to sea level rise. While relocation is likely to be the most appropriate adaptation option for these communities a significant barrier to relocation is a lack of viable land and, in the case of Pemba, the likely need to move an urban population to a rural area. Community-level infrastructure such as rainfall harvesting, water storage, irrigation and drainage were highlighted as adaptation preferences by communities during the vulnerability community assessed carried out during the PPG phase.

Under Output 4, a range of activities will be undertaken to disseminate the learning and results of the project to promote replication. These activities will be a) public awareness campaigns b) exposure visits c) national workshop d) knowledge products and e) project website.

The public awareness campaign will be for community residents of Pemba, Pebane and Inharrime on climate change risks and costs and benefits of different adaptation options, as well as other coastal communities. Participatory video and community radio shows on successful community-based adaptation approaches will be developed and disseminated. At least one exposure visits is planned to bring decision-makers and planners at the national, provincial and municipal level who are not engaged directly in the project to share project experience. The final year national workshop will be organized for Government of Mauritius and international agencies working on coastal zone management. The project will develop a web-based platform to share methodologies, results and learning generated from the project to promote replication beyond the project sites. Linkages will also be made with the GEF's Adaptation Learning Mechanism so that the lessons on project design and implementation can contribute to informing and guiding future adaptation project designs on climate change and coastal ecosystems.

Figure 4. Diagram of participative approach in the implementation of "on-the-ground" coastal protection "soft" measures with i) support of leading and partner institutions (above oval calls boxes); and ii) concrete actions and interventions (bellow rectangular call boxes)

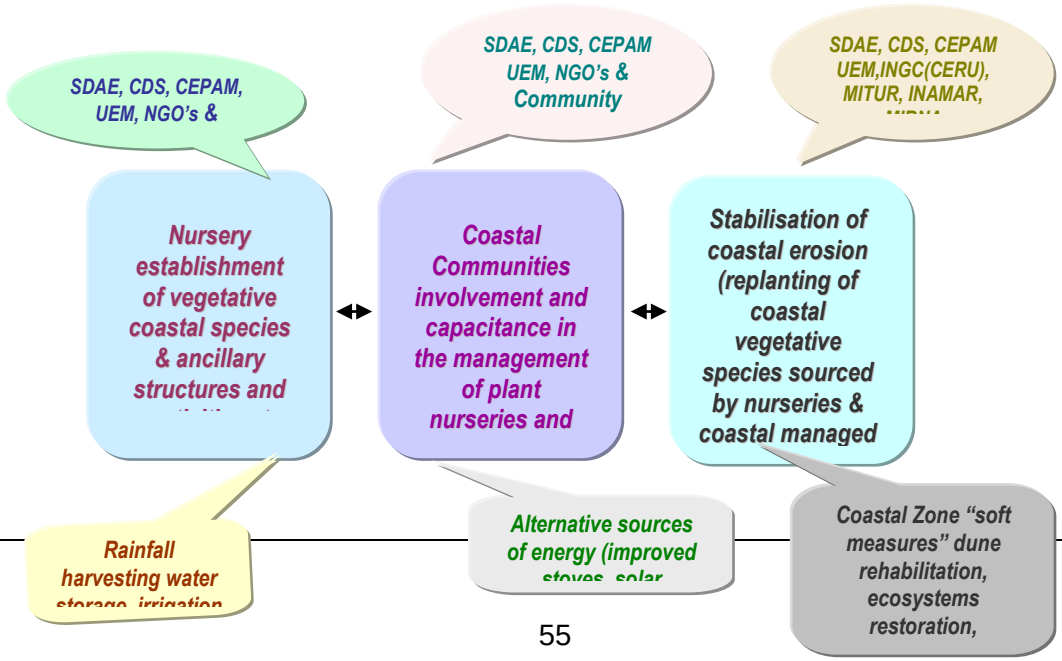


Table 12: Total project value for Outcome 2

Projects	Budget ($)
UNCDF BIFSMO	8,000,000
MICOA resources (in-kind and cash)	383,000
LDCF project grant	**3,383,207**
Total project value	**11,766,207**

Outputs and activities

Output 2.1 Micro-financing extended to each of the seven project sites in Pemba, Pebane and Inharrime, to disburse adaptation financing and capacity development for livelihood enhancement and diversification, to reduce vulnerability to climate change. (UNCDF).

Indicative activities

2.1.1 Call for proposals launched for MFIs to offer financial products (i.e. credit, savings) tailored to the identified adaptation needs of the local communities;
2.1.2 Carry out financial, organizational, and institutional assessment for all bidders received;
2.1.3 Signing of a performance-based contract with UNCDF to transfer the grant to the MFI;
2.1.4 Provide trainings/technical assistance to the local communities to acquire the skills and tools for sustainable and increased income generating activities;
2.1.5 Provide technical assistance to MFIs to enable them to offer financial products targeted at reducing vulnerability to climate change as well as social protection services/mechanisms such as micro-insurance to reduce vulnerability to climate change.

Output 2.2 Adaptation investment plan developed for each of the seven pilot sites in Pemba, Pebane and Inharrime for community-level CCA measures such as small-scale infrastructure and ecosystem-based measures. (MICOA).

Indicative activities

2.2.1 Convene community meetings to rehearse the recommendations from the PPG phase and get feedback on process for moving forward to final selection of community-level adaptation measures;
2.2.2 Based on short-listed options in the CZM report and the VCA, identify final list of CCA options to be funded by grant for each pilot area (ie public goods) based on cost-effectiveness and feasibility analysis;
2.2.3 Scope out capacity development needs for implementation of adaptation measures;
2.2.4 Produce appropriate training materials and deliver training;
2.2.5 Deliver additional support as needed.

Output 2.3 Priority community-based adaptation projects implemented among 10,000 households in the seven pilot sites in Pemba, Pebane and Inharrime, focused on resilient livelihoods and community-level adaptation measures, including ecosystem protection and enhancement (UNCDF; MICOA).

Indicative activities

2.3.1 Provision of technical support in the design of communities' selected community-level adaptation measures;
2.3.2 Agreement reached with communities on contribution to the projects, and management plan for future operation including maintenance costs;
2.3.3 Equipment, tools and materials purchased;
2.3.4 Systematic follow up on-site.

Output 2.4 Learning and results disseminated to promote replication through public awareness campaigns, exposure visits and national workshop (MICOA).

Indicative activities

2.4.1 Public awareness campaign for community residents of Pemba, Pebane and Inharrime on climate change risks and costs and benefits of different adaptation options;
2.4.2 Participatory video and community radio shows on successful community-based adaptation approaches.
2.4.3 At least one exposure visits to bring decision-makers and planners at the national, provincial and municipal level who are not already engaged directly in the project organized and conducted to experience successfully demonstrated adaptation measures first hand;
2.4.4 Workshop in the final year of the project for Government of Mauritius and international agencies working on coastal zone management.
2.4.5 Knowledge products developed for local and international audiences.
2.4.6 Project website set up in year 1 to promote awareness and understanding of the project objective and methodology.

2.4.1 Key indicators, risks and assumptions

The outcome indicators are designed to measure changes in the coverage, impact, sustainability and replicability of the project outcomes. The project indicators are as follows:

Table 13. Outcome indicators

Indicator	Time scale and Measurement
Outcome 1	
Indicator 1 Capacity Perception Index.	Time Frame: By end of Project Measured by: Capacity assessment scorecard.
Indicator 2 Number and type of targeted institutions with	Time Frame: By end of project Measured by: PIR reports;

Indicator	Time scale and Measurement
increased adaptive capacity to minimise exposure to climate variability	Capacity scorecard assessment.
Outcome 2	
Indicator 1 % of targeted population affirming ownership of adaptation processes (disaggregated by gender) Indicator 2 2. % change in income generation in targeted area given existing and projected climate change.	Time Frame: By end of Project Measured by: Gender disaggregated community members survey including vulnerability reduction assessment relative to baseline Time Frame: By end of Project Measured by: PIR, Vulnerability assessment

Risks that could potentially affect the success of the project are included with recommended countermeasures in Annex 1.

Key assumptions underlying the project design include:

- There is political will to engage and progress project implementation;
- By being based within the National Directorate of Environmental Management of MICOA, the project will be able to ensure strong coordination with the other MICOA departments particularly CEPAM in Pemba province and CDS in Southern province in the proximity of Závora the 3rd demonstration site, that are key project stakeholders.
- Stakeholders from across different ministries are willing to engage in the coordination of project activities;
- Stakeholders are willing to contribute information and knowledge to the project ensuring the timely delivery of planned project outputs.
- There is timely decision-making.

The VCA that took place during the PPG phase of the project revealed that all targeted communities are committed to the project Objective and Outcomes and are willing to cooperate. Similarly, the Institutional Capacity assessment and Stakeholders Engagement Log (Annex 2) show that government stakeholders are keen to implement the project. Therefore the project assumes that there will be strong community support for the project and that communities will get real added value in engaging with the project. Stakeholder consultations during the PPG phase revealed an apparent absence of the so called 'development fatigue' and disillusionment with consultation processes that do not materialize in tangible benefits among some island community members (see Annex 2).

2.5. Cost-effectiveness

Strengthening the resilience of coastal settlements and communities to climate change impacts was identified in the NAPA as an urgent and immediate adaptation priority, with the highest immediate cost-benefit ratio.

"Hard" adaptation measures that involve engineering solutions such as seawalls or coastal modification to increase overall coastal elevation are not a viable means of addressing climate risks in all areas of such a long coastal line of Mozambique. The project's focus on developing adaptive capacity and strengthening coastal resilience through practical and locally appropriate "soft" adaptation measures is more cost-effective than structural adaptation measures assuming

that soft measures can adequately withstand the impacts of future climate change even under the worst case scenarios.

Integration of climate risk planning into land use planning and coastal development at all levels will reduce physical exposure to climate risks at minimal cost, and help avoid the additional costs that are resulting from mal-adaptive land use and coastal development planning and practice. The project's approach is in line with the preliminary findings of the Coastal Zone Management evaluation carried out at the Pemba, Pebane and Závora, during the PPG Phase of this LDCF project, which, with rare exceptions, strongly recommended (Annex 5) a shift towards softer protection measures and increasing resilience, as the best cost-benefit approach of mitigation and adaptation in the three demonstrations sites.

The project's approach also has greater potential for up-scaling and replication across Mozambique unlike the more costly structural adaptation measures. By the end of the project, it will be possible to assess the proportion of the population and the value of critical infrastructure and other economic assets protected as a result of the adaptation measures implemented through the project and to make comparisons with the costs and benefits of alternative hard adaptation measures that have been implemented elsewhere in the Mozambique (e.g. in the Cities of Beira and Maputo). Realistically, and compared to ongoing operations of other coastal development projects providing coastal protection through "hard measures", the project is very cost-effective.

The project will benefit from the BIFSMO technical architecture, including a Chief Technical Advisor, Programme Officer, and Programme Associate, as well as the network of financial service providers, monitoring mechanisms, experience and links to national policy makers that will enable sustainability of the project. Micro-finance institutions have the know-how and information networks necessary to track a large number of small transactions. This is particularly relevant in the context of adaptation, which will require financing of thousands of actions involving changes and adjustments to existing practices.

In relation to enterprise development, there is ample evidence that channelling grants through institutions that do not have the mandate or capacity to administer the needed financial products and tools to rural communities, such as credit, savings, and business advice have not been sustainable, and in many cases "one-off" projects fail in the longer-term. The provision of direct grants to the community for enterprise development will lack all of the technical infrastructure, monitoring mechanisms, accountability, and services that a financial service provider could provide under the guidance of the BIFSMO project and the Central bank.

Access to financial services will strengthen the local economy. The Consultative Group to Assist the Poor (CGAP) has demonstrated that when poor people have access to financial services; they can earn more, build their assets, and cushion themselves against external shocks. Poor households use microfinance to move from everyday survival to planning for the future: they invest in better nutrition, housing, health, and education[31].

The project aims to reach a total of direct beneficiaries benefiting from community livelihood enhancement of approximately 10,000 households with an average investment of USD $432 per household (total LCDF budget, including management cost). The tangible benefits coming

[31] G8 and CGAP endorsed 11 key principles of Micro-Finance: Key principle 2. www.cgap.org/keyprinciples.html

from this investment per household are expected to outweigh the cost. Vulnerability reduction will be measured by an income change indicator.

Furthermore, the proposed project is based on the promotion and dissemination of community-based, cost effective adaptation options in the coastal sector, focusing on diversified "soft" adaptation measures complemented with resilient subsistence farming techniques for local communities and extension support to artisanal fishing communities.

Finally with regard to procurement of project inputs, standard procedures of the GoM and UNDP will be carefully applied to ensure value for money in all purchases of goods and procurement of services for the project, and the project will use strict internal and external audit controls that meet international standards.

Table 14. Co-financing plan- - summary

Sources of Cofinancing	Name of Cofinancier (source)	Type of Cofinancing	Cofinancing amount ($)
GEF Agency	UNDP Poverty and Environment Initiative	Grant	650,000
GEF Agency	UNDP Core resources	Grant	200,000
GEF Agency	"Building Inclusive Financial Sector in Mozambique-(BIFSMO)" / DNPDR	Grant	8,000,000
National Government	GoM	In-kind	657,000
National Government	GoM	Cash	170,000
Total Co-financing			**9,677,000**

2.6. Sustainability

The continuation of the adaptation strategy developed by the project upon project completion will depend on the extent and depth of all stakeholder engagement in the project, the capacities that are developed, and the mainstreaming of adaptation in relevant policy-making processes. The project was designed through close consultation with key stakeholders (see Annex 2). In addition, the Government of Mozambique and other key stakeholders have expressed their full support as it addresses urgent and immediate adaptation priorities identified through the NAPA. These relate to one of the most vulnerable elements in Mozambique, ie. natural coastal ecosystems that provide the main source of livelihood for >60% of the population. The project is strongly anchored in several major national policies and programmes (as indicated in Sections 2.2) and project results will be institutionalized in the following ways: adaptation measures developed through the project will be mainstreamed into key sector policies and planning tools;

Capacity development of planners and all levels of government will provide a central focus for

all activities. Climate Change Training and Adaptation Modules (CCTAM) will be developed with a focus on community based adaptation and coastal ecosystem restoration activities. These will be designed with replicability in mind and remain after project completion as a continuing key resource for coastal management workers and authorities within MICOA and other sectoral agencies;

Financial sustainability: This project will channel support through micro-financing institutions, based on the successful BIFSMO model (financial products plus business development) to disburse adaptation financing to communities and at the same time help communities to establish climate-resilient livelihoods, based on the principles of inclusive finance through the BIFSMO project. Experience on the BIFSMO project shows that micro-loans, savings, and business development support have a successful record in promoting enterprise sustainability in Mozambique compared to grants. The ultimate aim of BIFSMO is to support micro-financing institutions to become independent, self-sustaining, and eventually profitable financial institutions. In the context of the LDCF project, this would mean that the pilot would continue to operate beyond the period of project grant and micro-financing institutions could also replicate micro-finance for livelihood-related adaptation initiatives to other communities.

Financial sustainability through BIFSMO is ensured as follows:

- Performance Based Agreement is signed with institution after Investment committee approval.
- Quarterly Template reports on keys indicators among them figure ratios to measure outreach, FSP's level of sustainability, efficiency and others indicators. These different indicators follow progress quarterly toward target in addition to audit report provided annually for transparency of management.

Community-level infrastructure investments such as water harvesting structures undergo a financial feasibility assessment during the prioritisation process to ensure sustainability.

Institutional sustainability: The project builds mainly upon existing institutional structures of the government. For example the functions of the Project Board will be taken on by a pre-existing project review and coordination structure that exists within MICOA at central level. At sub-national level the project will provide support functions through its existing Provincial MICOA Offices and the (two MICOA Research Centres fully dedicated to marine/coastal issues (CEPAM in the north covering activities in Pemba and CDS-CZ in the south at Xai-Xai, covering activities in Závora. Much of the capacity development effort will be focused on institutional strengthening within MICOA, INGC and MINAG and coordination between them. The approach taken will be to engage with as many staff as possible at different levels to reduce the effects of attrition of staff over time.

The project will develop evidence of adaptation cost per beneficiary unit (eg household, productive ha of coastal land etc.) .

Social sustainability: The capacity building activities, networking and field-level presence will help achieve social sustainability of the project. The build up of trust through dialogues and stakeholder consultations and stakeholder mobilization done through capacity building by the project will help to achieve sustainability. A strong focus on building on local knowledge, capacities and incentives – as well as strong project focus on ensuring gender equity in all operational matters are expected to lead to social sustainability.

Environmental Sustainability: The project's focus on climate change adaptation within existing coastal ecosystems are expected to lead to better environmental sustainability and enhanced natural resources management. Dune fixation and all the variety of "soft" measures being adopted to protect the shoreline will stabilize the physical environment. The project will promote integrated coastal zone management in coastal segments developed with full engagement of the community and community based organizations (CBO's).

2.7. Replicability

The project will demonstrate how investments in climate-resilient livelihoods can be profitable, thereby promoting the extension of micro-financing services beyond the project sites. With increased awareness of the market opportunities related to adaptation to climate change, the project would be promoting further investments in adaptation. BIFSMO has a track record of promoting sustainability of micro-financing institutions. In the last four year programme period four financial service providers have or will reach sustainability in 2011 when the rest are expected by 2013, which makes it likely that MFIs will be ready to extend their coverage of services.

Climate risk information will be integrated into land-use guidelines, coastal zone management regulations and development plans at national, provincial and community levels. The process achieving this will build up political awareness of the need for adaptation and will promote dialogue among policy- makers for the other coastal Provinces in Mozambique. The project's work on training and capacity building of GoM staff can be replicated comparatively easy through the government's own workplan, if funds are made available through the national budget.

Sharing of methodologies, results and lessons learned will be compiled and disseminated to other Districts and Provinces through the project's web-based platform ICAM-VC and through a range of communication media via the ALM and other knowledge networks. A public awareness campaign and field demonstrations will be organised.

2.8 Stakeholder involvement plan

A working group (Intersectorial Technical Committee for Coastal Management) within the Ministry for the Coordination of the Environment (MICOA), was established (2007) comprising representatives from various GoM Ministries and Agencies to initiate the development of the project concept. All major stakeholders have been consulted in the project conceptualization and design phase before and during the PPG activities, as part of their mandates as key governmental counterparts of the process.

The draft proposal was presented to a wide range of stakeholders (national/Provincial and Municipality scales) at a National workshop in May 2011 and their inputs were used to further develop the project design and the core of the Project Document (minutes of meeting in Annex 4). Three missions were carried out to the target Provinces to establish the baseline of Communities' vulnerability towards CC SLR and induced coastal erosion (March 2011) and to find out about community priorities for adaptation (April 2011) (Annex 7). A local government CC Capacity Assessment (CCA) was also undertaken early May 2011 (Annex 6).

Stakeholders described as Responsible Parties will be leading project outputs and will coordinate activities among governmental units at the Municipality and Community levels. See Annex 2 for the full list of project stakeholder analysis and consultations.

3. PROJECT RESULTS FRAMEWORK:

This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD: 3.1 Institutions strengthened to develop and improve policies, strategies and plans for climate change, environmental management, and disaster risk reduction. 3.2 Integrated info systems strengthened for decision-making on disaster risk reduction, climate change and environmental management
Country Programme Outcome Indicators: % of selected districts with microfinance institutions # of women MSMEs established in selected districts # of revised laws, policies and plans # of revised surveys integrating DRR/CC/environment # of districts with residual awareness campaigns
Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one): 1. Mainstreaming environment and energy OR **2. Catalyzing environmental finance OR 3. Promote climate change adaptation OR 4. Expanding access to environmental and energy services for the poor.** Promote climate change Adaptation
Applicable GEF Strategic Objective and Program: Objective 1: Reduce vulnerability to the adverse impacts of climate change, including variability, at local, national, regional and global level. Objective 2: Increase adaptive capacity to respond to the impacts of climate change, including variability, at local, national, regional and global level
Applicable GEF Expected Outcomes: Outcome 1.2: **Reduce vulnerability in development sectors** **Outcome 2.2:** Strengthened adaptive capacity to reduce risks to climate-induced economic losses **Outcome 2.3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level
Applicable GEF Outcome Indicators: 1.2.10: % change in income generation in targeted area given existing and projected climate change 2.2.1. No. and type of targeted institutions with increased adaptive capacity to minimize exposure to climate variability 2.2.2. Capacity perception index (Score) (disaggregated by gender) 2.3.2. % of population affirming ownership of adaptation processes (disaggregated by gender)

	Indicator	Baseline	Targets End of Project	Source of verification	Risks and Assumptions
Project Objective[32] To develop capacity of communities living in the coastal zone to manage climate change risks	% of targeted population affirming ownership of adaptation processes (disaggregated by gender)	Coastal communities lack the resources or support to strengthen their resilience against CC induced hazards.	At the end of the project 50% of men and women have declared ownership of adaptation processes (disaggregated by gender).	PIR reports; Vulnerability & Capacity Assessment	**Risks:** • Problems related to involvement and co-operation of stakeholders to provide the project team with data • Conflicts among stakeholders as regards roles in the project. • Poor co-ordination among implementing and Responsible Parties • Communities may not adopt reforestation/afforestation activities. • Lack of commitment from communities. • Natural Disasters (Strong coastal winds, Cyclone and floods) may disrupt project work for other national priorities • Climate risk reducing finance mechanisms increase indebtedness and vulnerability **Assumptions:** • National and local authorities responsible for coastal zone management and key stakeholders respond positively to integrating adaptation measures into policy

[32] *Objective (Atlas output) monitored quarterly ERBM and annually in APR/PIR*

					frameworks. • Ministries want to collaborate on the project for the greater good; • Other projects and programmes do not displace interest and willingness to collaborate on the project; • Ministries want the institutional arrangements for climate change clarified. • Local communities see value in the project and actively engage in the identification and implementation of adaptation measures.
Outcome 1[33] Climate change risks to coastal zones integrated into key decision-making process and managed at community level as well as sub-national and national government level.	1. Capacity Perception Index	Capacity Assessment score: 2.45/5 The project will improve the capacity of local Govt to i) to engage in stakeholder dialogue to understand needs and priorites for CCA ii) the capacity to develop a climate risk problem analysis and create a vision and mandate for CCA initiatives iii) to formulate policy	Capacity Assessment score: 3.83/5	Capacity assessment scorecard	**Risks:** • Problems related to involvement and co-operation of stakeholders to provide the project team with data. • Conflicts among stakeholders as regards roles in the project. • Lack of political will to support the project • Limited capacity within relevant ministries/insufficient qualified human capacity **Assumptions:**

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

		and strategy on CCA initiatives 4) the capacity to budget, manage and implement CCA initiatives. The scorecard uses 10 indicators deemed by stakeholders to be the most important capacity gaps.			• National and local authorities responsible for coastal zone management and key stakeholders respond positively to integrating adaptation measures into policy frameworks. • Mministries want to collaborate on the project for the greater good; • Other projects and programmes do not displace interest and willingness to collaborate on the project; • Ministries want the institutional arrangements for climate change clarified.
	2. Number and type of targeted institutions with increased adaptive capacity to minimise exposure to climate variability	The Institutional Capacity Assessment developed during PPG phase, suggests that local authorities have low capacity to carry out a range of functions in relation to CCA policy and investment planning ranging from data analysis, developing CC risk profiles, to holding stakeholder consultations on community preferences, to using and information to inform policies, strategies and investment plans. .	At the end of the project 10 local government institutions have been trained in CC adaptation and SLR and coastal erosion risk management and; at least one decision-maker from the key institutions made use of improved climate and vulnerability information in their coastal adaptation policies.	PIR reports; Capacity scorecard assessment	

Outcome 2 Adaptive capacity of coastal communities improved and coastal zone resilience to climate change enhanced.	1. % of targeted population affirming ownership of adaptation processes (disaggregated by gender) 2. % change in income generation in targeted area given existing and projected climate change. 3. % of population with access to improved flood and drought management, disaggregated by gender.	The VCA consultations during the PPG phase have shown that though aware of their vulnerability and that of the surrounding ecosystem, farmers, fishermen and all those whose livelihoods are affected by CC induced hazzards, at the district and community level, have no financial resources and knowledge for resilience decision making in the face of droughts and floods. The coastal management expert report reveaed that there is currently no protection measures being undertaken by communities against sea level rise and storm surges.	At the end of the project 50% of men and women in the selected project sites have declared ownership of adaptation processes (disaggregated by gender). By the end of the project, 50% of households in the pilot sites have increased their income by 50%. 50% of households have improved flood and drought management.	PIR reports; Vulnerability and capacity assessment PIR reports; Vulnerability and capacity assessment	**Risks** • Conflicts among stakeholders as regards roles in the project. • Poor co-ordination among implementing and Responsible Parties • Communities may not adopt reforestation/afforestation activities. • Lack of commitment from communities. • Natural Disasters (Strong coastal winds, Cyclone and floods) may disrupt project work for other national priorities • Climate risk reducing finance mechanisms increase indebtedness and vulnerability **Assumptions** • Communities want to cooperate with the project and are willing to dedicate time and other in-kind resources to it.

4. TOTAL BUDGET AND WORKPLAN

Award ID:	00062383				Project ID(s):0079862						
Award Title:	Mozambique. Adaptation in the coastal zones of Mozambique										
Business Unit:	MDV10										
Project Title:	Mozambique. Adaptation in the coastal zones of Mozambique										
PIMS no.	**4069**										
Implementing Partner (Executing Agency)	Ministry for the Coordination of the Environment (MICOA)										
SOF (e.g. GEF) Outcome/Atlas Activity	**Responsible Party/ Imple-menting Agent**	**Fund ID**	**Donor Name**	**Atlas Budgetary Account Code**	**ATLAS Budget Description**	**Amount Year 1 (USD)**	**Amount Year 2 (USD)**	**Amount Year 3 (USD)**	**Amount Year 4 (USD)**	**Total (USD)**	**See Budget Note:**
OUTCOME 1: ***Coastal climate change risks integrated into key decision-making processes at the local, sub-national and national levels***	**MICOA**	**62160**	**LDCF**	71200	International Consultants	24,500	33,500	8,000		66,000	1
				71300	Local Consultants	54,000	27,000	18,000		99,000	2
				72100	Contractual services (Companies)	50,000	100,000	50,000		200,000	3
				71600	Travel	50,000	50,000	24,150		124,150	4
				72500	Supplies	30,000	30,000	30,000	15,000	105,000	5
				74200	Audiovisual & Print Production Costs	5,000	10,000	10,000	10,000	35,000	6
				74500	Miscellaneous	3,000	3,000	3,000	3,000	12,000	7
					Sub-total LDCF	**216,500**	**253,500**	**143,150**	**28,000**	**641,150**	
					Total Outcome 1	**216,500**	**253,500**	**143,150**	**28,000**	**641,150**	
OUTCOME 2:	**MICOA**	**62160**		71300	Local Consultants	102,240	102,240	102,240	84,240	390,960	8

Adaptive capacity of coastal communities improved and coastal zone resilience to climate change enhanced				72100	Contractual services (Companies)	166,436	1,195,000	1,195,000	166,436	2,722,872	9
				71600	Travel	20,000	35,000	53,750	59,125	167,875	10
				72500	Supplies				25,000	25,000	11
				74200	Audiovisual & Print Production Costs			12,000	12,500	24,500	12
				74500	Miscellaneous	40,000	4,000	4,000	4,000	52,000	13
					Sub-total LDCF	**328,676**	**1,336,240**	**1,366,990**	**351,301**	**3,383,207**	
					Total Outcome 2	**328,676**	**1,336,240**	**1,366,990**	**351,301**	**3,383,207**	
MONITORING & EVALUATION	**MICOA**	**62160**	**LDCF**		**Sub-total LDCF**	14,500	84,750	3,000	84,750	187,000	
					Total M&E	**14,500**	**84,750**	**3,000**	**84,750**	**187,000**	
PROJECT MANAGEMENT	**MICOA**	**62160**	**LDCF**	71400	Contractual services (individual)	21,661	21,661	21,661	21,660	86,643	14
				71600	Travel	9,000	9,000	9,000	9,000	36,000	15
				72200	Equipment & Furniture	75,000	0,000	0,000	0,000	75,000	16
				72500	Office Supplies	3,000	3,000	3,000	3,000	12,000	17
				74200	Audiovisual & Print Production Costs	3,000	3,000	3,000	3,000	12,000	18
					Sub-total LDCF	**111,661**	**36,661**	**36,661**	**36,660**	**221,643**	
				71400	Contractual services (individual)	50000	50000	50000	50000	200000	
			UNDP		**Sub-total UNDP**	**50000**	**50000**	**50000**	**50000**	**200000**	
					Total Management	**161,661**	**86,661**	**86,661**	**86,660**	**421,643**	
				PROJECT TOTAL		***721,337***	***1,761,151***	***1,599,801***	***550,711***	***4,633,000***	

Summary of Funds: [1]					Amount Year 1	Amount Year 2	Amount Year 3	Amount Year 4	TOTAL Y1-Y4
				LDCF	671,337	1,711,151	1,549,801	500,711	4,433,000
				GoM in-kind	150,000	207,000	150,000	150,000	657,000
				GoM cash	40,000	60,000	50,000	20,000	170,000
				UNDP	50,000	50,000	50,000	50,000	200,000
				UNCDF in-kind and grant	2,000,000	2,000,000	2,000,000	2,000,000	8,000,000
				Other grant co-fin	162,500	162,500	162,500	162,500	650,000
				TOTAL	3,073,837	4,190,651	3,962,301	2,883,211	14,110,000

Budget Note	Description of cost item
	OUTCOME 1: *Coastal climate change risks integrated into key decision-making processes at the local, sub-national and national levels*
1.	**Outputs 1.1: 1** international consultancy @$550/day for 30 days (Year 1): 1) on development of training courses for GIS mapping techniques associated to SLR and coastal erosion modelling; Total for Year 1($16,500). **Outputs 1.1: 1** international consultancy @$550/day for 30 days (Year 2) the development of community vulnerability assessment in the three Provinces. Total for Year 2: ($16,500). **Outputs 1.3: 1** international consultancy @$550/day for 30 days (Year 1 & 2): 1) development of CC Scenarios for SLR and induced coastal erosion and development of training for the three provinces; Total for Year 1 & 2**:** ($16,500). **Outputs 1.7: 1** international consultancy @$550/day for 30 days (Year 2 & 3): for development of Tailored Agromet Advisory Service in partnership between IIAM, CES and INAM; Total for Year 2 & 3: ($16,500).
2.	**Output 1.1:** 3 x 30 day consultancy to develop and carry out community –level risk analysis in the three Provinces (Year 1). Total for Year 2 & 3: **$27,000.** **Output 1.1:** National Consultant Expert inputs @$300/day for 30 days (Year 2 & 3) to streamline digital information and maps, accessible online (Year 1&2). Total for Year 2 & 3: **$9,000.** **Output 1.3:** 60 day consultancy (Year 1 & 2) to prepare scenarios for SLR and induced coastal erosion for the three Provinces. Total for Year 1 & 2: **$18,000.** **Outputs 1.4 and 1.6: 1** 60 days consultancy to work with the relevant ministries and departments: i) adjust current guidelines to take account of CC ii) agree on how policy frameworks governing coastal zones should be adjusted to take in account CC; iii) carry out training needs assessment for each target groups and design climate change training and adaptation modules; iv) deliver training (Year 2 & 3): **($18000).** **Output 1.7:** 3 x 60 day consultancy to: i) develop and deliver training on adaptation-relevant extension messaging for each of the 7 pilot communities, including farmers and LDRMC ii) follow-up with specific community-level training requirements (Year 1 & 2): **($27000).**
3.	**Output 1.1:** Creation of an integrated system for monitoring of coastal zone of pilot sites with installation of Met equipment. Year 1 & 2; **Total: $50,000** **Output 1.1:** Development of a national climate risk information system ($100,000). Year 1 & 2; **Total: $100,000** **Output 1.5:** Year 2 & 3; **Total: $50,000**
4.	**Travel** a) international travel costs: 4 return trips: **$12000**. b) domestic travel costs including travel by air and car for 11 return trips (@$1000/flight) from Maputo for technical specialists and planners from MICOA, Land Use Planning Dept, INGC, and other relevant agencies as appropriate to carry out consultancies = **$11000**+ two trips to Inhambane by road ($250 each way): **$1000**. (Years 1 & 2); c) domestic travel costs for two delegates from Pemba and two from Pebane provinces (4 people in total) in Years 1 & 2 (8 airfares@$1000/trip) plus road transport fares for two delegates from Inhambane (budget of road transport 2x$250) to attend national training workshops = **$8500** d) DSA national ($125/day): Output 1.1 $11,250; Output 1.3:$7500; Output 1.7 $7500 = total of **$26,250** e) DSA international ($245/day): outputs 1.1, 1.3 & 1.7 **$29,400** **Renting**: of pick-up Vehicle 4x4 for nine months/ year @$2000/ month, budgeted for Years 2 & 3 to provide to support field trips of project team in the pilot districts. **Total $36,000**
5.	**Supplies:** for 13 training workshops (includes 2 roundtable meetings (output 1.2; 1.4); 1 Training of field officers in GIS mapping (output 1.1); 2 cross-ministerial meeting (output 1.2), 1 training (output 1.6); 3 training (output 1.9); 3 training (output 1.7); 1 national workshop) in Years 1-3 with between 15-30 participants per workshop plus renting of workshop conference room (total of $52,000). **Total $105,200**

6.	**Audiovisual**: & Print Production costs related to communication, advocacy and training including: a) communication of revised regional climate change scenarios to national & local planners & decision-makers (Output 1.3); b) communicating disaster and climate risk profiles of at least 3 coastal segments relevant to 7 target communities, including translation costs; c) developing materials for about 10 training workshops. Year 1, 2 & 3. **Total $35,000**
7.	**Miscellaneous:** Less than 2% of the total Outcome 1 budget is allocated for contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials. **Total $12,000**
	OUTCOME 2 ***Adaptive capacity of coastal communities improved and coastal zone resilience to climate change enhanced.***
8.	**Outputs 2.3:** National Consultant Expert inputs @$300/day for 60 days in Year 1,2 and 3 to support implementation of community-level infrastructure adaptation measures; Total for Year 1: **($18000).** **Outputs 2.3:** National Consultant Expert in Coastal Forestry/Mangrove Management inputs @$300/day for 60 days in Year 1, 2, 3 to support implementation of coastal tree forestation and afforestation, dune-fixing and mangrove restoration in the selected demonstrations sites: Total **($18000).** **Outputs 2.4 & 2.5:** 60 days of National Consultant Expert assistance $300/day in Years 1, 2, 3, & 4. Year 1 **(18,000).** **Outcome 2:** 3 Provincial level Project Managers @$540/week for 624 weeks in Year 1, 2, 3 & 4 to coordinate the project activities at the site level. Total $112,320 x 3 = **$336,960**.
9.	**Output 2.1:** Contractual services (Year 1, 2, 3 & 4) to provide technical assistance to MFIs to enable them to extend their services and develop financial products to the pilot sites for climate-resilient livelihoods**: $332,872** **Output 2.1:** Capital for micro-financing institutions to support climate-resilient livelihoods: **Total $1200,000** **Outputs 2.2 & 2.3:** Contractual services (Year 1, 2, 3, 4) to support the development and implementation of an adaptation investment plan for each of the 7 pilot communities for community-level adaptation measures to include eco-system based measures and community-level infrastructure: $170,000 per pilot community. **Total: $1190,000**
10.	**Travel:** **Technical assistance Outputs 2.2 & 2.3:** 2 NCs 3x yr to Pemba & Pebane: 6 round trips/a x 3 yrs = 18 flights x $1000 per flight = **$18,000** 2 NCs 3 x yr to Inhambane: 6 round trips/a x 3 yrs = 18 road trips x $250 per road trip = **$4500**. Biannual meetings of PM team x 4 years = 8 meetings. 2 people in Pemba and Pebane = 16 flights x $1000 = **$16,000**; 1 person in Inhambane = 16 road trips x $250 = **$4000**. **Output 2.5** Travel for 10 people from national government to travel to the field to visit the pilots: 20 flights to Pemba & Pebane = **$20,000**; 20 road trips to Inhambane = **$5000**. Travel for 15 people from Province to national workshop: 20 flights for 10 people from Pemba and Pebane = **$20,000**; 10 road trips for 5 people from Inhambane = **$2500**. **DSA**: related to Outputs 1.2 - 1.3: a) 240 days of DSA for national technical assistance consultancy (@$125/day): Total **$30,000**. DSA for Output 2.5: 10 people x 5 days = 50 days x $125/day = **$6,250** + 15 people x 3 days = 45 days x $125/day = **$5,625**. **Renting**: of pick-up Vehicle 4x4 for nine months/ year @$2000/ month, budgeted for Years 2 & 3 to provide to support field trips of project team in the pilot districts. **Total $36,000**

11.	**Supplies for:** 1 Nationwide Workshop of 100 participants $25,000. **Total $25000**
12.	**Output 2.4:** Audiovisual & Printing costs. One short film (Participatory Video of about 20-30 minute @$25,000) will be produced to document climate risks and adaptation benefits generated by the project in the demonstration sites/communities, which can be used for further communication and advocacy work and also so to enable uptake and adoption of successful CCA practices generated by LDCF practices among other neighboring communities not targetted by project. Year 3/4. Cost of translation of film, Individual reports and other information and communication materials produced on climate risks and adaptation measures demonstrated in each of the 3 sites into local languages. **Total $24,500**
13.	**Miscellaneous:** 1.5% of the Outcome 2 LDCF sub-total is allocated for contingencies related to inflation, currency exchange fluctuations and other external shocks and contingencies, which would increase the cost of travel and materials.
	Project Management
14.	**PMU: PM:** National Consultant Expert in CC adaptation inputs @$875/week for 223 weeks to organize, facilitate the implementation of all project activities of Outcome 2 at national level and over 3 provinces and 7 communities. (Year 1-4); **Total $195,125.** **FTA:** Financial Technical Assistant Consultant inputs @$440/week for 208 weeks to organize, facilitate the financial implementation of all project activities of Outcome 2 at national level and over 3 provinces and 7 communities. (Year 1-4); **Total $91,520.** **Grand Total:** (Year 1-4**); $286,645** ***Note: UNDP core resources will pay for $200K of this budget line.***
15.	**Travel** for PMU staff for preparatory and monitoring visits to demonstration sites including initial further stakeholder consultations in Year 1. Includes 3 visits/per site/year. (**Total $50,000**).
16.	4 PC Desktop, 1 laptop, 3 All-in-One Printer/ photocopier/scanner/fax ($5,000); 1 LCD projector and screen; 5 mobile phones and three GPS Cameras ($5,000); 3 motorcycles & 4 years/spares parts (15,000Rands/each…$10,000); 1 pickup vehicle 4X4 & 1 trailers for transport of material and full insurance ($55,000). **Total $75,000**
17.	Annual recurrent costs of stationery, computing and printer supplies, photocopying ($3,000/year, **Total $12,000)**
18.	Printing & publication of project reports, communication and advocacy materials ($3,000/year, **Total $12,000).**

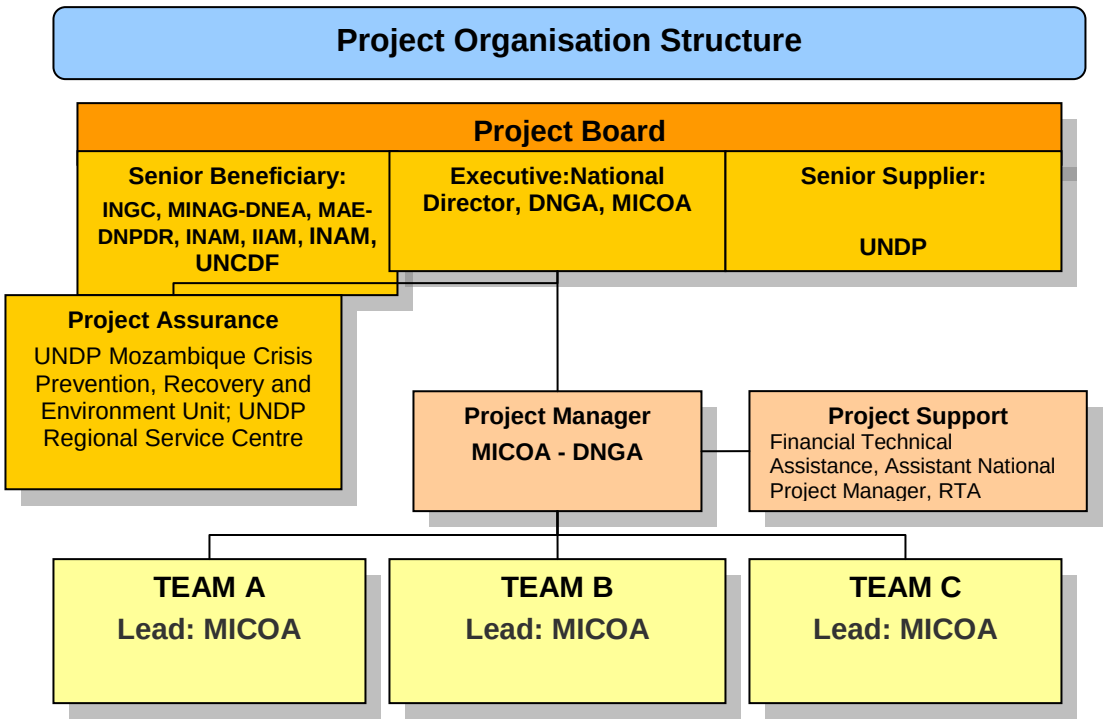
5. MANAGEMENT ARRANGEMENTS

5.1 Organisational Arrangements

National Implementation modality will be applied for this LDCF Project. The Implementing Partner will be the National Directorate for Environmental Management (DNGA) of the Ministry for the Coordination of Environmental Affairs (MICOA). MICOA will appoint a National Project Coordinator (NPC) Officer to coordinate operations and manage the project in the three selected demonstration sites. The Responsible Parties will be i) The National Institute for Disaster Management (INGC); ii) the Ministry of Agriculture (MINAG), specifically its National Directorate for Agriculture Extension (DNEA) and the District Services for Economic Activities (SDAE); iii) The Ministry of State Administration, through the National Directorate for the Promotion of Rural Development (DNPDR), IV)INAM V) IIAM and VI) UNCDF. The Implementation oversight will be by UNDP country office in Mozambique through the Crisis Prevention, Recovery and Environment

Unit and the UNDP Regional Service Centre. UNDP has overall responsibility for supervision, project development, guiding project activities through technical backstopping and logistical support.

Figure 5: Proposed Project Operational Structure



Project activities will primarily be implemented at a sub-national level. The Implementing Partner will establish a Project Board (PB) comprising national and sub-national representatives to guide and oversee the project. The PB will be housed within MICOA and chaired by the MICOA National Director of National Directorate for Environmental Management (DNGA). The PB will convene annually to discuss project progress and approve annual workplans. The PB will comprise MICOA, and Responsible Parties: INGC, MINAG-DNEA, MAE-DNPDR, as well as UNDP, UNCDF and Regional MICOA offices from Pemba, Zambezia and Inhambane. It is proposed that UNDP co-chair the PB. The National Project Coordinator (NPC) Officer will be an ex officio member of PB responsible for taking minutes. Potential members of the Project Board are to be reviewed and recommended for approval during the PAC meeting. Representatives of other stakeholders can be included in the Board as appropriate. Figure 5 proposes a project operational and reporting structure and the proposed roles of the project structure are outlined below:

Project Board is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the

approved Annual WorkPlan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

The responsibilities of the PB will be to:

- Supervise and approve the annual workplans and short term expert requirements
- Supervise project activities through monitoring progress and approving annual reports
- Review and approve work plans, financial plans and reports
- Provide strategic advice to the implementing institutions to ensure the integration of project activities with national and sub-national sustainable development and climate resilience objectives.
- Ensure inter agency coordination and cross-sectoral dissemination of strategic findings
- Ensure full participation of stakeholders in project activities
- Assist with organization of project reviews and contracting consultancies under technical assistance
- Provide guidance to the Project Manager.

In order to ensure UNDP's ultimate accountability for the project results, Project Board decisions will be made in accordance to standards that shall ensure management for development results, best value money, fairness, integrity, transparency and effective international competition. In case consensus cannot be reached within the Board, the final decision shall rest with the UNDP Project Manager.

Potential members of the Project Board are to be reviewed and recommended for approval during the PAC meeting. Representatives of other stakeholders can be included in the Board as appropriate. The Board contains three distinct roles, including:

1) **An Executive**: individual representing the project ownership to chair the group.
    - *The National Director for the Environment and Management at MICOA.*

2) **Senior Supplier**: individual or group representing the interests of the parties concerned which provide funding for specific cost sharing projects and/or technical expertise to the project. The Senior Supplier's primary function within the Board is to provide guidance regarding the technical feasibility of the project.
    - *UNDP*

3) **Senior Beneficiary**: individual or group of individuals representing the interests of those who will ultimately benefit from the project. The Senior Beneficiary's primary function within the Board is to ensure the realization of project results from the perspective of project beneficiaries.
    - *National Directors of INGC, MINAG, MAE-DNPDR, INAM, IIAM, UNCDF*

4) The **Project Assurance** role supports the Project Board Executive by carrying out objective and independent project oversight and monitoring functions. The Project Manager and Project Assurance roles should never be held by the same individual for the same project.
    - *Manager,* Crisis Prevention, Recovery and Environment Unit*,* UNDP Mozambique*, Regional Technical Adviser Climate Change Adaptation, UNDP Regional Service Centre.*

The NPC will be located within the MICOA and will be responsible for day-to-day oversight and coordination of implementation of project activities, including recruitment and supervision of technical and training expertise as required for implementation of the project. The NPC will supervise the work of the Project Manager.The NPC will establish the sub-national task teams which will coordinate the implementation of the project and themselves be trained as part of the capacity building programme. The NPC reports to the DG of DNGA and maintains liaison with UNDP.

He/she is responsible for coordinating the preparation and presentation of reports to PB and UNDP on a regular basis (including Annual Project Reports, Inception Report, Quarterly Reports and the Terminal Report).

Project Manager: The Project Manager will be recruited. The Project Manager has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board, and under the guidance of the NPC. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost.

Project Support: The Project Support role provides project administration, management and technical support to the Project Manager as required by the needs of the individual project or Project Manager. Three operational task teams will be established, one in each of the three districts in which the project will operate plus a main Project Support Unit at the National MICOA headquarters. These task teams at district level will comprise of an Assistant National Project Manager reporting directly to the PM, and at National level will comprise the Project Manager (PM) and a Technical Financial Assistant. The Project Manager, Technical Financial Assistant and three districts Assistant National Project Managers will be recruited and paid to manage the project on a full time basis.

5.2.2 External Evaluations and Audits

The Project is subject to at least two independent external evaluations during its lifespan. These are:

- Mid-term Evaluation which is undertaken at the end of the second year to determine the progress being made towards achievement of outcomes and to institute corrective measures.
- Terminal Evaluation which is undertaken three months prior to the terminal TPR meeting. The evaluation focuses on impact and sustainability of project results.

The Ministry for the Coordination of Environmental Affairs (MICOA) will provide UNDP Country Office with certified periodic financial statements together with annual audits of the financial statements in accordance with the procedures set out in the Programming and Finance Manual and in compliance with the UNDP financial rules and regulations. The audit will be conducted by the legally recognized auditors of their respective agencies and or by commercial auditors engaged by UNDP.

There will be budget reviews and mandatory budget re-phasing as required and when necessary through UNDP who will maintain ATLAS budget. All work plans will be approved by PB and reporting modalities will follow UNDP procedures and rules of programming as stipulated in the Results Management Guidelines (RMG).

A comprehensive monitoring and evaluation plan will be implemented to monitor performance, process, objective and outcome achievement and environmental and socio-economic impacts. The monitoring and evaluation will be conducted in accordance with UNDP procedures using Log frame indicators and means of verification as benchmarks. The monitoring and evaluation process will rely heavily on active involvement of all project partners and collaborators. This will follow closely the provision discussed in section VI of this prodoc.

5.2.3 Collaborative Arrangements with Related Projects

This project will not co-finance specific activities with other projects. It will work in parallel with a number of site based projects that are currently operating in the field and will ensure these site-based projects and relevant adaptation information and experience they have are incorporated within the climate change adaptation measures implemented by the LDCF project.

6 MONITORING FRAMEWORK AND EVALUATION

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

Project start:

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

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

a) 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.
b) Based on the project results framework and the relevant GEF Tracking Tool if appropriate, finalize the first annual work plan. Review and agree on the indicators, targets and their means of verification, and recheck assumptions and risks.
c) Provide a detailed overview of reporting, monitoring and evaluation (M&E) requirements. The Monitoring and Evaluation work plan and budget should be agreed and scheduled.

Discuss financial reporting procedures and obligations, and arrangements for annual audit. Plan and schedule Project Board meetings. Roles and responsibilities of all project organisation structures should be clarified and meetings planned. The first Project Board meeting should be held within the first 12 months following the inception workshop.

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

Quarterly:

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

Annually:

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

  The APR/PIR includes, but is not limited to, reporting on the following:
  - Progress made toward project objective and project outcomes - each with indicators, baseline data and end-of-project targets (cumulative)
  - Project outputs delivered per project outcome (annual).
  - Lesson learned/good practice.
  - AWP and other expenditure reports
  - Risk and adaptive management
  - ATLAS QPR
  - Portfolio level indicators (i.e. GEF focal area tracking tools) are used by most focal areas on an annual basis as well.

Periodic Monitoring through site visits:

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

Mid-term of project cycle:

The project will undergo an independent Mid-Term Evaluation at the mid-point of project implementation (insert date). The Mid-Term Evaluation will determine progress being made toward the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The

organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the UNDP CO based on guidance from the Regional Coordinating Unit and UNDP-GEF. The management response and the evaluation will be uploaded to UNDP corporate systems, in particular the UNDP Evaluation Office Evaluation Resource Center (ERC).

The relevant GEF Focal Area Tracking Tools will also be completed during the mid-term evaluation cycle.

End of Project:

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

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

The relevant GEF Focal Area Tracking Tools will also be completed during the final evaluation.

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

Learning and knowledge sharing:

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

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

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

M& E workplan and budget

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Inception Workshop and Report	▪ Project Manager ▪ UNDP CO, UNDP GEF	Indicative cost: 10,000	Within first two months of project start up

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team staff time*	Time frame
Measurement of project Outcome indicators	▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Measurement of project implementation progress	▪ Oversight by Project Manager ▪ Project team	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
ARR/PIR	▪ Project manager and team ▪ UNDP CO ▪ UNDP RTA ▪ UNDP EEG	None	Annually
Periodic status/ progress reports	▪ Project manager and team	None	Quarterly
Mid-term Evaluation	▪ Project manager and team ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost: 40,000	At the mid-point of project implementation.
Final Evaluation	▪ Project manager and team, ▪ UNDP CO ▪ UNDP RCU ▪ External Consultants (i.e. evaluation team)	Indicative cost : 40,000	At least three months before the end of project implementation
Project Terminal Report	▪ Project manager and team ▪ UNDP CO ▪ local consultant	0	At least three months before the end of the project
Audit	▪ UNDP CO ▪ Project manager and team	Indicative cost per year: 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	Quarterly
TOTAL indicative COST Excluding project team staff time and UNDP staff and travel expenses		US$ 187,000	

Communications and visibility requirements:
Full compliance is required with UNDP's Branding Guidelines (http://intra.undp.org/coa/branding.shtml)
Project Acknowledgements: In order to accord proper acknowledgement to GEF for providing funding, a GEF logo would appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF would also accord proper acknowledgment to GEF.

GEF Logo: At a minimum, and wherever possible, the GEF logo (http://www.thegef.org/gef/GEF_logo) will be applied to all outreach materials. Where space allows, the full version with the tagline will be used (horizontal version, with "Investing in our Planet") and the UNDP logo shall also be included and both logos should be the same size.

The project shall apply the requisite visibility and branding requirements for GEF projects as outlined in the GEF guidelines for enhancing the visibility of GEF (http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.08_Branding_the_GEF%20final_0.pdf)

The implementation of these guidelines will be monitored by the PTAs and RTAs with the project teams on a regular basis. This includes the following:

a. Inception Phase/Workshop: The importance of these guidelines will be highlighted during the inception phase and should discuss concrete steps to be taken by the project teams.
b. Supervision Missions: The RTA will monitor the implementation of these guidelines during supervision missions and immediately address any non-compliance issues.
c. Project Websites: However, should the Project Board approve the creation of a project webpage or site, both the UNDP and GEF logos should appear on this project website. The UNDP/GEF HQ will be made aware of this project website through the annual APR/PIR.

7 LEGAL CONTEXT

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

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

The implementing partner shall:

a) put in place an appropriate security plan and maintain the security plan, taking into account the security situation in the country where the project is being carried;

b) assume all risks and liabilities related to the implementing partner's security, and the full implementation of the security plan.

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

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

SIGNATURE PAGE

Country: Mozambique

UNDAF Outcome (s)/Indicator (s): #3: Sustainable and effective management of natural resources and disaster risk reduction benefit all people in Mozambique, particularly the most vulnerable

CP Outcome (s)/Indicator (s):

3.1 Institutions strengthened to develop and improve policies, strategies and plans for climate change, environmental management, and disaster risk reduction.

3.2 Integrated info systems strengthened for decision-making on disaster risk reduction, climate change and environmental management

CPAP Output (s)/Indicator (s):

% of selected districts with microfinance institutions

# of women MSMEs established in selected districts

# of revised laws, policies and plans

# of revised surveys integrating DRR/CC/environment

# of districts with residual awareness campaigns

Executing Entity/Implementing Partner: **MICOA**

Implementing entity/Responsible Partner: **INGC, MINAG, (DNAE, SDAE), MAE(DNPDR), IIAM, INAM, UNCDF**

Programme Period: 2011 - 2015	
Atlas Award ID:	00062383
Project ID:	0079862
PIMS #	4069
Start date:	1 October 2011
End Date	30 September 2015
Management Arrangements	NIM
PAC Meeting Date	Sep 2011

Total resources required	14,110,000
Total allocated resources:	4,633,000
• Regular	200,000
• Other:	
○ GEF	4433,000
○ Government	170,000
○ In-kind	657,000
○ Grant/parallel	8,650,000

***Agreed by (Government)**:*

NAME SIGNATURE Date/Month/Year

Agreed by (Executing Entity/Implementing Partner)

NAME SIGNATURE Date/Month/Year

Agreed by (UNDP):

NAME SIGNATURE Date/Month/Yea

ANNEX 12. Risk Log

#	Description of the risk	Potential consequence	Countermeasures / Mngt response	Type (Risk category)	Probability & Impact (1-5)
1	Problems related to involvement and co-operation of stakeholders to provide the project team with data	Incomplete data collection Delay in the completion of the outputs	Clear commitment of the Ministry to data collection and hand over of data . Awareness-raising among the decision-makers. Develop leadership/champions for change. A strong stakeholder involvement plan has been developed (and will be confirmed during the Inception Workshop) to provide support to the project.	Political and organizational	P=3 I=5
2	Conflicts among stakeholders as regards roles in the project.	Uncoordinated approach to tackling climate change Threat to successful project implementation	Stakeholder involvement detailed clearly in stakeholder involvement plan and stakeholders are held to their roles.	Political and organizational	P=1 I=3
3	Lack of political will to support the project	Endangered project sustainability	Awareness-raising among the decision-makers. Develop leadership/champions for change. A strong stakeholder involvement plan has been developed (and will be confirmed during the Inception Workshop) to provide support to the project. Support will be given to government to organise consultations on project progress at key stages in order to maintain government ownership and interest in the project. Collaboration with other cooperation projects which will help to maintain political visibility.	Political	P=2 I=4
4	Poor co-ordination among implementing and Responsible Parties.	Leading to delays in deliverables	Clear Project Management arrangements (see Part III).	Organisational	P=1 I=3
5	Limited capacity within relevant ministries/insufficient	May limit/delay project implementation/com	A major part of the project is to strengthen institutional and regulatory capacity, bolting on on-	Organsational	P=2 I=3

	qualified human capacity.	pletion.	going government-UNDP cooperation. Specialist technical input will be contracted in, to work with local technical staff. A CTA will work closely with the Project Manager to ensure smooth and timely delivery of project outputs.		
6	Communities may not adopt eco-system protection and enhancement measures.	Threat to implementation and success of project activities.	Raising the awareness of communities of the benefits associated with reforestation is central to the reforestation activities piloted by the project. The project team will build on experience from other projects undertaking similar activities to promote good practice, and reduce this risk.	Operational	P=2 I=4
7	Lack of commitment from communities.	Threat to implementation and success of project activities.	The project will avoid a 'top down' approach and seek to create community ownership of all pilot interventions through participatory planning.	Operational	P=2 I=4
8	Natural Disasters (Strong coastal winds, Cyclone and floods) may disrupt project work for other national priorities	Threat to implementation and success of project activities.	Engage with disaster response and recovery as part of adaptation planning process and incorporation of climate hazard information into planning. The strengthening of Local Disaster Risk Management Committees (LDRMC) activities in target districts and training in potential community-based risk reduction strategies	Environmental	P = 2 I = 4
9	Climate risk reducing finance mechanisms increase indebtedness and vulnerability	Threat to implementation and success of project activities.	Capacity building and technical support programme accompanies any climate risk reducing credit facilities that are introduced. Assessment of applicants for suitability of participation in any potential scheme	Strategic	P = 1 I = 3

Annex 2. Stakeholder Involvement Plan

1. Introduction

Stakeholder consultation has been a key feature in the design of this LDCF Proposal, and stakeholders have been involved in identifying and prioritizing the proposed intervention activities. Details of the stakeholder engagement during the PPG Phase were provided in Section 1.4 above. Ongoing public consultation is critical for successful implementation. This section outlines some of the key consultation principles and processes at a strategic level that will need to be translated into practical action during the project implementation. It provides guidance based on the initial stakeholder analysis, conducted as part of the project preparation process, and the consultations so far. This can be used to define exact activities that will form part of a communications and consultation strategy developed during the inception period of implementation. Consultation is a regulatory process by which the Stakeholder's input on matters affecting the community is sought. The main goals are primarily in improving the efficiency, transparency and public involvement in large-scale project activities and policies. As involvement means the act of sharing in the activities of a group, it is important therefore, to specify goals and objectives for Stakeholder Involvement Plan, identifying key stakeholders and their interests relative to the project and to describe how stakeholders will be involved in the implementation of each project outcome.

The present Plan was designed based on: i) Bilateral consultation throughout the PPG process; ii) Inception Workshop (IW) - Information and consultation session at Girassol Hotel conference room in Maputo; iii) Minutes of the Stakeholders Consultation Workshop (SCW) - National planning workshop on central level at Girassol Hotel conference room in Maputo held May 26th 2011 involving 35 participants, vi) selective interviews with key stakeholders, and vii) project team discussions.

2. Goal and Objectives for Stakeholder Involvement

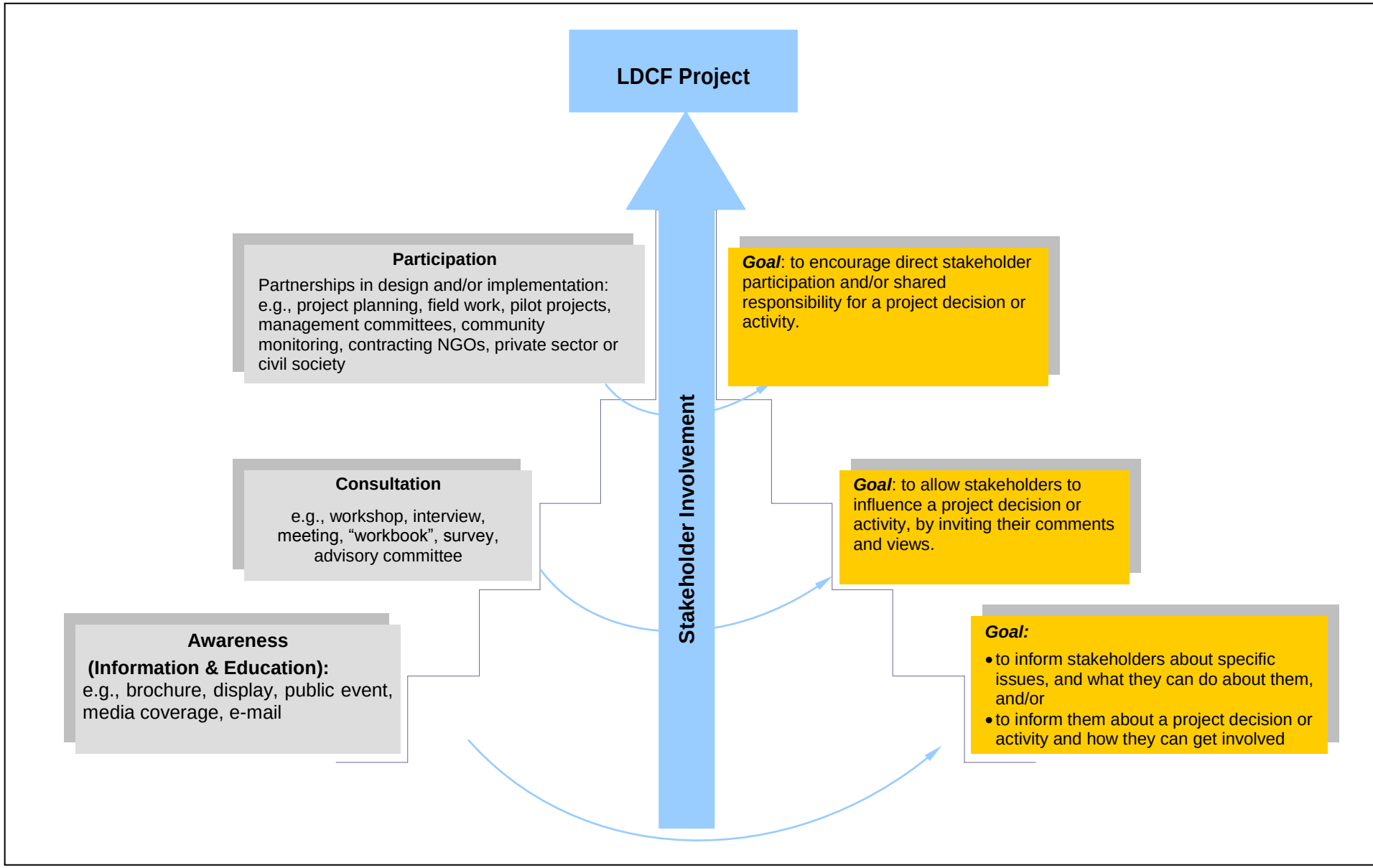
The *goal* for stakeholder involvement in the Project is: to ensure that all stakeholders who are affected by, have a role in, or are interested in project themes have the opportunity to be involved in and develop a sense of "ownership" of the project. To achieve this *objective* the Plan entails the following three distinct but overlapping steps as illustrated in figure X:

a) Awareness campaign (Information & Education): e.g., community radio programmes, Community meetings, brochure, display, public event, media coverage, e-mail. The main *Goal of this action is* to i) inform stakeholders about specific issues, and what they can do about them, and/or *ii)* to inform them about a project decision or activity and how they can get involved;

b) **Consultation** e.g., through workshop, interview, meeting, "workbook", survey, advisory committee with a *Goal* to allow stakeholders to influence a project decision or activity, by inviting their comments and views;

c) **Participation building** Partnerships in design and/or implementation: e.g., project planning, field work, pilot project demonstrations, management committees, community monitoring, contracting NGOs, private sector or civil society with a ultimate *Goal* of encouraging direct stakeholder participation and/or sharing responsibility for a project decision or activity.

Figure 1. Methodology for stakeholder involvement Plan in the Project



The project design contemplates various forms of Public awareness campaign and specifically includes in Output 2 (activity 2.4.2) an awareness campaign for community residents of Pemba, Pebane and Závora on coastal adaptation issues (Value of mangroves, Impact of SLR and erosion, Benefits of sustainable use of resources, etc). Consultation with various stakeholders during implementation is also the main feature of this LCDF in both Outcomes, particularly where the a project decision or activity requires a sharing responsibility, e.g. in Outcome 1 in Output 1.2 (activity 1.2.1 Convene cross-ministerial meeting to agree where climate change risk information data centre to be located and 1.2.2.Roundtable meetings with relevant GoM, Ministries, Agencies, Universities, NGO's to assess climate risk information needs for anticipatory adaptation planning in Mozambique); Outcome 2 and Output 2.2 (activity 2.2.1 Convene community meetings to rehearse the recommendations from the PPG phase and get feedback on process for moving forward to final selection of community-level adaptation measures). Most of the activities being developed in the project are by their nature guided by a participatory approach, particularly towards the local communities where demonstrations are being carried out.

The stakeholder consultation during project implementation will be expected to support all outcomes. Overall, the objective of the consultation plan is to provide a framework to guide and promote two-way engagement between the key implementing partners (MICOA and Responsible Parties) and the key stakeholders with whom the project will engage and directly impact upon.

It is proposed that several more specific objectives for consultation are adopted:

1. To ensure a general vision and understanding of the project and it's expected outcomes by all concerned stakeholders.
2. To engage key stakeholders in planning, implementing and monitoring of specific interventions.
3. To ensure consistent, supportive and effective communication (information, documentation, sharing, learning and feedback) processes with key interaction groups and the wider public.
4. To influence and ensure strategic level support for project implementation from state and non-state organizations and international agencies through engagement in effective community, private sector and donor forums or platforms.

In delivering these objectives, there are a number of simple qualitative considerations that need to be taken into account when planning engagement processes and what they should be seeking to achieve:

- Identify constraints and solutions: As a two-way engagement, the consultation process should be used as an opportunity to identify with stakeholders possible constraints to or with the project's implementation and to work with the stakeholders in finding sustainable solutions.

- Managing expectations: The LDCF investment is relatively minor, compared to the adaptation demands facing the country. It will be important that consultations take due consideration to manage expectations of stakeholders and stakeholder groups.

- Partnerships for co-financing: The LDCF seek to add value to their investments by building on existing and parallel projects that represent co-financing and consultations should consider opportunities for partnerships that will leverage co-financing into the PARPA III and the Government Action Plan or that may bring innovative approaches or technologies that may improve efficiencies and enhance impact.

3. Stakeholders

Stakeholders include a range of types of groups, all with their own interests and concerns (Table 1). They have different roles to play in the project and the Table below indicates key stakeholders and their possible roles. **National level** groups will include central government, and autonomous GoM agencies like INGC, INAM, and INAHINA. Traditional leadership, although civil is appointed through state institutions. Su-National institution group **Non-state** groups will include local (district, municipality) government **and** non-government and civil society groups, research bodies, local populations within and downstream of the target area. In addition there are those International Agencies and Donor Partners supporting the project activities.

Table 1. Key stakeholders and their roles

		Outcome 1 Coastal climate change risks integrated into key decision-making processes at the local, sub-national and national levels.										Outcome 2 Adaptive capacity of coastal communities improved and coastal zone resilience to climate change enhanced								
Stakeholder	Project Board	Coastal erosion risk profiles	Capacity building of climate based Extension	Prepare scenarios for climate impacts	Integrated risk management planning	Climate Change Risk Information Centre	Use of climate and coastal erosion data for	Create an integrated system for monitoring	Implementation of tailored AAS and CES	Participatory surveys	Strengthening of Local Disaster Risk	Adaptation financing for livelihood enhancement	community-based adaptation projects	Development of Community Adaptation	Cost-benefit evidence	Participatory Video, community radio shows	Scale up plan	Raise awareness of CC	Organisation of Conferences, Workshops	Strategic Lessons
National Level																		✓	✓	
MICOA-DNGA	**PB**			✓	✓	✓	✓	✓		✓						✓	✓	✓	✓	✓
INGC	**PB**	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓			✓	✓	✓		✓
MINAG	**PB**		✓		✓	✓	✓		✓				✓				✓			
IIAM			✓			✓	✓	✓	✓								✓			
MAE	**PB**						✓					✓		✓	✓		✓			
INAHINA		✓		✓		✓		✓												
DNPDR	**PB**				✓		✓					✓	✓	✓	✓		✓			✓
INAM			✓	✓	✓	✓	✓	✓	✓											
UNCDF												✓	✓	✓	✓					✓
Sub-National/																				
MICOA District Offices		✓	✓		✓	✓	✓	✓			✓				✓			✓		
CEPAM		✓	✓		✓	✓	✓	✓	✓		✓							✓		
CDS-ZC		✓	✓		✓	✓	✓	✓	✓		✓						✓	✓		

ESCMC		✓	✓		✓	✓	✓	✓	✓				✓							
DINAE				✓	✓	✓	✓	✓	✓	✓										
DNTF					✓	✓	✓									✓	✓			
SDAE			✓		✓	✓	✓	✓		✓		✓	✓			✓		✓		
CERUM					✓	✓	✓				✓	✓						✓		
ICS					✓	✓	✓											✓		
Pemba																				
MINAG-SDAE					✓	✓	✓	✓		✓		✓	✓							
MICOA District Offices		✓			✓	✓		✓		✓	✓	✓	✓		✓	✓		✓		
Pebane																				
MINAG-SDAE					✓	✓		✓	✓	✓		✓	✓							
MICOA District Offices		✓			✓	✓		✓		✓	✓	✓	✓		✓	✓		✓		
Zavora																				
SDAE					✓	✓		✓		✓		✓	✓							
MICOA District Offices		✓			✓	✓		✓		✓	✓	✓	✓		✓	✓		✓		
Community Groups/CBOs*					✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓		✓

4. Activities planned during implementation and evaluation

During implementation, the communication and consultation process should be divided into three main phases, being:

Phase 1 – this is the **mobilization** phase in the first year of the project. The fine details of the activities and implementation structures will be designed, partnerships for action will be forged and stakeholder engagement will focus around these design processes.

Phase 2 – represents the main **implementation** phase where investments will be made on the ground in the target areas and stakeholder consultation about engagement will focus on output oriented action.

Phase 3 – represents the **completion** of the project and the plans for scale-up and long-term sustainability of the LDCF investments. Consultation will focus on learning, bringing experience together and looking at processes for continued post-project impact.

Annex 313. Minute of Inception workshop and participants list

UNDP/GEF

THE LEAST DEVELOPED COUNTRIES FUND FOR CLIMATE CHANGE (LDCF)

GEF AGENCY PROJECT ID: 4069

ADAPTATION IN THE COASTAL ZONE OF MOZAMBIQUE PROJECT

PPG INCEPTION WORKSHOP REPORT

Submitted by:
International Consultant: T C Ferreira timfer52@gmail.com
National Consultant: Daniel Zacarias danieldream15@yahoo.com.br

Maputo, Mozambique

REPÚBLICA DE MOÇAMBIQUE

10 March, 201

ACRONYMS

CDG	Capacity Development Group, UNDP
CQNUMC	Convenção Quadro das Nações Unidas sobre Mudanças Climáticas
CZM	Coastal Zone Management
GEF	Global Environmental Facility
IC	International Consultant
INGC	National Institute For Disaster Risk Management
LDCF	Least Developed Countries Fund for Climate Change
MICOA	Ministry for the Coordination of Environmental Affairs
NAPA	National Action Plan for Adaptation
NC	National Consultant
SLR	Sea level rise
PPG	Project planning grant
UNDP	United Nations Development Program
UNFCCC	United Nations Framework on the Climate Change Convention

INTRODUCTION

The United Nations Development Program (UNDP) and the Ministry for the Coordination of Environmental Affairs (Ministério para a Coordenação da Acção Ambiental – MICOA) organized an inception workshop in Maputo on 10 March 2011, to introduce the Project Preparation Grant Phase of a wider Project pertaining to Climate Change and Adaptation in the Coastal Zone of Mozambique Project (The Project). The Workshop was designed (Annex 1) to provide participants with an overview of the overall project and to outline the pressing need to integrate all national stakeholders in climate change issues. Specifically, this Workshop provided participants with a brief description of how climate change is likely to affect coastal areas as well as providing an opportunity for discussing the National Action Plan for Adaptation (Plano de Acção Nacional de Adaptação – NAPA). A brief description of the project, its components, expected results and budgets was also provided along with an overview of Project indicators and a brief discussion on site selection criteria. The output of the work currently under way will be a Project Preparation Document to be submitted for funding consideration by the GEF by July 31st, 2011. Funding for the workshop was provided by GEF under the Least Developed Countries Fund for Climate Change (LDCF) Project Preparation Grant (PPG).

Motivation

The coastal zone acts as an interface between the marine and terrestrial environment. It is a physically complex and dynamic margin characterised by rocky shores, sandy beaches, reefs, lagoons, swamps, estuaries and deltas. In addition to providing habitats for numerous flora and fauna, the coastal zone is a confluence of industrial, recreational, residential and commercial pursuits, making it a vital part of economic and cultural life. The importance of the coastal zone and long history of human use, inevitably leads to a range of pressures on the natural environment. This is particularly true in environmentally complex and densely populated coastal reaches, such as those that characterise the coast of Mozambique.

The coastal zone of Mozambique is likely to experience significant impacts as a result of climate change in the course of this century, even if the efforts expected from the international community to stabilise atmospheric greenhouse gas concentrations eventuate. Mean sea-levels are expected to rise, wave climates are likely to alter and the frequency and intensity of storms are projected to change.

The impacts of climate change will be superimposed on an already dynamic natural system that is highly pressurized due to a high incidence of natural disasters (flood, cyclones & droughts) and increasing human activities. The range of coastal climate drivers, including sea level rise and changes in intensity and frequency of extreme events, will cause markedly different impacts, depending on both the magnitude of these changes around the coast and local coastal sensitivities.

Project Goals

The goal of the project is to support Mozambique to increase resilience to climate change through both immediate and long-term adaptation measures in development policies, plans, programmes, projects and actions. The objective of the project is to develop the capacity of communities living in the coastal zones of Mozambique to manage climate change by: i) generating climate change risk and adaptation options analysis and mainstreaming it into policies, investment plans and sector budgets at the national and sub-national level ii) piloting demonstration projects to increase capacity of communities living in the coastal zone

to cope with climate change impacts such as coastal erosion and to improve coastal ecosystem resilience to climate change; and iii) knowledge management to enable replication of climate change adaptation measures in coastal zones.

Report Structure

The report commences with an overview of the day-long workshop in terms of its key aims & objectives and moves on to provide a summary of the presentations delivered by invited speakers. The report concludes with an overview of key workshop outcomes and outlines next steps as agreed by participants to assist with the timely completion of the project document (by July 2011) and facilitate a successful inception mission by key Project personnel in country between March 10th and July 31st, 2011.

OPENING SESSION & PRESENTATIONS

Opening session

The National Director of Environmental Management, Ms. Telma Manjate, welcomed the participants and the consulting team, stressing that the first phase of the project began in 2004 and ended in 2007 with three main targets: strengthening early warning systems, strengthening local capacities of the food producers and reducing the impacts of climate change in coastal zones. As part of this project, 27 critical sites were preliminarily selected for further investigation.

Ms. Telma Manjate also reminded that at on the day the Inception Workshop was held, the World was celebrating International Women's Day. She said it provided an important reminder that in Mozambique women are the most vulnerable part of the population because of their role in the provision of food and resources to the household. As such, she emphasised the need of the project to incorporate gender issues in its activities.

Mr. Christopher, UNDP-Mozambique Environment Unit, emphasized the importance of climate change adaptation in Mozambique and thanked all participants for their support in building capacity for climate change adaptation in the region. Furthermore, he asked all participants to introduce themselves. Participants came from government institutions, academic institutions and civil society groups. The participants list is included as Annex 2.

Summary of presentations & discussion sessions

In this section, a brief outline of the presentations and discussion session is provided with associated PowerPoint's available on the accompanying data CD.

Introduction and objectives of the Workshop (Mr. Daniel Zacarias, National Consultant of the Project, NC)

Mr. Daniel Zacarias spoke of the difficulty in understanding every facet of climate change and the need to increase synergies to prevent, mitigate and increase communities' resilience. He also outlined the major factors that make Mozambique highly vulnerable to climate change (long coastline (~2700km), altitudes in some points are below the mean sea-level and nearly 60% of the population living in the coastal zone) and the impact of different scenarios of sea-level rise on the coast.

Further, the NC outlined that the project of "Adaptation to Climate Change in the Coastal Area of Mozambique" was part of the implementation process of Priority 3 of the National Action Plan for Adaptation (NAPA) submitted to the UNFCCC in 2007 and presented the main objectives of the seminar, which were to provide participants with the general idea of what the project was and the need to integrate all national stakeholders in climate change issues.

He finally urged all participants to support the Project Preparation Grant work phase to facilitate successful implementation of the project and bring about a reduction of the vulnerability of the Mozambican coastline to the likely impacts of climate change.

Presentation on climate change and its impact on coastal zones (Dr. Timóteo Ferreira, International Consultant of the Project)

The International Consultant (IC), Dr. Timóteo Ferreira, introduced the general concept of sea level rise and discussed the processes leading to global warming. He later provided an overview of the impacts of sea level rise and some projections for Mozambique with a short presentation on some indicative areas potentially vulnerable to sea level rise.

Presentation on the National Action Plan for Adaptation (Mr. Eduardo Baixo, MICOA)

Mr. Eduardo Baixo began his presentation introducing the general context of NAPA (a document that every LDC should design in the context of CQNUMC (UNFCCC) with urgent and immediate measures to face climate change). He also discussed the major factors that make Mozambique vulnerable to climate change (geographic location, relief, lack of infrastructures and weak financial capacity) and later he summarised the outcomes of the document and related activities: strengthening the early warning system, strengthening the capacity of the agricultural producers to ldeal with climate change, reducing the impact of climate change in coastal areas and management of water resources in the context of climate change.

Presentation on project objectives, components, activities, budget and indicators (Dr. Timóteo Ferreira, International Consultant of the Project, IC)

In his presentation, the IC introduced the goal and objectives of the project; to support Mozambique to increase resilience to climate change through both immediate and long-term adaptation measures in development policies, plans, programmes, projects and actions; and to improve the capacity of communities living in the coastal zones of Mozambique to manage/adapt to climate change. Later, he introduced the steps to achieve the objective (generate climate change risk and adaptation options analysis and mainstream them into policies, investment plans and sectoral budgets at the national and sub-national levels; piloting demonstration projects in coastal communities; and improve knowledge management for replication of climate change adaptation measures in coastal zones). He concluded with an overview of the project planning grant (PPG) phase activities divided into three components (technical and financial feasibility of adaptation options; project scoping; and stakeholder consultations) and the project framework.

Presentation on on-going projects and activities developed by the National Institute for Disaster Management (Mr. António Beleza)

By request from the workshop participants, Mr. António Beleza (National Institute for Disaster Management (INGC) representative to the workshop) provided a presentation on the activities currently developed by the National Institute for Disaster Management. He began by explaining that all activities being development by the INGC are currently in the 2nd phase, "Responding to climate changes in Mozambique", which has the goal of formulating response measures to prevent climate change impacts focusing on prevention and risk reduction. Later, he presented the main objectives of the project: i) ensure the beginning of the implementation of adaptation measures and build resilience to climate change (with emphasis on disaster risk reduction), (ii) build national capacities to deal with all aspects of climate change; provide strategic orientation and policies to allow and facilitate the implementation of adaptation measures to climate change. Finally, he described the framework of the project at INGC and some studies and experiences that are currently being developed by the Institute.

Presentation on the criteria for site selection (Dr. Johnson Nkem, UNDP/GEF Pretoria)

Dr. Johnson Nkem provided a presentation on the criteria for site selection and provided insights on Outcome 2 of the project. As such, he presented the following as major factors to be considered: accessibility, high vulnerability to climate change, community commitment (strong community leadership, social networks, the desire to try new adaptation techniques by communities, existing capacity and the return on investments). Later, he suggested that the discussion on site selection would have to take into consideration the need to meet the expectations of the people, conformity with national priorities, selection criteria, and identification of indicators and availability of relevant information. He emphasised that stakeholders validation of the field site selection was a crucial first step towards ownership of the process and the project.

Coastal site	Main issues

Presentation on critical coastal areas (Mr. Fernando Caniua, MICOA)

Mr. Fernando Caniua, MICOA representative, provided a presentation on suggested critical areas for further investigation (Figure 1) based on preliminary fieldwork and the coastal erosion situation in each area.

Figure 1: Geographic position of the priority sites presented by MICOA

Main issues of concern for each of 3-shortlisted sites are summarised in Table 1 below.

Pemba (Cabo Delgado)	Sand extraction Access to the beach Coastal recession Re-development/ new buildings Litter deposition Illegal occupation by informal settlements
Závora (Inhambane)	Tourism infrastructure in the 100 m from the sea Beach driving Existence of some interventions targeted to other districts, but not in Inharrime (where the village is situated)
Pebane (Zambézia) Chinde (Zambézia)	Fishing communities Over utilization of coastal resources The need of introducing new livelihoods Accessibility and resources disputes

Table 1: Key Issues for Suggested Pilot Site Locations

Presentation on capacity development for coastal communities in Mozambique: Climate Change Adaptation (Dr. Rasmus Jeppesen, Capacity Development Group (CDG) UNDP)

In his presentation, Dr. Rasmus Jeppesen discussed the concept of capacity development (as the process through which the abilities of individuals, institutions, and societies to perform functions, solve problems, and set and achieve objectives in a sustainable manner are strengthened, adapted and maintained over time) and the UNDP Capacity Development Approach is based on five major steps: i) engagement with partners and building consensus; ii) assessing capacity assets and needs; iii) designing capacity development response; iv) implementing capacity development response; and v) evaluation of capacity development efforts.

He also focused on capacity assessment, its structure (a way to have baseline information, design targets, identify gaps and outline prioritization) and the role of designing indicators (a quantitative or qualitative variable that provides a simple and reliable basis for assessing achievement, change or performance).

Focusing on the Project Outcome 2 (adaptive capacity of coastal communities improved and coastal zone resilience to climate change enhanced) he introduced a scorecard tool and explained its functional capacities (engagement in multi-stakeholder dialogue; assessment of a situation and creation of a vision and mandate; policy and strategy formulation, budgeting, management and implementation and monitoring and evaluation).

Presentation on coastal areas adaptation options (Dr. Ailbhe Travers, Project International CZM Expert)

Dr. Ailbhe Travers began her presentation by providing an overview of the interrelationships between drivers of climate change and likely impacts in the coastal zone. She outlined key metocean variables of interest for Mozambique (sea level rise, increase in mean temperatures and increasing frequency of tropical cyclones and storm surge), the current issues associated with climate variability and the resulting infrastructure risk focusing on transport, tourism and urban infrastructure. She briefly discussed capacity constraints and the spatial distribution of vulnerability in Mozambique.

Following that, she concentrated on the tasks of the CZM expert in the Project Preparation Grant work phase (visit identified field sites to: i) appraise contemporary and potential future problems; ii) develop a typology of potential built and natural solutions taking into account capacity, needs, and levels of affordability for communities; and iii) develop an adaptation options analysis covering built and natural environments indicating pros/cons of each approach and indicative capital and maintenance costs).

WORKSHOP OUTCOMES AND FOLLOW-UP PLAN

Concerns raised during the Inception Workshop ranged from the factors that influence sea level rise (SLR), the role of the international consultants in the PPG, the site selection criteria, the cost-effectiveness of the project, the need of designing fast tracking measures and how the lessons gained during PPG would guide the development of the project. Of particular concern was the role of the participating institutions, civil societies, and the need for arranging a platform to clarify the roles to be played by MICOA and INGC in the implementation phase. Another concern was the need of transferring climate change issues from the environmental perspective to the development perspective. Clarifications were provided for concerns raised by various speakers. It was agreed that the roles and responsibilities of the various stakeholders will be identified during the project development phase for validation by the stakeholders subsequently.

As an outcome of the meeting, the city of Pemba (Cabo Delgado province), the district of Pebane (Zambézia province) and the village of Závora (Inhambane province) were selected as pilot sites for field visit and a site visit plan was presented to the participants.

Workshop Agenda

Time	Activity	Responsibility
08:30- 09:00	Registo dos participantes	Protocolo
09:00- 09:30	Abertura MICOA PNUD	Moderadora (Telma Manjate/Paula Panguene)
09:30-09:45	Introdução e objectivos do seminário	Consultor Nacional
09:45-10:15	Breve descrição – Como as mudanças climáticas poderão afectar as zonas costeiras	Consultor Internacional
10:15- 10:45	Discussão sobre o Plano de Acção Nacional de Adaptação “NAPA”	Moderadora (Telma Manjate)
10:45- 11:00	Intervalo	Protocolo
11:00- 11:30	Breve descirção do projecto, processo de preparação e ponto de situação	Consultor Internacional
11:30- 12:00	Breve Debate	Moderadora (Telma Manjate)
12:00- 12:15	Resumo do projecto – objectivos, componentes, resultados, actividades, orçamento e indicadores de desempenho	Consultor Internacional
12:15- 12:45	Debate	Moderadora (Telma Manjate)
12:45- 14:00	Almoço	Buffet
14:00- 14:15	MICOA slide show on critical coastal areas	Fernando Caniua/MICOA
14:15- 14:30	Escolha da Área de Implementação do projecto	Johnson Nkem, UNDP/GEF Pretoria
14:30- 14:45	Arranjos para a Implementação	Consultor Internacional

Time	Activity	Responsibility
14:45- 15:00	Metodologia de Levantamento comunitário	Rasmus Jeppesen, UNDP RSC Jhbg
15:00- 15:15	Zonas Costeiras	Ailbhe Travers, Consultora Especialista de Zonas Costeiras
15:15- 15:45	Debate	Moderadora (Telma Manjate)
15:45- 16:15	Questões Pendentes e passos seguintes	Johnson Nkem UNDP/GEF Pretoria
16:15- 16:30	Diversos	Moderadora (Telma Manjate)
16:30	Encerramento	Moderadora (Telma Manjate)

Workshop Participants List

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Ailbhe Travers	CZM Expert		
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Annex4. Minutes of Stakeholder Validation workshop 26 May 2011.

UNDP/GEF

THE LEAST DEVELOPED COUNTRIES FUND FOR CLIMATE CHANGE (LDCF)

GEF AGENCY PROJECT ID: 4069

ADAPTATION IN THE COASTAL ZONE OF MOZAMBIQUE PROJECT

STAKEHOLDERS CONSULTATION MEETING

Submitted by:
International Consultant: T C Ferreira timfer52@gmail.com
National Consultant: Daniel Zacarias danieldream15@yahoo.com.br

Maputo, Mozambique

26 May, 2011

REPÚBLICA DE MOÇAMBIQUE

Minutes of stakeholder meetings & participants lists

Location and venue:

Stakeholders Consultation Workshop (SCW) - National planning workshop on central level at Girassol Hotel conference room in Maputo on 26th of May 2011.

Background

The national planning workshop was organized to present the project framework, to identify core problems/causes, strategies/desired responses and potential stakeholders at national level. Goal was to present results for the Coastal Zone Management (CZM) Expert site visits were organised to; assess the coastal erosion baseline conditions at the project sites, the Vulnerability and Capacity Assessment (VCA) to establish the baseline of Communities' vulnerability towards CC SLR and induced coastal erosion, the CC Capacity Assessment (CCA); to establish the baseline capacity stakeholders, and to provide inputs for the eventual revision of the existing project Result Framework (logframe).

The workshop was also conducted so to provide a group discussion of the Project main outcomes, and validates the activities to be developed under each Outcome, to discuss budgetary issues and select the Project outputs leading institutions as well as other collaborating partners at national, sub-national and local level.

The Programme

The original programme was drafted by the Ministry for the Coordination of Environmental Affairs and sent to all stakeholders present during the Inception Workshop via UNDP CO system. The content of the programme is shown in Annex1.

Workshop Session 1.

The Permanent Secretary of the Ministry for the Coordination of Environmental Affairs (MICOA)

Mr. Maurício Chirindza was the first to address the Forum and welcomed all participants, outlining the need for exhaustive discussions in order to cover all the issues under discussion and find solutions to all the queries and concerns that the stakeholders could have in relation to the implementation of the project.

He also stressed the actions the Government of Mozambique have taken so far to incorporate climate change as a priority action in their strategic development plans, demonstrated by the increasing amount of policies, legislation and programs related to environmental protection and management. Again, he also pointed out the major role climate change issues that are being considered for incorporation at the upcoming PARPA III as the main paradigm for countries development.

ii) The International Consultant

Following the intervention of the Permanent Secretary, the International Consultant (IC), Dr. Timóteo Ferreira, explained to the stakeholders present the main objectives of the project which were to discuss, particularly the issue of selection of leading implementing partners for each of the project's outputs, budget allocation to each output and validation of the subsequent activities. Apart from this, he outlined the key features of the PRODOC and the need for the stakeholders to identify specific aspects that they would think appropriate the nproject to address for the communities and sites selected for the pilot demonstrations.

iii) The National Consultant

The National Consultant, Mr Daniel Zacarias followed by reporting to the stakeholders, all the activities developed after the Inception Workshop, focusing on the Vulnerability and Adaptation Assessment (VCA) consultations held in the seven communities of the provinces were the three pilot sites are located and the Institutional Capacity Assessment exercises developed in the same seven communities. As such, he described that after exercises the project managed to raise community commitment and that the local institutional capacity was not the desired one but sufficient to enable project implementation.

iv) The International Consultant

Again, the IC presented in details the potential outputs and activities to be developed under each outcome. He called for the need of appropriateness of the choices of the outputs under each outcome and the validity of the indicative activities under proposal for each output.

He also, requested the input of the stakeholders with information and specific aspects that could limit the development of the foreseen activities or enhance the results sought.

v) The Regional Technical Adviser

Dr. Johnson Nkem guided the process of identifying the leading institution for each output and associated partners for its implementation. He started by informing the stakeholder the urgency in dealing with the issues under discussion so that the Team drafting the PRODOC could have all the necessary information to carry out the task to comply with the deadline of having the project ready by the 31st July. He then explained the normal procedure of submitting GEF LDCF projects.

He conducted the discussions with the various stakeholders present so to identify Institutions who could be potential leaders of the outputs and carry out the activities calling the attention for the necessity of all presents to share their views towards the idea of setting up a Community Adaptation Fund via microloans in the communities where the pilot demonstrations were to be carried out.

vi) Interventions from the Participants

The representatives of MICOA offices in the three target provinces shared their concerns in relation to institutional arrangements to implement the project and particularly to the management aspect of the Community Adaptation Fund (CAF).

Other stakeholders share the need for clarification in relation to viability of the CAF; the implementation aspects of the project and project community ownership.

Several questions, especially by MICOA and MAE representatives, were addressed linking the need for harmonizing the planned project activities with current institutional priorities;

Other recurrent theme of discussion was the issue of required institutional coordination amongst all stakeholders involved in the project implementation. This lead, to the major issue of identifying the main implementing partner for the project.

vii) DR J NKem:

Following discussion agreed that the project does not act as a stand-alone activity, but a complementing effort to on-going activities and that all designed activities were drafted based on stakeholders consultation and community aspirations and that provincial representations of MICOA will be included in all activities to be developed.

viii) UNCDF CTA, Ms Oumou

Due to the high number of concerns and queries directed to the setting up of the Community Adaptation Fund, its management procedures and criteria for community access a clarification was provided by UNCDF staff.

Therefore, Ms. Oumou (UNCDF CTA),outlined the management arrangements of this which she defined as a small window through which all activities conducive to enhancement of current livelihood or those towards adaptation to new sustainable livelihoods would take place.

She then explained this would lead to a process of community empowerment as it will provide access to micro-finance. Its implementation will be be supported by training and technical advice to micro-finance institutions involved and direct support to any institutions that is linked to micro-investments. She further argumented by stating that this fund would be a way of empowering target communities to fight against climate change and reduce their poverty levels and would be a great alternative to the implementation of risky financial programs. In this sense, target communities and institutions will be trained to understand that the grants are private and should be repaid and it will also be linked to other on-going projects.

ix) Provincial Representatives of MICOA

Representatives of MICOA in the target provinces raised further concerns on the implementation of the adaptation fund were related to the fact that in some communities there were no available financial institutions (Bank) in some areas such as Pebane and Zavora.

x) Mr. Augusto Correia (SGP – GEF)

Mr. Augusto Correia (SGP – GEF) outlined their experience in working in the field projects with communities with no access to financial institutions. He stressed that even so, there is no available financial institutions this idea of CAF can still be implemented, especially working with community associations that can be trained to access and manage funds whith banks locatedf in the districts or even provincial capitals. As such, there is a need of establishing a monitoring system that describes the eligibility of community-based institutions to access funds.

xi) Mr. João Fernando (UNDP – Boots in the Ground Programme)

Mr. João Fernando (UNDP – Boots in the Ground) outlined that there is a need of training extensionists to work with the project and enable management committees to monitor project implementation. As a mechanism to easy project implementation, he suggested replication of the Nampula experience by incorporating climate change issues in the district strategic development plan and work with teachers and schools for awareness raising strategy.

xii) Dr. Nkem

Dr J Nkem as a closing remark to further concerns about the CAF, expressed the need of concentrating on the validation of the outputs and respective activities under consideration. He also call the attention of all stakeholder to the need to have this PRODOC ready on time to give way to another consultation process in relation to the up-coming GEF-5.

Dr Nkem then took the lead of the discussion to ask to all stakeholkder to speak out about the Leading institutions for each of the outputs and activities.

xiii) Dr Paula Panguene (MICOA Assitant National Director)

Dr paula Panguene helped in the identification of the potential Responsibkle Partners which after a long discussion yielded the following information summarised in Table 1:

There was a revision on the Result Framework and activities proposed.

Implementation strategies were also discussed, particularly in the provinces. The role and importance of CEPAM in Pemba, CDS-CZ in Xai-Xai and the Faculty of Marine Science in Zambezia was stressed.

Identified partners in the implementation of the project and their potential role

1. Main Implementation Institution:

MICOA presented themselves as the natural Implementing agency of GoM.

However, technical capacity for the actual development of field work lays on their Research Centres of CEPAM, CDS-CZ.

2. INGC:

All related Coastal Zone adaptation mesures, dune establisation, etc

All community support activities

All risk profile development activties

3. MINAG:

Nursery development

Extension work with communities

Water storage and small scale irrigation delivery and building water supply structures in the communities

Planting and maintenance of coastal trees

4. MAE:

DNPDR work in the communities to help technical support on project financial viability; financial approaches, loans, rural development, etc

5. INAM:

Met stations installation and management

Data hadling, storage and analysis

Development of CC scenarios

Data Centre network with INGC/INAHINA/IIAM

6. INAHINA:

Coastal and maritime monitoring and data analysis on SLR and coastal erosion.

7. UNCDF:

Handling of the Adaptation Fund

MFIs

Technical financial training to MFIs

8. Project Management:

MICOA needs stressed the need for help in the provinces. They have technical personnel capable of carrying M&E but there should be project personnel to guarantee assistance to communities in the districts

Furthermore it was said that INGC has also Technical personnel in the field. They are already established in the districts, though very few in the coastal districts. They will need training and capacitance in relation to coastal adaptation, community relience against SLR and coastal erosion.

Outcome:

A better understanding of the project site's baseline information, the structure of the project document and the Result Framework among key stakeholders was achieved. Additionally, an analysis of project situation was undertaken, potential strategies and national stakeholders were identified. Inputs for a revised project Result Framework were provided and valuable recommendations for project design, implementation and management received. In addition the Project's Outputs Lead Institutions and their partner as well as the choice of the 3rd site for project demonstration was validated by the attending stakeholders.

Annex 2.

ADAPTATION IN THE COASTAL ZONES OF MOZAMBIQUE

STAKEHOLDERS CONSULTATION WORKSHOP

Date: 26th May 2011-07-12

Venue: Hotel Girassol

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Annex 5. Adaptation/Coastal Zone Management report cards for the seven pilot communities in Pemba, Pebane and Inharrime

Chuiba (Pemba)

Overriding Management Goal: Ecosystems and Livelihoods

Recommended options (with indicative costs and timings)

	Timing	Cost
1. Managed realignment	X	X
2. Dune management Revegetation, access paths and walkways, monitoring and signage	X	X
3. Fisheries best practice	X	X
4. Sustainable coastal forestry Casuarina nurseries in viable locations in conjunction with monitoring programme	X	X
5. Sustainable ecotourism	X	X

Timing			Cost		
0-10 years	10-20 years	>20 years	>$50,000	>$10,000	<$10,000

Physical Setting

- Extensive area of wide, fine grained white sandy beach
- Offshore reef with sea grass
- Natural dune environment with colonising dune at vegetation line, relatively stable and low primary dune backed by wide despression at approximately sea level and low elevation secondary dune to the south
- Further north dune area is highly impacted by recreational pressure & use by local fishers
- Relatively protected due to fringing reef; low wave energy; predominantly impacted by water level fluctuations

Coastal Landuse

- Natural Foreshore Reserve (undesignated)
- Unsurfaced coastal road
- Touristic lodgings landward of road
- Unplanned development seaward of road in dune buffer
- Low population density currently between coastal road and shoreline but evidence of ongoing and planned development

Livelihoods

- Fisherman and subsistence farmers; high proportion of community assets exposed to climate risks;
- Fishing = main male income (75%)
- Agriculture = main female income (84%)

Community Structure

- Small, isolated rural community 15km from central Pemba. The community are largely concentrated in the area landward of the coastal road with a population of 4238 and 1006 houses largely made of Bamboo sticks and mud; some zinc roofs and cement homes

Baseline Problems (from a physical coastal perspective)

- Shoreline erosion
- Saltwater intrusion
- Inadequate/unrestricted beach access
- Lack of beach services
- Unplanned/illegal development
- Poor access via unsurfaced road

Likely Climate Change Impacts

- Inundation of low lying land behind low primary dune
- Damage to coast road (currently unsurfaced but only access provision to area)
- Loss of illegal/unplanned development ion dune area
- Decreased beach recreational value
- Decrease in viability of subsistence fisheries

Problem Summary

- Vulnerable rural population living in dynamic coastal buffer zone. Inundation during high water events is the major issue for this area coupled with progressive erosion of a degraded coastal dune that will likely be exacerbated with projected changes in climate.

Paquite (Pemba)

Overriding Management Goal: Human Safety & Built Infrastructure Exposure

Recommended options (with indicative costs and timings)

	Timing	Cost
1. Managed realignment	X	X
2. Coastal protection		
- Sandbags	X	X
- Revetment	X	X
- Seawall	X	X

Timing			Cost		
0-1 years	1-10 years	>20 years	>$50,000	>$10,000	<$10,000

Physical Setting

- Embayed beaches, largely perched on rock and eroding cliffs and promontories
- Sediment feed in the area is limited
- Relatively protected due to fringing reef; low wave energy
- Predominantly impacted by water level fluctuations

Coastal Landuse

- Coastal road runs the length of the northern sector
- Touristic lodgings and complexes occur within 50m of the shoreline
- Moving east, population density increases dramatically and residences become urban dwellings
- The road is less than 10m from the shoreline/cliff edge and dwellings are directly landward of the road

Livelihoods

- Agriculture not as widespread due to urban location; mixture of other livelihoods such as trades, services and government employees.
- Business = 36%
- Fishing = 21%

Community Structure

- Population of 13,000. Wooden sticks and caked mud but also a significant number of cement houses with zinc roofs. Unplanned and unorganised development with no functional drainage canals or latrines

Baseline Problems (from a physical coastal perspective)

- Highly exposed to episodic coastal erosion and inundation during high water levels
- History of tidal inundation
- Very low capacity to cope with new patterns of environmental change and existing variability
- Directly impacted by sea level rise and coastal erosion - inundation will be key issue at this location

Likely Climate Change Impacts

- Issues will be exacerbated with projected changes in climate and lead to the overall degradation of the amenity value of the beach and ultimately its complete loss due to coastal 'squeeze' Additionally the coastal road in this area will be damaged in the medium term (less than 10 years) and likely destroyed in more than 30 years.

Problem Summary

- Geotechnical instability as a result of erosion of the coastal road. A relatively high population density with a lack of nearby vacant land

Chuibuabuare (Pemba)

Overriding Management Goal: Ecosystems and Livelihoods

Recommended options (with indicative costs and timings)

1. Managed realignment
Imperative to relocate population from extremely high risk, marginalised coastal zone highly susceptible to inundation and lacking access, sanitation or adequate housing

2. Sustainable coastal forestry
Replanting of mangroves coupled with education program and monitoring regime

3. Shoreline management
'living shorelines - marsh regeneration, revegetation, fiber log placement, nourishment and monitoring. NOTE: These activities should occur in conjunction the managed retreat to help mitigate impacts to landward coastal infrastructure e.g. Airport.

	Timing	Cost
1. Managed realignment	X	X
2. Sustainable coastal forestry	X	X
3. Shoreline management	X	X

Timing		
0-1 years	1-10 years	>10 years

Cost		
> $50,000	> $10,000	< $10,000

Physical Setting

- Marginalised coastal zone, formerly marsh land, within Pemba Bay on Eastern coast of Peninsula
- Protected from impacts of open ocean swell and largely controlled by locally generated wind waves and water level fluctuations
- Low lying coastal depression with sandy substrate grading to silt in the nearshore
- Backed by high cliffs with limited access and no potential for natural retreat
- Intermittent mangroves and sand bars in narrow intertidal zone with drop-off into deep water approximately 150m from the shoreline

Coastal Landuse

- High density informal dwellings bordered by high cliff, municipal litter deposits and Pemba airport. Reclaimed marsh bounded by sandy coastal foreshore and limited mangrove forests seaward of the settlement area

Livelihoods

- Subsistence fishing; Mangrove cutting occurring extensively in this area

Community Structure

- Relatively new settlement of over 10,000 people
- Urban slum encroaching on Mangrove swamp
- Access via hazardous path down cliff & no sanitation, Irregular, unplanned make-shift dwellings

Baseline Problems (from a physical coastal perspective)

- Progressive and episodic shoreline erosion and extensive cutting/degradation of mangroves
- Key issue for this community is fact that low lying coastal depression is constrained by high cliffs with inadequate access which represents an extreme hazard in the case of any elevated water level events (episodic storm surge or progressive change due to mean sea level rise)

Likely Climate Change Impacts

- Highly susceptible to inundation due to sea level rise and elevated water levels during extreme events - this area is likely to become inundated even with minor increases in mean sea level due to low elevation and high instability of coastal zone

Problem Summary

- Progressive and episodic shoreline erosion and extensive cutting/degradation of mangroves mean marginalised, informal settlement at extremely high risk. Inundation in response to extreme events and progressive increases in mean sea level will be extremely hazardous because the community is located in a low lying depression and constrained by a cliff.

Malaua/Porto (Pebane)

Overriding Management Goal: Exposure of the built environment & Ecosystems and Livelihoods

Recommended options (with indicative costs and timings)

	Timing	Cost
1. Managed realignment	X	X
2. Channel & bank protection		
- Coir logs	X	X
- Brush matressing	X	X
- Geotextile revetments	X	X
- Rock revetments	X	X
3. Channel and bank management (access)	X	X
4. Wetland protection and restoration Mangrove Replanting and protection; community education program highlighting important ecosystems services provided by Mangroves building on activities of local community group.	X	X
5. Fisheries best practice & MPAs	X	X

Timing			Cost		
0-1 years	1-10 years	>10 years	> $50,000	> $10,000	< $10,000

Physical Setting

- Estuarine/channel environment characterised by relatively narrow channel (approximately 60m between banks). Fine alluvium sediments within channel grading to more sandy substrate towards estuary entrance and ocean facing mouth
- Muddy intertidal area un-vegetated in vicinity of harbour but adjacent shoreline colonised by mangrove forest and some coconut trees in backshore area
- Approximately 4m tidal range across the area with attenuated tidal influence within the channel
- Low energy waves within estuary and channels with minimal swell penetration under modal conditions
- Erosion largely due to fluctuations in water level conditions and scouring of extremely soft alluvium channel banks

Coastal Landuse

- Fishing harbour, (small scale), with a local focus lacking processing infrastructure or adequate transport infrastructure/boat loading, unloading or access points
- Mangrove forrest
- Local fisher village

Livelihoods

- Subsistence fishing and associated market function of harbour
- Provision of goods and services in the adjacent urban area

Community Structure

- Small town slum - semi rural/urban with 2715 inhabitants.
- Houses largely constructed from wood and sticks and highly susceptible to cyclone and storm wind impacts

Baseline Problems (from a physical coastal perspective)

- Channel and bank erosion
- Degraded harbour infrastructure
- Access problems due to runoff-hazardous, steep road subject to gullying in wet season
- Unplanned/illegal development in mangrove area adjacent to pier
- Cutting of mangroves for fuel and construction material

Likely Climate Change Impacts

- Sea level rise will lead to increased bank erosion and instability of the channel
- Marine erosion as a result of scouring and undercutting under elevated water levels
- Terrestrial pressure from run-off during the wet season will exacerbate alluvium wash and and create large-scale gullies
- Inundation of the relatively low lying areas adjacent to the shoreline (currently inhabited by fishers)
- Continued damage and degradation of coastal infrastructure

Issue Summary

- Exposure of infrastructure to damage/destruction and degradation/loss of the mangrove ecosystem and its associated suite of services

Quichanga (Pebane)

Overriding Management Goal: Ecosystems and Livelihoods

Recommended options (with indicative costs and timings)

	Timing	Cost
1. Managed realignment Relocate communities from vulnerable, low lying, sandy coastal dune	X	X
2. Dune management E.G. Provision of designated access pathways and boardwalks; pre-emptive nourishment in conjunction with sandbagging & monitoring programme; planting; signage;	X	X
3. Fisheries best practice E.G. Establish fisheries cooperative; codes of conduct; diversification; community education & monitoring programme	X	X
4. Sustainable coastal forestry E.G. Replanting of Casuarina trees in viable locations; should occur in conjunction with dune building and vegetation and be informed by risk mapping and subject to ongoing monitoring	X	X

Timing			Cost		
0-1 years	1-10 years	>10 years	>$50,000	>$10,000	<$10,000

Coastal Environment

- Extensive area of white sandy beach backed by low coastal dunes
- Erosive low primary dune backed by wide depression at approximately sea level
- Dune area is highly impacted by recreational pressure & use by local fishers
- High wave energy, strong alongshore sediment transport; predominantly impacted by water level

Coastal Landuse

- Natural Foreshore Reserve (undesignated)
- Unsurfaced coastal road
- Touristic lodgings in coastal buffer (sandy dune area adjacent to ocean)
- Unplanned development seaward of road in dune buffer
- Low population density currently between coastal road and shoreline but evidence of ongoing, unplanned development

Livelihoods

- Fisherman and subsistence farmers; high proportion of community assets exposed to climate risks;
- Fishing = main male income
- Agriculture = main female income

Community Structure

- Small, isolated rural community 15km from central Pemba. The community of 553 households are largely concentrated in the sandy dune area seaward of the road. Houses are generally sand brick with straw roofs closer to the shoreline with more resilient zinc roofed homes nearer the road.

Baseline Problems (from a physical coastal perspective)

- Shoreline erosion
- Saltwater intrusion
- Inadequate/unrestricted beach access
- Lack of beach services
- Unplanned/illegal development
- Poor access via unsurfaced road

Likely Climate Change Impacts

- Inundation of low lying swale
- Damage to coast road (currently unsurfaced but only access provision to area)
- Loss of illegal/unplanned development in dune area
- Decreased beach recreational value
- Decrease in viability of subsistence fisheries

Problem Summary

- Marginalised coastal community living in sandy coastal buffer highly vulnerable to impacts of coastal erosion and likely to be inundated with projected elevations in mean sea level.
- Low agricultural productivity, coconut tree mortality and high incidence of cyclones increase community vulnerability.
- Inherent physical instability of the foreshore and dune area and the low elevation of the coastal plane mean this area is not suitable for habitation unless extensive, cost-prohibitive and largely unsuitable coastal protection structures are employed. Recommendation for the community is to employ short term resilience building measures while planning for a medium term retreat to a more suitable location.

Macuacuane (Pebane)

Overriding Management Goal: Ecosystems and Livelihoods

Recommended options (with indicative costs and timings)

	Timing	Cost
1. Managed realignment Relocate community from current, supposedly temporary, location to less exposed location not in low-lying coastal dune area	X	X
2. Dune management In the short term, impacts of coastal erosion and inundation can be mitigated through provision of designated access; revegetation with stabilising dune species; fencing, brushing, signage.	X	X
3. Beach & dune nourishment Proactive and pre-emptive programme of beach and dune nourishment in conjunction with active monitoring and potential artificial augmentation of foredune with sandbagging, nourishment and planting.	X	X
5. Community based disaster reduction & flood hazard mapping	X	X

Timing			Cost		
0-10 years	10-20 years	>20 years	>$50,000	>$10,000	<$10,000

Physical Setting

- Well established vegetation in secondary dune area with patchy and discontinuous Casuarina coverage
- Relatively narrow sandy beach backed by narrow, low coastal dune system
- High wave energy
- Behind the low dune system settlements are located in a sandy depression backed by an older dune complex running parallel to the shoreline

Coastal Landuse

- Rural area with limited access and infrastructure - vehicle access through sandy tracks in dunes (4WD required)
- Land largely planted with coconuts although condition of these plantations appear to be degraded with many bare patches and dead/dying trees observed
- Settlements area small scale villages constructed within the dune area directly behind the foredune ridge adjacent to the shore.
- Houses appear to occur approximately 50m from the vegetation line, are made from local materials and are highly vulnerable to inundation and coastal erosion

Livelihoods

- Coconut plantation - villages along this stretch of coast are associated with the presence of coconut stands
- Attempts to establish eco-tourism ventures in the area were reported by villagers consulted. These ventures were envisaged as beach front chalets within the existing village structure on a community-by-community level
- Subsistence agriculture and fishing are main livelihoods with locally adapted agricultural practices employed to combat soil erosion due to terrestrial run-off and flooding

Community Structure

- HIsolated community approximately 15km from Pebane and 6km from main road
- 2,030 inhabitants across 590 households
- Community relocated to current location in 2003 (supposedly on a temporary basis) due to threat of inundation.

Baseline Problem (from a physical coastal perspective)

- Low primary and secondary dune regularly inundated
- Evidence of progressive erosion along foreshore
- Areas of dune instability/blow outs exacerbated by unregulated access
- High coconut tree mortality

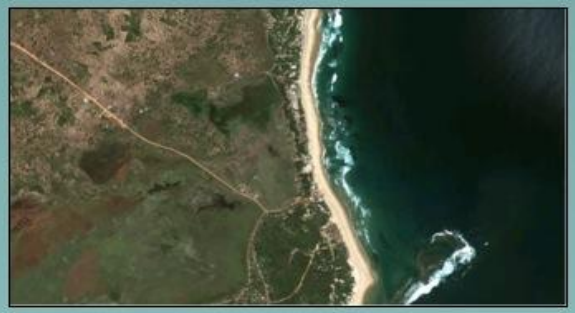
Likely Climate Change Impacts

- Likely be subject to inundation with rising sea levels. This is largely due to the fact that it is a low lying sandy plain with a narrow (largely natural) coastal buffer between the shoreline and the rural settlements dotted along the coast.

Problem Summary

- Low lying coastal plain adjacent to Matire beach. Highly susceptible to inundation and coastal erosion due to location of community within transient sand dune system. High reliance on agriculture and fishing with severe coconut tree mortality also an issue. Previous relocation effort in 2003 was ad-hoc and ineffective as the community continue to reside in an extremely vulnerable area with households that have low resilience.

Shiane (Zavora)



Overriding Management Goal: Exposure of the built environment & ecosystems and livelihoods

Recommended options (with indicative costs and timings)

	Timing	Cost
1. Managed realignment	X	X
2. Fisheries best practice, marine protected areas, sustainable ecotourism	X	X
3. Coastal protection structures		
Offshore breakwaters	X	X
Seawall	X	X
Gabions	X	X
5. Dune management Fencing, planting, revegetation, terracing, signage	X	X

Timing			Cost		
0-1 years	1-10 years	>10 years	>$50,000	>$10,000	<$10,000

Physical Setting

- High energy relatively exposed open ocean sandy coasts. Some patches of rock observed in the intertidal zone and an area of exposed reef offshore to the south
- Strong sea breeze system with south to north direction of alongshore drift
- High, bare dune faces to the south subject to mass slippage and inland retreat
- Foredune further south subject to scarping
- To the north extensive dune field shows evidence of currently active and dormant blow-out systems

Coastal Landuse

- Low population density with concentration of touristic dwellings in area adjacent to coastline
- Private homes in secondary dune area and indigenous villages are relatively small and dispersed in the area along the unsurfaced access road and the main turn off from Inharrime
- Shiane itself is located approximately 2km landward of the coast

Livelihoods

- Coconut plantation and other small scale subsistence farming appears to exist within the less 'swampy' areas landward of the coastal buffer. In the 100m adjacent to the shoreline the majority of livelihoods are associated with the tourism industry (e.g. employees at Zavora lodge, diving enterprises, whale watching etc.) and subsistence fishing.
- In the village of Shiane itself the main livelihoods are reported to be rain fed agriculture and artisanal fishing

Community Structure

- Population of 2056 people largely living in coconut tree leave houses that are extremely prone to cyclone damage. The settlement of Shiane is located along the access road to the Zavora beach

Baseline Problem (from a physical coastal perspective)

- Shoreline erosion
- Inadequate/unrestricted beach access
- Lack of beach services
- Unplanned/illegal development on sandy dunes and exposure of historic development (circa 1950's) due to ongoing erosion of foreshore.
- Poor access via unsurfaced road

Likely Climate Change Impacts

- Erosion of infrastructure (private residencies, tourist lodgings & facilities and boat access/pedestrian access points)
- Damage and destruction of dune ecosystem (coral reef and associated protective function/diving amenity; manta ray, whale, turtle and fish populations)
- Decreased beach recreational value
- Decrease in viability of subsistence fisheries

Problem Summary

- Continued pressure on infrastructure including residential/tourist accommodation within the coastal buffer. Coastal road under threat.

Annex 6. Capacity assessment scorecard methodology and results

Background & methodology

As part of the Project Preparation Grant Phase of the GEF Project "Adaptation of the Coastal Zone in Mozambique" (Project ID: 4062) focused on local level climate change adaptation (CCA) capacities, the Capacity Development Practice in UNDPs Regional Service Centre for Eastern and Southern Africa in Johannesburg developed a scorecard to assess relevant with three local communities along Mozambique's coast line.

Methodologically, the scorecard is based on UNDPs approach to Capacity Assessment[34], and takes the form of a self assessment questionnaire. The scorecard focuses on the strengths, challenges and priorities as perceived by the group of respondents, by asking these to define: i) their perception of the current level of capacity in their organization; ii) their desired level of capacity in their organization within the project timeframe; and iii) the priority given to each capacity.

The scorecard was designed by the CD Practice in Johannesburg and tested and adapted during field work in Pemba, Mozambique. After the adaptation the scorecard was replicated in two additional sites in Mozambique, Pebane and Závora. As a triangulation mechanism, qualitative open-ended interviews were conducted with senior/management level personnel from the organizations participating in the self-assessment.

Province	Institutions
Cabo Delgado (Pemba)	National Institute for Disaster Management (INGC) - Provincial Delegation
	Maritime Administration
	Provincial Directorate for the Coordination of Environmental Affairs
Zambézia(Quelimane)	National Directorate of Hidrography and Navigation – Provincial Delegation
	National Institute of Meteorology – Provincial Directorate
	Provincial Directorate for the Coordination of Environmental Affairs
	Maritime Administration
Inhambane	Red Cross
	Provincial Directorate for the Coordination of Environmental Affairs
	Maritime Administration
	Provincial Directorate of Agriculture

[34] See: www.undp.org/capacity for Capacity Development and Capacity Assessment practice notes.

List of Institutions, number of people and departments assessed

		Department[1]			
		Directorate	Technical	Administrative	Total
Institutions	INGC_Pemba	0	5	7	12
	ADMAR Pemba	1	5	1	7
	DPCAA Pemba	1	6	2	9
	INAHINA Quelimane	0	4	0	4
	INAM Quelimane	1	3	0	4
	DPCAZ Quelimane	0	5	6	11
	ADMAR Quelimane	0	4	7	11
	DPCAA Inhambane	0	3	1	4
	ADMAR Inhambane	0	4	1	5
	DPA Inhambane	0	5	4	9
Total		**3**	**44**	**29**	**76**

[1] Interviewees were coded according to the department they were attached and not specifically to the sector they worked on. For example, the directorate department corresponds to the institution leader; the technical department corresponds to all interviewees working in any technical sector and the administrative department encompasses all sectors that provide support to the normal activities of the institution assessed

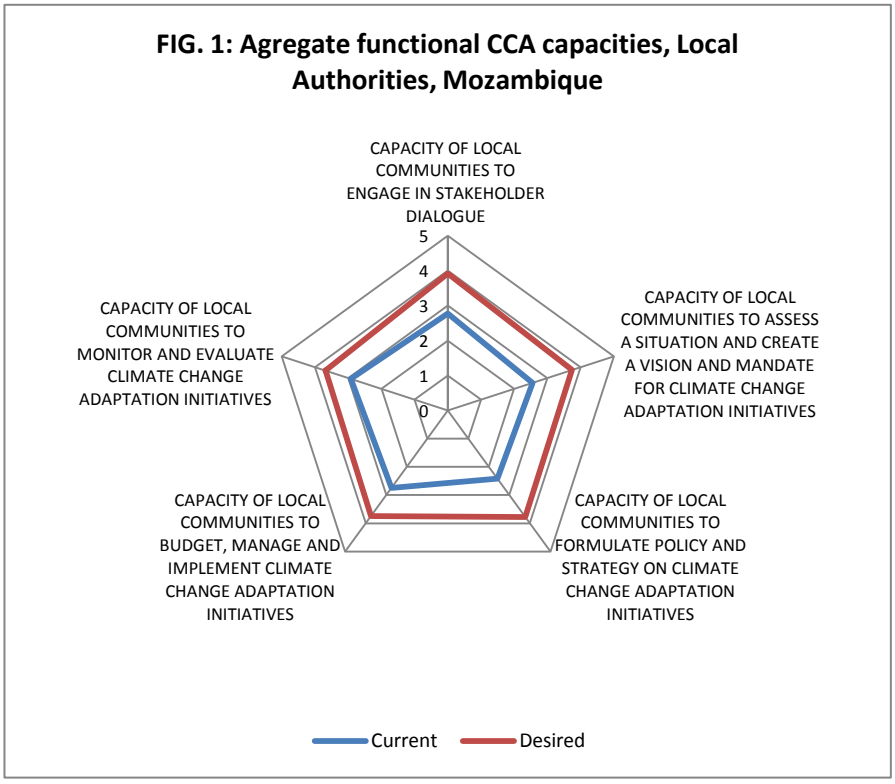
Dimensions of the scorecard

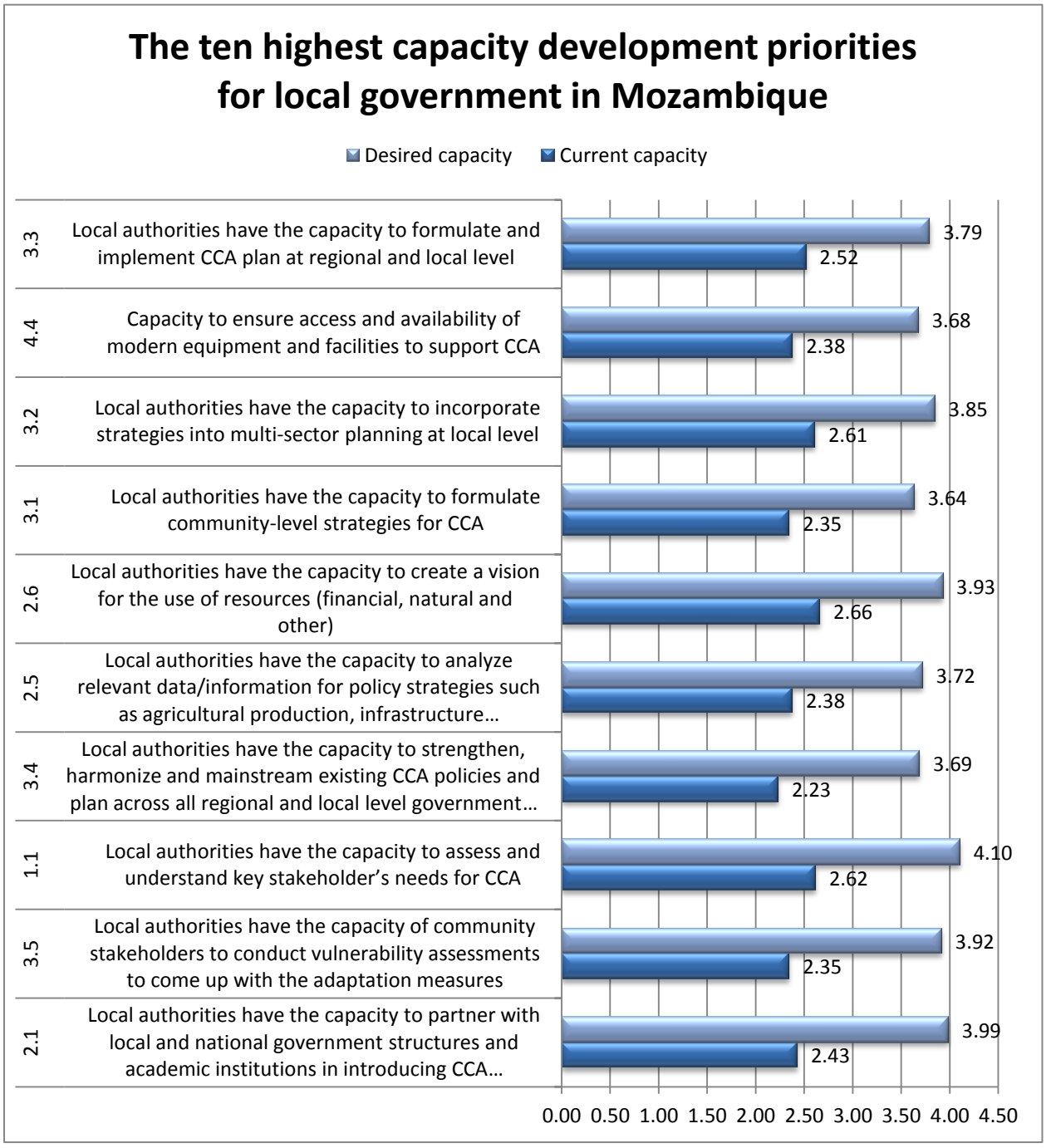
The scorecard looks at five different dimensions of the functional capacities of local authorities related to CCA. It was designed with the project formulation phase in mind and took into account other assessments also supporting the project formulation, including a community vulnerability assessment that takes individual, household and community levels into account. Focused primarily on the project's Outcome 1: *Coastal climate change risks integrated into key decision-making processes at the local, sub-national and national levels*. and focused on functional capacities for CCA among local authorities, namely: i) the capacity of local communities to engage in stakeholder dialogue; ii) the capacity of local communities to assess a situation and create a vision and mandate for climate change adaptation initiatives; iii) the capacity of local communities to formulate policy and strategy on climate change adaptation initiatives; iv) the capacities of local communities to budget, manage and implement climate change adaptation initiatives; and v) the capacity of local communities to monitor and evaluate climate change adaptation initiatives. Each functional capacity area has a series of sub-indicators, 43 in total.

RESULTS

Overall, the assessment tool revealed the largest gaps between current and desired capacities in the dimensions related to policy formulation and situation assessment, and smaller gaps in M&E, stakeholder engagement and budgeting and implementation (see figure 1).

FIG. 1: Agregate functional CCA capacities, Local Authorities, Mozambique




The ten highest capacity development priorities for local government in Mozambique
Desired capacity
Current capacity
3.3
Local authorities have the capacity to formulate and implement CCA plan at regional and local level
3.79
2.52
4.4
Capacity to ensure access and availability of modern equipment and facilities to support CCA
3.68
2.38
3.2
Local authorities have the capacity to incorporate strategies into multi-sector planning at local level
3.85
2.61
3.1
Local authorities have the capacity to formulate community-level strategies for CCA
3.64
2.35
2.6
Local authorities have the capacity to create a vision for the use of resources (financial, natural and other)
3.93
2.66
2.5
Local authorities have the capacity to analyze relevant data/information for policy strategies such as agricultural production, infrastructure…
3.72
2.38
3.4
Local authorities have the capacity to strengthen, harmonize and mainstream existing CCA policies and plan across all regional and local level government…
3.69
2.23
1.1
Local authorities have the capacity to assess and understand key stakeholder's needs for CCA
4.10
2.62
3.5
Local authorities have the capacity of community stakeholders to conduct vulnerability assessments to come up with the adaptation measures
3.92
2.35
2.1
Local authorities have the capacity to partner with local and national government structures and academic institutions in introducing CCA…
3.99
2.43
0.00 0.50 1.00 1.50 2.00 2.50 3.00 3.50 4.00 4.50

To establish the baseline capacity stakeholders are asked to score their understanding of the existing capacity, where they would like to move the capacity to in the project timeframe, and how they would prioritize each capacity.

The scoring scale used is:

1 No evidence of capacity

Anecdotal evidence of capacity

Partially developed capacity

Widespread, but not comprehensive capacity

Fully developed capacity

CAPACITY OF LOCAL COMMUNITIES TO ENGAGE IN STAKEHOLDER DIALOGUE							
Capacity Indicator	Baseline: Level of Existing Capacity					Target level of Capacity in the project timeframe	Priority of Capacity (h/m/l)
	1	2	3	4	5		
Capacity to Identify key stakeholders at all levels, e.g. (local research institutions, academia, NGOs, Local government units, farmer's organizations / cooperators, and private institutions)							
Capacity to facilitate discussions among stakeholders to formulate local level CCA strategies and interventions							
Capacity to mobilize resources for CCA in priority sectors							
Capacity to form partnerships with key stakeholders to ensure effective delivery of agricultural support services and other CC-affected sectors							
Capacity to leverage CCA expertise (e.g. know-how, experience, etc)							
Capacity to assess and understand key stakeholder's needs for CCA							
Capacity to enable a free flow of information in local language(e.g. generate, and provide access to data and information to partners and other users)							
Capacity to link key stakeholders in the community and develop CCA networks							
Capacity to undertake the process of preparing climate adaptation plans and strategies at community level							
Capacity to foster community ownership of adaptation programmes							

CAPACITY OF LOCAL COMMUNITIES TO ASSESS A SITUATION AND CREATE A VISION AND MANDATE FOR CLIMATE CHANGE ADAPTATION INITIATIVES							
Capacity Indicator	Baseline: Level of Existing Capacity					Target level of Capacity in the project timeframe	Priority of Capacity (h/m/l)
	1	2	3	4	5		
Capacity to fully understand impacts of climate change on food security (e.g., on fisheries , crop production, soil and water resources, livestock, etc)							
Capacity to access and utilize the existing indigenous practices and technologies on CCA							
Capacity to partner with local and national government structures and academic institutions in introducing CCA technologies for local livelihoods							
Capacity to document existing regional and local CCA practices							
Capacity to establish and sustain mechanisms to raise awareness on CCA							
Capacity to project short and long term CCA needs in support to resource planning and provision of support services							
Capacity to analyze relevant data/information for policy strategies such as agricultural production, infrastructure development, credit, insurance and marketing							
Capacity to create a vision for the use of resources (financial, natural and other)							
Capacity to communicate the community's vision and values for CCA							
Capacity to assess knowledge and training, skills, development needs of community members on CCA							

CAPACITY OF LOCAL COMMUNITIES TO FOMULATE POLICY AND STRATEGY ON CLIMATE CHANGE ADAPTATION INITIATIVES							
Capacity Indicator	Baseline: Level of Existing Capacity					Target level of Capacity in the project timeframe	Priority of Capacity (h/m/l)
	1	2	3	4	5		
Capacity to formulate community-level strategies for CCA							
Capacity to incorporate strategies into multi-sector planning at local level							
Capacity to formulate and implement CCA plan at regional and local level							
Capacity to strengthen, harmonize and mainstream existing CCA policies and plan across all regional and local level government units							
Capacity of community stakeholders to conduct vulnerability assessments to come up with the adaptation measures							

CAPACITY OF LOCAL COMMUNITIES TO BUDGET, MANAGE AND IMPLEMENT CLIMATE CHANGE ADAPTATION INITIATIVES							
Capacity Indicator	Baseline: Level of Existing Capacity					Target level of Capacity in the project timeframe	Priority of Capacity (h/m/l)
	1	2	3	4	5		
Local government capacity to allocate and modify resources for CCA in existing budget							
Capacity to identify and access potential funding and financing institutions to support CCA initiatives							
Capacity to collaborate with partners on CCA for agricultural and other technology development							
Capacity to ensure access and availability of modern equipment and facilities to support CCA							
Capacity to develop and mainstream a CCA knowledge management system to share relevant reports and updated data							

CAPACITY OF LOCAL COMMUNITIES TO MONITOR AND EVALUATE CLIMATE CHANGE ADAPTATION INITIATIVES							
Capacity Indicator	Baseline: Level of Existing Capacity					Target level of Capacity in the project timeframe	Priority of Capacity (h/m/l)
	1	2	3	4	5		
Capacity to monitor the implementation of CCA initiatives at community level							
Capacity to evaluate results of CCA initiatives at community level							
Capacity to develop criteria on good practices in CCA							
Capacity to evaluate and monitor the impacts of good practices to local level livelihood							
Capacity to introduce transparent feedback mechanisms on the status of CCA programs and their impacts on designated beneficiaries and affected communities							
Capacity to develop tools for monitoring and evaluation of available data on CCA							
Capacity to introduce mechanisms to monitor action plans							

Annex 7. Summary of Vulnerability and Capacity Assessment results

COMMUNITY #1: CHUIBA (Pemba)

The priority resilience-building interventions identified by the community as needed are as follows, ranked by order of importance by the community:

Establish a local Fund for Adaptation to support the transition towards climate-delinked and resilient livelihoods (administered as a MICRO-LOANS PROGRAM by a microfinance bank).

Potential microfinance bank candidate/strongest presence in Pemba: First Bank, Agency of Agha Khan Foundation.

Attraction: a strong microfinance bank with strong local presence and capability to administer funds and design tailored loan products to individual/group clients at basic village-level; Liability: not a local organization: Swiss microfinance bank headquartered in Geneva with branches in rural areas all over the world.

Such a fund, through the loans it will provide, will act to reduce the dependence of the inhabitants of Chuiba on climate factors and accompany them as they invest in more climate-resilient livelihoods (business, crafts, industrial agriculture), while ensuring sustainability since a local bank in charge of administering the initial fund contributed by this GEF project, will continue to provide loans as needed by the inhabitants

The concept is that of: Using Microfinance to fund alternative livelihoods in Chuiba, towards sustainable development.

Professional Associations development support:

- Support with activities/strategic plan development, individual/group business plan development, rendering the association and its interest-based members marketable to microfinance banks
- Vocational Training of Association members and certification classes as needed (for vocational associations: carpenters, masons, etc.)
- Meet any other needs identified as barriers to developing and obtaining loans by Association members

Identification/mapping of Climate risks and Risk awareness raising campaign

Explaining and disseminating the « importance of good relations with the sea »

Replant trees along the coast

- NB: Sea Wall not identified as a priority intervention by the community of Chuiba. Interesting insight from the community chief: « The advance of the sea is God's action : the only thing we can do is learn to live with this change. If you build a wall, the sea will take it too ». – very wise words.

Adaptation of agricultural practices: Provision of Heat resistant cassava seeds & agricultural extension services to find adapted crops/growing practices

Build water storage/retention reservoirs (support to pumping of water from wells to fields + elimination of mosquito vectors proliferation sites)

Table: Priority Adaptation measures in Chuiba community can implement on its own vs. ones for which external intervention needed

Hazard:	*Priority Adaptation Measures in Chuiba* *That Community can Implemented on its own using local capacities and resources:*	*Priority Adaptation Measures* *For which External support is necessary* *(Potential Priority Activities of UNDP-GEF Adaptation Project)*
Drought	1) Pump water from wells to the fields 2) Rent agricultural machinery (tractors) for use during the rainy season, buy seeds 3) Develop a non-climate dependent business slowly and grow it over time (women) 4) Buy equipment to practice craft (carpenter, mason, locksmith, etc.) and receive certification of aptitude at practice (youth) 5) Develop professional-based associations, by group of economic activity 6) Move inland where soils are more fertile	1) Water storage/retention reservoirs (support to pumping of water from wells to fields) 2) Establish a local Fund for Adaptation to support the transition towards climate-delinked and resilient livelihoods (administered as a MICRO-LOANS PROGRAM by a microfinance bank). 3) Professional Associations development support & Training/certification
KUSSI (strong winds accompanied by rains)	7) Build a cement house with zinc roof (3x) NB: Project Indicator: when livelihoods will be improved, they will build better hoises. Establish baseline of number of houses built with mud/wood and number made of cement/zinc, and compare against same metric at the end of project. 8) Plant cashew trees as source of alternative livelihood when cassava harvest is destroyed 9) Buy stronger fishing material (nets, boat): fishermen will do that using the loans made available by the project. 10) Open store to sell supplies from Pemba (oil, rice, etc.) x3	

	11) Teach swimming to women and children	
ILLNESSES (malaria)	12) Replace water storage ponds with water retention reservoirs.	
Coastal erosion Tidal invasion (future risk)	13) Stop cutting trees	4) Risk identification and awareness raising campaigns on the « importance of good relations with the sea » 5) Replant trees along the coast
Soils no longer fertile	14) Move inland for cropping (« investing in this soil is a waste of time »- village elder) Note: this is a decision the Agriculturalists Association will have to make however.	
Higher TEMPERATURES	15) Build wooden shade to cover/protect cultures from sun 16) Move inland/Find croplands better suited for agriculture	6) Adaptation of agricultural practices: Heat resistant cassava seeds & Provision and agricultural extension services to find adapted crops/growing practices;

COMMUNITY #2: PAQUITE (Pemba)

The priority resilience-building interventions identified by the community as needed are as follows, ranked by order of importance by the community:

Build sea wall

Provide initial organizational/association development support for the new "Association for the Development of Paquite" to be able to sustain itself (concrete activities that the project can provide):

Organization development support: definition of ToRs of the organization, mandate, representation, mission plan and vision for the sustainable development of the community

Training on how to capture external bilateral and international finance to implement their community strategy (including CCA finance)

CC risks awareness-raising campaigns, and establishment of a multi climate risk monitoring system

Strengthen linkages between financially autonomous capacitated CBO and Municipality for increased accountability of Municipality.

Training on how to plant mangroves as a means to reduce coastal erosion (potential employment opportunity for unemployed youth) (Provincial Department of Environmental Coordination-MICOA)

Dig public latrines (Municipality of Pemba)

Develop CC risk profiles to inform urban plan, notably knowledge of risks related to sea level rise and coastal erosion (Provincial Departments of Environmental Coordination-MICOA and Hydrology-INAHINA)

Establish a Sea Level Rise Surveillance/Monitoring System

Support with enforcement of newly developed urban plan through risk awareness-raising programs + in-kind support to irregular residents who need to destroy parts of their homes and rebuild according to safety standards (Municipality of Pemba)

Make available opportunities for training in non CC-sensitive livelihoods (construction work, seamstress, shoemaker, etc.)

Zinc roof for families living on the heights to build more resilient houses against KUSSI (strong wind events) (families will purchase on their own when income levels raised)

Dig a new canal to tackle of issue of stagnant waters (Municipality of Pemba)

Provide all accompanying conditions for resettlement of populations at risk from sea level rise to safer grounds (Municipality of Pemba)

CC hazard	*Priority Adaptation Measures in Chuiba* *That Community can Implemented on its own using local capacities and resources:*	*Priority Adaptation Measures* *For which External support is necessary* *(Potential Priority Activities of UNDP-GEF Adaptation Project)*
Coastal erosion	Plant trees: casuarinas, mangroves	Training needed on how to plant mangroves (potential employment opportunity for unemployed youth)
Sea advance into the neighborhood	Elevate vulnerable assets in the house (fridge, TV, etc) before high tide intrusion Raise ducks not chickens (« ducks can swim and just take a bath when the sea invades »- older woman) Resttle to safer grounds	Build sea wall Establish a Sea Level Rise (SLR) Surveillance and Monitoring System Provide all accompanying conditions for resettlement
Kussi (strong winds)	Rebuild house with a Zinc roof == Households will buy more resilient construction materials on their own when incomes increase	
Strong rains	Rehabilitate and maintain obstructed canal == Community will do this within the auspices of the new Association for the development of Paquite	Provide assistance with association development Dig a new canal to take care of problem of stagnant waters (Municipality's responsibility)
Irregular houses	Develop an informed urban plan for Paquite, == Again, community can do this on its own, within the auspices of the new Association for the development of Paquite. This plan can be developed by the *bairro* leadership and constituents, in close partnership with Municipality of Pemba	Develop CC risk profiles to inform urban plan development, notably knowledge of risks related to sea level rise and coastal erosion Support with enforcement of newly developed urban plan through risk awareness-raising programs + in-kind support to irregular residents who need to destroy parts of their homes and rebuild

		according to safety standards
Sanitation (no public latrines, no drainage canals)	Create a bairro-wide community-based association to take charge of the public challenges facing the people of Paquite : the Association for the Development of Paquite. Decision to establish this organization was made at the Final Community meeting, and momentum and hopes to make this association a reality were high. Such a locally-based and run association would take charge of resolving the challenges of Chuiba, not waiting for the municipality come and solve these issues. It would be a financially autonomous, capable CBO representative of all the residents of Paquite.	Dig public latrines Initial organizational support for the ADP to be able to sustain itself (concrete activities that the project can provide): Organization development support: definition of ToRs, mandate, representation, mission plan and vision for the development of their community Training on how to capture external bilateral and international finance to implement their community strategy (including finance to adapt to CC threats) Training on the CC risks they face, and establishment of a multi climate risk monitoring system Strengthen linkage between financially autonomous capacitated CBO and Municipality for increased accountability
Overall dependence on climate factors for livelihoods and income (commerce and fishing mostly)		Make available opportunities for training in non CC-sensitive livelihoods (construction work, seamstress, shoemaker, etc.)

COMMUNITY #3: CHUIBUABUARE (Pemba)

The VCA Research Team recommends that the most optimal way that the LDCF Project can support the residents of Chuibuabuare to meet their adaptation needs, is through assistance with RESETTLEMENT. Following are the concrete need areas on which the Project can intervene:

Assistance with Resettlement and negotiation with the Municipality for the respect of the rights of the residents of Chuibuabuare informal settlement to similar or better living conditions after resettlement

Risk identification and Awareness raising programs for the recalcitrant Chuibuabuare dwellers explaining the risks of continued living in the area

Replanting of the decimated mangrove at the Chuibuabuare sea borderline, which would also serve to protect the airport atop the hill, a key city asset also at risk of Coastal erosion

Establishment of a Sea-Level Rise Monitoring System at Chuibuabuare beach, to monitor fluctuations in sea level and inform municipal decisions

Support to the Municipality of Pemba with:

CC risks Identification

Erection of non-aedificandi zones unfit for human settlement

Transformation of formerly inhabited swamps into public areas of recreation or sale to touristic investors

Creation of new climate-resilient neighborhoods in Pemba and Resettlement of populations at risk Pemba-wide (Chuibuabuare dwellers included) into these newly constructed resilient neighborhoods. In these new resilient-neighborhoods:

New resilient-home architectural designs are experimented

INGC-Red Cross establish a local committee for Disaster Risk Management

Municipal Risk Awareness Programs are regularly conducted.

COMMUNITY #4: MACUACUANE (Pebane)

The priority resilience-building interventions identified by the community are as follows (rank-ordered):

Facilitate/Enable transition to alternative climate-resilient livelihoods In Macuacuane through the establishment of a local Fund for Adaptation, accompanied with Professional Associations development support

Such a fund, through the micro-loans it will provide to open business, buy equipment, etc., will act to reduce the dependence of the inhabitants of Macuacuane on climate factors for their livelihood and accompany them as they invest in more climate-resilient livelihoods (business, crafts, industrial agriculture), while ensuring sustainability of the process since a local bank in charge of administering the initial fund contributed by this GEF project, will continue to provide loans as needed by the inhabitants .

The concept is that of: Using Microfinance to support transition towards alternative livelihoods in Macuacuane, towards sustainable local development.

Professional Associations development support:

Proposition to create the following organizations (with organizational support from project: training, mutualization, loans):

Association of women artisanal mud pot makers

Association of women cultivators

Cultural association of Women Tufo

Type of support needed:

- Support with strategic plan development, individual/group business plan development, rendering the association and its interest-based members marketable to microfinance banks
- Vocational Training of Association members and certification classes as needed (for vocational associations: carpenters, masons, etc.)
- Local market development and linkages with provincial/national markets
- Meet any other needs identified as barriers to developing and obtaining loans by Association members

Develop and administer cure for dying coconut trees

A major problem identified in Macuacuane was that coconut trees are dying the area from a virus that infects the fruits (makes them turn yellow) then kills the entire tree.

Coconut trees are reservoir of nutrition, knowledge and cultural identity for the local community. Planted during the colonial times by a Portuguese company named Borrore that imported them from Indonesia, the coconuts have since thrived and defined the landscape of the area where Macuacuane sits.

The idea is to work, in conjunction with the Agriculture extension services, to develop and administer a cure for these trees.

Implementation partner: Ministry of Agriculture extension service.

Plant trees along the coastline to thwart Coastal erosion and break the force of Cyclones/strong winds before they make landfall on the community

Develop tree nursery with seeds

Employ the residents of Macuacuane to plant the trees, training them tree planting techniques (very important to the local population)

This has a double benefit of protecting the community against erosion (sea level advance) as well as cyclones, breaking their intensity before they make landfall on the community.

The population of Macuacuane is able to replant the trees on its own. It merely needs support to buy the seeds, as well as training on appropriate planting techniques. Replanting the trees by themselves was highlighted as being an act of great value for the population native to Macucuane because: 1) firstly it will represent a meaningful source of employment (and skills they can then recycle to other uses); 2) replanting their own trees that were eaten by advancing seas and later being able to claim that "we planted the trees you see there" (in the own words of a fisherman at final community meeting) has great value to the community of Macuacuane.

Training on agricultural practices adapted to increased variability (drought/floods)

Develop drought/flood resistant seeds and work with people to find adapted agricultural and fishing practices adapted to increasing variability.

Partners in implementation: Agricultural/fishing extension services

Community Disaster Risk Management support

Provision of multi-risk weather advisories against Kussi (bad weather), cyclones, strong rains, droughts, accompanied with the establishment of community radios where needed

Establishment/equipment of INGC local committees for Disaster Risk Management

Conduct Cyclone preparedness drills and preparedness plan in community

Implementation partners: INGC /Red Cross

Identification/mapping of Climate related risks and hazards

Complemented by the establishment of a Sea Level Rise Monitoring System

Implementation partners: MICOA/INAHINA for implementation.

Hazard:	*Priority Adaptation Measures in Macuacuane* *That Community can Implemented on its own using local capacities and resources:*	*Priority Adaptation Measures* *For which External support is necessary* *(Potential Activities of UNDP-GEF Adaptation Project)*
KUSSI *(strong winds)*	Build stronger, more resilient houses with a solid, zinc roof Concrete LDCF action: Improve the livelihoods of Macuacuane dwellers, then they will build strong houses by themselves. Indicator of project success: Material of construction of house.	1) Develop and administer a cure for the ailing coconut trees 2) Provide accurate Early Warning advisories (for Kussis) 3) Plant trees along the coast to protect against winds
EROSION	Replant trees	3) Plant See wall of lined trees to thwart coastal erosion Develop tree nursery with seeds Employ the residents of Macuacuane to plant the trees/training on planting of trees (very important to the local population)
CYCLONES	Build stronger houses resilient to cyclones	3) Plant See wall of lined trees to protect against cyclones Develop tree nursery with seeds Employ the residents of Macuacuane to plant the trees/training on planting of trees (very important to the local population) 2) Provide accurate Cyclone Early Warning advisories 4) Install Cyclone Preparedness Committee (INGC-Red Cross)
Rains (flooding)	Build stronger houses with a zinc roof resilient against Kussis	5) Facilitate/Enable transition to alternative climate-resilient livelihoods through the establishment of a local Fund for Adaptation, accompanied with Professional Association development support.
Drought	Pray to God for help with the rains, and with His grace survive Secure transportation to go to the fields 45 km away where crop lands are more suitable (community will do this when they have higher incomes) Learn more on capacity of cultures/seeds that resist to droughts	6) Provide training and extension support on agricultural/fishing practices adapted to increasing variability: Develop drought/flood resistant seeds and work with people to find adapted agricultural and fishing practices adapted to increasing variability

COMMUNITY #5: QUICHANGA (Pebane)

Hazard:	*Priority Adaptation Measures in Quichanga* *That Community can Implemented on its own using local capacities and resources:*	*Priority Adaptation Measures* *For which External support is necessary* *(Potential Activities of UNDP-GEF Adaptation Project)*
KUSSI *(strong winds)*	Build stronger, more resilient houses with a solid, zinc roof Concrete LDCF action: Improve the livelihoods of Quichanga dwellers, then they will build strong houses by themselves. Indicator of project success: Material of construction of house.	1) Develop and administer a cure for the ailing coconut trees 2) Provide accurate Early Warning advisories (for Kussis) 3) Plant trees along the coast to protect against winds
EROSION	Replant trees	3) Plant See wall of lined trees to thwart coastal erosion Develop tree nursery with seeds Employ the residents of Quichanga to plant the trees/training on planting of trees (very important to the local population)
CYCLONES	Build stronger houses resilient to cyclones	3) Plant See wall of lined trees to protect against cyclones Develop tree nursery with seeds Employ the residents of Quichanga to plant the trees/training on planting of trees (very important to the local population) 2) Provide accurate Cyclone Early Warning advisories 4) Install Cyclone Preparedness Committee (INGC-Red Cross)
Rains (flooding)	Build stronger houses with a zinc roof resilient against Kussis	5) Facilitate/Enable transition to alternative climate-resilient livelihoods through the establishment of a local Fund for Adaptation, accompanied with Professional

Same needs as Macuacuane, except equip exisiting Local DRM Committee (no need to establish need committee).

Drought	Pray to God for help with the rains, and with His grace survive Secure transportation to go to the fields 45km away where crop lands are more suitable (community will do this when they have higher incomes) Learn more on capacity of cultures/seeds that resist to droughts	Association development support 6) Provide training and extension support on agricultural/fishing practices adapted to increasing variability: Develop drought/flood resistant seeds and work with people to find adapted agricultural and fishing practices adapted to increasing variability

COMMUNITY #6: MALAUA/PORTO (Pebane)

The priority resilience-building interventions identified by the community are as follows (rank-ordered):

Facilitate/Enable transition to alternative climate-resilient livelihoods through the establishment of a local Fund for Adaptation, accompanied with Professional Associations development support

Such a fund, through the micro-loans it will provide to scale up petty commerce businesses, buy fishing gear and equipment, fridges for cold produce storage, etc., will act to reduce the dependence of the inhabitants of Malaua on climate factors for their livelihood and accompany them as they invest in more climate-resilient livelihoods (business, crafts, industrial agriculture and fishing), while ensuring sustainability of the process since a local bank in charge of administering the initial fund contributed by this GEF project, will continue to provide loans as needed by the inhabitants .

Professional Associations development support:

Proposition to create the following organizations (with organizational support from project)

Association of artisan women that make mattress

Association of women that make Nhoca/Macubar (Coconut tree leaves to cover the roof)

Association of knitting women

Association of women mud pottery

Association of business women

Type of support needed:

- Support with strategic plan development, individual/group business plan development, rendering the association and its interest-based members marketable to microfinance banks
- Vocational Training of Association members and certification classes as needed (for vocational associations: carpenters, masons, etc.)
- Industry market development
- Meet any other needs identified as barriers to developing and obtaining loans by Association members

Identification/mapping of Climate risks and Risk awareness raising campaign

Production of CC risk profiles and establishment of a Sea Level Rise Monitoring/surveillance system

Implementation partner: MICOA- Ministry for Coordination of Environmental Actions and INAHINA-Hydrology provincial Departments.

Replant trees along the coast

Develop tree nursery with seeds and regenerate mangrove)

Employ the residents of Malaua to plant the trees, training them tree planting techniques (very important to the local population)

This has a double benefit of protecting the community against erosion (sea level advance) as well as cyclones, breaking their intensity before they make landfall on the community, and providing much needed alternative livelihoods in the community.

The population of Malaua is able to replant the trees on its own, under the auspices of the Association for the Defense of the Environment in Pebane, which runs activities in Malua. The community merely needs support to buy the seeds, as well as training on appropriate planting techniques.

Implementation partner: Ministry of Agriculture/Forestry provincial Department.

Adaptation of agricultural practices: Provision of Heat resistant cassava seeds & agricultural extension services to find adapted crops/growing practices

Develop drought/flood resistant seeds and work with people to find adapted agricultural and fishing practices adapted to increasing variability

Partners in implementation: Agricultural/fishing extension services

Climate information (advisories) & Community Disaster Risk Management support

Provision of multi-risk climate advisories (strong winds, cyclones, strong rains, droughts), and establishment of community radios where needed

Establishment and equipment of an INGC local committee for Disaster Risk Management in Malaua

Conduct Cyclone preparedness drills and local means of adaptation

Hazard	*Priority Adaptation Measures in Malaua* *That Community can Implemented on its own using local capacities and resources*	*Priority Adaptation Measures* *For which External support is necessary* *(Potential Activities of UNDP-GEF Adaptation Project)*
Coastal Erosion	Plant trees	Provide training on tree planting techniques
	- working with the Association for the Defense of Environment of Pebane	Develop a tree nursery
	Avoid cutting trees, sand deposits	Awareness-raising program on CC risks
Cyclone (frequent)		Build a stronger resistent house with zinc roof (2)
		Provide funding to buy fishing gear and equipment (eg : community fridges)
	Create a new association (2)	New water pumps
	Mangrove regeneration (3)	Provide training on mangrove regeneration techniques
		Provide an adaptation fund / District Development Fund (3)
	Store agricultural products in sacks (food Storage)	More accurate cyclone advisories
Kussi	Build a stronger house with a good cieling – will do on their own when incomes higher	Weather advisories (DRM)
		Support to buy nets
Drought		Reservoir to store water for irrigation

Strong rains (soil erosion, floods)	Build a stronger resistent house with zinc roof	Open drainage ways / pave

COMMUNITY #7: SIHANE / ZAVORA BEACH (Inharrime)

The priority resilience-building interventions identified by the community are as follows (rank-ordered):

Establishment of a Local Fund for Adaptation, providing loans to local Professional Associations, with Association and Business Development Support

Such a fund, through the loans it will provide, will act to reduce the dependence of the inhabitants of Sihane on climate factors and accompany them as they invest in more climate-resilient livelihoods (business, crafts, industrial agriculture), while ensuring sustainability since a local micro-finance bank in charge of administering the initial fund contributed by this GEF project, will continue to provide loans as needed by the inhabitants

The concept is that of: Using Microfinance to fund alternative livelihoods in Sihane, towards sustainable development.

Loans to local associations in Sihane will be used to:

Increase agricultural yields/buy independence from fluctuating rains (for women/men agriculturalists and fishermen):

Water pumps to irrigate fields

Shift to industrial agriculture by buying tractors, ploughs, etc., and industrial fishing for fishermen by buying stronger nets, motorized boats, etc.

Buy/produce drought-resilient seeds

Develop/scale-up commercial activities and begin alternative livelihoods (for women and youth). Seed funding needed to:

Buy more animals to scale up animal ranching activity (women)

Buy supplies and open store selling supplies from the city (youth)

Accompanied by Professional Association and Business Development support:

- Support with associational development support: vision/strategic plan development, individual/group business plan development, rendering the association and its interest-based members marketable to microfinance banks
- Business development support, Training of Association members and certification classes as needed

- Market development and linkages support

Tailored Agricultural extension services package to master/access agricultural techniques adapted to drought

With provision of:

Drought resilient seeds

Training on agricultural techniques adapted to dry conditions for sustainable adoption

Development of water harvesting and management techniques for irrigation (construction of water pumps, rain water storage basins, water reservoir, etc.)

Provision of tailored climate information and agro-meteorological advices to community

Monitoring of progress/adoption levels throughout project, and identification of uptake obstacles

Dissemination of adapted practices to other neighboring for communities for replication/duplication

Disaster Risk Management Support and Weather Advisories for cyclones and strong winds for fishermen (early warnings)

Establishment of a local Disaster Risk Management Committee, in partnership with INGC/Red Cross, and provision of early warning information.

Replant trees and grass (vegetation propitious to reduce coastal erosion) along the sea

Employ the people of Sihane to replant the trees, with training on tree/mangrove planting techniques (source of employment for them)

Hazard:	*Priority Adaptation Measures in Sihane* *That Community can Implemented on its own using local capacities and resources:*	*Priority Adaptation Measures* *For which External support is necessary* *(Potential Activities of UNDP-GEF Adaptation Project)*
DROUGHT	Plant drought-resilient crops to adapt to drier conditions	1) Employment Communities all across target sites are shouting out loud: “We need employment! Give us jobs, we will become resilient”. Systematic 1st solution identified by all communities surveyed: empower us/our local organizations to engage in alternative

		livelihoods/generate employment, and we shall become resilient/stronger". Loans to local associations to increase agricultural yields (for women and men agriculturalists), Loans to transition to provide seed funding to begin alternative livelihood (for Youth) Accompanied by market development support, training and association development for al groups. 2) Agricultural extension services to master/access agricultural techniques adapted to drought 3) Water harvesting and management techniques for irrigation: Have water pumps (28); Have a big tank/Reservoir to store rain water (3) ; Build a water reservoir (15)
EROSION	Ask the spirit of the Ocean, in traditional offering ceremony, to spare the community and appease it Replant propitious vegetation along the coast/ Learn tree planting techniques Set a wall (3), the government must sit and think of a better way or methods to do (2) Sea Wall not confirmed as a solution during final meeting: cognitive/local understanding of the unstoppable force of the ocean. If wall built, ocean would take that too.	4) Plant trees and grass (vegetation propitious to reduce coastal erosion) along the sea (16) IMPT: Employ the people of Sihane to replant the trees (source of employment for them)
CYCLONES	Build stronger houses- *will do when incomes increase*	5) Weather advisories for Cyclones and strong winds (malo tiempo) for fishermen (Early Warning advisories)

		Install Local DRM Committee (INGC-Red Cross)
Strong winds (mal tempo)	Zinc reinforced roof (31)	
Low soil productivity		2) Agricultural extension

Annex 8. TOR for key project groups, staff and specialists

A. Project Board

The Project Board is responsible for making management decisions for a project in particular when guidance is required by the Project Manager. The Project Board plays a critical role in project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It ensures that required resources are committed and arbitrates on any conflicts within the project or negotiates a solution to any problems with external bodies. In addition, it approves the appointment and responsibilities of the Project Manager and any delegation of its Project Assurance responsibilities. Based on the approved Annual WorkPlan, the Project Board can also consider and approve the quarterly plans (if applicable) and also approve any essential deviations from the original plans.

The Project Board (PB) shall comprise national and sub-national representatives to guide and oversee the project. The PB will be housed within MICOA and chaired by the MICOA Director of National Directorate for Environmental Management (DNGA). The PB will convene annually to discuss project progress and approve annual workplans. The PB will comprise: MICOA Director DNGA; INGC Director General, UNDP Mozambique Crisis Prevention, Recovery and Environment Unit manager, UNDP Mozambique; Director of National Directorate for the Promotion of Rural Development (DNPDR, MAE); Director of National Directorate of Rural Extension (DNEA, MINAG). It is proposed that UNDP co-chair the PB. The National Project Coordinator (NPC) Officer will be an ex officio member of PB responsible for taking minutes. Potential members of the Project Board are reviewed and recommended for approval during the PAC meeting. Representatives of other stakeholders can be included in the Board as appropriate

The responsibilities of the PB will be to:

- Supervise and approve the annual workplans and short term expert requirements
- Supervise project activities through monitoring progress and approving annual reports
- Review and approve work plans, financial plans and reports
- Provide strategic advice to the implementing institutions to ensure the integration of project activities with national and sub-national sustainable development and climate resilience objectives.
- Ensure inter agency coordination and cross-sectoral dissemination of strategic findings
- Ensure full participation of stakeholders in project activities
- Assist with organization of project reviews and contracting consultancies under technical assistance
- Provide guidance to the Project Manager.

B. National Project Coordinator

The National Project Coordinator will be responsible, on behalf of the MICOA, for the project. The NPC reports to the DG of MICOA and maintains liaison with UNDP. The NPC will be located within the MICOA offices and will be responsible for

- Day-to-day oversight and coordination of implementation of project activities
- Recruitment and supervision of technical and training expertise as required for implementation of the project.
- Developing and maintaining close linkages with relevant sectoral government agencies, UNDP, NGOs, civil society, international organisations and implementing partners of the project.

- Coordinating the project team in carrying out their duties at an optimum level through ensuring efficient and effective resource utilization.
- Coordinating inputs into annual results-based work plans and logical frameworks as endorsed by the management.
- Coordinate the establishment of sub-national project Task Teams.
- Coordinate annual task team meetings for experience sharing and lesson learning/

C. Project Manager

The Project Manager will be recruited and report to the NPC and will lead the project team through the planning and delivery of the Project. The PM will be within MICOA-DNGA and has the authority to run the project on a day-to-day basis on behalf of the Implementing Partner within the constraints laid down by the Board. The Project Manager's prime responsibility is to ensure that the project produces the results specified in the project document, to the required standard of quality and within the specified constraints of time and cost

Specific responsibilities would include:

Overall project management:

Manage the realization of project outputs through activities;

Provide direction and guidance to project team(s)/ responsible party (ies);

Liaise with the Project Board or its appointed Project Assurance roles to assure the overall direction and integrity of the project;

Identify and obtain any support and advice required for the management, planning and control of the project;

Responsible for project administration;

Liaise with any suppliers;

May also perform Team Manager and Project Support roles;

Running a project

Plan the activities of the project and monitor progress against the initial quality criteria.

Mobilize goods and services to initiative activities, including drafting TORs and work specifications;

Monitor events as determined in the Monitoring & Communication Plan, and update the plan as required;

Manage requests for the provision of financial resources by UNDP, using advance of funds, direct payments, or reimbursement using the FACE (Fund Authorization and Certificate of Expenditures);

Monitor financial resources and accounting to ensure accuracy and reliability of financial reports;

Manage and monitor the project risks as initially identified in the Project Brief appraised by the LPAC, submit new risks to the Project Board for consideration and decision on possible actions if required; update the status of these risks by maintaining the Project Risks Log;

Be responsible for managing issues and requests for change by maintaining an Issues Log.

Prepare the Project Quarterly Progress Report (progress against planned activities, update on Risks and Issues, expenditures) and submit the report to the Project Board and Project Assurance;

Prepare the Annual review Report, and submit the report to the Project Board and the Outcome Board;

Based on the review, prepare the AWP for the following year, as well as Quarterly Plans if required.

Closing a Project

Prepare Final Project Review Reports to be submitted to the Project Board and the Outcome Board;

Identify follow-on actions and submit them for consideration to the Project Board;

Manage the transfer of project deliverables, documents, files, equipment and materials to national beneficiaries;

Prepare final CDR/FACE for signature by UNDP and the Implementing Partner.

D. Technical Financial Assistant

One Technical Financial Assistant will report to the PM. He will be contracted by the Project. His/her responsibilities will be to:

- Set up and maintain project files and accounting systems whilst ensuring compatibility with Government and UNDP financial accounting procedures.
- Prepare budget revisions of the project budgets and assist in the preparation of the annual work plans.
- Process payments requests for settlement purposes including quarterly advances to the implementing partners upon joint review.
- Update financial plans, prepare status reports, progress reports and other financial reports.
- 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 consultants by preparing annual recruitment plans.
- Collect and maintain project related information data and establish document control procedures
- Administer Project Board meetings
- Administer project revision control
- Compile, copy and distribute all project reports
- Provide support in the use of Atlas for monitoring and reporting

E. Assistant Project Managers (Provincial level)

In each of the three provincial sites, the task team shall be comprised of an Assistant National Project Manager who will be recruited and paid to manage the project at the Provincial level on a full time basis. They will work closely with all local representatives of Responsible Parties, the Regional Offices of MICOA in the three targeted provinces, staff of district municipalities, community leaders as well as Community based Orgaisations involved in the project activities.

These Assistant National Project Managers will be responsible for managing and coordinating project activities at the project site level including the integrated climate resilient development plans, the implementation of on-the-ground adaptation measures and for facilitating community mobilization. Responsibilities include:

Management

Implement project activities at site level, in coordination with local communities and participating agencies.

Work with site level partners to implement project activities and complement ongoing activities.

Organise and conduct community meetings, local workshops, seminars, and other local project meetings

Manage site-specific feasibility assessments for design of specific activities.

Supervise contractors;

Work with the relevant researchers and technical experts to prepare the integrated climate resilient development plans.

Institutional Development

Assist in formation of farmer/ self help groups as required to organise the farmers training and piloting of adaptation activities.

Assist in formation of community level management committees for management of community natural resources and rangelands.

Monitoring and Reporting

Prepare local work plans, derived from the national workplan complete with measurable targets and milestones.

Prepare monthly, quarterly, and annual work plans for the project activities as required.

Prepare and submit monthly and all other types of progress reports at the site level.

Annex 9. Capacity assessment of the project Implementing Partner: MICOA

Project Title	AFRICA ADAPTATION PROGRAMME		
Name of the Institution	MICOA		
Date of assessment	SEPTEMBER 2009		
INDICATOR	**AREAS FOR ASSESSMENT**	**APPLICABLE DOCUMENTS/TOOLS**	**COMMENTS**
PART I – REFERENCES AND PRELIMINARY CHECKS			
1.1 History and Compliance with International Resolutions/Standards			
1.1.1 History	Date of creation and length in existence Has the institution gone through a recent re-organization/re-structuring?	Annual Reports Media Kit Website	MICOA was created in 1994 with the mandate to i) coordinate the sustainable development process, harmonizing the plans and programmes of all stakeholders in the exploitation, use, protection and management of natural resources; ii) develop appropriate policies and laws that will ensure the sustainability of these resources; and iii) develop public environmental awareness and culture in Mozambique. The first international program in which Mozambique participated related to climate change was carried out in 1994, with the establishment of National Study Programs, which included the inventory of greenhouse gases and studies of the vulnerability of the country to climate change
1.1.2 United Nations Security Council 1267	Is the institution listed in any reference list?	United Nations Security Council 1267 Committee's list of terrorists and terrorist financiers	No
1.1.3 Certification	Is the institution already certified through international standards?	ISO, Project Management standard, other standards	No
PART II. ASSESSING NATIONAL INSTITUTION CAPACITY FOR PROJECT MANAGEMENT			
2.1 Managerial Capacity Ability to plan, monitor and coordinate activities			
Planning, Monitoring & Evaluation	Does the institution produce clear, internally consistent	Well-designed project and programme	MICOA has several programmes undergoing with UNDP as well as

	proposals and intervention frameworks, including detailed workplans? Does the institution hold regular programme or project review meetings? Are there measurable outputs/deliverables in the defined project plans? Was the institution previously exposed to UNDP RBM approach/methodology or equivalent in other donor agencies?	documents Action Plans/Work plans Log frame or equivalent Project reports Evaluation reports Indicators available in project plans Lessons-Learned reports	with bilateral donors, so the ministry has been exposed to development project planning and M&E procedures. The structure of the Ministry includes a Technical Committee and a Consultative Committee where the projects, programmes, strategies, yearly plans (PES) and new laws to be implemented by the Ministry are discussed, approved, and revised. These bodies meet on a regular basis.
2.1.2 Reporting and performance track record	Does the institution monitor progress against well defined indicator and targets, and evaluate its programme/project achievements? Does the institution report to its stakeholders on a regular basis?	Reports to donors and other stakeholders Reporting system	MICOA has regular meetings with the Environment Working Group of donors to coordinate initiatives and report on progress made in joint projects.
2.2 Technical Capacity			
2.2.1 Specialization	Does the institution have the technical skills required? Does the institution have the knowledge needed? Does the institution keep informed about the latest techniques/ competencies/policies/trends in its area of expertise? Does the institution have the skills and competencies that complement those of UNDP?	Publications on activities, specific issues, analytical articles, policies Reports from participation in international, regional, national or local meetings and conferences Tools and methodologies Evaluations and assessments	MICOA is experiencing difficulties in following the adaptation to climate change portfolio due to scarce human resources allocated to this area. For this reason UNDP suggested to include in the AAP proposal includes to reinforce this department with a Chief Technical Advisor.
2.2.2 Ability to monitor the technical aspects of the project.	Does the institution have access to relevant information/resources and experience? Does the institution have useful contacts and networks? Does the institution know how to get baseline data, develop	Evaluations and Assessments Methodologies/training materials Use of toolkits, indicators and benchmarks/capacity-development tools Databases	Yes. Indicators are under development

	indicators? Does it apply effective approaches to reach its targets (i.e participatory methods)?		
2.2.3 Human Resources	Does the institution staff possess adequate expertise and experience? Does the institution use local capacities (financial/human/other resources)? What is the institution capacity to coordinate between its main office and decentralized entities/branches (if relevant)? Have staff been trained on project management methodology?	Profile of staff, including expertise and professional experience Staff turnover Chart of assignments of roles and functions Reports on technical experience from national or international agencies for operations and capacity-building Individual certification on project management such as PRINCE2	The self capacity assessment made by MICOA asserts that one of the major contraints for the Ministry to implement the three conventions is the limited access to higher education, specifically to postgraduate courses relevant to the implementation of environmental conventions. This results in an overall limited skills and sufficient knowledge for the implementation of the conventions. Project management staff related to UNDP's portfolio and based in house at the Ministry have been trained in management methodologies.
PART III. ASSESSING NATIONAL INSTITUTION CAPACITY FOR ADMINISTRATIVE AND FINANCIAL MANAGEMENT			
3.1 Administrative capacity *Ability to provide adequate logistical support and infrastructure*			
3.1.1 Ability to manage and maintain infrastructure and equipment	Does the institution possess logistical infrastructure and equipment? Can the institution manage and maintain equipment?	Adequate logistical infrastructure: office facilities and space, basic equipment, utilities Computer capability and library materials Proper equipment for area of specialization inventory to track property and cost	Yes, and we have companies to assist our equipment and buildings
3.1.2 Ability to procure goods services and works on a transparent and competitive basis.	Does the institution have the ability to procure goods, services and works on a transparent and competitive basis? Does the institution have standard contracts or access to legal counsel to ensure that contracts meet performance standards, protect UNDP and the institution's interests and	Standard contracts Examples of how procurement is done Written procedures for identifying the appropriate vendor, obtaining the best price, and issuing commitments	Yes, because in Mozambique now we apply Decree 54/2005 – Procurement Legal Instrument

	are enforceable? Does the institution have the authority to enter into contracts?		
3.1.3 Ability to recruit and manage the best-qualified personnel on a transparent and competitive basis.	Is the institution able to staff the project and enter into contract with personnel? Does the institution use written job descriptions for consultants or experts?	Standard contracts Job descriptions	Yes, and we use regulations from government
3.2 Financial Capacity *Ability to ensure appropriate management of funds* In addition to the following questions, see also the questionnaire provided in the Guidelines on Micro-assessment of the Framework on Harmonized Approach for Cash Transfer (HACT): **http://www.undg.org/archive_docs/7110-Framework_for_Cash_Transfers_to_Implementing_Partners.doc** (ANNEX 3) The assessment report is reviewed by the UN agencies to select the most suitable cash transfer modality, and establish appropriate cash transfer procedures and assurance activities to be used with the Implementing Partner.			
3.2.1 Financial management and funding resources	Is there a regular budget cycle? Does the institution produce programme and project budgets? What is the maximum amount of money the institution has managed? Does the institution ensure physical security of advances, cash and records? Does the institution disburse funds in a timely and effective manner? Does the institution have procedures on authority, responsibility, monitoring and accountability of handling funds? Does the institution have a record of financial stability and reliability?	Operating budgets and financial reports List of core and non-core donors and years of funding Written procedures ensuring clear records for payable, receivables, stock and inventory Reporting system that tracks all commitments and expenditures against budgets by line	We have budget regulations cycle from state budget and MICOA different sectors produce and plan the budget (4.5 million dollars per year.) To manage the funds now our government introduced new accounting system SISTAFE electronic based and manage all operations from all public institutions.
3.2.2. Accounting System	Does the institution keep good, accurate and informative accounts? Does the institution have the ability to ensure proper	A bank account or bank statements Audited financial statements Good, accurate and	Yes. And the Finance Ministry provide all information about the financial system Sistafe. MICOA have internal inspection to report about administration and

	financial recording and reporting?	informative accounting system Written procedures for processing payments to control the risks through segregation of duties, and transaction recording and reporting	finance
3.2.3. Knowledge of UNDP financial system	Does the institution have staff familiar with Atlas through External Access?	External access provided	Yes. Because now we have projects funded by UNDP

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