ADAPTATION FUND

REGIONAL PROJECT PROPOSAL

PART I: PROJECT INFORMATION

Title of Project/Programme:	**Building urban climate resilience in south-eastern Africa**
Countries:	Madagascar, Malawi, Mozambique and Union of Comoros
Thematic Focal Area:	Disaster risk reduction and early warning systems
Type of Implementing Entity:	Multilateral Implementing Entity
Implementing Entity:	United Nations Human Settlements Programme (UN-Habitat)
Executing Entities:	For regional coordination purposes: Disaster Risk Reduction Unit of the Southern Africa Development Community (SADC), in partnership with DiMSUR: Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience For national level activities: National Government Entities For city level activities: Oxfam International (in cooperation with municipalities, local NGOs and communities) and sub-contractors

Amount of Financing Requested: **US$13,997,423**

Project Background and Context:

i. Introduction: African context of climate change, urbanisation and adaptive capacity

Africa is undergoing rapid urbanisation that will result in almost 1.33 billion people living in cities by 2050, compared to 470 million at present. Although currently Africa's population is mostly rural, the continent will become predominantly urbanised in the next 20 years with an urban population of over 50% by 2036[1]. With a lack of local capacity to manage this rapid urban growth much of the population expansion is taking place outside or in absence of official planning frameworks. A large part of the housing demand is being met by growing informal settlements characterised by poor living conditions, lack of access to basic services and infrastructure, and often located in areas exposed to natural hazards.

Urban areas are generally more vulnerable to risks than rural areas, due to denser populations, concentration of assets and variety of activities within comparatively smaller geographical areas. Urban risks are exacerbated by the increasing severity and unpredictability of disruptive events caused by climate change effects. These events impact a range of sectors from water supply to food and health systems, and disproportionately affect people living with low incomes- especially women and girls, youth, older persons, persons with disabilities, seasonal migrants and other marginalized and vulnerable groups. They also damage infrastructure, interrupt services, cause food scarcity and increase the prevalence of vector and water-borne diseases.

[1] United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision

A direct correlation between poverty and vulnerability to environmental risks is observed. Low-income groups in African cities are often excluded from decision-making, living in a permanent coping state, and have the least resources at their disposal during crisis. Research on African cities has highlighted the lack of capacity and awareness about climate change, combined with high levels of vulnerability among the continent's large and rapidly growing urban poor populations.[2]

Among the urban poor, women and the very young are shown to be the most at risk of disease, pollution and disasters.[3] Women have less control over opportunities and access to information and/or education and, as a consequence, fewer resources to prevent, cope with, and adapt to disaster risks. At the same time, cultural biases and sensitivities often relegate them out of decision-making processes. However, disaster risk management can also offer opportunities by elevating the status of women as agents of change in their communities and by increasing the understanding of gender dimension during disasters.

The impact of climate change is particularly acute in small to intermediate sized cities in Africa as they host the largest share of the urban population (54%), and are projected to be the world's fastest growing urban agglomerations in the decades to come.[4] At the same time, inadequate institutional capacities and weak governance processes are significantly exacerbated by the rapid expansion of both formal and informal urban settlements. Hence, developing local governance capacity in risk management and resilience planning is a key strategy to reduce the multiple risks cities are exposed to and adapt to the adverse effects of climate change.

The Fifth IPCC Assessment Report[5] presents strong evidences that average temperatures in Africa have increased over the last 50-100 years. In particular, the report suggests that climate change has already impacted on the magnitude and frequency of extreme weather events in the continent, thus affecting health, livelihoods and food security of people living with low incomes. Predictions suggest that, given the increase in temperature, the severity of the consequences of climate change on environmental, economic and cultural systems across Africa will increase. The Report also highlights that climate change is one of the main drivers of rural-urban migration.

Rapid urbanisation puts a lot of pressure on governments' policies, increasing the demand for essential services/goods (water, energy, food, etc.) and calling for significant investments in creating jobs and providing infrastructure and services. African cities, in most cases, lack adequate financial resources and capacity to respond to these needs. Across the continent, most adaptation to climate variability and change is reactive, short-term based, implemented at the individual or household level, and is not appropriately supported by government stakeholders and relevant policies.

The impacts of climate change in Africa can be witnessed in disaster losses. While globally the modelled mortality risk associated with floods and tropical cyclones was estimated to have peaked in the year 2000 before trending down, the flood mortality risk in sub-Saharan Africa has grown consistently since 1980 as increasing population exposure has not been accompanied by a commensurate reduction in vulnerability[6], which can be attributed to low levels of adaptive capacity.

---

[2] Revi, A., D.E. Satterthwaite, F. Aragón-Durand, J. Corfee-Morlot, R.B.R. Kiunsi, M. Pelling, D.C. Roberts, and W. Solecki, 2014: Urban areas. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, p. 552

[3] UN-Habitat 2014, The State of African Cities 2014 Report – Re-imagining sustainable urban transitions, p.33

[4] Ibid

[5] Niang, I., O.C. Ruppel, M.A. Abdrabo, A. Essel, C. Lennard, J. Padgham, and P. Urquhart, 2014: Africa. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change; p. 1202

[6] UNISDR, Global Assessment Report on Disaster Risk Reduction, 2015, p. 44

Furthermore, African countries are among the ones with the biggest financing gap for addressing climate vulnerability and are hence severely challenged by rising economic loss. In addition, risks financing is a relatively new concept and still difficult to be applied at scale. Most loss is uninsured and governments do not have the emergency financial reserves or access to contingency financing that would allow them to absorb losses, recover quickly and rebuild. Such disasters also often create fiscal risks and drive major budget volatilities which then negatively impact national economies. For example, while Canada and the United States would only face challenges in absorbing the impact from a 1-in-500-year loss, Madagascar and Mozambique would face difficulties finding the resources to absorb the impact from a 1-in-325-year loss[7], and a significant number of countries would not pass a stress test of their financial capacity to absorb the impact of a 1-in-100-year loss (see Figure 1).

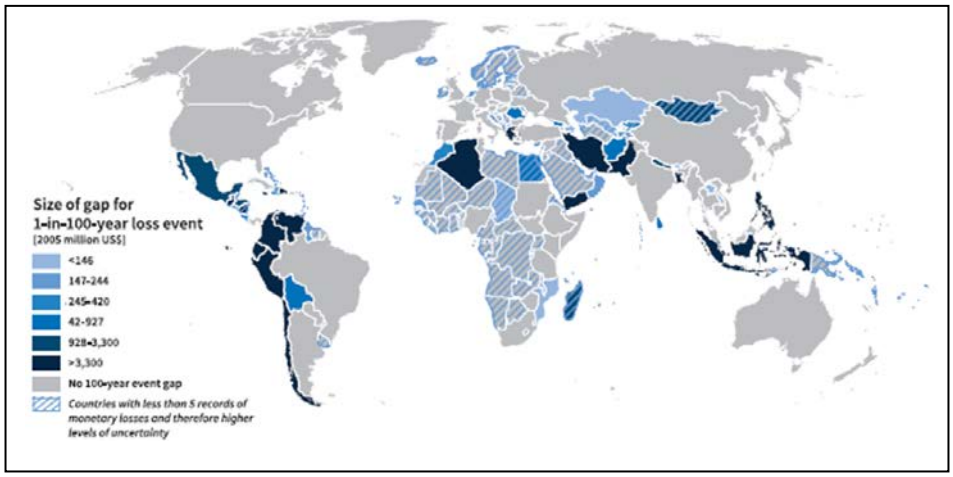


Figure 1: Map of gap size for 1-in-100-year loss event

Multiple uncertainties in the African context mean that successful adaptation will depend on developing resilience in the face of uncertainty.[8] Planning for climate change adaptation requires that urban planning, development and management are focused on producing urban systems that have a greater capacity to absorb shocks and adapt to climate-related impacts, thus ensuring the continuity of the city's key functions. Transport and mobility are essential for evacuation and delivering rapid assistance during disaster response and recovery. In general, good mobility and connectivity in a city are indicators of its capacity to recover quickly and to maintain a certain level of functionality at times of crisis. Street layouts and the correlated drainage networks facilitate water flow in case of flooding, and much depends on land use planning and land management systems. Green areas can provide a space for community gatherings in case of disasters and can also contrast the negative effects of urbanisation, like air pollution. A diversified urban economy can provide people with alternative jobs or sources of incomes so that they can adapt to changing situation without completely undermining their livelihoods.

At times of disaster, impacts and losses can be substantially reduced if authorities, individuals and communities in hazard-prone areas are resilient: well prepared, ready to act and equipped with the knowledge and capacities for effective disaster risk management within a longer-term development perspective. Building adaptive capacity at different levels is essential for ensuring future urban climate resilience. Participation and inclusion are key elements for boosting adaptive capacity at local levels, to help identify the key existing and potential vulnerabilities in specific communities, and to link short-term priorities to long-term plans.

[7] UNISDR, Global Assessment Report on Disaster Risk Reduction, 2015, p. 102, and citations therein

[8] Niang, I., O.C. Ruppel, M.A. Abdrabo, A. Essel, C. Lennard, J. Padgham, and P. Urquhart, 2014: Africa. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change; p. 1126

Yet, despite the fact that urbanisation has progressively taken on a central role in understanding risk and its associated vulnerability, there is a noticeable lack of contextually adapted urban risk reduction and resilience initiatives in sub-Saharan Africa. Existing tools and approaches are not tailored to low capacity local governments in the region, while at the same time tend to be dedicated to a narrow audience. They often heavily rely on outside technical expertise, are too technical, and depend on costly data collection methods- disincentivizing local governments.

The present project will strengthen urban climate resilience by working with various levels of government and stakeholders and ensuring strong participation, in particular, of the most marginalized and vulnerable groups, in all its phases – from conception to evaluation. The main activities will take place in Madagascar, Malawi, Mozambique and the Union of Comoros – all located in the south-eastern part of the African continent, which is a region highly vulnerable to common transboundary extreme climate-related events.

Four cities with different types of vulnerabilities have been selected in these countries to implement pilot climate adaptation projects following a participatory approach, namely: Morondava, Madagascar; Zomba, Malawi; Chokwe, Mozambique; and Moroni, Comoros. These urban settlements were selected in coordination with the national authorities, according to the following criteria: (i) high exposure to climate-related hazards (cyclones, floods, sea level rise or coastal erosion, drought); (ii) low institutional and financial capacity of the municipality (typical situation of a fast growing small/intermediate city of sub-Saharan Africa with a population ranging between 50,000 and 150,000 inhabitants); and (iii) cities in which UN-Habitat has recently engage in implementing risk reduction and resilience building activities.

ii. Sub-regional, country and city perspective

a) Environmental context at the sub-regional and country levels

Southern Africa is highly exposed to recurrent natural hazards such as cyclones, floods, sea level rise/coastal erosion and drought. Based on the Emergency Events Database (EM-DAT), over the last two decades, countries in the southern Africa region have been affected by a number of natural hazards that have led to disasters including: 42 droughts, 66 storms, and 172 floods. These events have resulted in loss of lives and livelihoods and displacement of millions of people. Compounding the effects of these natural hazards are additional threats that exist in this region, some of natural origin (such as earthquakes, volcanic activity) and others induced by anthropogenic interventions, such as land and environmental degradation and uncontrolled urbanisation.

According to projections from the Intergovernmental Panel on Climate Change (IPCC), as a consequence of climate change, risks of drought, especially in south-western sub-regions, will be higher. There is uncertainty concerning projected changes in landfall of tropical cyclones originating in the southwest Indian Ocean, which have led to intense flooding in the last decades. As for precipitation changes in the region, drought and heavy rainfall have been experienced more frequently during the last 30 years. An increase in extreme warm indices (hot days, hot nights, and hottest days) and a decrease in extreme cold indices (cold days and cold nights) in recent decades are consistent with the general warming. Future precipitation projections show changes in the scale of the rainfall probability distribution, indicating that extremes of both sides may become more frequent in the future.[9]

According to the UNISDR Global Assessment Report 2015, with the exception of Small Island Developing States (SIDS), the Philippines and Madagascar are the two countries in the world with the largest proportion of their capital investment at risk as a consequence of tropical cyclones. In the sub-region targeted by the project, Mozambique and the Union of Comoros follow

[9] Ibid., p.1211

Madagascar as the most vulnerable to this type of natural hazard (see Figure 3). While Malawi is affected to a lesser extent, it is impacted through tropical cyclones in the form of severe flooding, similarly as the other three countries. In addition, Madagascar, Comoros and Mozambique have several coastal cities that are likely to be affected by sea level rise resulting from increasingly warmer temperatures.

There is a clear need to enhance inter-country collaboration to mitigate effectively the impact of floods in this sub-region. The hydro-geographical profile of the region shows that nine international river basins flow to Mozambique, among which the Zambezi is the largest one, followed by the Limpopo, Rovuma and Save (see Figure 2). This means that flooding is a regular seasonal phenomenon in that country, and its extent depends on the amount of rainfall registered in the neighbouring countries located upstream. Chokwe, located in the lower Limpopo River basin, was severely flooded in 2000 and 2013, in particular because of the high level of discharges observed upstream.

Figure 2: International river basins in South-East Africa - Atlas for Disaster Preparedness and Response in the Limpopo Basin, INGC, UEM & FEWSNET MIND (2003).

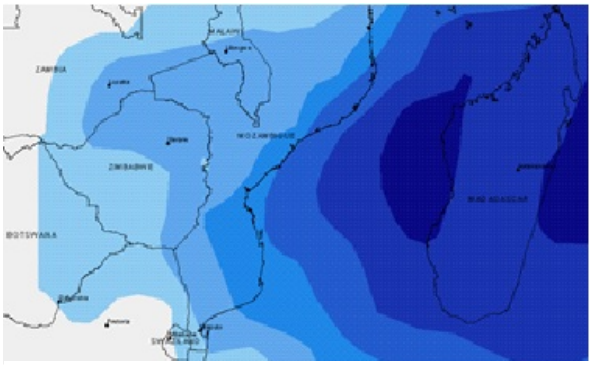


Figure 3: Frequency of cyclone impact in south eastern Africa – Atlas for Disaster Preparedness and Response in the Limpopo Basin, INGC, UEM and FEWS NETMIND (2003).

Drought is another chronic natural disaster in the sub-region. It dramatically increases the vulnerability of an already poor population, particularly in terms of food security and livelihoods. Drought has especially negative effects on women by increasing their daily domestic workload as they spend more time on collecting water or securing food. In urban contexts, micro-informal business activities represent the prevalent source of income; during droughts, availability of food decreases, food prices increase, and purchasing power is lower - increasing the cost of doing business. In addition, limited access to water can cause serious health problems in poor urban areas, with a higher likelihood for the spread of diseases due to overcrowding.

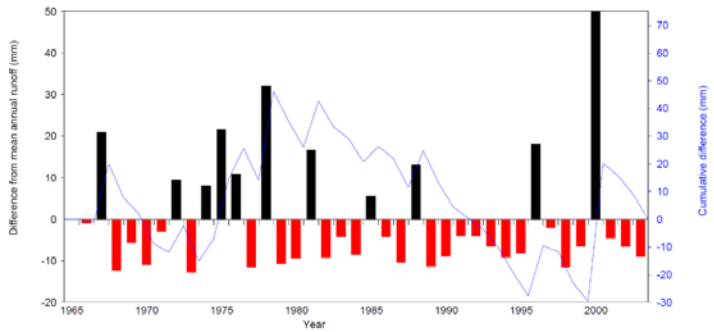


Figure 4: Hydrological anomalies in the Limpopo basin - Extracted from the presentation made by the Minister of Public Works and Housing, Mozambique, 15 Dec 2005, "Experiences of Mozambique on Disaster Management"

In 2016 and 2017, Mozambique has been affected by a protracted drought. Affected populations do not have sufficient time to recover from the economic and social impacts provoked by droughts between one cycle and the next. Figure 4 depicts the irregular hydrological regime of an important river like the Limpopo, showing the constant alternation of flood peaks and longer drought periods.

Disaster impacts vary between the four countries targeted by the project, with Madagascar and Mozambique having a

different disaster risk profile because of their greater geographical size. A rapid risk profile for each country is provided below.

- *Madagascar*

Madagascar is extremely exposed to cyclones originating in the Indian Ocean. One-quarter of the country's population (approximately 5 million people) lives in areas at risk of natural disasters, including tropical cyclones, storm surges, floods and drought.

Each year, an average of three to four cyclones make landfall on Madagascar. The most impacted areas are generally the eastern and western coasts. However, as a consequence of climate change, cyclones appear to have reduced in frequency but have intensified in power in recent years- impacts are now also felt further north. In 2015, over 100,000 people were affected by flooding and the after-effects of tropical storms Chedza and Fundi. As a result, more than 70,000 people lost their homes.[10] Tropical Cyclone Ava struck Madagascar in January 2018, before the country could recover from the devastation caused by Cyclone Enawo in early 2017, when 434,000 people were affected. Cyclone Ava affected 161,000 people, of which nearly 15,000 were displaced. It also damaged 92 schools and many areas were cut-off due to subsequent flooding. In January 2018, 810,000 people were classified at risk of food insecurity due to recurrent disasters with pockets of malnutrition, which reached the emergency thresholds, and 2,603 cases of pneumonic plague have been registered since August 2017, as a consequence of stagnant water.

Flooding is inherently associated with cyclones (which provoke heavy and tropical rains) and represents the second major natural threat to the country. Rains and flooding can cause landslides. Flood impact has been exacerbated by the effects linked with climate change as well as anthropogenic activities leading to deforestation, erosion and general land degradation.

Another important climate-related threat is drought. Climate change affects the regularity of rainfall and results in higher temperatures, with a major impact on agriculture. Dryer conditions are observed, especially in the south. In 2015, approximately 80,000 people were affected and food security heavily impacted.[11] According to UN Office for the Coordination of Humanitarian Affairs (OCHA), 1,424,000 people are expected to be effected by floods and droughts in 2018 and 750,000 displaced as a consequence of climate change disasters.

Other natural threats that can be found in Madagascar are the risk of tsunami, fires, locust invasion and minor seismic events. There are also epidemics such as plague, chikungunya (mosquito-borne viral disease), pandemic influenza, cholera and malaria.

- *Malawi*

The main natural hazards affecting Malawi are floods and drought. As a consequence of climate change there are unusual rainfall patterns with dry periods in the middle of the rainy season while drought spells are lengthening. The mean annual temperature in the country has increased by an average rate of 0.21°C per decade over the last 30 years.

Flooding results in sediment deposits in river channels, reservoirs and floodplains. In turn, this causes catchment degradation, loss of arable land and damage to irrigation infrastructure. Many communities live close to streams due to their dependency on agriculture, fishing and other subsistence activities, leaving them especially vulnerable to floods. In 2015 the country was impacted by unprecedented flooding which affected more than 1.2 million people, destroyed agricultural fields and damaged key infrastructure leading to a massive loss in livelihoods.[12] In

[10] GFDRR country profile for Madagascar, https://www.gfdrr.org/sites/gfdrr/files/region/MG.pdf, accessed on 29 December 2016
[11] IRIN: Disaster-prone Madagascar battles flooding and drought, http://www.irinnews.org/analysis/2015/03/05/disaster-prone-madagascar-battles-flooding-and-drought, accessed on 29 December 2016
[12] GFDRR country profile for Malawi, https://www.gfdrr.org/sites/gfdrr/files/region/MW.pdf, accessed on 29 December 2016

February 2017, a total of 35,304 people were effected by flooding, of which 7,216 people were displaced.

Flash floods due to heavy rain are also recurrent, further stressing vulnerable communities. In February 2018, flash floods affected 2,200 people in the districts of Salima, Karonga and Phalamba. In March 2018, flash floods in the City of Lilongwe impacted several informal settlements. In January 2018, 6 out of the country's 28 districts were on high alert for cholera outbreaks due to the poor hygiene and sanitation conditions associated with climate change effects.

- *Mozambique*

Mozambique ranks third among the African countries most exposed to multiple weather-related hazards, suffering from periodic cyclones, drought, floods and related epidemics. Drought occurs primarily in the southern region, with a frequency of seven droughts for every ten years. Floods occur every two to three years, with higher levels of risk in the central and southern regions.[13] Major rivers flow into Mozambique so heavy rainfall in upstream countries often determines seasonal flooding, impacting on the large population living along the river banks and depending on agriculture activities. High profile events are the 2000 and 2013 floods especially in the lower Limpopo River and those of 2001, 2007 and 2008 in the lower Zambezi River. In February 2018, some 4,000 people were affected by extreme weather conditions (including lightning strikes, floods and strong winds) in northern and central regions. Recurrent floods in urban areas are caused by poor drainage, creating conditions conducive to malaria and cholera. Between August 2017 and February 2018, 1,800 cases of cholera were registered.

Due to the effects of climate change, rainy seasons have become more irregular, starting late and with an uneven distribution. As a result, cyclones are becoming more intense in recent years, the latest being in 2007, 2008, 2015 and 2017, and are affecting the population settled along the coastline of the country who are already enduring high levels of poverty and livelihood conditions that are difficult to sustain. In addition to the impact on housing and public facilities, especially affecting the roofing structures, cyclones have damaging effects on infrastructure. Storms and strong winds below cyclone strength also cause a lot of damage.

In February 2018, the government issued an "orange alert" for the southern region following severe drought, particularly in the Umbeluzi River basin in Maputo province. In the previous four years this basin had recorded below average rainfall and an increment in the rates of evaporation. The Pequenos Libombos dam, which is the main source of drinking water for the greater Maputo metropolitan area, is therefore in a critical situation. The dam is reported less than 20 per cent full. Water rationing has been imposed to more than 2.5 million people living in the capital city, Maputo, and surrounding urban areas, raising fears of disease outbreaks.

Hazards caused by anthropogenic interventions are deforestation and land degradation leading to soil erosion and desertification, mangroves depletion and bush fires. Sea level rise as potential threat linked with climate change is a great concern as Mozambique's major cities are located along the coast.

- *Union of Comoros*

The Comoros is a volcanic archipelago, with Karthala volcano dominating Grand Comore, the main island. An eruption in 2005 affected 245,000 people. Flooding occurs on a more regular basis and can have a serious impact, especially as a result of cyclones.

Climate risks listed in the country's National Adaptation Programme of Action (NAPA) include: both seasonal and acute drought; increased incidence of heavy rains and cyclones; and a rise in

[13] GFDRR country profile for Mozambique, https://www.gfdrr.org/sites/gfdrr/files/region/MZ.pdf, accessed on 29 December 2016

sea level. The latter, a clear consequence of climate change, represents one of the biggest threats. According to projections, sea level rise within the country may increase by 0.13 to 0.56 metres by the 2090's.[14] This potential hazard can be highly destructive as main settlements are located along the coast, and it is not likely to be contained by dykes.

Comoros' Initial National Communication to the UN Framework Convention on Climate Change (UNFCCC) discusses the potential impacts of climate change in key sectors of the country, including: an expected increase in the occurrence of malaria; a decrease in crop yields, agricultural production and fisheries; and flooding and internal displacement.[15]

The overall vulnerability situation is worsened by salinization and poor water management, soil water logging (through volcanic ash), deforestation, soil erosion and landslides. Land degradation and the disappearance of around 400 acres of forest per year have also had a negative effect on the country's socioeconomic development.[16]

b) Socioeconomic context at the country level

Fast paced urbanisation is a reality for the four countries. They show significantly high urban annual growth rates surpassing their overall population growth, indicating the increasing importance of the urban dimension (see Table 1). At the same time, local administrations face a capacity gap which is compounded by weak coordination between the national, sub-national and local levels, and constrains the ability of urban and peri-urban areas to adequately plan for, respond to, and adapt to climate variability effects.

	Total Population (2016 Estimate)	**Urban Population** (2016 Estimate)	**Percentage Urban** (2016 Estimate)	**Urban Pop. Annual Growth Rate** (2010-2015)	**Total Pop. Annual Growth Rate** (2010-2015)	**Capital City and Population** (2014)
Madagascar	24,915,000	8,905,000	35.7%	4.69%	2.79%	Antananarivo: 2,487,000
Malawi	17,802,000	2,929,000	16.5%	3.77%	2.84%	Lilongwe: 867,000
Mozambique	27,781,000	9,031,000	32.5%	3.27%	2.47%	Maputo: 1,174,000
Union of Comoros	788,000	224,000	28.4%	2.67%	2.40%	Moroni: 56,000

Table 1: Demographic and socioeconomic characteristics of the targeted neighbourhoods in Morondava[17]

- *Madagascar*

Madagascar ranked 158th out of 188 countries in the 2016 UN Human Development Index (HDI) and did not reach any of the UN Millennium Development Goals (MDG) by 2015. Between 1980 and 2014, Madagascar's life expectancy at birth increased by 16.1 years, mean years of schooling increased by 0.8 years and expected years of schooling increased by 2.5 years.

It is estimated that approximately five million people currently live in zones at high risk of natural disasters.[18] According to the Global Facility for Disaster Reduction and Recovery (GFDRR), the country has a low adaptive capacity, influenced by a high poverty rate, rapid population growth, high dependency on natural resources and weak institutional capacity. Adverse effects of flooding

[14] Hilary Hove, Daniella Echeverría, Jo-Ellen Parry: Review of Current and Planned Adaptation Action: Southern Africa, p. 63

[15] Ibid

[16] Ibid

[17] United Nations, Department of Economic and Social Affairs, Population Division (2014). World Urbanization Prospects: The 2014 Revision, custom data acquired via website

[18] http://www.worldbank.org/en/country/madagascar/overview, accessed on 29 December 2016

events are significant in urban areas due to: (i) a lack of early warning systems; (ii) inadequate urban planning; and (iii) poorly maintained drainage infrastructure.[19]

Madagascar's gross domestic product (GDP) per capita decreased by about 35.5% between 1980 and 2014.[20] In 2016 GDP was at USD 9.99 billion. A World Bank economic update reveals a slow economic recovery in 2015 due to weak growth in the tourism and mining sectors. Catastrophic meteorological conditions in recent years also took a toll on the economy, resulting in higher inflation and a reduction of household purchasing power. The country continues to rank poorly on the ease of doing business index: 164 out of 189 countries.[21]

- *Malawi*

Malawi ranked 170th out of 188 countries in the 2016 HDI[22], which put the country in the low human development category. It did not reach any of the UN Millennium Development Goals by 2015.

Real GDP grew by 5.7 per cent% in 2014 but slowed down to 2.8% in 2015 as Malawi suffered from the dual challenges of adverse weather conditions and macroeconomic instability. Flooding in southern districts followed by countrywide drought conditions saw a contraction in agricultural production.[23] Natural disasters have had serious impacts on Malawi's economic development. Drought and dry spells in Malawi cause, on average, a 1% loss of GDP annually. Additionally, an average loss of 0.7% of the annual GDP is due to lakes flooding and rivers overflowing.[24]

Poverty and inequality remain high in Malawi. The 2010/11 Integrated Household Survey showed that over half of the population was poor, and one quarter lived in extreme poverty. These numbers have not changed much when analysing 2017 data. Poverty has been increasing in rural areas where 85% of the population lives, compared to urban areas where it fell significantly from 25 to 17%.[25]

- *Mozambique*

Mozambique ranked 181st out of 188 countries in the 2016 HDI. Between 1980 and 2014, Mozambique's gross national income per capita increased by about 106.8% between 1980 and 2014[26]. Nevertheless, Mozambique's rapid economic expansion over the past decades has only had a moderate impact on poverty reduction, and the geographical distribution of poverty remains largely unchanged.

World Bank projections place economic growth at 3.6% for 2016, with significant downward risks. The discovery in April 2016 of previously undisclosed debt worth almost $2 billion, over 10 per cent of Mozambique's GDP, combined with the impact of the exchange rate depreciation have led to a substantial increase in debt ratios. As a result, the fiscal position is likely to remain under stress until the end of the decade.

Mozambique also needs to improve its social indicators. For instance, the social progress index for access to improved sources of water and sanitation ranks Mozambique 128th and 119th,

[19] GFDRR country profile for Madagascar, accessed on 29 December 2016

[20] http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/MDG.pdf, accessed on 29 December 2016

[21] http://www.worldbank.org/en/country/madagascar/overview, accessed on 29 December 2016

[22] http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf, accessed on 7 April 2018

[23] http://www.worldbank.org/en/country/malawi/overview, accessed on 29 December 2016

[24] GFDRR country profile for Malawi, https://www.gfdrr.org/sites/gfdrr/files/region/MW.pdf, accessed on 29 December 2016

[25] Ibid

[26] GFDRR country profile or Mozambique, https://www.gfdrr.org/sites/gfdrr/files/region/MZ.pdf, accessed on 29 December 2016

respectively, out of 135 countries. Indeed, Mozambique has one of the lowest levels of water consumption in the world despite being endowed with a variety of water sources.[27]

- *Union of Comoros*

Comoros has a dense population of about 390 inhabitants per square kilometre. More than half of the population (53%) is younger than 20 years of age.[28] Its HDI rank was 160 out of 188 countries in 2016, which puts the country in the low human development category.[29] Progress has been made on several of the MDGs. However, one of the most important challenges will be to halve the proportion of people who suffer from hunger.

According to the World Bank, citing the most recent Household Budget Survey for 2014, 42.4% of the population (around 320 thousand people) is poor, with real monthly consumption per capita below the national poverty line. Around 18% of the population lives below the international poverty line of US$1.9 per capita per day, in 2011 Purchasing Power Parity (PPP) exchange rate. World Bank projections indicate slow progress in poverty reduction until 2018, due to stagnant economic growth.

Recent economic developments point to a deteriorating economic situation as growth slows and the Comorian franc depreciates against the US dollar. Comoros has a small and undiversified economy. While the economy had showed signs of recovery after years of political instability, achieving an eight-year high in terms of economic growth at 3.5% in 2013, conditions since then have deteriorated with growth slowing from 2.1%% in 2014 to 1% in 2015.[30]

c) City level contextualisation

While the focus of this project is on building urban climate resilience in four countries, and adaptive capacity will be strengthened through planned activities at the regional and national levels, the main entry point for this project is at the city level. Four urban settlements were selected for this purpose: Morondava (Madagascar), Zomba (Malawi), Chokwe (Mozambique) and Moroni (Union of Comoros).

A participatory assessment and planning process using the City Resilience Action Planning (CityRAP) tool (described in more detail later) was conducted in all four cities from 2015 to 2017 to identify vulnerable communities that would most benefit from climate resilience building activities. The use of this tool allowed the targeted municipalities, jointly with the selected communities at the neighbourhood level, to assess their vulnerabilities and prioritise key interventions for climate adaptation.

A detailed profile of each of the four cities is provided below.

- ***Morondava, Madagascar***

Socioeconomic background

The city of Morondava lies on the south-western coast between the Mozambique Channel and the Morondava River Delta (Figure 5) and is the capital of the Menabe region. Today, Morondava has an estimated population of 60,000 inhabitants and is urbanising very rapidly, with a relatively young population (approximately 60% are under 25, while only 3% are older than 60). In fact, it registered the highest annual population growth (5.2%) in the Menabe Region, resulting in several urban development challenges. Approximately 45% of the neighbourhoods are considered informal and 25% of the inhabitants live below the national poverty line. The city's population

[27] http://www.worldbank.org/en/country/mozambique/overview, accessed on 29 December 2016

[28] http://www.worldbank.org/en/country/comoros/overview, accessed on 29 December 2016

[29] http://hdr.undp.org/sites/default/files/2016_human_development_report.pdf, accessed on 7 April 2018

[30] http://www.worldbank.org/en/country/comoros/overview, accessed on 29 December 2016

shows a gender-balance with 50.7% women and 49.3% men (details on marginalised and vulnerable groups in Morondava in **Annex 2**).

As the capital and main urban centre of the Menabe region, Morondava shows some economic potential in the areas of commerce and services, tourism, craft, agriculture and livestock. Located near the renowned Baobab Avenue, which receives visitors from all around the world, the city has plans to develop its touristic potential.

Geographical context and exposure to natural hazards

Figure 5: Map of Madagascar showing the location of Morondava – Extracted from www.nationsonline.org

As a coastal city positioned in the middle of a delta, Morondava is surrounded by water (Figure 6). It is crossed by two rivers called Morondava and Kabatomena. The Morondava River splits in two branches. Its mouth is located about 5km north of the city boundary in an unpopulated area. There is little or no water flow in the river bed during the dry season.

The Kabatomena River is located south of the city (Figure 7). During the dry season it discharges about 7-10 m^3/s and during the wet season and/or storms the discharge reaches 200-300 m^3/s. Kabatomena is an alluvial river made of sandy banks which, with high discharges, are eroded and the sand is transported to the river mouth. During high discharges the water overflows the riverbanks and due to the lower elevation north of the river, the water then flows towards the city.

The western part of the city is located adjacent to the sea (with an eroding coast). In general, along the coastal stretch of Morondava, the main flooding type is swelling. According to several local sources, moderate to low wave conditions are observed during normal conditions. During cyclones, the estimated wave height can be up to 2 metres and swell waves have more strength. Swell waves are wind generated waves that are transformed into longer, faster, lower and more regular waves due to a process called frequency dispersion and frequency dependent damping.

Figure 6: Map of Morondava

The map presented in Figure 8 summarises the locations impacted by the main natural threats affecting the city. As result of the explained upstream and downstream factors, extreme weather events cause major floods in both the northern and southern sides of the city, especially in the neighbourhoods close to the Hellot channel (see location of the channel in Figure 6). The neighbourhoods of

Ankisirasira, Tanambao (south-east), and Avaradrova and Sans Fil (west) are the worst affected.

The most recent disastrous event to affect the city was caused by the landing of Cyclone Chendza on 16 January 2015. The tropical cyclone resulted in heavy rains that caused severe flooding, affecting more than 62,000 people in Madagascar. Morondava was the second most affected city in the country in absolute numbers (and the most affected one in terms of proportion of the population) with more than 16,000 persons impacted and 3,184 displaced.[31]

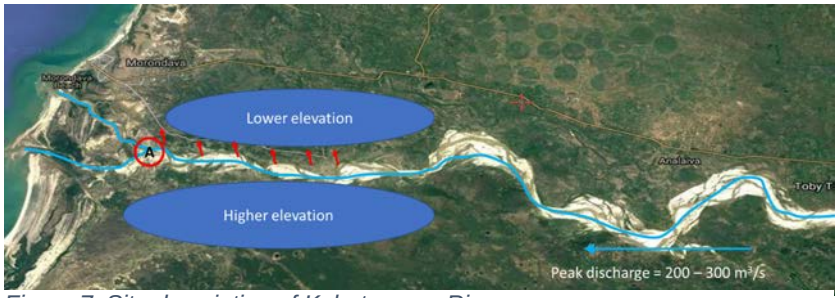


Figure 7: Site description of Kabatomena River

The city also regularly experiences severe flooding during high tides, a phenomenon already increasing in intensity, which will worsen due to sea level rise. In the past 50 years, the coastline has retreated about 1km. This caused the main city boulevard and many buildings to be swallowed by the sea. Flooding of low lying areas is reported on a fortnightly interval, correlating to neap tide cycles. During high tides seawater enters the river mouths.

Key issues to be addressed

The risks threatening Morondava city are related to its complex water system and are compounded by several characteristics that increase the vulnerability of its population. The key issues to be addressed to build Morondava's climate resilience are:

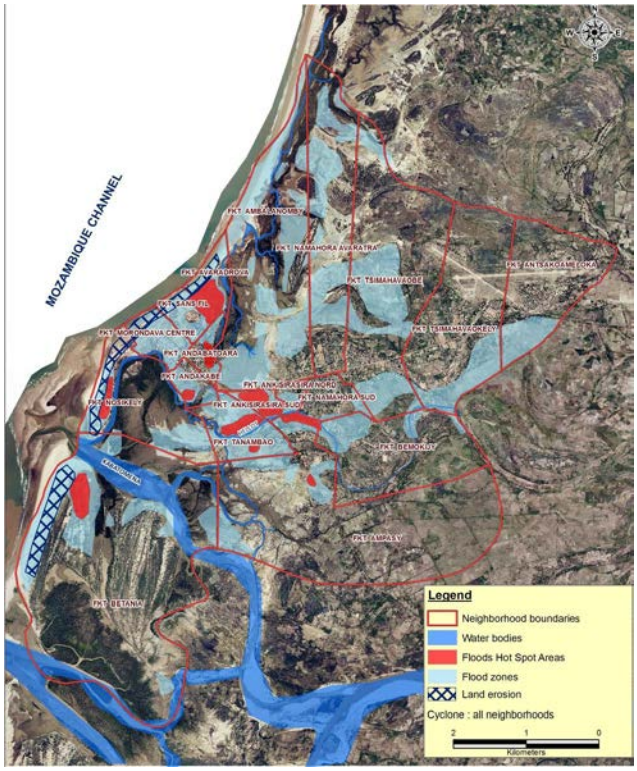


Figure 8: Risk map of Morondava City

<u>Expansion of informal settlements in high risk areas</u>: the rapid growth of the city results in an increased number of people living in high risk areas, especially the urban poor. Most of these settlements at risk are informal with low housing quality, thus highly vulnerable to the impacts of floods and strong winds.

<u>Limited access and mobility</u>: The city is spatially divided into two main areas, the historic and colonial centre in the west and the urban agglomeration in the east that followed the major traffic infrastructure. These areas are connected by one road in the middle that forms the main connection between the two sides (see the circled road in Figure 6 above). The road is surrounded by flood plains in the north and south and is therefore crucially important in case of emergencies. The area around this road used to be covered by mangrove trees but due to woodcutting this is no longer the case, making the road more vulnerable to cyclones and related floods. In addition, a few bridges cross the Hellot channel which connects the southern and northern neighbourhoods. These

[31] http://reliefweb.int/sites/reliefweb.int/files/resources/Madagascar%20MDRMG011.pdf

bridges are crucial in case of an evacuation of the southern neighbourhoods but are currently in poor condition (see Figure 9).

Figure 9: Bridges crossing the Hellot Channel

Poor drainage conditions: the city has a drainage system consisting of the Dabara Channel, the Hellot Channel and secondary channels. All channels have a relatively small cross-sectional area (see figure 10). The Dabara channel is made for maximum discharges of 12 m^3/s. Secondary channels are approximately 4.5 km long, as is the Hellot Channel. The latter crosses the southern part of the city centre and functions as the main flood drainage channel. The downstream section of the Hellot channel is influenced by the sea tide. With the rising tide, seawater flows into the channel, while during low tide and with limited discharge from upstream, the channel almost runs dry. Increased sedimentation (from the Kabatomena River, which carries the bulk of sediments into the Hellot channel) has critically reduced the drainage capacity, resulting in higher flood levels.

The downstream section of the Hellot channel is influenced by the sea tide. With the rising tide, seawater flows into the channel, while during low tide and with limited discharge from upstream, the channel almost runs dry. Increased sedimentation (from the Kabatomena River, which carries the bulk of sediments into the Hellot channel) has critically reduced the drainage capacity, resulting in higher flood levels.

Figure 10: Drainage conditions in Morondava

Inefficient solid waste management: as shown in Figure 10, drainage channels are often filled with sediment and solid waste. In particular, high tides cause problems in the neighbourhoods located along the Hellot Channel, when the seawater enters the secondary drainage system coming from the city centre. This causes stagnation or overflow of sewage water filled with solid waste (as waste management is still lacking and a large proportion of the population still practices open air defecation), leading to public health risks (i.e. infections and acute diarrhoea) especially for children and the most vulnerable.

Mangrove deforestation: mangrove areas have been cut down for fuel wood purposes. This has detrimental effects on several fronts. With regard to the ecosystem, deforested areas show less fauna density and decreased biodiversity. In Morondava, the loss in crab and prawn population can already be witnessed today. This is causing negative economic and livelihood repercussions for the fishermen of Morondava. With regards to adaptation, mangroves play an important function as flood buffers and protection from coastal erosion.

Lack of disaster preparedness: the municipality has insufficient capacity and resources to operationalize its plans aimed at rehabilitating and developing the necessary infrastructure to be prepared for, and be able to timely respond to flood or cyclonic risks. The situation is aggravated by the absence of an early warning system, the lack of accessible evacuation routes in vulnerable areas and the absence of safe havens (NB: a new legislation adopted in 2017 forbids taking shelter in schools).

Figure 11: Mangrove trees located in the intertidal area near the Kabatomena river mouth

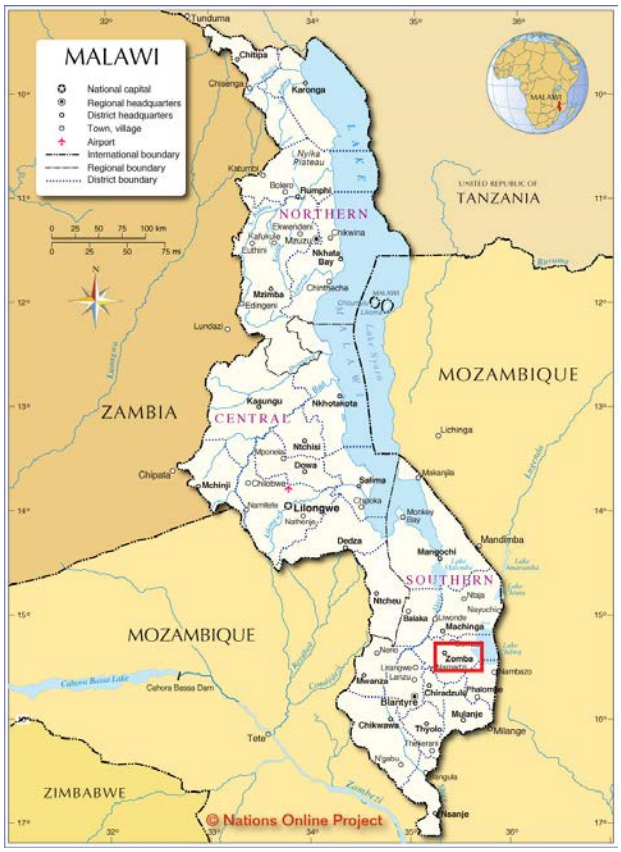


Figure 12: Map of Malawi showing the location of Zomba – Extracted from www.nationsonline.org

- ***Zomba, Malawi***

Socioeconomic background

The city of Zomba is located in the southern part of Malawi, some 70 km northeast of Blantyre, on the foot of Zomba Plateau (2,085m above sea level) – see Figure 12. It was Malawi's first capital city before it was moved to Lilongwe in 1975. In 2017 Zomba ha a population of 156,022 and an annual growth rate of 3% as projected by the National Statistical Office in 2011. Like other cities in Malawi the population is relatively young, with 73% of residents under 30 years of age. Socially, the religions live peacefully next to each other with a majority of Christians (78.2%), followed by Muslims (13.7%) and other religions (8.1%) (details on marginalised and vulnerable groups in Zomba in **Annex 2**).

Poverty and unemployment rates are both high in Zomba (the unemployment rate is 59.1% and poverty levels show 16.3% as 'poor' and 3% as 'ultra-poor'[32]). Approximately 70% of the city's population lives in slum conditions characterised by poor housing design and building materials, limited access to basic services and infrastructure, and high exposure to natural hazards.[33]

Geographical context and exposure to natural hazards

The city is located at the foot of the Zomba Plateau, which dominates the city on its north-western side and is the source of important rivers (Likangala and Mulunguzi) running through the city. The slopes of the plateau above the inhabited locations have experienced erosion and landslides. As a consequence, the top soil was removed, exposing rocks and making the slopes unstable.

[32] Malawi Integrated Household Survey, National Statistics Office (NSO), 2011

[33] Malawi NSO, 2010

The topography of Zomba is further dominated by several hills surrounding the city and some within the city. From these hills (mainly in the north towards Zomba Plateau and south), small streams connect to the main Likangala River, which flows through the city centre from west to east. Meanwhile, the Mulunguzi River, which originates from Zomba Plateau, flows through two of the wards in the north-east of the city.

Figure 13: Map of Zomba – extracted from www.googlemaps.com

During the rainy season, increased water run-off in up-hill areas into the rivers flowing through the city causes flooding. In particular, Likangala River is the source of most floods and disasters, as it flows through densely populated areas.

The risk profile of Zomba includes flooding, cyclones and strong winds. Since the city is located in the African Rift Valley, it is prone to earthquakes. Bush fires also occur, especially in the Zomba Plateau and its forests. Soil erosion, gully development, landslides and rock avalanches are common and to a certain extent linked to deforestation, which causes land degradation. This became very apparent in 1946, when a landslide killed hundreds of people. The most recurrent natural hazard in Zomba is flooding. The 2015 floods damaged/destroyed 1,883 houses (mainly those made of mud) and displaced 8,713.

Overall, these hazards are causing severe damage to housing, property and assets resulting in cascading disruptive effects such as food insecurity, malnutrition, health/hygienic problems,

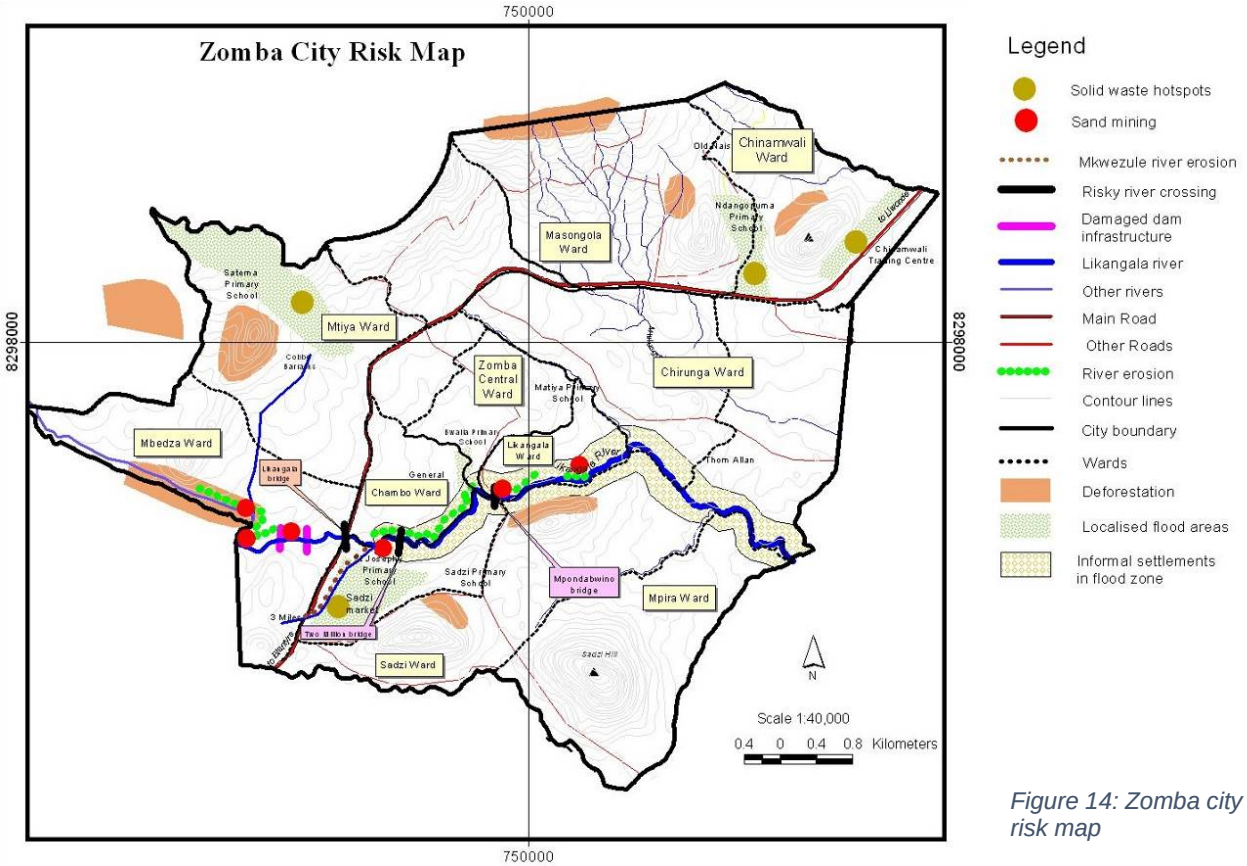


Figure 14: Zomba city risk map

increased poverty and vulnerability, especially for women and children. Importantly, main public infrastructure is threatened, such as: Ndangopuma primary school and roads in Masongola Ward; St. Joseph primary school, St. Peter's seminary and roads in Sadzi ward; Satema primary school and roads in Mtiya ward; and Chiperoni primary school and Malindi secondary school in Likangala ward.

Figure 15: Likangala River at Mboga riverside lodge during and after the 2015 floods

Key issues to be addressed

Deforestation: More than 80% of Zomba's population use firewood and charcoal for cooking because other sources of cooking fuel, such as gas or electricity, are too expensive for the majority of the urban poor. These materials are extracted through wood cutting from the Zomba Plateau, the surrounding hills and along the streams and rivers within the city, resulting in heavy deforestation and environmental degradation. Deforestation is threatening not only the catchment of the local rivers, but also increasing the risk of a repeated landslide. Housing units built in precarious positions at the foot of slopes are at risk of the full onslaught of flood waters and debris, from minor flows to full-scale landslide recurrence.

Uncontrolled urban development in hillsides and flood prone areas: Expanding settlements, agriculture, increasing population and urbanisation are putting severe pressure on the integrity of the ecosystem. Developments and deforestation are increasingly observed on mountain sides, negatively impacting on the vulnerability of those developments and surrounding areas. New settlements have been sprouting along and close to the banks of the Likangala River. Although existing urban zoning does not permit settling close to rivers, low enforcement capacity by the city council and poor community advocacy has increasingly seen encroachment of settlements on the river banks (see Figure 16). This is coupled with low awareness of climate change adaptation and mitigation at the household, community and council levels. Consequently, river bank erosion (also worsened by sand mining), soil degradation and gully growth are happening rapidly. Flash floods and landslides along the slopes and river banks are common and are putting people at risk, especially the most vulnerable.

Figure 16: Encroachment of settlements near the Likangala River

Figure 17: Effects of a relatively moderate rainfall event in Zomba

Poor drainage: Informal settlements lack adequate drainage solutions. These are quickly (and informally) introduced through haphazard coping mechanisms such as stone walls and self-made drainage, which are not sustainable. These ad hoc improvised drainage interventions increase or

transfer risks to other locations, re-directing the flow of water to neighbouring houses and resulting in social conflicts. Road infrastructure has been improved in recent times, with some integration of drainage. However, many drains are blocked through indiscriminate dumping of solid waste as well as naturally-occurring siltation. Drainage is particularly poor in Mitya, Sadzi, Chambo, Masongola and Chinamwali wards.

Inefficient solid waste management: Due to the limited capacity of the city council in terms of human resources and equipment, waste management services are only available in the high-income areas and the city centre. The city council has just one operational waste collection vehicle. Waste collection is critically lacking especially in informal areas and in areas with high population density, specifically Chambo, Chinamwali, Likangala, Masongola, Sadzi and Mpira wards.

The households in these poor urban areas dispose of garbage in drains and streams or burn it along the roadside. This has created a growing rubbish problem, which is aggravating flood effects due to clogged drainage and greatly polluting the environment, thus adding additional threats to the health of marginalized and vulnerable groups such as women and children. Water stagnation gives rise to mosquito-borne diseases in all the above-mentioned areas. Malaria cases affect 70-80% of the inhabitants. Flood events also impact the sanitation system, causing pollution to enter the drainage system, aggravated by the collapse and flooding of pit latrines used by most of the households.

Disease outbreaks have been experienced (cholera) due to poor waste management and blocked drainage at Chinamwali market. The market areas lack skips and waste bunkers and become public health threats, especially for women who spend the majority of their time in markets. This becomes most apparent in Komboni market near the Zomba Central Hospital in Chambo ward. The solid waste landfill site is located on the western side approximately 5km away from the city. The composition of waste is 80% organic and biodegradable, yet there is currently no recycling or composting being undertaken.

Lack of early warning system and safe havens: The gravity and impact of any flood event in the city is aggravated by the absence of an early warning system. Flooding appears rapidly and unexpectedly downstream, while the high flood wave could be detected some distance upstream. When it reaches the city, the flood wave has increased in size and speed, catching river users and households within the flood area by surprise. Women, children, older persons and persons with disabilities are therefore among the most affected. People are generally reluctant to leave the house and evacuate for fear of theft, hence increasing their situation of vulnerability. Furthermore, there is a lack of resilient housing and public buildings (e.g. none of the schools are built to withstand the effect of flooding). Skills and awareness for resilient construction are generally absent. In the face of lacking evacuation centres, schools are currently being used as makeshift evacuation centres, causing disruptions in schooling for children.

- ***Chokwe, Mozambique***

Socioeconomic background

According to 2007 census data, the municipality of Chokwe had at that time a total population of 61,666 people[34]. Chokwe city shows rapid development (approx. 5% per year) and is often considered to be the economic capital of Gaza province, considering its important agricultural potential (NB: 40% of Mozambique's irrigated lands are located around Chokwe, with the most important production of rice and tomatoes). About 60% of the population lives below the poverty line. Life expectancy is around 44 years of age, and child morality reaches 107 for every 1,000 births. These numbers are higher than the national average.

[34] National Institute of Statistics (INE), 2017

Figure 18: Map of Mozambique showing the location of Chokwe – Extracted from www.nationsonline.org

Figure 19: Map of Chokwe

Chokwe's population has a high dependency on agriculture, employing 80% of the active labour force. In a country where most food is imported from neighbouring countries, a fertile area like Chokwe is of crucial importance. There are other economic activities like food industry (cattle), clothing and commerce, however economic diversification remains low. Most of the city's economy is informal. (details on marginalized and vulnerable groups in Cholwe in **Annex 2**)

Urbanisation takes place mostly in a chaotic and unplanned manner. New urban areas are informal and characterised by precarious housing conditions: sticks and palm trees, and 44.3% live in so-called conventional housing.

Geographical context and exposure to natural hazards

Chokwe is located in southern Mozambique in Gaza Province, along the lower Limpopo River (see Figure 18). Due to its location and low-lying lands/flat terrain, Chokwe is susceptible both to fluvial and rain flooding.

In terms of risks, the city is exposed to the impacts of drought, recurrent cyclones, storms, and especially flooding. The area is considered one of the most exposed to natural hazards in the country[35]. Chokwe is experiencing cyclical flooding from the Limpopo River. Interviews with local engineers and consultation with the local community made it clear that pluvial flooding (flash floods) occurs frequently. Extreme downpour with a yearly return period (T=1) has an intensity of 500 mm in 4 hours.

The regularity and the magnitude of the floods in the area have varied throughout the years, ranging from small occurrences to catastrophic events, notably the 2000 and the 2013 floods, during which the

[35] Silva, J.; Eriksen, S. and Ombe, Z.A. (2010) Double exposure in Mozambique's Limpopo River Basin, The Geographical Journal, Vol. 176, No. 1, March 2010, pp. 6–24.

entire population of the city was affected. In 2000 and 2013 inundation levels of 2 meters were measured within the urban area. In 2000, the floods displaced 250,000 people living in the lower Limpopo region and caused over 700 deaths[36].

Key issues to be addressed

Non-functioning drainage system: as the terrain in Chokwe is flat, a storm water drainage system is required. Currently, this system is malfunctioning, mainly due to insufficient coverage and blockage of drains and discharge pipes. This has been particularly detrimental for unplanned neighbourhoods and significantly impactful on marginalized and vulnerable groups during flood events. Drainage issues are aggravated by ineffective and inappropriate local coping mechanisms, such as re-directing water flows to neighbouring houses through self-dug drainage ditches. Due to the relatively flat location and dysfunctional or non-existing drainage, it takes weeks before flood water recedes. This situation causes severe disruption of all aspects of daily life during flood times: income generation, food security, education and health.

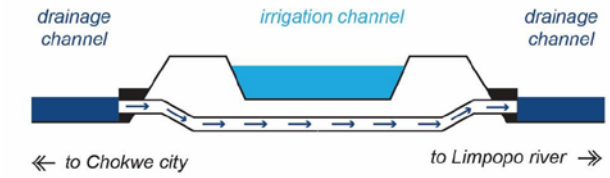


Figure 20: Structure of Chokwe's drainage system

Figure 21: Detail of crossing "2" where the pipes under the irrigation channel are collapsed

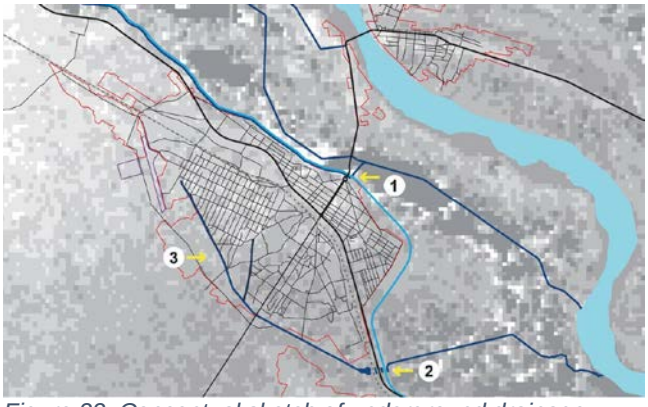


Figure 22: Conceptual sketch of underground drainage crossings connecting in Chokwe

Chokwe's drainage system relies heavily on two main channels, one in the north and one in the south of the city. Both channels are intersected by the local irrigation channel, which is situated in between the Limpopo River and the city. To allow storm water to pass the irrigation channel in order to reach the Limpopo River, two underground crossings have been constructed (see numbers "1" and "2" in Figure 22).

The underground crossings are done with several pipes equipped with check valves (see sketch in Figure 20). The functioning of the whole drainage system of the city is dependent on these two crossings. Crossing "1" is operating normally. Crossing "2" is not functioning (see Figure 21). The pipes have collapsed, and the inlets are silted up. As a result, the main drainage channel to the south (indicated as number "3" in Figure 22) cannot properly drain the collected storm water, leading to prolonged flooding after cloudbursts and fluvial flooding events.

Inefficient solid waste management: Chokwe faces great challenges to manage increasing solid waste disposal because of its growing population. Currently, there are limited capacities for collection, transportation and disposal or recycling. As a result, local habitants tend to discard their rubbish haphazardly or in sporadic landfill sites created and utilised as informal disposal zones. These informal waste disposal sites are

[36] Brouwer, R. and Nhassengo, J. (2006) About bridges and bonds: community responses to the 2000 floods in Mabalane District, Mozambique, Disasters, Vol. 30, No 2, pages 234-255

rarely collected by the municipality, resulting in growing landfill sites. Waste accumulation has affected drainage capacity, with ditches and channels being often overflowing with various types of rubbish. Strong rain water and even mild flooding can therefore result in high health and safety risks for the inhabitants, especially for the most vulnerable ones.

Lack of an efficient early warning system and access to safe havens: Despite the several flood events that affected the city, Chokwe is still lacking an effective early warning system and accessible safe havens in case of floods. Communication is underdeveloped and inaccessible, whereby 0.8% of the population has a telephone landline, 0.6% has access to a computer, and 18% possess a TV. Radio is the main means of communication, used by 47% of the households.

There are implications in the inherent inability to warn of impending flood events, throughout the local communities and/or via the existent early warning system in place regionally. This was observed during the 2013 flood event. A warning and a call for evacuation was aired on the radio, albeit reaching a limited amount of people.

In some cases, as it occurred for the 2000 floods, the gravity of the situation was not understood or believed or not communicated effectively. Fluvial flooding is still not well understood by a large part of the population. For example, the lack of local rainfall during the 2013 floods that affected the city gave a false perception of safety and non-criticality. As such, many chose not to evacuate, especially women.

In addition, the lack of evacuation centres or safe havens reduces the ability to manage a flood emergency situation, putting many at risk. During both the 2000 and 2013 flood events, the majority of the city's population escaped to higher locations such as rooftops, where they had to wait until they were rescued and taken to a safer location by rescue teams.

- ***Moroni, Union of Comoros***

Socioeconomic background

The city of Moroni is located on Ngazidja island (also called Grande Comore island), one of the four islands of the Comoros archipelago (see Figure 23). It is the largest urban centre of the country and the capital city since 1958. The population of Moroni is rapidly growing from 37,800 inhabitants in 1991 to over 55,000 in 2016 with an annual growth rate of 2.1%. Youth represent 53% of the population, with 42% under 15 years old.

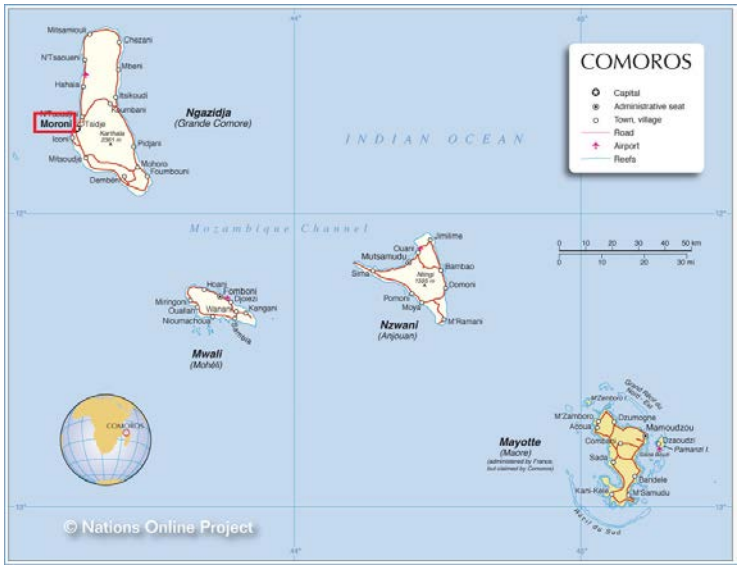


Figure 23: Map of Comoros showing the location of Moroni – extracted from www.nationsonline.org

The poverty rate is high in Comoros (45.6% of the total population), especially in urban areas, and the informal sector is omnipresent. Unemployment is a concern, in particular among young people (25% between 15 and 29 years old) and women (18.5%). This socioeconomic profile strongly limits the capacity of poor communities to anticipate and respond to the adverse effects of climate change due to limited financial and human resources. Most of the population is Sunni Muslim, and a small minority (2%) is Roman Catholic (details on marginalised and vulnerable groups in Moroni in **Annex 2**)

Geographical context and exposure to natural hazards

Located at the foot of Mount Karthala, a 2361 meter volcano of which the last four eruptions were between 2005 and 2007, Moroni is built on lava stone on the main island of the Comoros archipelago (NB: the 2005 eruption affected 245,000 people). Some relatively new neighbourhoods, such as Coulee-Sahara, are built on lava flows from the 1985 eruption. Although the city is at risk of future eruptions, it is unlikely lava flows will follow the same paths as before.

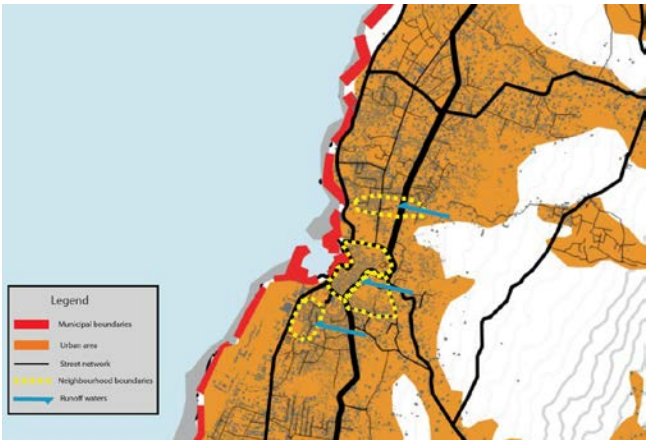


Figure 24: Climatic threats in Moroni and location of neighbourhoods

One of the biggest climate-related threats for the city is sea level rise and subsequent coastal erosion. Projections for the country show a possible increase from 0.13 to 0.56m by 2090[37]. Otherwise the most recurrent natural hazards affecting Moroni are cyclones and floods, resulting in damage and casualties.

In addition, heavy rains result in flash floods in the city. The combination of a long and steep slope of the Karthala volcano combined with a large catchment area (above Moroni) and heavy rains (up to 500 mm in a day) result in large amounts of water running down, even during short rainfall events. The lack of infrastructure to drain or channel the water flow aggravates the situation.

Key issues to be addressed

Unplanned urban development: the city has mostly developed in a 'self-urbanising' way, where the absence of government planning, regulation and investment in basic infrastructure has resulted in communities organising themselves, and once they have the means (often from remittances received), construct basic infrastructure such as roads themselves. Unfortunately, the negative side of this dynamic is that often important investments are made (e.g. opening of cement roads) with the wrong design, hence increasing the vulnerability of the residents. Many new developments are precarious and in high risk areas. As a result, more than half of the city's population resides in informal settlements and often in areas most vulnerable to natural hazards (see figure 25).

Figure 25: Conditions of informal settlements in Moroni

Poor drainage: the drainage system in most of Moroni is almost non-existent, exacerbating the

[37] Hilary Hove, Daniella Echeverría, Jo-Ellen Parry: Review of Current and Planned Adaptation Action: Southern Africa, p. 63

risk exposure of marginalized and vulnerable groups, especially in case of cyclones and heavy rains. Even a moderate rain event causes flooding.

Limited access to drinking water: access to clean water is a major issue in many informal or unplanned neighbourhoods, where the current practice is to collect water in containers from other areas of the city. This is a serious challenge to thee adaptive capacity to climate change of a large part of the city's population is seriously challenged by this aspect.

Outbreak of water-borne diseases: poor drainage conditions combined with lack of sanitation, proper waste management and adequate access to water result in disease outbreaks (diarrhoea). High malaria incidence is also noted due to formation of breeding sites. Water borne diseases are particularly badly affecting children and women.

Limited disaster preparedness capacity: knowledge about risk levels and climate change adaptation needs is low at the household, community and council levels. In general, there is limited information and communication about natural hazards. Although the city is relatively well equipped for monitoring the volcanic activity of the Karthala, there is limited capacity to manage risks related to floods and cyclones, with no adequate early warning system in place. There is also a lack of evacuation routes due to poor road conditions and no protection of critical infrastructure, especially during floods.

d) Institutional context

In the context of this project, the following institutional set up is relevant, at the different levels.

- ***At the sub-regional level***
  - *The Southern African Development Community (SADC) Disaster Risk reduction (DRR) Unit*

SADC is a regional economic community comprised of sixteen member States: Angola, Botswana, Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, eSwatini, Tanzania, Union of Comoros, Zambia and Zimbabwe. Established in 1992, SADC is committed to regional integration and poverty eradication within southern Africa through economic development and ensuring peace and security.[38]

When unexpectedly heavy floods displaced more than a million people in southern Africa in 2007, SADC began to meet annually to prepare for future occurrences. Concrete steps were taken to ensure that DRR is effectively mainstreamed into national policies. Consequently, in July 2008 SADC established a Disaster Risk Reduction Unit responsible for coordinating regional preparedness and response programmes for transboundary hazards and disasters.[39] The SADC DRR Unit, with the support of the existing SADC DRR Technical Committee, has the responsibility of coordinating and providing regional leadership on matters pertaining to disaster risk reduction, mitigation, preparedness and related management activities.

The SADC DRR Unit is a member of the DiMSUR Executive Board (see next section). During DiMSUR's fourth Executive Board meeting at the side-line of the Africa Regional Platform for DRR held in Mauritius in 2016, the SADC DRR Unit Leader expressed high appreciation for DiMSUR's efforts. The partnership between DiMSUR and SADC was further reinforced at the recent conference organised in Pretoria, South Africa in March 2018 with all SADC member States entitled: "Accelerated collaboration and partnerships for the implementation of DRR for sustainable development in the SADC region", during which the work of DiMSUR got the interest

[38] https://www.sadc.int/about-sadc, accessed on 6 January 2017
[39] http://www.sadc.int/themes/disaster-risk-management, accessed on 6 January 2017

of many participants. It was agreed that SADC's coordination and leadership role and the mandate of DiMSUR were complementary and that further cooperation was urgently needed. During the meeting, representatives from Botswana, South Africa, Swaziland and Zambia, among others, expressed their strong interest in joining DiMSUR, which highlights the relevance of this institution at the regional level. The current proposal reflects this and includes the SADC DRR Unit as one of the Executing Entities of the project, with responsibilities for supporting Component III of the project related to regional activities (see Part II, section A).

Importantly in March 2017 the Executive Director of UN-Habitat wrote a letter to the Executive Secretary of SADC to formalise and strengthen the partnership with DiMSUR (see http://dimsur.org/un-habitat-ed-letter-to-sadc/). In May 2017 a technical mission was undertaken by UN-Habitat to SADC Headquarters in Gaborone, Botswana to discuss and define the way forward, including the SADC DRR Unit's role in implementing this project proposal. (see mission report: http://dimsur.org/un-habitat-mission-report-gaborone/). One of the main outcomes is the preparation of a tripartite Memorandum of Understanding (MoU) between SADC, DiMSUR and UN-Habitat to formalise the partnership, which is currently under signature.

SADC has also recently produced a Gender Protocol which introduces new directives on gender and climate change. The Protocol provides the Governments with evidence-based research on the gendered impact of climate change to allow them to develop gender responsive programmes for disaster reduction and to utilise women's skills and knowledge in mitigation and adaption strategies.

- *The Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience (DiMSUR)*

At the request of the four countries targeted by this project, UN-Habitat has facilitated since 2010 the establishment of the Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience (DiMSUR), which was launched in June 2013. It was endorsed at the ministerial level by the four member countries as an international non-profit, autonomous and regional organisation through a signed Memorandum of Understanding in December 2014 (see http://dimsur.org/dimsur-mou-and-charter/) DiMSUR aims at fostering development and dissemination of knowledge and solutions as well as developing capacities for disaster risk management, climate change adaptation and urban resilience.

The effort to build a centre of excellence such as DiMSUR originated from the awareness of the four governments (which has been confirmed by several other members States of SADC during the above-mentioned March 2018 meeting) of the need to increase coordination and collaboration between neighbouring countries to exchange information, knowledge and mutual capacity reinforcement. The same is also mentioned in the 6th Session of the Africa Regional Platform on DRR held in November 2016 in Mauritius, under Section 4 on Targets: "Substantially increase the number of regional networks or partnerships for knowledge management and capacity development, including specialized regional centres and networks" and under Section 6 on Means of Implementation: "Support, and develop, as appropriate, regional centres engaged in DRR".

DiMSUR is composed of four organs (see Charter in MoU linked above):

- the Conference of Ministers of the member States, responsible for endorsing and validating the mission, vision, policies and strategies of the Centre and other extraordinary items when requested;
- the Executive Board, composed of the National Directors responsible for disaster risk reduction (DRR) and/or climate change adaptation (CCA) of each member State and other relevant stakeholders (UN system, academia, civil society) and responsible for making the key decisions and validating the guiding documents and products of the centre;

- the Consultative Group, consisting of recognised stakeholders of the DRR/CCA and urban resilience fields at various levels that advise and guide DiMSUR when consulted;
- the Secretariat, which conducts all operational functions that are conducive to the achievement of the objectives of DiMSUR as an autonomous body.

UN-Habitat has operated since 2010 as the Centre's Secretariat ad interim. Following its establishment in 2013, UN-Habitat has been responsible for implementing all activities planned in the Biannual Action Plan with full acknowledgement and consent of the DiMSUR Executive Board. Among these activities, it is worth mentioning the organisation of five meetings of the DiMSUR Executive Board since 2014, the participation of the Centre's representatives in numerous conferences and events worldwide (e.g. African Platforms for Disaster Risk Reduction, Africities Summit 2015, the Third United Nations Conference on Housing and Sustainable Urban Development – Habitat III, the 2014 World Urban Forum), the development of the CityRAP Tool methodology (see below) as well as the organisation of trainings and workshops on urban resilience involving more than 1,000 participants in various African countries.

UN-Habitat has also supported the Government of Mozambique in drafting and validating with all four members the Host Country Agreement for establishing the centre in Maputo. This has been a long-negotiated process that successfully resulted in the receiving the clearance of different Ministries and concerned national institutions in Mozambique. The Host Country Agreement was approved by the Mozambican Cabinet on 31 January 2017 during the Second Ordinary Session of the Council of Ministers chaired by H.E. the President Filipe Nyusi. The Government of Mozambique, through its Hon. Minister of State Administration and Public Function (MAEFP), which is the high-level government official responsible for disaster risk management, has repeatedly requested UN-Habitat, since this Cabinet approval, to further support the operationalization of the Centre as the Government and the other concerned countries are eager to see it up and running, considering the urgent need for its services.

As mentioned above, UN-Habitat and DiMSUR have developed the City Resilience Action Planning (CityRAP) tool. The main objective of the tool is to enable local governments of small to intermediate sized cities (or urban districts of bigger cities) to understand risks and plan practical actions to progressively build urban resilience. CityRAP targets local governments with no to limited experience in risk reduction and resilience planning. Its implementation helps prioritising key actions to build the city's resiliency. The main output of the tool is a City Resilience Framework for Action (RFA), based on local government self-assessments, participatory risk mapping exercises, and cross-sectorial action planning by the local government engaging relevant stakeholders, most importantly, communities themselves. CityRAP involves a bottom-up consultative process and has been designed as an enabling rather than prescriptive tool. A more detailed description of the tool methodology can be found on: http://dimsur.org/cityrap-tool-briefing/.

The tool was tested in several countries and a second, revised version was developed in conjunction with London King's College under the Urban Africa Risk Knowledge Programme funded by DFID, taking into account the lessons learnt. CityRAP Tool activities have been conducted in 25 cities in nine different countries (Madagascar, Mozambique, Malawi, Union of Comoros, Ethiopia, Cape Verde, Sao Tome and Principe, Guinea Bissau and Burkina Faso) and directly involved more than 1,000 local participants - from city authorities and technicians to local community leaders and civil society representatives.

In addition, under the Nairobi Work Programme on impacts, vulnerability and adaptation to climate change, UN-Habitat has developed a number of good practices in Africa, including: (i) a tool to mainstream gender consideration into city-level climate change plans and strategies, which was applied in Kampala, Uganda; (ii) simple and low-cost pilot interventions as effective local solutions for creating climate-resilient settlements, such as school buildings built with locally available

materials in Mozambique which can offer shelter in case of floods or cyclones; (iii) rooting sustainable development and desert prevention in Bobo Dioulasso, Burkina Faso, through participatory sanitation improvement and afforestation; (iv) sustainable resettlement and reconstruction in flood-prone peri-urban areas in Saint Louis, Senegal; and (v) youth initiative to sustain mangroves and livelihoods in Mombasa (Kenya).

In southern Africa, and in Africa in general, DiMSUR is unique as it is the only centre of excellence in the continent currently focusing on **urban resilience**, which is still a weakly explored and addressed topic in the region. DiMSUR, with UN-Habitat support, has been able to demonstrate its added-value, cost-effectiveness and relevance by addressing issues which the countries targeted by this project are currently ill-equipped to face, i.e. disaster risk and sustainable management of their fast-growing cities and towns. By using the CityRAP tool, the flagship product of DiMSUR, 25 African cities were able to develop *by themselves* a Resilience Framework for Action (RFA). Thanks to their own-developed RFAs, UN-Habitat gathered evidence/documented that (just to cite few success stories):

- In Chokwe, Mozambique, the municipality was able to mobilise vulnerable communities and undertake effective risk reduction measures without any external financial or technical support.
- In Morondava, Madagascar, the municipality was able to leverage 1.5 million Euros from *Agence Française de Développement* to implement the identified priority actions in the RFA.
- In Guinea-Bissau, the CityRAP tool implementation in Bafatá and Bolama city districts was so successful that the concerned central government authorities, through the Vice-Minister for Planning, which is part of the Ministry of Economy, Planning and Regional Integration, requested for this methodology to be replicated at the national scale especially for elaborating local economic development (LED) plans. To this end, UNDP, which is leading a LED national programme, has officially established a partnership with UN-Habitat to integrate key elements of the CityRAP tool into the local development planning tool that it has drafted. The partnership is showing positive preliminary results.
- In Cabo Verde, the municipality of Praia, the capital city, has taken advantage of the CityRAP tool to systematically integrate aspects related to risk reduction and resilience while developing detailed urban plans, and is intending to improve its by-laws accordingly.
- In the Union of Comoros, after the CityRAP Training of Trainers delivered in January 2016, the Directorate-General of Civil Security has decided to disseminate the tool nationally in all the island of the country using its own funding.

It seems important to underline that, before deciding to set up the Centre, the countries requested UN-Habitat to carry out a feasibility study (see the summary of the study: http://dimsur.org/feasibility-study-dimsur-summary/) between 2010 and 2011. Among other aspects, the study recommends that: *"the Centre should ensure to remain at the cutting edge of DRR concepts and practice, that it is flexible in the management of its programme and that it is able to be innovative and relevant. Hence the Centre should, as soon as possible, be identifying technical specialities that give it its individuality."* This is exactly what was done by focusing on urban resilience and developing/testing the CityRAP tool. Furthermore, the topic of urban resilience was identified thanks to a baseline study that can be found here: http://dimsur.org/baseline-study-dimsur/. Two independent evaluation of the tool's effectiveness were prepared in 2017 and 2018 and are available on the DiMSUR website.

As this project falls under the umbrella of DiMSUR and the SADC DRR Unit for regional activities, the following key partners of the Centre are mentioned in this proposal at the sub-regional and national levels. It will be noted that, while the institutions responsible for climate change adaptation are mentioned for each country, they are more linked to the broader area of disaster risk reduction, in line with the key mandate of these two regional executing entities.

- *Other relevant institutions in southern Africa*

Regarding the UN system and humanitarian partners such as international NGOs, a Regional Inter-Agency Coordination and Support Office (RIACSO) was established in 2002 in Johannesburg covering southern Africa, and is chaired by UNOCHA. RIACSO provides support to strategic planning, assessment and monitoring of crisis situations and coordination for emergency response. It has a functional partnership with SADC, in particular by playing an important role in strengthening networks such as the Famine Early Warning System Network and the Southern Africa Regional Climate Outlook Forum. Hence the standard *modus operandi* of RIACSO is mainly on supporting preparedness and early warning across the region through annual plans, which match the yearly meteorological cycles. Oxfam, a recognised non-governmental organization working in southern Africa and part of RIACSO, is a member of the DiMSUR Executive Board and will support executing this project at the local level.

The southern African region is vibrant with initiatives from the academic sector, which offer a choice of learning options, including professional training in the area of disaster management and increasingly on DRR. Among them, the Disaster Mitigation for Sustainable Communities and Livelihoods Programme implemented by the University of Stellenbosch, South Africa, apart from working with poor communities in projects aimed at strengthening their resilience in the face of disaster risk, also acts as a facilitator for the inter-university Peri Peri U project which supports ten universities throughout Africa to promote a DRR agenda. The latter project encourages interchange and knowledge-sharing between these academic bodies with a view to developing overall capacities in DRR on the continent. Two of these universities are in Madagascar and Mozambique. In Madagascar, the disaster management course (supported by UNDP) is taking momentum and is increasingly recognised. The Antananarivo University, Madagascar, which is part of the Peri Peri U, is a member of the DiMSUR Executive Board.

The North-West University at Potchefstroom in South Africa houses the African Centre for Disaster Studies, which focuses on the development of knowledge tools and offers postgraduate education courses and the facility for capacity development. The Centre is offering a variety of modules on disaster management and DRR and increasingly hosts international students. It is also a member of the DiMSUR Executive Board.

- *The World Bank / Global Facility for Disaster Reduction and Recovery (GFDRR)*

This important stakeholder supported the establishment of DiMSUR from 2013 to 2016 through the provision of an 810,000 USD grant to UN-Habitat under the ACP-EU Natural Disaster Risk Reduction Programme. Currently, at the request of SADC DRR Unit, after witnessing the strong interest manifested by SADC member States during the above-mentioned meeting in March 2018 and appreciating the innovative aspects proposed by DiMSUR and the effective impact of the CityRAP tool, the World Bank / GFDRR is providing a second grant (500,000 USD) to UN-Habitat/DiMSUR for implementing the tool in other southern African countries during 2019 and mainstreaming DRR and urban resilience in national developing planning in the SADC region.

➢ ***<u>At the national level</u>***

- *Madagascar*

The National Climate Change Coordination Bureau, which is attached to the Ministry of Environment, Ecology and Forestry, coordinates all actions related to the ratification of the UNFCCC, i.e. to promote a resilient economy, adapted to climate change, and to promote low-emission sustainable development of greenhouse gases.

There are two main institutions dealing with disaster management in Madagascar:

- The Emergency Prevention and Management Unit (*Cellule de Prévention et Gestion des Urgences*), which is a technical unit within the Prime Minister's office managing DRR and prevention projects with the support of the UN International Strategy for Disaster Reduction (UNISDR) and the World Bank. Its mandate concerns the following functions: (i) to elaborate and update the national strategy for DRR; (ii) to assess and control the implementation of national policy of disaster risk management and reduction; (iii) to support the sector for the implementation of prevention activities; (iv) to assist the Prime Minister in decision making regarding DRR. The flagship intervention of the CPGU is the work developed on building norms and codes in areas prone to cyclones.
- The National Disaster and Risk Management Office (*Bureau National pour la Gestion des Risques et des Catastrophes - BNGRC*) at the Ministry of Interior supports the Council for National Risk and Disaster Management and coordinates the organisation and management of operations in case of emergency, as well as disaster-related activities in general across the country. It has a disaster risk management mandate, with clear responsibilities regarding civil protection, preparedness (including stock-piling and pre-positioning) and response. It has capillary presence on the ground in coordination with the Red Cross and a network of stakeholders at local level. BNGRC is a member of the DiMSUR Executive Board in representation of the Government of Madagascar.

Another key project partner will be the municipality of Morondava for supporting the execution of the project activities at the municipal level.

- *Malawi*

The Cabinet Committee on Climate Change is the highest level and enables all arms of government to coordinate their actions in climate change adaptation activities. The Parliamentary Committee on Climate Change serves to assist in lobbying for passing environment related policies and legislations in the national assembly. The National Technical Committee on Climate Change is the technical multisectoral body advising on climate change in Malawi. Climate change is a cross-cutting issue and is mainstreamed in all Ministries of the Government of Malawi.

The key coordinating institutions for climate change issues at national and /or district levels include:

- The Ministry of Natural Resources, Energy and Mining is the National Climate Change Management Policy holder and is responsible for the formulation of environmental and climate change policies and coordination of their implementation through the other ministries. This includes the national adaptation strategies (of the NAPA). The Ministry also provides weather and climate related information and services. Its key role in climate change adaptation is to provide scenarios of climate change and provide early warnings and communication of forecasts.
- The Department of Disaster Management Affairs (DoDMA) is responsible for disaster risk management in the country. Its role in climate change adaptation is in preparedness and response for expected changes in disaster profile.

  The Disaster Preparedness and Relief Act establishes the National Disaster Preparedness and Relief Committee (NDPRC) responsible for providing policy directions on the implementation of DRM programs. The NDPRC comprises of Principal Secretaries of all line ministries and departments. It is chaired by the Chief Secretary to the Government.

  The Act also provides for the appointment of a head of DoDMA, which is responsible for coordinating and directing all DRR and disaster risk management programs in the country. The DoDMA, which is answerable at the level of the NDPRC, is part of the Commission for Poverty and Disaster Management Affairs at the office of the Vice-President, and is represented down

to district level. DoDMA is a member of the DiMSUR Executive Board in representation of the Government of Malawi.

- The Ministry of Agriculture, Irrigation and Water Development (MoAIWD) has key roles in the area of climate change adaptation including educating farmers about climate change, promoting climate smart agriculture, irrigation and providing hydrometric modelling to aid floods early warning.

Another key project partner will be the municipality of Zomba for supporting the execution of the project activities at the municipal level.

- *Mozambique*

In Mozambique, the institution responsible for Climate Change Adaptation is the Climate Change Unit, which is part of the Ministry of Land, Environment and Rural Development (*Ministério da Terra, Ambiente e Desenvolvimento Rural - MITADER*). The MITADER is tasked to organise and manage the execution of policies under the areas of Land and Geomatics, Environment, Forests, Fauna, Conservation Areas and Rural Development. The Climate Change Unit was created following the approval of the National Strategy for Climate Change Adaptation and Mitigation and has the following main roles: (1) Coordinate and facilitate inter-institutional connections related to Climate Change; (2) Prepare programmes and annual work plans related to climate change; (3) monitor the implementation of the National Strategy for Climate Change Adaptation and Mitigation and (4) provide technical advice on climate change projects and programmes financed through funds from environmental multilateral agreements.

The National Council for Disaster Management Coordination (*Conselho Coordenador de Gestão das Calamidades – CCGC*), led by the Prime Minister and including several ministries, is the highest political body dealing with disaster-related issues in Mozambique. Its mandate is to ensure multi-sectoral coordination for disaster prevention, assistance to the victims and rehabilitation of damaged infrastructures.

Importantly, the CCGC as political decision-making organ receives advices from the Technical Council for Disaster Management (*Conselho Técnico de Gestão de Calamidades - CTGC*), which is constituted by technical staff from the concerned departments of the different Ministries represented in the CCGC, as well as partners from the UN system.

The National Institute for Disaster Management (*Instituto de Gestão de Calamidades – INGC*), under the Ministry of State Administration and Public Function (*Ministério da Administração Estatal e da Função Pública – MAEFP*), coordinates the CTGC and reports to the CCGC. The main functions of INGC are to: (i) coordinate disaster prevention and mitigation activities; (ii) lead the government's response to emergencies; and (iii) deal with arid and semi-arid areas, reconstruction and resettlement. The structures of INGC go down to the three regions (Southern, Central and Northern Mozambique) and eleven Provinces both politically and technically. There are inter-sectorial technical committees for disaster management organised at the provincial level. Focal points are nominated at district levels which deal with the local committees. INGC is a member of the DiMSUR Executive Board in representation of the Government of Mozambique.

Another key project partner will be the municipality of Chokwe for supporting the execution of the project activities at the municipal level.

- *Union of Comoros*

The main institution responsible for climate change adaptation in Comoros is the Directorate General of the Environment and Forests (*Direction Générale de l'Environnement et des Forêts, DGEF*).

In terms of disaster management, the Directorate General for Civil Security (*Direction Générale de la Sécurité Civile - DGSC*) is recognised as the main governmental institution. DGSC is a member of the DiMSUR Executive Board in representation of the Government of Comoros.

Different sectors are responsible for disaster preparedness and response depending on the type of hazard. Sectors cooperate in response once alerted by the crisis cell, and propose an action to the government. The PIROI (Indian Ocean Regional Intervention Platform) network, part of the French Red Cross that carries out a regional programme of disaster risk management in the south-west Indian Ocean, strongly focuses on civil protection, disaster preparedness and response.

Another key project partner will be the municipality of Moroni for supporting the execution of the project activities at the municipal level.

Project Objectives:

In alignment with the Adaptation Fund Results Framework, in particular Outcome 2 (Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses), Outcome 3 (Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level) and Outcome 4 (Increased adaptive capacity within relevant development and natural resource sectors), the project has two objectives, namely:

1. To develop capacities and establish conditions to adapt to the adverse effects of climate change in vulnerable cities of Madagascar, Malawi, Mozambique and the Union of Comoros;
2. To promote inter-country experience sharing and cross-fertilisation regarding the adaptation to transboundary climate-related natural hazards and disseminate lessons learned for progressively building urban climate resilience in south-eastern Africa.

Objective 1 responds to the problem raised in the project background regarding the low capacity of local governments in sub-Saharan Africa in identifying and planning actions for effectively adapting to the negative effects triggered by climate change. This is especially true in fast growing small and intermediate cities. In these urban centres, under-serviced informal settlements are sprawling in an uncontrolled manner and municipal authorities are ill-prepared to face the unwanted consequences of this dynamic process. These range from the increased risk to climate-related natural hazards such as floods and cyclones, simply due to the vulnerable location of the new settlements, to issues compounding the impact of climate change, such as the lack of solid waste management, or poor techniques applied in housing construction.

Through Objective 1 national authorities are also targeted. The idea is to take advantage of the practical implementation of the project at the city level and of the CityRAP tool experience to derive the needed guidelines in alignment with existing policies and legislation, and thus create the conditions for replication in other cities and towns at the country level. For this purpose, the project will also allow delivering training activities to both central and local authorities through appropriate institutions and networks and by building appropriate partnerships with on-going initiatives, and start laying the foundations for building urban climate resilience in the four participating countries.

Objective 2 represents the regional dimension of the project and will be anchored to the DRR SADC Unit, which will work in partnership with DiMSUR. As per the MoU for establishing the Centre signed among the four countries concerned by this project (see DiMSUR MoU and Charter: http://dimsur.org/dimsur-mou-and-charter/), DiMSUR will promote inter-country experience sharing and cross-fertilisation, and work as a knowledge platform regarding urban resilience related issues that can be disseminated in the sub-region. One of the key *"raison d'être"* for establishing this institution is the need for these countries belonging to the same geographical

region to share best practices on how to address common transboundary climate-related natural hazards. This certainly represents a strong added-value of the project, whose impacts could even reach more countries of the southern Africa sub-region.

Therefore, there are **three Project Components** (which will be described in more detail in Part II), the first two contributing to Objective 1 and the third one contributing to Objective 2:

1. *Preparation, implementation and sustainable management of priority sub-projects at the city level,* aligned with Adaptation Fund (AF) Outcome 2: "Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses", AF Outcome 3: "Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level", AF Outcome 4: "Increased adaptive capacity within relevant development and natural resource sectors" and AF outcome 5: "Increased ecosystem resilience in response to climate change and variability-induced stress";
2. *Tools and guidelines development and training delivery at the national level*, aligned with AF Outcome 2: "Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses" and AF Outcome 7: "Improved policies and regulations that promote and enforce resilience measures";
3. *Inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level*, aligned with the need of a regional project to promote new and innovative solutions to climate change adaptation for urban areas in multiple countries affected by common/transboundary climatic threats, with AF Outcome 2: "Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses" and AF Outcome 7: "Improved policies and regulations that promote and enforce resilience measures".

Project Components and Financing:

Project Components and Financing *(NB: **all 4 countries** are concerned in each component. Further information on planned outputs and their indicative budgets can be found in more detail in Part II, section A)*

Project Components	Expected Outcomes	Expected Outputs	Amount (US$)
1. Preparation, implementation and sustainable management of priority sub-projects at the city level	1. Municipal staff, communities and local stakeholders have successfully planned and implemented priority sub-projects for increasing the climate resilience of their city and have acquired the required capacity to manage and maintain the realised investments	1.1. Sub-projects implementation plans fully developed with communities and municipalities, including detailed engineering studies	396,000
		1.2. Priority sub-projects are implemented in the four target cities mainly through community involvement as labour-intensive manpower	7,749,999
		1.3. Municipal staff and community members mobilised, trained and equipped for ensuring the sustainable management and/or maintenance of the implemented priority sub-projects	2,345,600
		Sub-Total Project Component 1:	*10,491,599*

2. Tools and guidelines development and training delivery at the national level	2. National governments have created enabling conditions for scaling up and replicating the same climate resilience approach in other urban settlements	2.1. National tools, guidelines, policies and/or legislation for promoting urban climate adaptation developed	270,000
		2.2. National and local officers trained in urban climate adaptation techniques and approaches	490,000
		Sub-Total Project Component 2:	*760,000*
3. Inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level	3. Local and national governments of the 4 countries have learned from each other good urban climate adaptation practices and are better prepared to face common transboundary climate-related natural hazards	3.1. Lessons learned and best practices captured and disseminated through the SADC DRR Unit in partnership with DiMSUR as regional knowledge management platform	170,000
		3.2. Cross-fertilisation activities among the participating countries are discussed and prepared	120,000
		3.3. Regional workshops organized for experience sharing among the different countries, and participation to global events	240,000
		Sub-Total Project Component 3:	*530,000*
		Sub-Total of the 3 Project Components:	*11,781,599*
5. Project Execution Cost (9.5%)			1,119,252
6. Total Project Cost			12,900,851
7. Project Cycle Management Fee charged by the Implementing Entity (8.5%)			1,096,572
Amount of Financing Requested			**13,997,423**

Project Duration: *4 years (48 months)*

Projected Calendar:

Milestones	Expected Dates
Start of Project Implementation	July 2018
Mid-term Evaluation	July 2020
Project Closing	July 2022
Terminal Evaluation	January 2023

PART II: PROJECT JUSTIFICATION

A. Project components

A regional approach for this project is justified for the following reasons:

Common natural threats: the four selected countries for this project are annually affected by **cyclones** originating in the Indian Ocean and moving westwards during the period stretching from November to March, hence provoking strong winds, high precipitations and floods with devastating effects in urban areas. In addition, three out of four countries (i.e. with exception of Malawi) suffer from coastal erosion which is compounded by the effects of sea-level rising. It is crucial that the countries start learning from each other on how to adapt to these common climatic threats. Historically, this has not been the case especially because of the language barriers and prolonged conflicts affecting southern Africa for several decades until the end of the Apartheid regime in South Africa. Generally-speaking, inter-country cooperation has been weak, especially regarding DRR. Yet Madagascar, for example, is much more advanced comparing to its neighbours to withstand cyclones, being one of the most vulnerable countries in the world to this type of natural hazard. The country has developed adapted building codes which are being systematically enforced in all types of constructions. That is why the Government of Mozambique, through INGC, has requested UN-Habitat in 2012-2013 to support the transfer of knowledge from Madagascar to Mozambique in terms of cyclone-resistant construction. This was successfully done thanks to the financial support of the World Bank through the Safer schools initiative, which is now being scaled-up in the country (see: http://dimsur.org/safer-schools-project_inception-report-lessons-learned/).

Similarly, Mozambique has a greater experience than its neighbours in terms of **flood** risk management and has been providing technical assistance from 2010 to 2014 to other SADC countries. However, these recent (and still much under-developed) inter-country cooperation initiatives have been carried out in an ad-hoc manner, based on time-bound projects and/or funding, hence knowledge is then lost once the project ends or the key people are gone, since it knowledge management practices are not systematised. This very well justifies the need for a regional approach. The current proposal scales up these existing initial knowledge and cross-learning processes, notably through Component 3.

A common institution: the four countries targeted by this project requested UN-Habitat to verify the feasibility of establishing a sub-regional technical centre for Disaster Risk Management, Sustainability and Urban Resilience (DiMSUR)[40], which was launched in 2013. The Centre, which was described in greater detail earlier, aims at fostering development and dissemination of knowledge and solutions in the four concerned countries, as well as developing capacities for disaster risk management, climate change adaptation and urban resilience. In the centre's 10-Year Strategic Plan approved in October 2015 by the DiMSUR Executive Board, (see DiMSUR 10-Year Strategic Plan: http://dimsur.org/dimsur-10years-strategic-plan/), the Centre has defined among its six areas of work the Strategic Priority n. 4: *"Establishing networks and partnerships towards better knowledge management and dissemination for urban resilience"*. Therefore, this Centre is the best possible mechanism already in place to manage and disseminate knowledge and best practices being generated by the project. As mentioned earlier, there is currently a strong request for DiMSUR support by the targeted countries and even additional SADC member States. Meanwhile, the World Bank / GFDRR is providing financial support to satisfy this demand. It is highlighted that in the DiMSUR MoU (see DiMSUR MoU and Charter: http://dimsur.org/dimsur-mou-and-charter/) the intention is to enlarge DiMSUR's geographical

[40] For more information on DiMSUR, please see the Centre's website at: http://dimsur.org/

coverage to the whole SADC region (as mentioned, Botswana, Zambia and Zimbabwe have already expressed interest to join). The Asian Disaster Preparedness Centre (ADPC – created in the 1980's for similar reasons as DiMSUR) has already contacted UN-Habitat (in its role as DIMSUR Secretariat ad interim) several times in the past few years to establishing a joint collaboration and deliver technical advisory services in the SADC region. Furthermore, sustainability, as explained in the DiMSUR feasibility study, (see Feasibility Study DiMSUR: http://dimsur.org/feasibility-study-dimsur-summary/), it is being ensured by:

- Securing the full endorsement and ownership of the initiative from the concerned countries
- Involving SADC, other UN agencies, civil society, academia, and bi/multilateral donors in the initiative
- Carrying out constant advocacy and resource mobilisation efforts
- Establishing the credibility of the Centre as a viable income generator in order to sustain itself; this can be achieved if the quality of the services delivered and results achieved by the Centre are ensured; the centre needs to make itself an indispensable part of the DRR fabric in the region (NB: the fulfilment of this recommendation is on the right track through the development and consolidation of the CityRAP tool, which is currently on high demand)
- Establishing the centre progressively, through a multi-phased process: the costs for maintaining and running the centre will be shared among: 1) the contribution from external donors (which should decrease over time); 2) the contribution from the countries (which should remain fixed over time, and can also be in-kind); and 3) the contribution from income generation activities (which should increase over time);

A new topic and the possibility to learn from each other: adaptation to the effects of climate change in urban areas is a relatively new topic in Africa. The cities selected in each country suffer from different types of effects of climate change because of their diverse physical conditions: Moroni and Morondava are coastal cities, affected mainly by sea level rise and cyclones/floods, while Chokwe and Zomba are located inland, the first suffering mainly from river floods and the second from flash floods due to deforestation. This means that the selected urban centres will provide a wealth of diverse experiences and solutions for adapting to the negative effects of climate change in urban settings from which all four countries will be able to learn from, thanks to the adopted regional approach. In addition, these four cases will be a valuable representative sample of diverse situations from which different urban adaptation models and practices can be extracted, in order to compile lessons learned and further disseminate them in the SADC region.

The above-mentioned issues provide a strong justification for adopting a regional approach instead of working in each country individually. In addition, SADC, which plays the role of the regional executing entity in this project, is interested in using the lessons learned to influence its current regional policies and strategies regarding disaster risk reduction and climate change adaptation in urban areas, and to promote similar approaches in other countries of the region. As indicated above, UN-Habitat has developed a proposal on behalf of DiMSUR at the request of SADC that is being funded by the World Bank / GFDRR to carry out CityRAP Training of Trainers and implementation/dissemination in four additional southern African countries and supporting them to mainstream urban DRR and resilience in their policies and strategies.

The project consists of **three components**:

Under **Component 1**, the project intends to prepare, implement and manage in a sustainable manner priority sub-projects at the city level, which are meant to serve as entry points to progressively build climate resilience in the four target cities and selected communities.

This process builds on activities already conducted during project preparation, including the results of the CityRAP tool implemented in the four cities (a process that developed local government capacity to understand and plan actions that progressively build urban resilience and

reduce urban risk and resulted in Resilience Action Plans that identified priority issues for the short, medium and long-term; see in more detail Part II, Section B) and additional field work activities, as summarised below:

- *Morondava, Madagascar:* UN-Habitat, as DiMSUR Secretariat ad interim, supported the city of Morondava to develop, finalise and validate its Resilience Action Plan through the implementation of the CityRAP Tool between January and March 2016. (i) improve the drainage system; (ii) protect the coastline; (iii) plan the city of Morondava; and (iv) improve solid waste management. Coordination mechanisms and a monitoring and evaluation framework have been added to complete the document. Then additional field work and local consultations with key stakeholders, including marginalised and vulnerable groups, were organised end of June 2017, end of October 2017, March 2018 and October 2018 (see Part II, Section I and **Annex 4**) to determine their needs for building urban climate resilience and develop more detailed priority sub-projects, which were validated locally.
- *Zomba, Malawi:* The CityRAP methodology was implemented in Zomba between October and November 2015. The Resilience Action Plan defines 5 priority issues: (i) reduce and mitigate floods; (ii) improve the drainage system; (iii) strengthen citizen security; (iv) promote sustainable forest management; and (v) foster strategies to cope with rainstorms. Additional field work and local consultations were organised in June and July 2017, end of September 2017, March 2018 and October 2018 (see Part II, Section I and **Annex 4**) to determine the needs for building urban climate resilience and develop the priority sub-projects in a participatory manner. Through site visits and local consultations, including with marginalised and vulnerable groups, the feasibility of the project from their perspectives, potential social and environmental benefits and risks, and the specific needs of these populations were assessed and the sub-projects were revised accordingly, in conjunction with all local stakeholders.
- *Chokwe, Mozambique:* UN-Habitat, on behalf of DiMSUR, selected Chokwe as the first pilot city to implement the CityRAP Tool between August and September 2015. The City Resilience Action Plan identified six priority issues: (i) plan neighbourhoods; (ii) improve the drainage system; (iii) improve solid waste management; (iv) improve public lighting; (v) develop the urban economy; and (vi) improve education and health infrastructure. Less than one year after the CityRAP Tool was conducted, Chokwe municipality and local community started spontaneously to organise themselves to lead the city resilience process with effective actions in order to implement their resilience plan developed with the CityRAP tool (see http://dimsur.org/chokwe-community-implements-its-urban-resilience-plan/). Field work was carried out and local consultations held in mid-July and October/November 2017, as well as in February 2018 and end of October 2018 (see Part II, Section I and **Annex 4**), to determine develop priority sub-projects for climate adaptation and validate them locally.
- *Moroni, Comoros:* the CityRAP Tool was implemented between April and August 2017. During the prioritisation workshop held beginning of July 2017, the following actions were identified: (i) job creation; (ii) solid waste management; (iii) energy; (iv) improved urban planning; (v) water, drainage and sanitation. When carrying out field work in July/August 2017, November 2017, March 2018 and October/November 2018 (see Part II, Section I and **Annex 4**) in selected vulnerable neighbourhoods, considering the need to look at resilience from a climate adaptation angle, the following priority sub-projects were identified more specifically: (i) improved drainage conditions; (ii) solid waste management; (iii) access to drinking water; and (iv) enhanced early warning systems for floods.

Based on the four City Resilience Frameworks for Action (RFAs) and the information collected during the in-depth municipal/community consultations, the following *Expected Outputs* were defined:

1.1. Sub-projects implementation plans developed with communities and municipalities, including detailed engineering studies

For larger-size sub-projects there is a need to develop more detailed designs based on deeper assessment studies, as well as bill of quantities, and to get formal approval from national/local authorities. This will be done through local consultations, by hiring specialised engineers/architect/planners (as required), from which then local tendering processes will be carried out to hire sub-contractors.

1.2. Priority sub-projects are implemented in the four target cities mainly through community involvement as labour-intensive manpower

In total, 23 priority sub-projects have been identified in the 4 target cities (see **Annex 5**), which will contribute to improve the following key aspects of climate change adaptation in urban areas: early warning systems, drainage capacity (intrinsically linked to solid waste management), safe havens, sustainable use of natural resources (especially to mitigate erosion and flood risk, and improving water resources management) and urban mobility (essential for evacuation purposes during disaster emergency times). As there are similar sub-projects in the four target cities, best practices and lessons learned will be used to maximise positive impacts in each city from a national and regional perspective through cross-country/city experience sharing (see Component 3).

As explained above, these priority sub-projects resulted from the roll-out of the CityRAP tool and from in-depth consultations held at community and municipal levels until very recently. The following criteria were considered for their selection:

- Critical urban resilience building needs responding to current and future climate change impacts;
- Cost-effectiveness of the proposed priority sub-projects;
- Potential environmental and social risks and impact of the proposed priority sub-projects, and identified mitigation strategies;
- Expected economic, social and environmental benefits of the proposed priority sub-projects;
- Sustainability of the proposed priority sub-projects;
- Avoidance of possible duplication of efforts already undertaken at the city level, and
- The needs of marginalised and vulnerable groups and integration of gender aspects.

Implementation of these priority sub-projects, which constitute the major financial investment of the project, will allow creating temporary jobs, especially targeting poor/vulnerable people. These sub-projects will be implemented under the leadership of Oxfam International in cooperation with the target municipalities and as much as possible through community involvement (e.g. labour intensive activities), in a cost-effective manner. Only for major investments specialised local sub-contractors will be hired, always with a clause to use the resident community as unskilled/skilled (if available) labour as much as possible.

1.3. Municipal staff and community members are mobilised, trained and equipped for ensuring the sustainable management and/or maintenance of the implemented priority sub-projects

This output and related activities are of crucial importance especially for ensuring the sustainability and efficient maintenance of the priority sub-projects mentioned above. It will entail activities such as: (i) local training sessions (including vocational/skill training) for both responsible municipal staff and community members; (ii) community awareness and

sensitisation (with focus on gender/youth issues) regarding drainage/road maintenance, solid waste management, management and use of public rainwater harvesting systems, tree planting, enforcement of by-laws with climate adaptation focus, etc.; (iii) use of required maintenance equipment, among others; and the promotion of alternative livelihoods to support sustainable use of resources. In this way, local capacity will be developed so to ensure the management/maintenance of the priority sub-projects' outcomes in the longer term.

A more detailed description regarding Component 1 for each city is provided below.

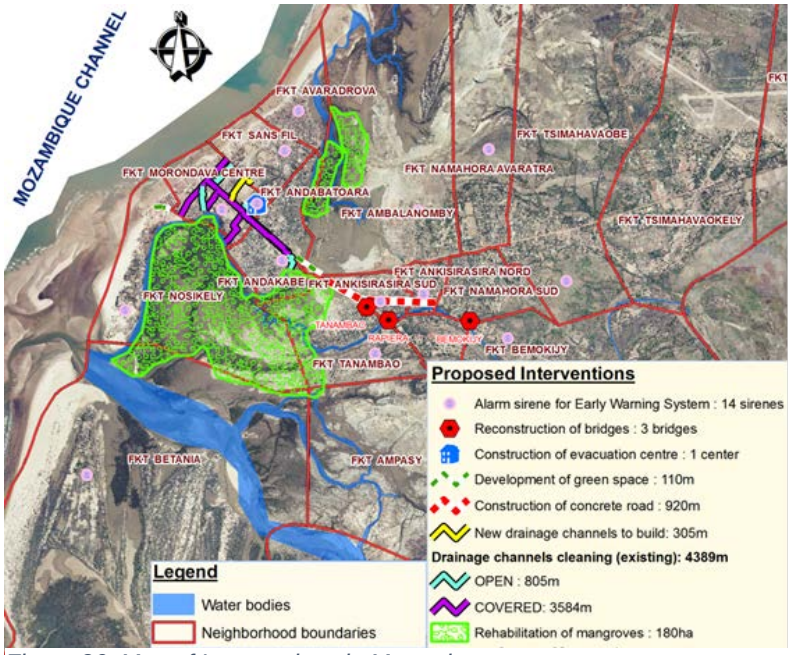


Figure 26: Map of Interventions in Morondava

Neighbourhood (or Fokontany)	Population (2017)	Older persons	% of poor
Andabatoara	5,705	301	75%
Ambalanomby	778	41	68%
Andakabe	4,667	246	61%
Ankisirasira Nord	3,319	175	72%
Ankisirasira Sud	2,697	142	78%
Avaradrova	4,253	224	79%
Bemokijy	897	47	75%
Morondava Centre	4,771	252	60%
Nosikely	3,630	191	50%
Sans Fil	3,112	164	70%
Tanambao	5,186	274	85%

Table 2: Demographic and socioeconomic characteristics of the targeted neighbourhoods in Morondava[41]

➢ *Morondava, Madagascar*

As described in Part I, the city of Morondava is affected by multiple risks (see Figures 6 and 7 in Part I). During the screening and assessment of potential sub-projects to be implemented, it was concluded that greater structural interventions such as large flood/erosion protection measures (e.g. sea walls, stabilisation of the dune system, etc.) may lead to uncertain results and involve high costs. In addition, considering that early warning mechanisms, building codes and basic preparedness capacities concerning strong winds linked to cyclonic events already exist in Morondava, the approach adopted for packaging the priority sub-projects and contributing to enhancing the urban climate resilience of the city is to focus on creating local capacities and conditions for "living with floods" and lowering the levels of flood disaster risk. Therefore, eight (8) sub-projects were selected focusing mainly on the neighbourhoods most at risk, namely: Andabatoara, Ambalanomby, Andakabe, Ankisirasira Nord, Ankisirasira Sud, Avaradrova, Bemokijy, Morondava Centre, Nosikely, Sans Fil and Tanambao. Table 2 presents demographic and socioeconomic data from these neighbourhoods.

[41] NB: unfortunately, no disaggregated data by sex and by age (e.g. youth) exist at the neighbourhood level; however, the city's population of 50.73% or women and 49.27% of men.

The selected sub-projects are (see **Annex 5.1**):

Priority sub-projects	Target neighbourhoods / Fokontany	Estimated nr of direct beneficiaries	Estimated cost (USD)	Cost per beneficiary (USD)
5.1.1. Rehabilitation of 180 ha of mangroves	Nosikely, Tanambao, Andakabe and Avaradrova	27,782	560,000	20.16
5.1.2. Urban greening interventions in high risk areas	Nosikely, Andakabe, Andabatoara, Ambalanomby, Ankisirasira Sud and Tanambao	22,663	120,000	5.29
5.1.3. Establishment of a city-wide early warning system for floods	City-wide	63,000	85,000	1.35
5.1.4. Construction of a resilient and multi-purpose safe-haven	Morondava Centre and adjacent neighbourhoods located in the western part of the city	26,138	201,000	7.69
5.1.5. Construction of a flood-proof elevated road with improved drainage capacity	Ankisirasira Sud, Ankisirasira Nord and Tanambao neighbourhoods	18,929	425,000	22.45
5.1.6. Reconstruction of 3 bridges connecting different neighbourhoods in a resilient manner	Tanambao, Ankisirasira Sud and Bemokijy	10,943	250,000	22.85
5.1.7. Enhancing the drainage capacity in the city centre	Morondava Centre, Sans Fil, Andakabe and Andabatoara neighbourhoods	18,255	170,000	9.31
5.1.8. Improving solid waste management	Morondava Centre, Sans Fil, Andakabe and Andabatoara neighbourhoods	18,255	190,000	10.41

Table 3: Overview of sub-projects for Morondava

These eight interventions are closely inter-related. In order to preserve ecosystems and protect infrastructure and communities against the adverse impacts of floods, the project will carry out interventions to improve buffer areas and soil stabilisation in critical areas of the city that are prone to flooding. Therefore 180 ha of mangroves will be rehabilitated and green buffer areas developed along a crucial avenue linking the two sides of the city, also used as the principal evacuation route in case of floods.

The project plans to establish a city-wide early-warning system for floods including the identification and marking of escape routes to hospitals and the multi-purpose safe-haven. As the existing network of city infrastructure does not allow for a safe evacuation of the population when floods occur, attention will be given to improving a critical road and key bridges to get out of isolation the south-eastern part of the city. In fact, by elevating and paving an important escape road and rehabilitating three bridges, the evacuation of the population from these neighbourhoods, where poor and marginalized and vulnerable groups are living, will be facilitated in case of an emergency. For this purpose, a surveillance centre will be equipped in the multi-purpose safe-haven to be built in the city centre, which can also provide shelter to the population.

Lastly, the drainage system will be improved in the city centre and adjacent areas by cleaning and rehabilitating the existing network of drainage ditches. It will expand the drainage system at reasonable cost in an area particularly at risk with the aim of facilitating the evacuation of rain/flood waters. Importantly, these drainage interventions will be complemented through the improvement of solid waste management to ensure the proper functioning of the rehabilitated/improved drainage system.

➢ *Zomba, Malawi*

In order to reduce the impacts of floods on people, assets and livelihoods and to ensure that vulnerable people are safe with regard to floods, interventions in Zomba will be packaged into seven sub-projects that will benefit eight among the most vulnerable wards. The target wards present high percentages of informal settlements (e.g. 100% in Likangala Ward, 90% in Chinamwali Ward, 98% in Mpira Ward, 70% in Mbedza Ward and 50% in Mtiya Ward, just to cite a few)[42]. Demographic information on the selected neighbourhoods can be found in Table 4 below.

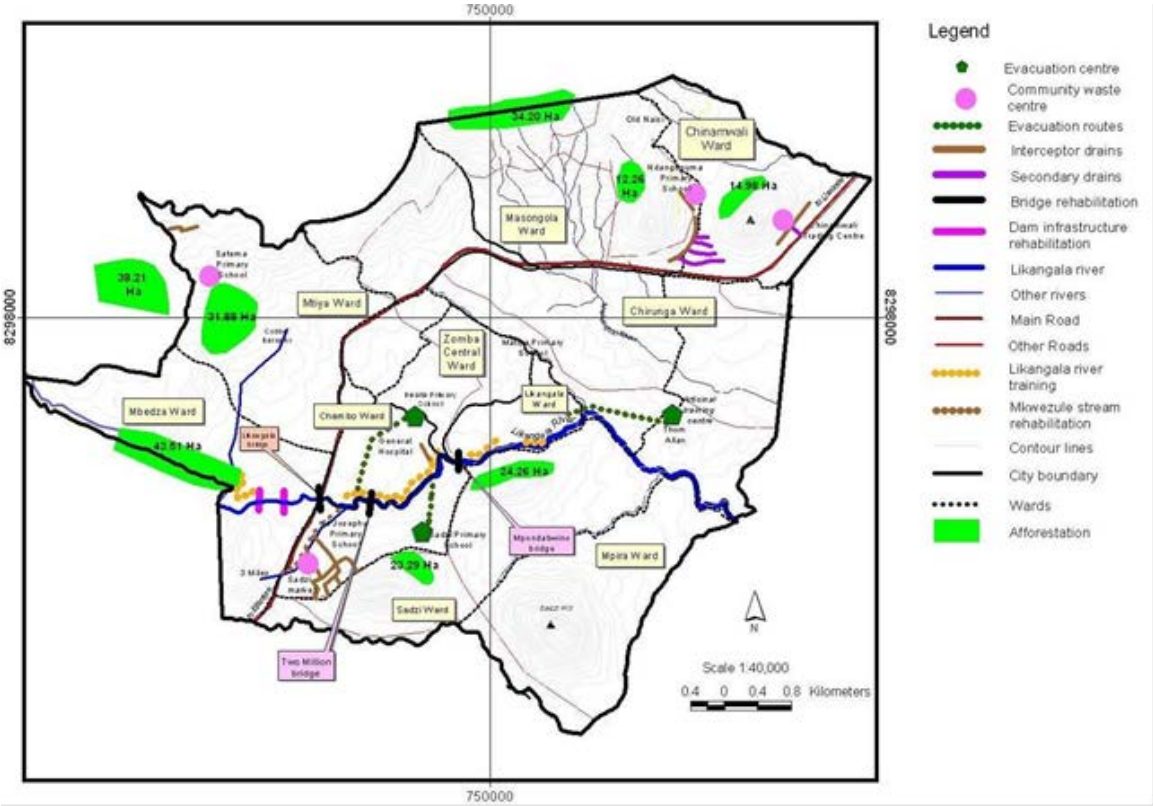


Figure 27: Map of Interventions in Zomba

Communities / ward	Population / beneficiaries[43]
Masongola	**9,284** (4,549 female; 3,853 youth; 250 disabled)
Sadzi	**20,271** (9,933 female; 8,412 youth; 520 disabled)
Mtiya	**12,466** (6,108 female; 5,173 youth; 412 disabled)
Chambo	**11,558** (5,663 female; 4,797 youth; 390 disabled)
Chinamwali	**21,739** (10,652 female; 9,022 youth; 545 disabled)
Mbedza	**12,082** (5,920 female; 5,014 youth; 417 disabled)
Mpira	**12,128** (5,920 female; 5,014 youth; 400 disabled)
Likangala	**22,711** (11,128 female; 9,425 youth; data on disabled not available)

Table 4: Demographic characteristics of the targeted wards in Zomba

[42] Zomba City Council estimations

[43] Updated data on population and beneficiaries: Malawi National Statistics Office (NSO), 2017. Data on disabled could not be updated and stems from NSO, 2010.

The selected sub-projects in Zomba are (see **Annex 5.2**):

Sub-project	Target communities / wards	Estimated nr of beneficiaries	Estimated cost (USD)	Cost per beneficiary (USD)
5.2.1. Establishment of a city-wide early warning system for floods	All wards	156,022	140,000	0.90
5.2.2. Construction of multi-purpose evacuation centres	Chambo, Sadzi and Likangala	30,871	275,000	8.91
5.2.3. Rehabilitation of existing drainage channels and construction of new drainage channels	Chinamwali, Masongola, Mtiya, Sadzi	63,760	313,000	4.91
5.2.4. Improving solid waste management	Chinamwali, Masongola, Mtiya, Sadzi	36,060	184,700	5.12
5.2.5. River-focused interventions to prevent erosion and flooding	Mbedza, Sadzi, Chambo and Likangala (along the Likangala River banks)	20,000 (approx.)	450,000	22.5
5.2.6. Construction and rehabilitation of bridges and dams on Likangala River	Likangala, Sadzi and Chambo wards	156,022	160,000	1.02
5.2.7. Sustainable urban forest management	Chinamwali, Masongola, Mtiya, Mbedza, Chambo, Sadzi and Mpira	77,789	350,000	4.50

Table 5: Overview of sub-projects for Zomba

Similarly, as for Morondava, these sub-projects form an integrated package of inter-related interventions to reduce the impact of flooding and increase the level of climatic adaptation of Zomba. Importantly, this integrated approach takes into account the wider catchment system of which Zomba is a part of. As part of an overall logical approach, up-hill areas were targeted with afforestation and drainage interventions to address soil erosion, landslides, flash floods and uncontrolled water flow. These interventions are located where people and assets are most at risk, i.e. close to schools and in densely populated areas, identified as a result of repeated consultations with the local population (especially women and the most vulnerable) and the municipal authorities. To sustainably address drainage needs and ensure a fully operational drainage system in the longer-term, a community-based solid waste management system is introduced to avoid ditches becoming clogged with waste.

Meanwhile, focusing on the Likangala River that crosses the city and its surrounding flood-prone areas, interventions that are complementary to the afforestation efforts will tackle river bank erosion, gully building/growth and soil degradation through river-focused interventions at identified hotspot areas (see map of interventions in Zomba in Figure 27). This includes the rehabilitation or reconstruction of main bridges to cross the river, which are currently at risk of collapse as no repair has been undertaken since the 2015 floods. These bridges are crucial to ensure proper connectivity and circulation of people and goods within the city, which is especially important for evacuation purposes when a disaster strikes. The same sub-project also includes the rehabilitation of two dams along the Likangala River, with the functions of slowing down the flow of waters in case of river floods and of irrigating peri-urban agricultural areas during the dry season.

Finally, areas of the city most at risk of floods will be equipped with community-managed safe-havens built according to gender-sensitive standards, also catering for the needs of the older persons and persons with disability, connected by improved evacuation routes. In case of an imminent flood, evacuation will be triggered by the city-wide early warning system that will be put in place.

➢ *Chokwe, Mozambique*

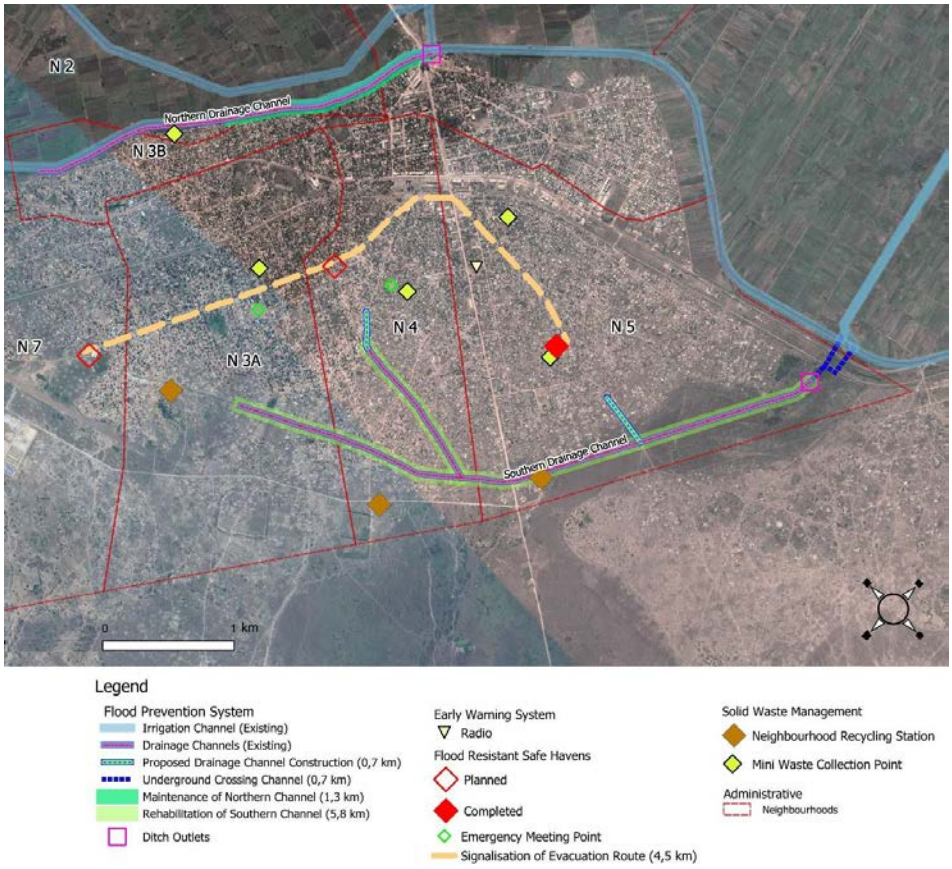


Figure 28: Map of proposed project interventions in Chokwe

Considering its chronic vulnerability, the main approach in Chokwe will be "living with floods", which has been successfully promoted by UN-Habitat in Mozambique since 2002.
Specifically, the project in Chokwe will concentrate its activities in four neighbourhoods, which are considered to be the most exposed to natural hazards and where the poorest and the most vulnerable are living, namely: neighbourhoods n. 3, n. 4, n. 5 and, marginally, n. 7. Demographic data from these neighbourhoods is provided in Table 6.

Neighbourhoods	Population / beneficiaries[44]
Neighbourhood n. 3	**10,623** (5,596 female; 2,550 youth; 80 disabled)
Neighbourhood n. 4	**24,000** (13,500 female; 8,000 youth; 100 disabled)
Neighbourhood n. 5	**11,250** (6,500 female; 2,750 youth; 150 disabled)

Table 6: Demographic characteristics of the targeted neighbourhoods in Chokwe

The selected sub-projects in Chokwe are (see **Annex 5.3**):

Sub-project	Target neighbourhoods	Estimated nr of beneficiaries	Estimated Cost (USD)	Cost per beneficiary (USD)
5.3.1. Improving the overall drainage capacity of the city	Neighbourhoods 3B, 4 and 5	68,000	1,000,000	14.71
5.3.2. Construction of safe-havens	Neighbourhoods 3A, 3B, 5 and 7	41,626	200,000	4.80
5.3.3. Improving solid waste management	Neighbourhoods 3B, 4 and 5	35,000	265,000	7.57
5.3.4. Establish early warning for floods at community level	City-wide	68,000	100,000	1.47

Table 7: Overview of sub-projects for Chokwe

[44] Based on projections from the official 2007 Census, since the final results of the 2017 Census are not yet available.

Once again, these four interventions are integrated and will be implemented in a complementary way. Drainage capacity at the city level will be improved to allow a faster evacuation of flood waters caused by excessive rain or river flooding. This intervention will be reinforced by enhancing solid waste management in the areas surrounding/near the rehabilitated/constructed drainage ditches, so that they can keep working efficiently and avoid being clogged with waste. This will also prevent stagnating and dirty waters and reduce health-related hazards, especially the outbreak of water-borne diseases.

Three elevated safe-havens will be built/used during higher floods, serving as shelter for the most vulnerable and reducing loss of lives, assets and livelihoods during a flood emergency. Their use will be triggered by improved early warning systems at the community-level (thanks to the delivery of tailored training and capacity building activities) and well-signalled evacuation routes. These last two initiatives will be duly coordinated with the stakeholders at the different levels, i.e. municipal, district, regional and central authorities involved in disaster risk management.

- *Moroni, Comoros*

The La Coulée neighbourhood, is a steep slope area suffering from flash floods as it is part of a large catchment area and lacking a proper drainage system with subsequent problems of erosion, compounded by uncontrolled dumping of waste and lack of access to drinking water. The neighbourhood concentrates a large proportion of poor households and marginalized and vulnerable groups and is densely populated. It represents the main target area of this project in Moroni. During extreme rain events (which have become more and more frequent in recent years) the water flows through altered paths upstream and hits La Coulée with increased strength in an area densely occupied by urban poor, putting the lives, assets and livelihoods of an already vulnerable population at risk.

Figure 29: Map of proposed interventions in Moroni

La Médina neighbourhood is centrally located, represents the historic city centre and suffers from severe waste management problems that are totally blocking the underground drainage system, provoking heavy runoff or flash floods even during a moderate rainfall event. As this is the economic heart of the city, it is important to improve its climate adaptation characteristics to prevent major negative consequences when it rains heavily on both formal and informal business activities, as these constitute the main livelihoods of many citizens.

Neighbourhoods	Population / beneficiaries
La Coulée Neighbourhood	**17,496** (10,200 female; 11,600 youth; 46 disabled)
Medina (Badjanani Mtsangani)	**2,249** (1,003 female; 1,345 youth)

Table 8: Demographic characteristics of the targeted neighbourhoods in Moroni

In total four sub-projects were selected after extensive consultations with the local population and assessment by experts on feasibility and potential social and environmental impacts, namely (see **Annex 5.4**):

Sub-project	Target communities / neighbourhoods	Estimated nr of beneficiaries	Estimated cost (USD)	Cost per beneficiary (USD)
5.4.1. Reinforcing the drainage capacity in La Coulée neighbourhood	La Coulée	18,000	1,936,300	107.57
5.4.2. Establishment of community-managed rainwater harvesting systems in La Coulée neighbourhood	La Coulée	4,000 (poorest and most vulnerable)	170,000	42.5
5.4.3. Improving solid waste management in La Coulée and Médina neighbourhoods	La Coulée, Medina	20,000	120,000	6.0
5.4.4. Setting up a flood early warning system in La Coulée neighbourhood	La Coulée	18,000	85,000	4.72

Table 9: Overview of sub-projects for Moroni

These four sub-projects complement each other as they mainly focus on strengthening the climate resilience of La Coulée in an integrated manner. A new and much needed drainage intervention will be carried out to reduce the impacts of flash floods resulting from heavy rains, directing part of the water flow towards the sea. This will reduce loss of assets and livelihoods while also improving sanitary conditions in the area, thus minimising the spread of water-borne diseases.

This intervention will be complemented by the setting up of an early warning system for floods in the same neighbourhood, which will allow the local population to evacuate safely in case of a flash flood. Additionally, (and importantly) a solid waste management initiative will be implemented in La Coulée to avoid waste hampering the efficiency of the planned drainage system. The latter intervention will also be carried out in La Medina.

Finally, community-based rainwater harvesting systems will contribute to the further improvement of hygienic conditions and alleviate the harsh living conditions of the most vulnerable people, especially targeting women, older persons and the disabled in La Coulée, thus responding to one of the main needs voiced several times by the local community during consultations.

Under **Component 2**, project activities will occur at the national and local levels to reach the following *Expected Outputs:*

2.1. National tools, guidelines, policies and/or legislation for promoting urban climate adaptation developed;

2.2. National and local officers trained in urban climate adaptation techniques and approaches.

National guidelines, policies, legislation or strategies will be derived from the activities carried out within Component 1 with aim to promote urban climate adaptation at a larger scale in each country concerned by the project (*Expected Output 2.1*). Based on these guidelines, training and institutional capacity development activities of government and municipal officials will be delivered, especially through the organisation of national and sub-national workshops and training sessions (*Expected Output 2.2*). Existing academic/training institutions and networks (e.g. associations of municipalities) will be used for such a purpose, and partnerships/synergies established with on-going initiatives at the national level.

For these two project outputs, the national counterparts in each country were consulted and the following detailed activities were identified.

Country	Output 2.1. National tools, guidelines, policies and/or legislation for promoting urban climate adaptation developed	Output 2.2. National and local officers trained in urban climate adaptation techniques and approaches
Proposed detailed activities in Madagascar	• Develop, validate and disseminate a climate risk assessment guide for urban areas based on the CityRAP methodology, to be tested in Morondava, and to be integrated in the national directives for promoting urban climate resilience in Madagascar; • Further develop the National Strategy for Climate Change Adaptation for Urban Areas, with a focus on reinforcing community resilience, and including a communication plan for its dissemination.	• Development of academic curricula and training resources and mechanisms (e.g. in the form of training of trainers) for promoting climate change adaptation in urban areas at the national level; • Deliver training for adapting to climate change in urban areas to local and regional authorities.
Proposed detailed activities in Malawi	• Develop national guidelines for assessing climate change impacts and for climate proofing infrastructure in urban areas in Malawi; • Develop policy documents for building urban resilience, with focus on climate-related risk; • Develop guidelines for promoting the green cities concept, with emphasis on climate adaptation; • Integrate climate-related building codes/standards in the Revised Safer Housing Construction Guidelines and facilitate their dissemination and application.	• Training of municipal and national officers in climate change and urban resilience, including risk mapping and zoning techniques; • Organise trainings for disseminating the green cities concept at the national level; • Establish and build the capacity of urban disaster risk management committees, starting with Zomba as a pilot city.
Proposed detailed activities in Mozambique	• Study the possibility to transform the CityRAP Tool into a legal instrument to scale it up at the national level; • Carry out studies and organise specialised workshops and consultations to further integrate climate change adaptation and urban resilience into existing legislation and strategies, such as the Disaster Management Regulations, the Resettlement Law (resettlement caused by climate change impact), the National Strategy for Resilient Infrastructure, the National Strategy for Climate Change Adaptation (integrate urban issues), the Territorial Planning Law, etc.	• Organise additional National Urban Resilience Dialogues in coordination with the World Bank, with focus on climate change adaptation; • Develop training materials on urban resilience and climate change adaptation tailored for different target groups such as: local/central authorities, technicians and community members, and organise training and dissemination mechanisms at the national level.
Proposed detailed activities in Comoros	• Based on the CityRAP experience, improve existing guidelines with regards to urban resilience and adaptation to climate change; • Review existing policy and legislation to introduce concepts of urban resilience/climate change adaptation, something rather new for Comoros.	• Organise training of trainers for government officials and local authorities in all the islands of the archipelago using the CityRAP Tool and other relevant guidelines; • Support the implementation of the CityRAP Tool in at least 2 or 3 cities in every island.

Table 10: Proposed detailed activities for Expected Outputs 2.1 and 2.2

The importance of this national component needs to be re-emphasised. It will allow increasing the project's impact from the city scale to the national scale. The scaling-up of an integrated climate adaptation approach, which has not yet been implemented as such in any city in these four target countries, is critical. Without this component, the project will limit itself to improving the climate adaptation capacities and resiliency as well as the living conditions of marginalized and vulnerable groups in the four targeted cities, thus missing a great opportunity for replication, influencing national policies and practices, and establishing multiplier effects mechanisms.

Therefore, while implementing this component, it will be important to produce quality training materials and systematise the newly produced knowledge through existing training institutions. In this sense, as mentioned before, some partnerships with academic institutions were already established through DiMSUR in all four countries. This project will allow operationalizing them at a greater scale, since adequate financial resources to do so were missing up to now. The fact that the project lasts for four years is fundamental, as time is needed so that knowledge can effectively permeate through training institutions to target young professionals, practitioners and government officials, so that urban climate adaptation practices can effectively be mainstreamed in urban management within the medium term.

For this purpose, it will be crucial, of course, to set up partnerships with on-going initiatives (see Section G, Part II) and existing institutions, something UN-Habitat is already working on. This said, again, there are currently few climate adaptation projects targeting cities and towns in these four countries, while the negative impact provoked by more intensive rain and more frequent cyclones on urban centres is providing a sense of urgency on the need to address this situation.

Component 3 will focus on three *Expected Outputs*: (*3.1*) capturing and disseminating the lessons learned and best practices from the implementation of the project activities at the community, city and national levels, using the SADC DRR Unit in partnership with DiMSUR as regional knowledge management platform; (*3.2*) discussing and preparing cross-fertilisation activities among the participating countries; and (*3.3*) organising regional workshops for experience sharing among the different countries, as well as participating to global events; these regional events will target not just the four countries involved in the project, but also other countries in southern Africa interested in promoting the concept of climate urban resilience.

This project component highlights the added-value of adopting a regional approach compared to implementing projects in individual countries separately. As already explained at the beginning of this section, learning from each other and sharing best practices in a region affected by similar/transboundary threats and where knowledge and capacity for urban climate adaptation is still much limited, is of essential importance. Lessons learned will focus on best practices regarding the different adopted approaches in the four cities concerned by the project. A range of diverse technical solutions will be extracted from these local experiences, to be systematised and disseminated further.

Expected Outputs 3.1, 3.2 and 3.3 of this component will be managed by the SADC DRR Unit in cooperation with DiMSUR. These two institutions will play a strong role at the regional level as they already embody credible institutions with complementary roles of sharing experiences, promoting knowledge and delivering trainings. As mentioned above, the upcoming formalisation of the relation between these two institutions will facilitate this process. SADC is interested in using the expected results of this project to influence regional policies and strategies. From this perspective, the Government of Mozambique while being consulted for preparing this project has expressed strong interest in playing a leading role within SADC to promote a dialogue with other member States regarding these important issues.

Therefore, this component will open the project beyond the participating countries and include further SADC countries through inter-country cooperation. For this purpose, the role of DiMSUR will be crucial and thanks to this project and other initiatives this centre will be strengthened by establishing its physical presence in Maputo and recruiting the DiMSUR's staff Secretariat. DiMSUR will also be able, being part of an international network of centres of excellence, to bring in high level expertise from other regions.

Some more detail is provided below regarding the specific planned activities under each expected output of this component, thus strengthening the rationale of this regional outcome of the proposal:

Under Expected Output 3.1: "Capturing and disseminating the lessons learned and best practices"

- Preparation of specific publications on lessons learned and best practices implemented in the 4 target cities that will inform/be useful to the 4 concerned countries and other countries within the SADC region, to be disseminated both through SADC and DiMSUR websites and presented in regional/international events; documenting best practices and lessons learned and making them available through proper knowledge platforms is critical considering that there are currently no appropriate examples of *integrated climate adaptation in urban settings* in this region (NB: this activity will contribute to Output 4 of the SADC DRR Programme Work Plan 2017-2021 – see "Mainstreaming of Disaster Risk Reduction in development plans and strategies enhanced": http://dimsur.org/sadc-drr-work-plan-2017-2021/).
- Based on the deliverables under Expected Output 2.1 (national tools, guidelines, policies and/or legislation), derive some *common/harmonised guidelines on urban climate adaptation* for the SADC region that can be followed by other member States and positively influence their own policies, legislation and approaches (NB: this activity will contribute to Output 2 of the SADC DRR Programme Work Plan 2017-2021 – see "National and Regional DRR Information and Knowledge Management Systems operationalized": http://dimsur.org/sadc-drr-work-plan-2017-2021/)
- Disseminate these guidelines through regional training sessions to SADC government officials through partners of the SADC DRR Academic Network and/or DiMSUR academic partners (NB: this activity will contribute to Output 3 of the SADC DRR Programme Work Plan 2017-2021 – see "Regional Disaster Risk Reduction policy advocacy and capacity development programme enhanced", as well as Output 4 of the same Work Plan: http://dimsur.org/sadc-drr-work-plan-2017-2021/)

Under Expected Output 3.2: "cross-fertilisation activities among countries"

- Facilitate national peer reviews among the four participating countries regarding lessons learned and best practices under Component 1 (at city level) and Component 2 (at national level) in order to identify cross-fertilisation activities (NB: this activity will contribute to Output 3 of the SADC DRR Programme Work Plan 2017-2021 – see: http://dimsur.org/sadc-drr-work-plan-2017-2021/)
- Based on the identified potential cross-fertilisation activities, government officials from each of the four countries will carry out exploratory missions to another country within the four to learn from the best practices implemented there and replicate them in their own country.
- Each country government will be responsible, with the technical support from DiMSUR/SADC DRR Unit, to develop specific terms of reference or proposals to operationalize the identified cross-fertilisation activities/best practices, and mobilise funds consequently for such a purpose.

Under Expected Output 3.3: "experience sharing and participating to global events"

- Organise four regional workshops for experience sharing among the four participating countries, one per year, during which on the side steering project committee meetings will take place and annual work plans discussed and approved. The regional workshops will focus on issues related to gender and on identifying best practices implemented at the city and national level, which will also support the planned activities under Expected Outputs 3.1 and 3.2. In addition to the four countries concerned by the project, government representatives from other SADC Member States will be invited, as well as regional actors from academia, the civil society and bi/multi-lateral donors, with the idea to promote climate urban resilience in the region and identify opportunities for resource mobilisation and scaling-up. These workshops will be important platforms to reflect on the project results obtained so

far among all stakeholders, and agree on the way forward.

- Project partners will participate to relevant international events related to climate change adaptation, urban resilience and risk reduction, as needed for promoting and disseminating the initiative, and for learning from other similar projects and approaches on-going in other African countries or in other regions.

Importantly, under Component 3, a performance framework will be defined with key monitoring indicators (see also Section E, Part III) to better assess the efficiency and effectiveness of the proposed approach to work through (sub-)regional platforms such as DiMSUR and SADC, based on the Expected Outputs.

B. Promotion of new and innovative solutions

Innovation in this project can be considered both as creating something new, but will also be produced by mainstreaming initiatives, approaches, processes, techniques and concepts which are new *vis-à-vis* the local context they are applied in. Even though some specific interventions of this proposal do not literally represent approaches that are globally innovative, in the countries involved in this project they certainly have a strong innovation component as they are not yet sufficiently diffused and applied. This project will introduce and pilot them, adapting them to the specificities of each city, making sure to reach the largest number of beneficiaries, especially the poorest and most vulnerable.

As part of its new approach to climate disaster risk management involving actively states (in particular at sub-national levels) and communities, the project will promote the following absolute innovations:

- It promotes innovative approaches to climate change adaptation involving and strengthening DiMSUR. It focuses on themes which still need much development in Africa and are not yet institutionalised, such as urban risk reduction, urban climate adaptation and resilience (for more information, please consult www.dimsur.org)[45].

  The involvement of DiMSUR represents a powerful means for the project to mainstream innovative solutions for two main reasons. First, DiMSUR is an innovative institution in and of itself, since it brings together different stakeholders and enhances partnership and networking by focusing on complementarities and collaboration around the implementation of concrete initiatives, whose results inform the development of national policies and local rules and regulations. DiMSUR brings innovation in how it is structured as it facilitates and fosters opportunities for dialogue and work between Governmental institutions, civil society organisations and communities. Second, DiMSUR represents a vector for mainstreaming innovation by mandate, as it focuses on the implementation of innovative solutions for climate change adaptation, to be specifically applied in urban areas. Through a “learning by doing” approach, it aims to help officials to take a distance from highly theoretical approaches and promote a new paradigm: inform policy formulation from lessons learned from practical implementation and experience.

  Lastly, the Centre works towards filling the gaps of national programmes related to urban resilience and disaster risk reduction. The need for increased coordination and collaboration between neighbouring countries threatened by similar climatic hazards to exchange information, knowledge and mutual capacity reinforcement in the area of disaster risk reduction is clearly expressed in key regional and international agreements and strategies.

- The project promotes the application of the CityRAP tool and bases its design on the outcomes derived from the application of the tool in the four targeted cities.

[45] NB: The 10-Years Strategic Plan of DiMSUR approved by the Executive Board can be provided upon request.

CityRAP proposes a new and distinct approach on how municipalities conceive and address disaster risk management (DRM) by considering not just the multi-dimensional vulnerabilities/exposure to risks, but the root causes of these vulnerabilities. It introduces a new municipal model of DRM and resilience governance where each municipal department is accountable for reducing the root causes of climate related hazards (and urban shocks and stresses in general), and for implementing concrete measures to address the specific threats harming the city in the short, medium and long-term. It promotes a "common language" across the different sectoral departments around climate change, risks and disasters. It combines municipal data around a same reference framework of indicators, based on community knowledge and risks' perceptions of those living and working in the city.

CityRAP has been designed by UN-Habitat in partnership with DiMSUR as a response to existing urban governance challenges in sub-Saharan Africa. This tool is axed on the following pillars: i) targeting specifically small and medium-sized African cities with low institutional capacity; ii) focusing on the core areas of urban governance for resilience planning; iii) promoting a process driven by the municipality or local authority throughout; iv) leveraging local knowledge; v) streamlining bottom-up planning and bringing together local communities, beneficiaries and other stakeholders with the local administration in prioritising issues that need to be addressed to build/strengthen the resilience of the respective city; vi) easiness to use and cost effectiveness if compared to other tools that require outside technical expertise and costly data collection methods.

It was design as a dedicated response to the lack of real ownership within planning processes by sub-national authorities. Cities should be the place to plan the future, by city administrations themselves as capable decentralised institutions. However, capacity constraints led many sub-Saharan African cities to resort to outside expertise and support to take key decisions and implement critically important projects. In addition, national and international funding streams often times do not reach local governments and the urban poor, as donors usually work directly with national governments[46]. Good urban governance should also be based on civic participation in decision-making, but the citizenry is consistently excluded from the planning processes of local governments in African cities.[47]

In general, even though a vast array of good approaches, methodologies and tools for building urban resilience exist in the international arena, many of these have in common that they are rather complex, very technical in nature and data-hungry, and thereby foster the approach of bringing in outside expertise often excluding local stakeholders, communities and civil society from participating in the planning processes. Such barriers become even stronger and compromising in small/intermediate cities, where the presence of experts is often lacking.

With a view to counter these trends, UN-Habitat and DiMSUR conceptualised CityRAP to foster a paradigm shift in resilience planning where local administrations and the civil society reclaim the decision-making power at the urban level and work together to reduce risk and build resilience to extreme weather events[48]. This was clearly observed during the testing phase carried out in 2015 and 2016 and implementation in 20 cities in 9 countries in sub-Saharan Africa, and recognised in international conferences by discussants from academia

[46] Barry Smith, Donald Brown and David Dodman: Reconfiguring Urban Adaptation Finance, IIED Working Paper 2014, IIED, London;

[47] Gina Ziervogel, Mark Pelling, Anton Cartwright, Eric Chu, Tanvi Deshpande, Leila Harris, Keith Hyams, Jean Kaunda, Benjamin Klaus, Kavya Michael, Lorena Pasquini, Robyn Pharoah, Lucy Rodina, Dianne Scott and Patricia Zweig, 2017: Inserting rights and justice into urban resilience: a focus on everyday risk, in: Environment & Urbanization, Vol 29/1, 2017, p.123-138. Vanesa Castan Broto, Emily Boyd and Jonathan Ensor, Participatory urban planning for climate change adaptation in coastal cities: lessons from a pilot experience in Maputo, Mozambique, in: Current Opinion in Environmental Sustainability 2015 13:11–18.

[48] Ibidun Adelekan, Cassidy Johnson, Mtafu Manda, David Matyas, Blessing U. Mberu, Susan Parnell, Mark Pelling, David Satterthwaite and Janani Vivekananda: Disaster risk and its reduction: an agenda for urban Africa, IDPR, 37 (1) 2015.

and development practitioners with whom UN-Habitat closely collaborates (e.g. Rockefeller Foundation, UNISDR, among others).

For more detailed information on the innovative aspects of the CityRAP tool methodology, kindly see: http://dimsur.org/cityrap-tool-briefing/.

With respect to the introduction of elements of innovation in the target cities, the following can be highlighted:

- The project contributes to promote a systemic and structural change by introducing a new municipal "working methodology", combining vertical and horizontal integration. Horizontal integration brings together different municipal departments for effective intra-departmental collaboration in analysing and concretely responding to the effects of the climate change (i.e. for the waste activities: Waste Department, Environmental Department, Local Development Department, among others). Vertical integration entails instead the institutionalization of collaboration between local government and communities. It represents a shift towards a meaningful participation of the citizens in public affairs. In all the initiatives, communities through community-based organizations/committees will not only benefit from the initiatives but will be actively engaged in the implementation of the activities. This will promote a sense of ownership over the sub-projects by the communities thus contributing to their sustainability. In general, the project contributes to create an integrated municipal system that can be replicated and extended to other sectors and areas, not just for urban climate resilience.

  The project privileges a bottom-up approach, i.e. local experiences are mainstreamed into guidelines and strategies at the national and regional level. This allows avoiding the prescriptive and somehow "blind" nature typical of top-down initiatives, which define intervention strategies without first duly taking into account local realities and contexts. UN-Habitat's experience in adopting this kind of approach in regional initiatives (e.g. the Global Environment Facility-funded project in the Limpopo River Basin implemented between 2004 and 2007; or the Urban Resilience Project for Lusophone Africa funded through the UN Secretariat Development Account, concluded in December 2017) shows that it creates a positive dynamic of participation of the stakeholders at the various levels (local, national, regional) for ensuring successful project implementation.

- Within the project, the gender perspective will entail a particular focus on how integrated governance system can concretely improve the access and participation of women and by axed on the recognition of women's role as "agent of change" instead of passive recipients of aid, in line with a more right-based approach, instead if a needs-based one (see Gender Approach in **Annex 2**). This will similarly be applied to work for the inclusion of marginalized and vulnerable groups identified and already mobilised during the assessment phase.

Overall, the project considers innovation as strongly linked to knowledge management: the multi-level regional learning generated within Component 3 will be crucial to sustain and enhance the quality and the long-term effectiveness of the adaptation measures, and their scalability and replication to other neighbouring countries, by transferring the innovative approaches tested by this project.

C. Economic, social and environmental benefits

The climate impacts (especially by cyclones and floods) in the four cities of the project and the target communities cause loss of lives, affect livelihoods and damage properties, community assets, and the environment. The severity of these climatic events is projected to increase.

As a response, the project is meant to bring to communities economic, social and environmental benefits. Economic benefits can be grouped into two types: benefits caused by costs reduction

due to increased resilience of the cities to the hazards; and improved economic environments through new job opportunities and, in general, better conditions for businesses and economic activities. Social benefits are meant as benefits that are distributed within the whole communities, despite the existence of a variety of groups, and as the prevention of the most marginalised and vulnerable individuals to be negatively impacted with no chance to recover from impacts of climate change. It is all about increasing and mainstreaming resilience. Environmental benefits are lead through the protection of the environments from human and climate-related impacts, and through the restoration of degraded ecosystems.

Overall, the activities are meant to increase the capacity to adapt to the current and future impact of climate change in these urban areas, especially to the benefit of marginalised and vulnerable groups and communities, mainstreaming gender aspects (see **Annex 2**). In addition, the project also benefits indirectly broader areas and population: thus some effects, for example GHG storage or pollution mitigation, act at regional or global scale. It is important to highlight that vulnerable communities, including women and youth, have been involved throughout the project design to empower them to directly shape project activities and outcomes (see Part II, Section I – Consultation, and **Annex 4**), thus ensuring that different needs are met and the community equally benefits from the project. The projects values diversity: human wellbeing is the ultimate goal of most plans, programs and policies, but a focus on the average wellbeing, overlooking its equitable distribution among different population groups, however, may cause the missing of important opportunities in addressing the many challenges. For more information on gender specific benefits, kindly consult **Annex 2.**

The contribution of the project is structured into two main types of contribution. The first is the contribution provided through capacity building and knowledge mainstreaming (Components 2 and 3 of the project). Thus, a series of activities will be conducted at community, city, national and regional level to reinforce capacity on climate change adaptation and resilience and ensure a conducing environment (with appropriate tools, rules and necessary knowledge) for the successful implementation of the project and the capitalisation and replication of urban adaptation practices at all levels. A different and equally valuable contribution is provided by the implementation of subprojects (Component 1 of the project). The 23 sub-projects under Component 1 can be clustered into six (6) groups of interventions to strengthen urban climate resilience: (i) Improvement of drainage conditions; (ii) Establishment of early warning systems; (iii) Improvement of solid waste management; (iv) Construction of multi-purpose safe-havens; (v) Rehabilitation of critical ecosystems and sustainable use of natural resources; and (vi) Improvement of urban mobility through construction/rehabilitation of roads and bridges. The most direct and immediate economic, social and environmental benefits generated by the present project will result from the 23 priority sub-projects to be implemented in the four selected cities.

The tables presented in the following pages describe the overall benefits that each sub-project group will bring to the present and future communities of the four target cities. The selected sub-projects have been further screened for potential environmental and social impacts and, as needed, mitigation measures have been identified (see also the proposed Environmental and Social Risks Management Plan -ESMP- in **Annex 3**) as well as sustainability strategies and arrangements (see Section K) to ensure that proposed benefits are achieved. For detailed information and disaggregated data in terms of different types of beneficiaries, please consult the respective sub-project fiches indicated in the table below.

Sub-projects *(see more detail in **Annex 5**)*	Benefits			Target groups
	Economic	**Social**	**Environmental**	
5.1.7. Enhancing the drainage capacity in the city centre (Morondova) 5.2.3. Rehabilitation of existing drainage channels and construction of new drainage channels (Zomba) 5.3.1. Improving the overall drainage capacity of the city (Chokwe) 5.4.1 Reinforcing the drainage capacity in La Coulée neighbourhood (Moroni)	Communities will be involved as paid labour in construction works and related maintenance and cleaning needs, thus ensuring them access to a new source of income. Soil erosion will also be reduced hence the agriculture practice, which is the main subsistence source of the local people, will not be disrupted and can continue even during rainy seasons. High economic costs of flooding caused by damage on infrastructure and assets can be mitigated; flood risk reduction increases confidence of investors in the city.	Erosion, flash floods and floods are mitigated, especially at hotspot flood areas and where people and assets (densely populated areas, schools and hospitals) are at risk. A particular focus on marginalized and vulnerable groups is kept and benefits are equally distributed through the population. Drainage is not clogged; hence there will be no breeding grounds for mosquitoes and water borne diseases, thus leading to an improvement of public health. By mitigating floods the project will help the farmers and individuals in general in avoiding the severe consequences of floods which usually disrupt their livelihood.	Reduction of soil erosion and land degradation.	People living in flood-prone areas. People living in informal areas. Urban poor. People whose economy or necessary goods/services depends on flood-prone areas.

Table 11: Economic, social and environmental benefits generated by the improvement of drainage conditions

Sub-projects *(see more detail in **Annex 5**)*	Benefits			Target groups
	Economic	**Social**	**Environmen-tal**	
5.1.3 Establishment of a city-wide early warning system for floods (Morondova) 5.2.1. Establishment of a city-wide early warning system for floods (Zomba) 5.3.4. Establish early warning for floods at community level (Chokwe) 5.4.4. Setting up a flood early warning system in La Coulée neighbourhood (Moroni)	Local builders will be receiving trainings on resilient architecture and this will open up new livelihood opportunities to them. The integration of climate resilience in planning practice will ensure that people will start living in a safer manner and get access to basic services even during emergency periods, avoiding disruption of their income-generating activities. Risk maps and bankable projects may attract investors, including Government.	The communities will be made aware of the impacts of climate change on their lives and activities. Awareness on how to adapt will enable them to reduce their vulnerability. People will be warned of extreme weather events in advance and will be able to take measures (reaching the evacuation centres, etc.) to protect their livelihoods and lives. The needs of vulnerable people have been taken into account in the design of the sub-projects. Prevention of settlement in risky areas through zoning as well as enforcement of building codes for resilient housing will contribute to save lives. Avoiding losses and disruption of basic services thanks to EWS will also contribute to public health and poverty alleviation.	These actions will increase the community awareness regarding the linkages between the state of the environment and their well-being and safety. They will enhance the interest of local authorities and of the community to take better care of existing ecosystems.	Households (particular attention to the involvement of women because of their role within the community). Municipal staff. Schools and hospitals.

Table 12: Economic, social and environmental benefits generated by the establishment of early warning systems

Sub-projects *(see more detail in **Annex 5**)*	Benefits			Target groups
	Economic	Social	Environmental	
5.1.8. Improving solid waste management (Morondava) 5.2.4. Improving solid waste management (Zomba) 5.3.3 Improving solid waste management (Chokwe) 5.4.3. Improving solid waste management in La Coulée and Médina neighbourhoods (Moroni)	SWM system and in particular recycling activities will create new economic opportunities for communities but also for small economic operators that can expand their business along the waste value chain. The introduced SWM systems will generate savings for the local authorities compared to the current models and ensure a better service. Women will not have their economic activities disrupted because of the local flooding due to waste blocking drainage. A proper SWM in the cities will diminish maintenance costs to ensure that drainage channels are free from solid waste. A cleaner city will become more attractive for investments.	Public health of local communities will improve due to the reduction of greenhouse emissions and the reduced pollution. New areas will be made available to citizens (for social aggregation purposes etc.), once waste will be collected and removed.	A better SWM will decrease the amount of pollution affecting surface and ground water, soil and air. This will lead to a healthier environment for people and to a better state of the ecosystems in general.	Communities, urban poor, municipal staff, SWM stakeholders (people that can take economic advantage out of SWM-related activities).

Table 13: Economic, social and environmental benefits generated by the improvement of solid waste management

Sub-projects *(see more detail in **Annex 5**)*	Benefits			Target groups
	Economic	Social	Environmental	
5.1.4 Construction of a resilient and multi-purpose safe-haven (Morondova) 5.2.2 Construction of multi-purpose evacuation centres (Zomba) 5.3.2 Construction of safe havens (Chokwe)	As citizens will be employed as workforce, this will bring temporary a temporary income for the poor and most vulnerable. Local builders will be receiving trainings on resilient architecture and this will enable them both to maintain the resilient infrastructure, but also to open up new livelihood opportunities to them.	Community involvement as workforce will bring ownership of the intervention and confer more sustainability to these interventions. The construction of resilient multi-purpose centres will not only contribute to save lives, but also will have clear social benefits as a new space for aggregation, training, etc. thus positively impacting on social welfare/cohesion of local communities.	The creation of these structures will create opportunities for introducing new green areas in the target cities. These safe havens will prevent aggregation of people impacted by hazards on natural critical habitats, which could negatively affect the state of the environment.	Everybody in the community, with priority use ensured to the most marginalised and vulnerable groups.

Table 14: Economic, social and environmental benefits generated by the construction of multi-purpose safe havens

Sub-projects *(see more detail in **Annex 5**)*	Benefits			Target groups
	Economic	Social	Environmental	
5.1.1. Rehabilitation of 180 ha of mangroves (Morondova) 5.1.2. Urban greening interventions in high risk areas	Communities will be involved in nurseries and tree planting. They will learn new skills that can support them to diversify their sources of income.	Rehabilitated ecosystems (green spaces, river interventions) will reduce impact of floods on the vulnerable population.	Ecosystems will directly benefit from these interventions. The planned interventions will contribute to the restoration and creation of healthy ecosystems and increase the	Marginalised and vulnerable population leaving near high risk areas; municipal staff; schools and universities in

(Morondova) 5.2.7 Sustainable urban forest management (Zomba) 5.2.5. River-focused interventions to prevent erosion and flooding (Zomba) 5.4.2. Establishing a community-managed rainwater harvesting system in La Coulée neighbourhood (Moroni)	The planting of nuts and fruit trees will generate further income to households. Communities will overall benefit from new sources of livelihoods. The current lack of healthy ecosystem services (crucial to human wellbeing) in the different cities implies higher costs; hence these planned interventions will reduce these costs.	The presence of green spaces will provide communities with new spaces for aggregation and leisure, thus positively impacting on quality of life, social welfare and cohesion. Creation and restoration of green areas increase the overall production of ecosystem services within the city and enhance the well-being of the whole community.	benefits related to the goods and services they provide. In addition, these interventions will increase awareness among the communities on environmental issues and interlinkages between the state of their environment and the communities' wellbeing.	surrounding areas; farmers and people who hamper or take advantage from these ecosystems; households

Table 15: Economic, social and environmental benefits generated by the rehabilitation of critical ecosystems and sustainable use of natural resources

Sub-projects *(see more detail in **Annex 5**)*	**Benefits**			**Target groups**
	Economic	**Social**	**Environmental**	
5.1.5. Construction of a flood-proof elevated road with improved drainage capacity (Morondava) 5.1.6. Reconstruc-tion of 3 bridges connecting different neighbourhoods in a resilient manner (Morondava) 5.2.6. Construction and rehabilitation of bridges and dams on Likangala River (Zomba)	Thanks to a better road network, the connectivity in the city will improve, impacting positively on its overall economic efficiency and attractiveness.	Improved evacuation conditions during times of emergency. Better road access in poor/informal urban areas will allow for installation of basic services such as water, sanitation and electricity networks, and ensure access to basic services in general. Better road access to poor/informal urban areas will also increase social inclusion, as the upgraded informal areas will become more accessible and part of the city. The increased possibilities of participation of the residents also from poor/informal urban areas in the upgrading process will increase their self-esteem and their feeling of citizenship.	Proper mobility infrastructure will avoid soil erosion occurring consequently to any flood and run-off in general.	Older persons, persons with disabilities and women, who are often in charge of reaching different points of the city for domestic tasks; municipal staff; overall city population, especially those living in informal / poor settlements.

Table 16: Economic, social and environmental benefits generated by the improvement urban mobility through construction/rehabilitation of roads and bridges

D. Cost-effectiveness

The majority of the budget will be allocated to Component 1 and as such to priority investments/activities with a focus on addressing the effects of cyclones, rainfall, floods, sea level rise/coastal erosion and drought. The priority actions will consist of the six groups of interventions as outlined in Section C. Investment into these areas can be viewed as creating greater capacity to absorb shocks and adapt to climatic impact, thus increasing urban climate resilience, which is the main objective of this proposal. It can further be seen as a prevention of future economic loss as well as the saving of livelihoods and lives. As outlined in the project background section, African cities are among the ones with the biggest financing gap for addressing climate vulnerability, and are hence severely challenged by rising economic loss, also due to the fact that most loss is uninsured and governments do not have the financial reserves or access to contingency financing that would allow them to absorb losses, recover and rebuild. This is further complicated by the fact that municipalities are legally autonomous, which limits the needed

financial support from central government. This implies that taking no action will lead to incrementally increasing costs in time associated with losses due to storms, floods and landslides as well as lower economic productivity in the affected areas.

Importantly, as outlined in Part I of this proposal, interventions under Component 1 will be implemented under the leadership of the target municipalities through community involvement and the support of local civil society organisations. This model of partnership will allow significant cost-reduction as the concerned municipalities and even the beneficiaries will be expected to provide in-kind support. At the same time, the labour-intensive physical interventions will bring economic benefits to the communities through temporary job-creation, especially targeting women and youth. Importantly, local capacity will be developed to ensure proper management/maintenance of the pilot projects' outcomes in the longer term. A detailed analysis was undertaken in order to validate costs, benefits and effectiveness of Component 1. The results of this analysis per main intervention area are the following:

Main sectors of intervention	Sub-projects *(see **Annex 5** for more details)*	Costs in USD and total nr. of beneficiaries	Cost effectiveness rationale
Improvement of drainage conditions	Enhancing the drainage capacity in the city centre (5.1.7 Morondava)	USD 170,000 18,255 people	Poor or lack of drainage is putting property and lives in danger during times of floods and flash floods. The improvement of drainage conditions is essentially cost-effective, since the high economic costs of floods in terms of damage on infrastructure and assets can be avoided. An alternative is to relocate all households to areas deemed safer. Such an undertaking would not only be enormously expensive due to compensation payments but would also be socially and economically disruptive to communities.
	Rehabilitation of existing drainage channels and construction of new drainage channels (5.2.3 Zomba)	USD 313,000 63,760 people	
	Improving the overall drainage capacity of the city (5.3.1 Chokwe)	USD 1,000,000 68,000 people	
	Reinforcing the drainage capacity in La Coulée neighbourhood (5.4.1 Moroni)	USD 1,936,300 18,000 people	
Establish-ment of early warning system	Establishment of a city-wide early warning system for floods (5.1.3 Morondova)	USD 85,000 63,000 people	An early warning system will enable communities to have access to timely climate risk information, thereby increasing disaster preparedness capacity. This is much more cost effective than the alternative of evacuating people from risk areas once the disaster has already struck.
	Establishment of a city-wide early warning system for floods (5.2.1 Zomba)	USD 140,000 156,022 people	
	Strengthening early warning for floods at community level (5.3.4 Chokwe)	USD 100,000 68,000 people	
	Establish a flood early warning system in La Coulée neighbourhood (5.4.4 Moroni)	USD 85,000 18,000 people	
Improvement of solid waste management	Improving solid waste management in the city centre (5.1.8 Morondova)	190,000 18,255 people	Improvement of solid waste management systems is cost-effective as it avoids the costs of a society suffering from diseases as well as potential costs of pollution and release of leachates. Different options for improving solid waste management exist, and the project privileged those related to awareness-raising for self-organised waste management at the household level, waste separation (organic from inorganic), recycling and re-use. The more costly option of constructing entire new landfills has been avoided.
	Improving solid waste management (5.2.4 Zomba)	USD 184,700 40,060 people	
	Improving solid waste management (5.3.3 Chokwe)	USD 265,000 35,000 people	
	Improving solid waste management in La Coulée and Médina neighbourhoods (5.4.3 Moroni)	USD 120,000 20,000 people	

Main sectors of intervention	Sub-projects *(see **Annex 5** for more details)*	Costs in USD and total nr. of beneficiaries	Cost effectiveness rationale
Construction of multi-purpose safe havens	Construction of a resilient and multi-purpose safe-haven (5.1.4 Morondova)	USD 201,000 26,138 people	Ensuring preparedness and safety during climatic hazards, especially for the most vulnerable, is very cost-effective and even life-saving. Resilient construction and/or retrofitting of public facilities as shelters in case of disaster will secure lives and livelihoods, and reduce post-disaster reconstruction costs, following the logic of 'Building Back Better' promoted by the Sendai DRR Framework. Adopting a 'coping with floods, cyclones, sea level rise or drought' strategy is also more cost-effective than the alternative of relocating the population from areas classified at risk (NB: most of the areas occupied by the targeted cities are in fact at risk).
	Construction of multi-purpose evacuation centres (5.2.2 Zomba)	USD 275,000 30,871	
	Construction of safe-havens (5.3.2 Chokwe)	USD 200,000 41,626 people	
Rehabilitation of critical ecosystems and sustainable use of natural resources	Rehabilitation of 180 ha of mangroves (5.5.1 Morondova)	USD 560,000 27,782 people	Rehabilitating mangroves as a coastal protection measure (Morondava) has been chosen as a small-scale, locally-adapted and sustainable solution, especially involving communities and labour-intensive manpower. This will contribute to protecting assets, infrastructure and investments, hence increasing value. To reduce the impacts of floods, the option of constructing seawall dykes was discussed but proved to be too costly, and with questionable sustainability based on experience by a previous pilot project financed by the French Development Agency cited as example. Alternative options of protection and restoration of ecosystems were chosen as these are less costly and will not only reduce flood impacts but also preserve biodiversity, natural resources and livelihoods of local population through regulated and sustainable exploration.
	Urban greening interventions in high risk areas (5.1.2 Morondova)	USD 120,000 22,663 people	The creation of green spaces prevents the formation of settlements in areas at risk and avoids the loss of lives and future resettlement costs. It is more effective than simply demarcating the areas at risk, and it also brings additional benefits, such as the decrease of urban heat.
	Sustainable urban forest management (5.2.7 Zomba)	USD 350,000 77,789 people	Re-/afforestation and provision of different energy sources (Zomba) will allow mitigating damages provoked by erosion, high rainwater run-off, flooding and landslides on urban infrastructure, services and livelihoods. Alternative options of natural regeneration of forests as opposed to planting would be cheaper but it would take much longer to have a beneficial impact.
	River-focused interventions to prevent erosion and flooding (5.2.5 Zomba)	USD 450,000 20,000 people	River training measures are relatively costly, but deemed cost effective as they will be undertaking in crucial pre-identified areas within the main flooding river aimed at reducing the occurrence of flash floods and mitigating the impacts by focusing on reducing slope instability, reducing the amount and velocity of runoff, and preventing erosion. An alternative, more costly option would be relocation of the population along the river banks and flood prone areas.
	Establishing community-managed rainwater harvesting systems in La Coulée neighbourhood (5.4.2 Moroni)	USD 170,000 4,000 people	Water is essential to life. As for climate change adaptation, improved access to water (Moroni) represents a key strategic element whose importance cannot be over-emphasised. Therefore, improving access to this vital resource for populations currently living in poor and informal urban settlements which were not supplied with safe drinking water before project implementation should not be questioned from a cost-

			effectiveness perspective. In addition, lack of access to water for agricultural use during the dry season, something this project will try to address, can be very detrimental in terms of food security and even livelihoods for those farmers living in some of the targeted peri-urban areas.
Improvement of urban mobility through construction/ rehabilitation of roads and bridges	Construct a flood-proof elevated road (920 m) with improved drainage capacity (5.1.5 Morondava)	USSD 425,000 18,929 people	The alternative option of constructing a new road to connect the eastern neighbourhood with the city centre that would need to circumvent the flood prone area. This would result in higher transportation costs (due to a longer travel distance), more complex work and higher costs.
	Reconstruction of 3 bridges connecting different neighbourhoods in a resilient manner (5.1.6 Morondava)	USD 250,000 10,943 people	The bridges already exist and currently present a threat to the safety of the population due to their precarious state. It would be cost-effective to rehabilitate them, increasing response/ evacuation capacity during floods and cyclones and improving the overall mobility within the city. The alternative option of constructing a new road to circumvent the channel would result in higher transportation costs, complex work and higher cost.
	Construction and rehabilitation of bridges and dams on Likangala River (5.2.6 Zomba)	USD 160,000 156,022 people	The existing main bridge in Zomba represents a threat to the safety of the population due to the erosion of its pillars. Rehabilitating it will be more cost effective than building a new one (estimated at USD 100,000).

Table 17: Overview of cost effectiveness for each main intervention area under Component 1

As for Component 2, national level planned activities are cost-effective as described in Table 18 below.

Planned Activities	**Costs** (in USD)	**Cost-effectiveness rationale**
• Develop a climate risk assessment guide for urban areas based on the CityRAP methodology in Madagascar	40,000	Estimated costs include expertise to be hired, missions and consultations. The four target countries in general possess very few or no tools, guidelines, policies and/or legislation focusing on **urban** climate adaptation. Considering the increased impact of climate change effects on cities and towns in these countries, it seems crucial to make efforts to develop these guiding instruments at the national level, based on the lessons learned and best practices from the integrated urban climate adaptation approach in the 4 targeted cities, as well as from previous/other initiatives which are mentioned in Section G, Part II. Thanks to these instruments, cities will be encouraged to be better prepared, designed, conceived and develop to adapt to climate change. This requires developing these outputs in a participatory and consultative manner, then followed by training and dissemination (see Expected Output 2.2). Not doing this effort implies having city managers/leaders not having any policy, legal and technical reference document from which to base the way they plan and manage their cities/towns. This pioneering work in these countries is much needed, and the total of 270,000 USD to start it in the 4 countries is a
• Further develop the National Strategy for Climate Change Adaptation for Urban Areas in Madagascar	20,000	
• Develop national guidelines for assessing climate change impacts and for climate proofing infrastructure in urban areas in Malawi	40,000	
• Develop policy documents for building urban resilience in Malawi	20,000	
• Develop guidelines for promoting the green cities concept in Malawi	40,000	
• Integrate climate-related building codes/standards in the Revised Safer Housing Construction Guidelines in Malawi	20,000	
• Study the possibility to transform the CityRAP Tool into a legal instrument in Mozambique	20,000	
• Carry out studies and organise specialised workshops and consultations to further integrate climate change adaptation and urban resilience into existing legislation and strategies in Mozambique	30,000	
• Improve existing guidelines with regards to urban	20,000	

resilience and adaptation to climate change in Comoros		very reasonable amount.
• Review existing policy and legislation to introduce concepts of urban resilience/climate change adaptation in Comoros	20,000	
• Development of academic curricula and training resources and mechanisms for promoting climate change adaptation in urban areas in Madagascar	40,000	Activities under this Expect Output are meant to mainly disseminate the tools, guidelines, policies and legislations prepared under Expected Output 2.1. Therefore, it is absolutely needed otherwise all these documents will "remain in the shelves" and will not be effectively used. The overall cost (490,000 USD) for disseminating them, including through trainings, to reach cities/towns managers in the 4 countries, as well as sub-national government officers, is reasonable. It is to be noted that countries vary in size (Mozambique being the largest country) and in connectivity conditions (Comoros being an archipelago) so costs vary accordingly. Existing training/academic institutions at the national level will be involved in this process, creating conditions for sustainability as acquired knowledge/training materials will stay and may be used beyond the project's lifetime. As Component 2 will be mainly implemented through national government entities, this will ensure ownership and institutionalisation so that these are not just project outputs, but building blocks towards building greater adaptation and resilience capacities in cities and towns to climate change effects.
• Deliver training for adapting to climate change in urban areas to local and regional authorities in Madagascar	80,000	
• Training of municipal and national officers in climate change and urban resilience, including risk mapping and zoning techniques in Malawi	50,000	
• Organise trainings for disseminating the green cities concept at the national level in Malawi	30,000	
• Establish and build the capacity of urban disaster risk management committees in Malawi	50,000	
• Organise additional National Urban Resilience Dialogues with focus on climate change adaptation in Mozambique	20,000	
• Develop training materials on urban resilience and climate change adaptation and organise training and dissemination in Mozambique.	100,000	
• Organise training of trainers for government officials and local authorities in all the islands of the archipelago using the CityRAP Tool and other relevant guidelines in Comoros	60,000	
• Support the implementation of the CityRAP Tool in at least 2 or 3 cities in every island in Comoros	60,000	

Table 18: Overview of cost-effectiveness for planned activities under Component 2

The regional approach is a major element for ensuring the cost-effectiveness of the project, through the sharing of experience, knowledge and of other resources. The project will ensure cost-effectiveness by relying on the SADC DRR Unit in partnership with DiMSUR for Component 3. These two institutions will take the lead in the regional coordination of activities with UN-Habitat technical support, and make sure that the different actors at the various levels (municipal, national and regional) establish platforms of collaboration and dialogue with each other. Working with the SADC DRR Unit and DiMSUR at the regional level, and with Oxfam International as the single institution coordinating most of the local activities under Component 1 (for more information on Oxfam's role in this project, please see Section A, Part III), will enable staff sharing costs and avoid an excessive spread of financial resources to several institutions. Building upon the experiences, data, information and coordination networks already created at the regional level will be more cost-effective than the implementation of separate new initiatives at the national level. Further, as already explained in Part I of this proposal, the four target countries are faced with similar climate-related natural threats that will be addressed during this project, thus allowing for streamlined capacity building and support processes that will create an economy of scale during (and, with DiMSUR, even after) implementation.

At the same time, the local circumstances of the target cities are varying: Moroni and Morondava are coastal cities while Chokwe and Zomba are inland. Hence the regional approach will ensure that a wealth of knowledge, experiences and climate change adaptation solutions are gained that will be valuable for future application beyond the target sites and countries.

Furthermore, as explained in Section A, Part II, without Component 3 the project would miss a great opportunity for replication and scaling up at a larger scale, beyond the four target countries, hence influencing policies and practices in the SADC region and establishing the conditions for multiplier effects mechanisms. The tripartite MoU to be signed between SADC, DiMSUR and UN-Habitat will formalise the partnership and enlarge the geographical scope of DiMSUR. Therefore, this technical centre represents a cost-effective mechanism to store, manage and disseminate knowledge. That is why the World Bank is currently interested in funding it, among other donors. DiMSUR has already received World Bank / GFDRR funding in the past, as well as from the European Union and the UN Secretariat Development Account.

Outputs	Planned Activities	Cost (in USD)	Cost-effectiveness rationale
Output 3.1. Lessons learned and best practices captured and disseminated through the SADC DRR Unit in partnership with DiMSUR as regional knowledge management platform	Preparation and dissemination of publications on lessons learned and best practices implemented in the 4 target cities *(10,000 USD per country)*	40,000	It is crucial to document lessons learned and best practices of this project so that knowledge, methods and experience generated can be a source of inspiration and replicated in other cities in the 4 target countries and in the other countries of the SADC region. The cost to do so is reasonable vis-à-vis the importance and potential impact.
	Preparation of guidelines on urban climate adaptation for the SADC region *(including missions and consultations with the countries)*	50,000	These two activities build on the products derived under Expected Output 2.1 (national tools, guidelines, policies and legislation) and fulfil the work plan of the SADC DRR Unit, so that efforts undertaken at the national level can be up-scaled to the region and all SADC countries can benefit from them. It is believed that the total estimated cost of 130,000 USD is effective for reaching the 16 SADC countries including the regional training. In addition, the process will be embedded in the SADC DRR Unit with technical support from DiMSUR, hence conferring sustainability to the proposed activities.
	Disseminate these guidelines through regional training sessions to SADC government officials *(intensive 5-days course including representatives from all 16 SADC countries)*	80,000	
Output 3.2. Cross-fertilisation activities among the participating countries are discussed and prepared	Facilitate national peer reviews among the four participating countries and identify cross-fertilisation activities *(10,000 USD per country)*	40,000	It is important that the 4 target countries, in addition from learning from each other in terms of knowledge and theoretical approach, are also able to implement in practice what they have learned from the other countries. This is the principle of cross-fertilisation. The cost involved (120,000 USD for 4 countries) is reasonable when thinking of the potential impact and follow-up investment this may trigger in the respective countries, and with regards to reinforced inter-country cooperation on a topic (urban climate resilience) which is still under-developed as of today. DiMSUR will certainly play a crucial role in this process, beyond the life of the project.
	Government officials carry out exploratory missions to another country to learn from the best practices implemented there and replicate them in their own country *(10,000 USD per country)*	40,000	
	Develop specific terms of reference or proposals to operationalize the identified cross-fertilisation activities/best practices *(10,000 USD per country)*	40,000	
Output 3.3. Regional workshops for experience sharing among the different	Organise four regional workshops for experience sharing and project decision-making *(50,000 USD per workshop per year)*	200,000	This proposed activity is not just cost-effective but it is absolutely necessary. From the experience UN-Habitat has in organising regional workshops gathering representatives from the 4 target countries, the estimated cost is correct as countries are not well connected in terms of flights (most have to fly via Nairobi or Johannesburg, making travel quite expensive), there is need for simultaneous

countries, and participation to global events			translation in 3 languages plus over logistic costs, etc. During these workshops, in addition to experience sharing the Project Steering Committee meetings will be organised as well as other activities which require the gathering of the 4 countries. In addition, participants from other SADC member States need to be invited, so that the initiative (through DiMSUR as a catalyst) can be scaled-up, as well as participants from abroad (donors in particular, but also international experts from the academic sector or ADPC) to add/share knowledge and advocate for the initiative beyond the region.
	Participate in relevant international events for both advocacy and learning purposes *(10,000 USD per year)*	40,000	Ensures that key individuals are abreast of on-going discussions at the global level and can also promote the initiative internationally. Setting aside an annual budget of 10,000 USD to cover travel cost seems reasonable for this purpose.

Table 19: Overview of cost-effectiveness for planned activities under Component 3

E. Consistency with national or sub-national strategies

At the global level, the project aligns with the New Urban Agenda, the Quito Declaration on Sustainable Cities and Human Settlements for All, approved at the United Nations Habitat III conference in October 2016. It specifically refers to the vision outlined in the new Urban Agenda, being cities and human settlements that are participatory and promote civic engagement and foster social cohesion, inclusion and safety in peaceful and pluralistic societies, where the needs of all inhabitants are met, recognizing the specific needs of those in vulnerable situations; and to the vision to adopt and implement disaster risk reduction and management, reduce vulnerability, build resilience and responsiveness to natural and human-made hazards, and foster mitigation of, and adaptation to, climate change. The project will contribute to the implementation and localisation of these principles and commitments.

The project is further consistent with the Paris Agreement adopted under the United Nations Framework Convention on Climate Change, specifically Article 2 (b) with reference to the objective of increasing the ability to adapt to the adverse impacts of climate change. Importantly, it refers to Article 7.5. of the Paris Agreement, where it is outlined that “parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration marginalized and vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate.” The project design adheres to all the outlined principles as further detailed in Part I of this proposal.

Consistency is also ensured with the Sendai Framework for Disaster Risk Reduction (DRR) for the period 2015–2030 and its four priorities for action: 1) understanding disaster risk; 2) strengthening disaster risk governance to manage disaster risk; 3) investing in disaster risk reduction for resilience; and 4) enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction.

The project further aligns with the Sustainable Development Goals (SDGs) n.11: “Make cities and human settlements inclusive, safe, resilient and sustainable”, notably target 5 (“By 2030, to significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations) and target 9 (“By 2020, to substantially increase the number of cities and

human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for DRR, holistic disaster risk management at all level); as well as SDG target 13.1: "Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries".

At the continental level, the project is consistent with the Agenda 2063 "The Africa We Want", in that it strengthens climate resilient communities, as called upon in aspiration 1, item 10. It is further consistent with the Mauritius Declaration on the Implementation of the Sendai Framework in Africa and its Programme of Action (PoA), which replaced the Africa Regional Strategy for Disaster Risk Reduction that expired in 2015. In line with the PoA, the project helps to achieve the set targets of increasing integration of DRR in regional and national sustainable development, and climate change adaptation frameworks, mechanisms and processes; as well as increasing the number of countries with, and periodically testing, risk-informed preparedness plans, and response, post-disaster recovery and reconstruction mechanisms.

At the southern Africa level, it takes into account the 10-year Disaster Risk Reduction Strategy of SADC, now concluding[49], which focuses on:

- Strengthening governance, legal and institutional framework at all levels of DRR;
- Facilitating the identification, assessment and monitoring of disaster risks and support enhancement of early warning systems at all levels;
- Promoting usage and management of information & knowledge, innovation & education to build a culture of safety and resilience at all levels in the SADC region;
- Ensuring that DRR becomes a national and local priority with a strong institutional basis for implementation;
- Integrating preparedness and emergency response into disaster risk reduction interventions.

With regard to the alignment to national development and climate change adaptation priorities, the project is consistent with the relevant national strategies and policies in each country.

- *Madagascar:*

The project aligns with the National Adaptation Program for Climate Change (NAPA) elaborated in 2006, which aims at strengthening the country's capacity to adapt to the effects of past and present climate variability and future climate change and empowering the country to address the causes of its vulnerability. The present project contributes to advancing all three strategic axes established by the NAPA: (1) capacity reinforcement; (2) policy reform; and (3) integration of adaptation in sectorial policies and project activities. The NAPA also identifies and ranks 15 priority projects for addressing the most urgent adaptation needs in the country. The present proposal is highly aligned with many of these, in particular with the two topics at the top of the priority ranking: (1) rehabilitation/reconstruction of dykes, walls and other water protection infrastructure; and (2) establishment and promotion of sustainable water management practices and associations.

Madagascar launched its National Adaptation Plan (NAP) process in 2012 aiming to reduce climate vulnerability in the medium- and long term, and to integrate climate-related risks and opportunities into development planning and budgeting systems. A UNDP stocktaking report[50] concludes one of the initial steps of the NAP process.

With respect to Madagascar's (Intended) Nationally Determined Contributions (INDC), the country identified adaptation sectors (agriculture, coastal zone management, human health), as well as

[49] NB: the new 10-year DRR strategy for SADC will have to align with the recently approved DRR PoA for Africa.

[50] http://www.adaptation-undp.org/sites/default/files/resources/madagascar_stocktaking_report_final.pdf

ecosystem-based adaptation approach (forests, mangroves, biodiversity, water resources) that can have significant benefits on mitigation. The INDC is conditioned on the provision of financial support from global partners. With regard to the sub-projects under Component 1 of the project, the sectors of coastal zone management and mangroves are particularly relevant.

The INDC further identifies priority actions that the proposed project aligns with:

- Strengthen climate change adaptation mainstreaming in all strategic/framework documents (Component 2)
- Multi-hazard early warning systems that mainly consider cyclones, floods, drought and public health surveillance: establishment of a city-wide early warning system for floods (Sub-Project Fiche 5.1.3);
- Effective application of existing or newly established sectoral policies: cyclone resistant buildings standards, flood-resistant terrestrial transport infrastructure standards: build resilient and multi-purpose safe-haven (Sub-Project Fiche 5.1.4), construction of a flood-proof elevated road with improved drainage capacity (Sub-Project Fiche 5.1.5); reconstruction of 3 bridges connecting different neighbourhoods in a resilient manner (Sub-Project Fiche 5.1.6), enhancing drainage capacity in the city centre (Sub-Project Fiche 5.1.7);
- Restoration of natural forests and reinforcement of habitat connectivity: rehabilitation of 180 ha of mangroves (Sub-Project Fiche 5.1.1);
- Identification and sustainable management of climate refuge areas inside and outside protected areas: urban greening interventions in high risk areas (Sub-Project Fiche 5.1.2);

Madagascar's National Strategy for Risk and Disaster Management (SNGRC), the National Strategy for Climate Change Mitigation (SNACC, currently being finalised), and the National Adaptation Policy (PAN, currently being finalised) complement the national policy framework. In alignment with the SNGRC 2016-2020 and its strategic objective 5, the project reduces risks at the local and national level and contributes to vulnerability reduction. The project also supports the implementation of the 5th pillar of the National Development Policy that focuses on building resilience to disaster risks, as well as the National Policy for Fighting Climate Change in accordance with the National Environmental Policy.

At the city level, the project will strengthen the capacity of Morondava to cope with the impacts of climate change and disaster risk as defined in the Resilience Action Plan of Morondava (2016-2026), supported by UN-Habitat in 2016.

- *Malawi:*

Malawi's National Adaptation Programme of Action (NAPA, 2006) has identified the immediate adaptation measures that are needed to reduce the risks posed by climate change and the possible impacts of increased severe weather events on Malawi. The NAPA has identified sectors that are affected by climate change and these include agriculture, human health, energy, fisheries, wildlife, water, forestry and gender. The proposed project will predominantly address the energy, water and forestry sectors of the NAPA.

Malawi commenced the National Adaptation Plan (NAP) process in September 2014 through the establishment of the Core Team which was followed by initial sector training and commissioning of the preparation of Malawi's NAP Roadmap, including a target timeline for the 17 different steps involved in the NAP process (per the UNFCCC guidelines). A recent stocktaking report[51] concludes one of the initial steps of the NAP process.

[51] http://www.adaptation-undp.org/sites/default/files/uploaded-images/malawi_nap_stocktaking_report_final_2016.pdf

Malawi's (Intended) Nationally Determined Contributions (INDCs) outline required adaptation measures in the following priority sectors and thematic areas: agriculture (crops, livestock, fisheries), water resources, health, infrastructure, land-use planning, transport, population and human settlements, disaster risk management, forestry, wildlife, energy and gender. For all these sectors, there will be need for multi-sectoral collaboration in the implementation of various projects and programmes. There will also be need for capacity building, research, and consideration for disaster risk management as well as the need to harmonise policies. With regard to the concrete identified actions under Component 2 of the project, the sectors water, energy, forestry and infrastructure are particularly relevant. The overview below compares relevant priority adaptation actions identified in different sectors of the INDCs with the proposed sub-projects in Zomba:

- Water - 'develop and enhance climate information and early warning systems': establishment of a city-wide early warning system for (Sub-Project Fiche 5.2.1);
- Energy - 'promote use of biomass briquettes as substitute for firewood and charcoal'; 'support an expanded programme of briquette production and use': sustainable urban forest management (Sub-Project Fiche 5.2.7);
- Forestry - 'expand afforestation and forest regeneration programmes'; 'promote growing of drought tolerant and fast rowing tree species'; "Some mitigation interventions in the forestry sector also have adaptation co-benefits elements. For example, forest regeneration could spur bee-keeping and indigenous mushroom harvesting disincentivizing forest extractive activities." (INDC p. 11): Sustainable urban forest management (Sub-Project Fiche 5.2.7);
- Infrastructure – 'construct infrastructure for flood control, transport, etc. (physical barriers for flood prevention)'; 'develop and implement climate related building codes/standards': construction of multi-purpose evacuation centres (Sub-Project Fiche 5.2.2); rehabilitation of existing drainage channels and construction of new drainage channels (Sub-Project Fiche 5.2.3); construction and rehabilitation of bridges and dams on Likangala River (Sub-Project Fiche 5.2.6);

Malawi has recently developed a National Climate Change Management Policy (NCCMP) whose overall goal is to promote climate change adaptation, mitigation, technology transfer and capacity building for sustainable livelihoods through Green Economy measures. With regard to climate change adaptation, the policy aims to:

a. reduce vulnerabilities of populations in Malawi and promote community and ecosystem resilience to the impacts of climate change;
b. ensure that women, girls and other marginalized and vulnerable groups are engaged and involved in planning and implementing climate change adaptation interventions; and
c. ensure that communities are able to adapt to climate change by promoting climate change adaptive development in the long term.

The proposed project is aligned to these climate change adaptation objectives of the policy.

The National Disaster Risk Management Policy is aimed at ensuring that disaster risk management (DRM) is mainstreamed in development planning and policies of all sectors in order to reduce the impact of disasters and ensure sustainable development in the country. One of its key objectives is to promote enforcement of buildings and other infrastructure standards which will lead to a reduction in disaster losses. One of the policy priority areas is the reduction of underlying risks and includes the promotion of good land use planning and management and sound construction of infrastructure; the identification and implementation of long-lasting solutions to floods and other disasters. The proposed project will support the realisation of these policy outcomes.

Lastly, in the city of Zomba, the project responds to the identified priority actions developed in the Resilience Action Plan of Zomba (2016-2026) supported by UN-Habitat in 2015.

- *Mozambique:*

Mozambique's National Adaptation Programme of Action (NAPA) was approved by the Council of Ministers in 2007. The Government and development partners have embarked on the NAP development process in December 2016 which will involve a set of trainings to national technicians on the NAP process, stocktaking and definition of a NAP Roadmap. Currently Mozambique is aiming to develop a proposal for the Readiness Green Climate Fund to accomplish the implementation of the NAP.[52]

Mozambique's (Intended) Nationally Determined Contributions (INDCs)[53] focus on increasing resilience in communities and the national economy including the reduction of climate risks and promoting low carbon development and the green economy through the integration of adaptation and mitigation in sectoral and local planning, as established in the National Climate Change Adaptation and Mitigation Strategy (NCCAMS 2013-2030). The NCCAMS identifies the following cross-cutting actions: institutional and legal reform; capacity building and knowledge transfer; and research and systematic observation.

The following adaptation actions and policies outlined in the INDC are particularly relevant to the proposed project: Capacity Building and Knowledge Transfer; Disaster Risk Management (DRM); and Disease Surveillance and Control, as can be seen in direct comparison with sub-projects in Chokwe:

- Capacity Building and Knowledge Transfer - 'develop climate resilience mechanisms for infrastructures, urban areas and other human settlements and tourist and coastal zones'; 'increase the adaptive capacity of the most vulnerable groups'; 'develop and ameliorate the level of knowledge and capacity to act on climate change': construction of safe havens (Sub-Project Fiche 5.3.2);
- Disease Surveillance and Control – 'reduce people´s vulnerability to climate change related vector borne diseases or other diseases': improving the overall drainage capacity of the city (Sub-Project Fiche 5.3.1);
- Disaster Risk Management – 'reduce climate risks through the strengthening of the early warning system and of the capacity to prepare and respond to climate risks': strengthening early warning for floods at community level (Sub-Project Fiche 5.3.4).

The proposed project will also contribute directly to the implementation of the National Strategy for Climate Change Adaptation and Mitigation (2013-2025). In particular, the project will advance the defined strategic action: 'develop mechanisms for resilience in urban areas and other settlements', and its two related indicators: (1) 'number of informal settlements upgraded with sanitation'; and (2) 'number of people benefitting from urban sanitation programmes'. The action will directly contribute to achieving the following strategic actions: improve adaptive capacity of vulnerable people; improve preparedness and response capacity to climatic risks; improve capacity for managing water resources.

It also contributes to the Government's Five-Year Plan (2015-2019), specifically priority five with the strategic objective of reducing risk and adapting to climate change and reducing the vulnerability of communities, economy and infrastructures to climate risks. It further addresses the crosscutting issues outlined in the 20-Year National Development Strategy (2015-2035), being enabling capacity-building of municipal technicians and community members.

[52] Source: UNDP presentation on launching of the NAP Process in Mozambique and direct consultations with directly involved institutions

[53] Ministry of Environment, Land and Rural Development, 2016

Lastly, Chokwe has made climate adaptation one of its highest municipal development priorities. The project will contribute to the implementation of the Resilience Action Plan of Chokwe (2016-2026) supported by UN-Habitat in 2015.

- *Union of Comoros:*

The National Adaptation Programme of Action (NAPA) of 2006 identified the following sectors as being most affected by climate change: agriculture, cattle breeding, infrastructure, fishing and health. The proposed project will especially address the infrastructure and health sectors of the NAPA, the latter by tackling the inadequate waste management system, which facilitates the development of malaria and presents pollution risks to ground water and shores. Regarding the infrastructure sector, the NAPA highlights its vulnerability to flooding and sea level rise, resulting in erosion and damaging roads, bridges and public infrastructure. The proposed sub-projects in Moroni to implement, design, and build a drainage system directly address these issues.

The NAP process in Comoros was officially launched in September 2014. The Government has also developed a NAP process roadmap, aiming to fully mainstream climate related risks and opportunities within medium- and long-term planning processes at national, island and sector levels, which is axed on 3 work streams: enhancing coordination mechanisms and steering the NAP process; implementing the NAP process; reporting, monitoring, review and outreach. The work streams incorporate 5 strategic intervention areas which correspond to the identified gaps, as follows: 1) strengthening the overall climate change coordination mechanism and steering the NAP process; 2) strengthening information and monitoring and evaluation systems; 3) building capacity for climate change adaptation in planning and implementation; 4) producing first generation NAP documents; 5) enhancing climate change awareness and mainstreaming climate change adaptation at the island level. The proposed project strongly contributes to the above strategic pillars, in particular, points 3 and 5.

With regard to the (Intended) National Determined Contribution (INDC) of the Union of Comoros and its National Policy, Strategy and Action Plan for Climate Change (both approved in 2015), the following priority issues are relevant to the proposed project: land management, including spatial planning, with implications for urbanisation, agriculture and forestry through city planning and informal settlement upgrading in Moroni; waste management; vulnerability reduction of the population located in areas at risk of flooding, cyclones and sea level rise; mainstreaming of climate change adaptation, mitigation and resilience in the legislation and policies; as well as institutional capacity building and community empowerment. The overview below compares proposed sub-projects with adaptation actions and policies identified in the INDC:

- Water – '100% of the population have access to potable water by 2030': establishing a community-managed rainwater harvesting system in La Coulée neighbourhood (Sub-Project Fiche (5.4.2)
- Integration and sensitization – 'an early warning system is set up to prevent extreme events and to get ready to respond across all sectors; '100% of vulnerable populations are sensitized about the impacts of climate change and are informed about adaptation measures; 'central and decentralized governmental levels beneficiate of a process of capacity building with respect to climate change adaptation': setting up a flood early warning system in La Coulée neighbourhood (Sub-Project Fiche 5.4.4); project Component 2.

It is worthy to note that several challenges highlighted in the INDC have been identified, such as the need to improve human capital (institutional building, planning skills, etc.), the lack of financial resources and the need for technology transfer with respect to energy, forestry, agriculture, water, health and risks prevention. Within component 2 and 3, the present proposal positively contributes to filling in the above gaps.

In the Strategy for Rapid Growth and Sustainable Development (2015-2019) the country has given priority to climate change mitigation and adaptation, natural resource management and sustainable development, biodiversity conservation and enhancement of eco-system services as well as disaster risk management. Aligned to strategic areas 3 and 4, the proposed project will strengthen local governance, build capacity and reinforce institutional coordination to enhance urban resilience. Further, in line with the overall objective of the strategy, the project will contribute to climate risk reduction and sustainable development by providing appropriate localised solutions.

The project further aligns with the National Strategy and Action Plan on Disaster Risk Reduction and its six strategic areas, namely: 1) establishing a legal and institutional framework and mechanisms for disaster risk reduction; 2) strengthening national, island and community capacity; 3) development of knowledge, information, education and communication systems on disaster risk management; 4) promotion of community resilience activities; 5) sustainable and flexible funding mechanisms; 6) promotion of regional and international cooperation and coordination. The strategy ultimately aims to substantially reduce losses and damage and to strengthen the resilience of communities (national and local) to disasters.

Lastly, the project will support Moroni city's aspirations to become more resilient to the impacts of climate change. The Resilience Framework for Action for Moroni is currently being completed with UN-Habitat support using the CityRAP Tool, and its contents have been taken into account while preparing this project proposal.

F. Relevant national technical standards

The project complies with the Environmental and Social Policy and the Gender Policy of the Adaptation Fund. During preparation of the full proposal, a detailed risk screening and impact assessment of all project activities was been undertaken (see a summary in Part II, Section K and details in **Annexes 2** and **3**).

In addition to the above-mentioned policies of the Adaptation Fund, the project will also adhere to UN-Habitat's Environmental and Social Safeguards System (ESSS), which requires that UN-Habitat projects comply with host country laws and obligations. It serves as a framework to show UN-Habitat's commitment, capacity and procedures for assessing and managing the environmental and social risks of projects. The ESSS is fully integrated with UN-Habitat's Project Based Management Policy and is aligned with the environmental and social safeguard policies of the United Nations Secretariat and those of predominant bi/multilateral institutions.

In developing Component 1 of this project (*preparation, implementation and sustainable management of priority sub-projects at the city level*) an analysis of relevant national standard was undertaken. The findings of the analysis are summarised in the tables below and reflected in the risks screening belonging to the ESMP (see also risk screening regarding principle 1, law compliance, under Part II, Section K and **Annex 3**).

A similar analysis was undertaken in relation to Component 2 *(tools and guidelines development and training delivery at the national level*), which builds on the analysis undertaken for screening Component 1.

Component 3 (*inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level*) focuses on regional activities, thus interventions do not need to comply with national standards and legislation. However, the project will take into consideration applicable regional and international frameworks such as the SADC Regional Disaster Preparedness and Response Strategy (2016) and the SADC Gender Policy (2007).

Major national standards worth highlighting due to its relevance to the overall project are labour laws, which will be complied with for all employment contracts. More specifically, no activities of

the project will be initiated without ensuring that the national legislations are applied for construction activities entailing infrastructure interventions in Component 1. Applicable laws are: (i) for Madagascar: Loi n° 2003-044 Code du Travail; (ii) for Malawi: Employment Act, 2000; (iii) for Mozambique: Lei du Trabalho n° 23/2007; and (iv) for the Union of Comoros: Loi 84-08 Code du Travail.

During the implementation of activities, the National Project Managers (see their role in Part III Section A) will ensure that all project activities comply with existing national technical standards. At the beginning of the project, when the sub-project implementation plans are fully developed with communities and municipalities, including detailed engineering studies (Expected Output 1.1.), the necessary steps to comply with these standards will be detailed in addition to what is described for each country/city below.

- *Madagascar*

Environmental Impact Assessments (EIAs) in Madagascar are carried out on the basis of Decree n. 99-954 of 15 December 1999, as amended by Decree n. 2004-167 of 3 February 2004 published on 10 July 2000 and 24 May 2004[54]. The integration of EIAs in the project cycle is essential for providing environmental information at key stages. Early results of an EIA may indicate practical design changes that would avoid or reduce adverse environmental impacts or better benefit from environmental benefits. A screening procedure is to be carried out by the National Office of the Environment and determines if the sub-project must be subject to an EIA or not. Because of the size and type of sub-projects, no full EIAs are required, as illustrated in the table below. The Madagascar UN-Habitat office works in close collaboration with the Ministry of the Environment of Ecology and Forests, in particular the National Office for Coordination of Climate Change which is a management and coordination structure for activities on climate change within the same Ministry, as well as with the municipality of Morondava.

Sub-projects *(see **Annex 5** for more details)*	**Relevant rules, regulations and standards**	**Compliance, procedure and authorising entity**	**Principle 1 triggered during project preparation (and mitigation measure required)**
5.1.1 Rehabilitation of 180 ha of mangroves	**Law n. 90-033 related to the Malagasy Environmental Chart,** modified by Law n. 97-012, Law n. 2004-015, and Law n. 2015-03 which establishes the principles and regulations for environmental management **Inter-ministerial Decree n. 4355/97 defining and delimitating sensitive zones,** including mangroves, coral reefs, dunes, tropical forests, etc.	An environment permit needs to be obtained from the Regional Directorate for the Environment and Forests (DREF) under the National Office for the Environment (ONE), and an authorisation from the Municipality. An EIA is not necessary as the mangrove rehabilitation is part of the national priorities for climate change adaptation; a similar activity was recently conducted in Tanambao area in Morondava city.	Not triggered. No obstacles to obtain an environment permit from the Regional Directorate for the Environment and Forests (DREF) under the National Office for the Environment (ONE) as well as an authorisation from the Municipality. Proposed intervention has been discussed with and agreed by authorities.
5.1.2 Urban greening interventions in high risk areas	**Law n. 2015-052 related to LUH** (see above) **Law n. 2008-013 related to public domain**	An authorisation from CIRDOMA (Land and Domain Circumscription) and another from the municipality are needed	Not triggered. No obstacle to obtain authorisation from CIRDOMA (Land and Domain Circumscription) and another from the municipality. Proposed intervention has been discussed with and agreed by authorities.

[54] http://saiea.com/dbsa_handbook_update09/pdf/7Madagascar09.pdf

5.1.3 Establishment of a city-wide early warning system for floods	**Law n. 2015-031** related to the National Policy for Disaster Risk Management. **Contingency Plan for the Menabe Region.** **National Strategy for Disaster Risk Management (2016-2030)**	No specific authorisations needed but collaboration and coordination with the disaster risk management local committees and the National Office for Disaster Risk Management (BNGRC).	Not triggered. No obstacles to collaborate and coordinate with the disaster risk management local committees and the BNGRC. Proposed intervention has been discussed with and agreed by authorities
5.1.4 Build resilient and multi-purpose safe-haven	**Law n. 2015-031** related to the National Policy for Disaster Risk Management. **Contingency Plan for the Menabe Region.** **National Strategy for Disaster Risk Management (2016-2030)**	An authorisation from the municipality needs to be obtained. Collaboration and coordination with the disaster risk management local committees and the National Office for Disaster Risk Management (BNGRC)	Not triggered. No obstacles to obtain an authorisation from the municipality. No obstacles to collaborate and coordinate with the disaster risk management local committees and the BNGRC. Proposed intervention has been discussed with and agreed by authorities
5.1.5 Construction of a flood-proof elevated road with improved drainage capacity	**Decree n. 2013-330 related to the publication of the Guide for Protection of Roads against Floods (GPRCIM),** which defines mandatory technical standards for all roads and related infrastructure for reducing flood impacts	An authorisation from the municipality needs to be obtained	Not triggered. No obstacles to obtain an authorisation from the municipality. Proposed intervention has been discussed with and agreed by authorities.
5.1.6 Reconstruction of 3 bridges connecting different neighbour-hoods in a resilient manner	**Decree n. 2013-330 related to the publication of the GPRCIM** (see above)	An authorisation from the municipality needs to be obtained	Not triggered. No obstacles to obtain an authorisation from the municipality. Proposed intervention has been discussed with and agreed by authorities.
5.1.7 Enhancing the drainage capacity in the city centre	**Law n. 2015-052 related to LUH** (see above) **Decree n. 2013-070 related to the Malagasy NIHYCRI** (see above)	An authorisation from the municipality needs to be obtained	Not triggered. No obstacles to obtain an authorisation from the municipality. Proposed intervention has been discussed with and agreed by authorities.
5.1.8. Improving solid waste management in the city centre	**Law n. 2011-002 related to the Health Code.** **Law n. 98-029 related to the Water Code.** **Law n. 90-033 related to the Malagasy Environmental Chart** (see above) **Law n. 95-035** authorising the creation of organs responsible for urban sanitation and fixing fees for urban sanitation	Authorisations from the municipality and with the prefecture need to be obtained	Not triggered. No obstacles to obtain an authorisation from the municipality. Proposed intervention has been discussed with and agreed by authorities

Table 20: Sub-projects in Morondava, Madagascar, and relevant national standards

- *Malawi*

The preparation of an EIA in Malawi is guided by the 'Guidelines for Environmental Impact Assessment' published by the Government in December 1997. Malawi's EIA process is

specifically designed to integrate EIA requirements within the project cycle. This integration is essential for an EIA study to provide timely environmental information at key stages in the project cycle. Thus, early results from an EIA may indicate practical design changes which would avoid or reduce negative environmental impacts or better capture environmental benefits. As prescribed under Section 24(1) of the Environmental Management Act (EMA), Malawi has a prescribed list of projects for which an EIA is mandatory (List A) and another list (List B) of projects for which an EIA may be necessary. The National Council for the Environment has the authority to issue an EIA certificate. The activities for Zomba City have been applied to the lists to determine if an EIA is mandatory, may be necessary or not all. The analysis results are shown in Table 21 below. Nevertheless, the proposed projects will have to be submitted to the Environmental Affairs Department for them to determine whether a proposed project is prescribed under the EMA. If not, no further action on EIA requirements needs to be undertaken. If it is prescribed, then a Project Brief must be submitted to the Director.

Sub-projects *(see **Annex 5** for more details)*	**Relevant rules, regulations and standards**	**Compliance, procedure and authorising entity**	**Principle 1 triggered during project preparation (and mitigation measure required)**
5.2.1. Establishment of a city-wide early warning system for floods	**Disaster Preparedness and Relief Act of 1991**, which establishes the national disaster risk management structure	Coordination with DoDMA is required as DoDMA is responsible for coordinating the implementation of disaster risk management programmes in the country.	Not triggered. No need to conduct an EIA. Proposed intervention has been discussed with and agreed by authorities
5.2.2. Construction of multi-purpose evacuation centres	**Safer House Construction Guidelines: Technical Manual**, developed in 2010 and revised in 2014 to support households, communities, the Government and other partners in adaptive architecture to reduce exposure to disasters through sound construction. **Physical Planning Act (2016)** and **Zomba city's planning standards and building by-laws** apply within the city jurisdiction	An EIA is not applicable (see Section 24(1) of the Environmental Management Act). The project will prepare detailed designs and apply for town planning and building plans approvals from the Zomba City Council (ZCC) Town Planning and Building Plans Committee. The ZCC is the planning and building authority within the city jurisdiction. The ZCC Town Planning and Building Plans Committee following consultations with relevant stakeholders will issue town planning and building plans approvals for compliance with town planning and building standards as set out in the Physical Planning Act (2016) and the city building by-laws.	Not triggered. No need to conduct an EIA. Proposed intervention has been discussed with and agreed by authorities
5.2.3. Rehabilitation of existing drainage channels and construction of new drainage channels	**Environment Management Act, n. 23 of 1996.** **Standard Specification for Road and Bridge Works of the Malawi Government (1978)** with specific reference to drainage **Series 2000: Drainage of the SATTC 'Standard. Specifications for Road and Bridge Works' of 1998**	As described under section 24 (1) of the Environmental Management Act, drainage and irrigation projects are mentioned under its list B as projects for which an EIA may be required. EIAs may be required for projects that changes water use through drainage or for Agricultural drainage projects of more than 1 ha.	Not triggered. As the sub-project will not change water use (focus is on flood water) through drainage, EIAs are not required. The city council confirmed EIAs are not required because of the size and location
5.2.4. Improving solid waste management	**Environment Management Act (EMA), No. 23 of 1996** There is no national law on	As described in Section 38 of the EMA a waste license is required to handle, store, transport, classify or	Not triggered. No need to conduct an EIA. Each facility will not

	solid waste management in Malawi. Each town is responsible for municipal waste disposal. Zomba City by-laws apply	destroy waste other than domestic waste, or operate a waste disposal site. The license is given out by the Environmental Affairs Department. As described under Section 24(1) of the EMA, an EIA is mandatory for the establishment or expansion of any of the following municipal solid waste management facilities serving a population of greater than 1,000 people: (i) Landfill site; (ii) Incineration facility; (iii) Composting facility; (iv) Recovery/recycling facility; (v) Waste depots/transfer stations; (vi) Establishment or expansion of on-site waste treatment facilities.	serve more than 1000 people. Proposed intervention has been discussed with and agreed by authorities
5.2.5. River-focused interventions to prevent erosion and flooding	**Environment Management Act (EMA), No. 23 of 1996.** **Water Resources Act,** 2013 CAP72.03	As described under section 24(1) of the Environmental Management Act, remedial flood and erosion control project river/water interventions are mentioned under its list A as projects for which an EIA is required for shoreline stabilisation projects where the shoreline involved is greater than 50 m. Water Right Permit is required to use and/or abstract water, build dams. The Water Resources Board established under the Water Resources Act is the authority for issuing relevant permits including dam rehabilitation and other related river works.	Not triggered. The length of gabions to be placed is less than 50 m per section. The city council confirmed an EIA is not required for this intervention. No obstacle to obtain Water Right Permit
5.2.6. Construction and rehabilitation of bridges and dams on Likangala River	**Public Roads Act, CAP** 69.02, which provides for matters relating to public roads, including maintenance and compensation. **Zomba city's planning standards and building by-laws** apply within the city jurisdiction. **Standard Specification for Road and Bridge Works of the Malawi Government (1978)**	As described under section 24(1) of the Environmental Management Act, remedial flood and erosion control project are mentioned under its list A as projects for which an EIA is required for the construction of dams or weirs with a height of greater than 2 m, or which divert more than 20 m^3 per second, or any bypass channels or channel realignments to remedy riverine erosion or flooding. The Ministry of Public Works is the custodian of the Public Roads Act and the standard specifications. Designs will need to be approved by the City Council Public Works Committee and the Ministry to ensure compliance with technical standards.	Not triggered. No need to conduct an EIA. The intervention focused on rehabilitation of small sections of the dam. The dam itself is less than 2 meters high. Proposed intervention has been discussed with and agreed by authorities. There are no obstacles to obtain permits from the ministry and city council.
5.2.7 Sustainable urban forest management	**Environment Management Act, No. 23 of 1996. National Forestry Act**, specifically the '**Standards and Guidelines for Participatory Forestry in Malawi', 2005**, which provide the basis for all	As described under Section 24(1) of the Environmental Management Act, an EIA is mandatory for the establishment of forest plantations greater than 50 ha	Not triggered. All target areas for afforestation are smaller than 50 ha (see details in the corresponding sub-project sheet). No need to conduct EIAs. Proposed intervention

	community level forestry interventions from tree planting through to co-management of state forest reserves/plantations **National Forestry Policy (1996) and Forestry Act, CAP 63.01 (1997)**, related to the control and regulation of forest products; the declaration of forest reserves; the protection, control and management of forest products; tree planting and other enterprises. **Forest Rules** contain regulations on reforestation, tree felling, etc.		has been discussed with and agreed by authorities

Table 21: Sub-projects in Zomba, Malawi, and relevant national standards

- *Mozambique*

In Mozambique, the Environmental Law defines the legal basis for the use and management of the environment as a means of guaranteeing the country's sustainable development. According to this law, the EIA is an instrument that supports decision-making on the allocation of the environmental license. Environmental licensing shall precede any other legally required license in all public and private activities that may be directly or indirectly affected by the environment. The process of EIA is regulated by Decree n. 45/2004, while environmental auditing and environmental inspection are regulated, respectively, by Decree n. 32/2003 and n. 11/2006. The Proponent is responsible for the assessment process. The EIA is guided by the approved ToR that is established during the scoping stage. The methods of the assessment undertaken in the EIA have to be specified in the ToR. The EIA and simplified reports have to be submitted to MITADER. The EIA Process Rules define all stages of the EIA process - screening, definition of scope, content of studies, public participation process, review and approval by the environmental authority. Hence, the first step is the screening, which defines the type and level of detail of the environmental and social assessment study. The EIA Mozambican Regulation considers three categories:

Category A: comprises of projects that are of such complexity, magnitude, and likely to produce irreversible impacts, that they require strict monitoring with involvement of independent experts. They may involve economic and physical displacement that cannot be addressed under the specific Regulation on Resettlement Resulting from Economic Activities (Decree No. 31/2012, of 8 August), or they are positioned in areas characterized by highly valued biodiversity and habitats, animal and plants species on the edge of extinction, or may involve projects producing dangerous toxins (carcinogens), pesticides, and extraction and processing of minerals. Category A are projects with significant impacts, for example large scale infrastructures (airports, highways), large-scale agriculture, forestry, fisheries and related industries.

Category B: projects involve projects that have no significant impact and are not undertaken in sensitive areas, such as transmission lines, education complexes, and factories involving the production of various types of goods such as construction materials. Projects of Category B require the simplified EIA process including the formulation of ToR and of a Simplified Environmental Report (SER).

Category C: projects may create minimal negative impacts and have to comply with General Procedures of Good Practice in Environmental Management.

The project activities were pre-screened during the full proposal development with regard to the EIA requirements, of which the results are shown in Table 22. The process of Environmental Impact Assessment is managed at both national and provincial levels. Both levels have to ensure that the information of the Environmental Licenses is available to the public and that public consultation and hearings are held. Both levels are also competent to involve legal mechanisms to stop EIA activities, or suspend certificates of environmental consultants.

At the Central level, the Ministry of Land, Environment and Rural Development (MITADER) has to guide, review and decide regarding the reports of Categories A+ and A projects which include pre-feasibility studies, Terms of Reference and environmental impact assessment reports. The Ministry issues Environmental Licenses for Categories A+ and A projects and manages the involvement of independent review specialists. At the Provincial level, the Provincial Directorate of Land, Environment and Rural Development is responsible for guiding, reviewing and deciding on the Terms of Reference for simplified environmental impact assessment studies, as well as the General Procedures of Good Practice in Environmental Management for Category C projects.

National Guidelines and Norms for Safe Construction of Public Buildings developed in 2015 under the Safer School Project (2012-2015) supported by UN-Habitat, were endorsed by the Government in 2016, and are currently being applied by the Ministry of Public Works and Water Resources (MOPHR) and the Ministry of Education and Human Development (MINEDH). The guidelines are being disseminated to all public sectors throughout the country through on-the-job trainings and technical assistance by UN-Habitat.

Sub-projects *(see **Annex 5** for more details)*	**Relevant rules, regulations and standards**	**Compliance, procedure and authorising entity**	**Principle 1 triggered during project preparation (and mitigation measure required)**
5.3.1. Improving the overall drainage capacity of the city	**Environmental Law 20/97** (under review); the potential risks associated with this kind of infrastructure are reduced, so the project is to be assigned to environmental **Category B** which requires a Simplified Environmental Study (SES); this classification is also because of the length of the main drainage channel to be improved, which is less than 10 km.	**Ministry of Land, Environment and Rural Development (MITADER); Municipality of Chokwe** A Simplified Environmental Study (SES) will be prepared for these interventions, including an Environmental Management Plan (EMP); the SES has to be submitted for Government review and publicly disclosed to the affected communities prior to appraisal. Decisions regarding EIAs for category B projects can also be taken at the provincial level, within the Provincial Directorates of MITADER.	Not triggered. No obstacle to prepare and submit a Simplified Environmental Study (SES). Proposed intervention has been discussed with and agreed by authorities
5.3.2. Construction of safe-havens	**Environmental Law 20/97**; the potential risks associated with this kind of infrastructure development are reduced, hence this intervention is likely to fall under **Category B.** Category B projects involve projects that have no significant impact and are not undertaken in sensitive areas, involving the production of various types of goods such as construction materials.	**National Institute of Disaster Management (INGC); Municipality of Chokwe** Projects of Category B require the simplified EIA process including the formulation of ToR and of a Simplified Environmental Report (SER). Decisions regarding EIAs for category B projects can also be taken at the provincial level, within the Provincial Directorates of MITADER. A disaster contingency plan needs to be prepared and submitted to the Municipal Council in coordination with INGC, including the safe location, the evacuation routes and the improvement of the early warning system.	Not triggered. Locations have been proposed by the municipality. No obstacle to develop and submit a disaster contingency plan Proposed intervention has been discussed with and agreed by authorities

5.3.3. Improving solid waste management	**Urban Solid Waste Management Regulation, Decree no. 94/2014,** of 31st December approved the Regulation for the Management of Solid Municipal Waste ("Regulation"), revoking the Regulation on Waste Management, approved by Decree no. 13/2006, of 15th June.	The Regulation establishes the rules for the management of solid municipal waste within the territory of Mozambique and applies to every individual, as well as to public and private companies that are involved in the production and management of solid municipal waste or of industrial and hospital waste similar to municipal waste. The attributions concerning the management of solid municipal waste are divided between the Ministry that supervises the Environment Sector and the Municipal Councils and District Governments, within their respective areas of jurisdiction. For the sake of the Project the authorities will be the MITADER and the Chokwe City Council. All public and/or private entities that carry out activities connected with the management of solid municipal waste must produce and implement an integrated management plan for the solid municipal waste they manage.	Not triggered. No obstacle to obtain authorisation from the municipality. Proposed intervention has been discussed with and agreed by authorities
5.3.4. Establish early warning for floods at community level	**Disaster Risk Management Law 15/2014,** which addresses different aspects of disaster management including prevention, mitigation of disaster effects, relief and assistance operations as well as reconstruction and recovery of affected areas	**National Institute of Disaster Management (INGC); Municipality of Chokwe** A disaster contingency plan needs to be prepared and submitted to the Municipal Council in coordination with INGC, including the safe location, the evacuation routes and the improvement of the early warning system.	Not triggered. No obstacle to develop and submit a disaster contingency plan. Proposed intervention has been discussed with and agreed by authorities

Table 22: Sub-projects in Chokwe, Mozambique, and relevant national standards

- *Union of Comoros*

In Comoros, the project complies with Environmental Law n. 94-018/AF, which aims in Article 2 to: a) preserve the diversity and integrity of the environment of the Republic of the Comoros, as an integral part of the universal heritage, which is particularly vulnerable associated with insularity; b) create the conditions for a sustainable quantitative and qualitative use of natural resources for present and future generations; and c) ensure an environmentally sound and balanced living environment for all citizens. The EIA process is governed by Decree n. 01-052/EC. The EIA of proposed works and activities must involve: a) an analysis of the condition of the site and its environment; b) an assessment of the foreseeable consequences of the implementation of the project on the natural and human environment; and c) the implementation of measures to reduce or eliminate harmful effects on the environment and others non-selected options for the implementation of the project.

The Framework Environmental Law provides for mandatory impact assessment study for major coastal and other developments which have or are likely to have environmental impacts. In accordance with Article 14 of the Environmental Law, the Union of the Comoros has a prescribed list of projects for which an EIA is compulsory. The activities identified for the city of Moroni, i.e. designing and building a drainage system, improving solid waste management at the neighbourhood level, rainwater harvesting at household level, according to this list, do not require a mandatory EIA.

Additionally, relevant to the project components in Comoros are the Accelerated Growth and Sustainable Development Strategy (SACADD), as well as the Urban Development Code and the Communal Development Plans. The project further follows the objectives of the National Environmental Policy and related action plan. Concerning the protection of natural habitats, the project will be implemented in the municipality of Moroni. It will not result in unjustified conversion or degradation of critical natural habitats, including those that are: a) legally protected; b) officially recommended for protection; c) recognised by authoritative sources for their high conservation value, including as essential habitat; or d) recognised as protected by traditional or indigenous local communities.

Sub-projects *(see **Annex 5** for more details)*	**Relevant rules, regulations and standards**	**Compliance, procedure and authorising entity**	**Principle 1 triggered during project preparation (and mitigation measure required)**
5.4.1. Reinforcing the drainage capacity in La Coulée neighbourhood	**Law n. 86-017 related to the Urban Development Code**, which defines standards and procedures for carrying out works in urban areas **Law of town planning and housing** (Law 86-017) **Environmental Law n. 94-018/AF**, which regulates water management	The drainage intervention needs to comply with the Urban Development Code. For this, authorisation and a permit from the National Directorate of Territorial Planning and the Municipality of Moroni will be obtained. In the territory of municipalities, as well as in agglomerations, anyone wishing to undertake a residential or non-residential construction must first obtain a building permit or building permit. The building permit is issued by the mayor after preliminary study of the file by the Regional Directorate of Urban Planning and Housing. The decision must be notified to the applicant within two months from the date of filing of the application.	Not triggered. No obstacle to obtain authorisation and a permit from the National Directorate of Territorial Planning and the Municipality of Moroni and comply with the Urban Development Code. Proposed intervention has been discussed with the municipality and no obstacles have been identified to obtain this authorization. The municipality also confirmed no EIA is required.
5.4.2. Establishing a community-managed rainwater harvesting system in La Coulée neighbourhood	**Law n. 86-017 related to the Urban Development Code**, which defines standards and procedures for carrying out works in urban areas **Environmental Law n. 94-018/AF**, which regulates water management	Authorisation needs to be obtained from the **National Directorate of Territorial Planning and the Municipality of Moroni**.	Not triggered. No obstacle to obtain authorization from the National Directorate of Territorial Planning and the Municipality of Moroni. Proposed intervention has been discussed with and agreed by authorities
5.4.3. Improving solid waste management in La Coulée and Médina neighbourhoods	**Environmental Law n. 94-018/AF**, which regulates waste management (Articles 59-65)	Authorisation needs to be obtained from the **National Directorate of Territorial Planning and the Municipality of Moroni**. All administrative authorisation requests for a development project need to be supported by an environment impact assessment. The Directorate General for the Environment is responsible for the assessment of environment impact studies including environmental licensing approval process.	Not triggered. No obstacle to obtain authorization from the National Directorate of Territorial Planning and the Municipality of Moroni. Proposed intervention has been discussed with and agreed by authorities

5.4.4. Setting up a flood early warning system in La Coulée neighbourhood	**National Strategy for Disaster Risk Reduction National Contingency Plan.** There is no relevant law yet. The National Action Program for Adaptation to Climate Change (NAPA) is the reference for climate change.	For the establishment of EWS and resilience/DRR related issues, strict coordination needs to be established with the **General Directorate for Civil Security (DGSC)**	Not triggered. No obstacle to coordination with the General Directorate for Civil Security (DGSC). Proposed intervention has been discussed with and agreed by authorities

Table 23: Sub-projects in Moroni, Comoros, and relevant national standards

G. Overlap with other funding sources

Analysis of existing similar initiatives has taken place to avoid duplication. The project is designed to complement and synergise with similar on-going projects and programmes.

Despite the existence of initiatives in the four targeted countries for climate change adaptation and/or mitigation and disaster risk reduction (e.g. by the World Bank, DFID, USAID, UNDP, UNEP, among others), to UN-Habitat's knowledge, and based on a desk review as well as consultations with local governments and development partners, none is focusing solely on urban climate adaptation in the four cities targeted by this project and is adopting the proposed bottom-up approach, from the local level to the national and regional level. Based on a mapping of the most recent initiatives on climate change adaptation in all of the four countries, it has been noted that most interventions focus on rural areas and involve relatively modest funding amounts in the areas of disaster risk management.

However, several projects were identified that provide complimentary potential. An analysis of lessons learnt from these projects took place and was duly taken into account for the planned activities at the country level and are presented per country below.

- ***Madagascar***

Direct overlap or strong complimentary potential could not be established, except for the integration of climate change impacts into national and regional planning, which will be taken into account when working at the national level on project activities under Component 2. The following relevant initiatives represent lessons learnt that are taken into consideration in this project:

- Sustainable and integrated littoral planning in Morondava (on-going); Budget: EUR 933,000 financed by AFD, Reunion Island Regional Council, European Union; Executing entity: Municipality of Morondava

The project aims to protect the city of Morondava against coastal erosion and floods by stabilizing the dunes and containing the erosion on the littoral. It further focuses on the dredging of the hydrologic network in the upstream watershed to allow the sediments to settle on the coast. A third intervention is planned with regard to dredging of the Hellot Channel from the sea to the port of Morondava. In order to ensure maximum synergies, discussions were held with the AFD team and the municipality and it was jointly decided that the two projects will operate in Morondava from the same office to facilitate experience sharing, cooperation and communication. To avoid overlap, the present proposal will focus on the inland flood problem in Morondava while coastal erosion issues are being addressed by the described project. Additionally, UN-Habitat has been invited to be part of the project's steering and scientific committees. This project will be able to build on the following activities planned by the described project: capacity building efforts; awareness-raising campaign about the benefits and mechanisms of coastal protection and rehabilitation; an environmental study on the littoral.

- Capacity building for the Menabe Regional Committee Development project (2016)

This project was built on the existence of the Menabe Regional Committee Development (CRD-Menabe) institution set up in 1996 and very active until 2006, with the objective of fostering local development. The initiative was launched by volunteers at the local level with the objective of organising thematic debates, meetings and training to strengthen capacities of local stakeholders. In 2016, internal training sessions have been organised to rekindle the institution. The proposed project will use the CRD network to organise training, awareness raising campaign and sharing of information. The CRD prepared a project proposal for waste collection and recycling in Morondava to be financed by Wateraid but is yet to be approved. If successful it could complement the activities planned under the proposed AF project.

- Coastal protection project in Morondava (2010); Budget: EUR 2,000,000; Donor: AFD (French Development Cooperation)

The project realised 170 m of coastal protection with gabions in order to protect the port area and infrastructure. The high cost of this kind of intervention prevents a replication along the complete length of the city coastline. The proposed project will thus involve cost-effective activities to live with potential flood risks from the sea.

- Tree planting by the ministry of fisheries (2016); Institutions involved: Ministry of Fishery and WWF

This intervention consisted of small-scale tree planting in Tanambao. The success of the project was limited due to a wrong choice of species and planting during the wrong season as well as insufficient community involvement. These lessons learnt are reflected in the project design: communities will be involved to the maximum level to ensure sustainability of the intervention on mangroves. The sub-project will benefit from advice of WWF with regard to planting season and appropriate species.

- Achieving Sustainable Reduction of Risks through Consolidation of Multi-Hazards Architectural DRR Solutions and Physical Planning (2015); Budget: USD 70,000; Donor: European Union, DG ECHO; Executing entity: UN-Habitat, Municipality of Morondava

See Part II, Section A, Component 1 for achievements and lessons learned.

- Adapting coastal zone management to climate change considering ecosystem and livelihoods (Menabe, Boeny, Vatovavy Fitovinany and Atsinanana) (2014-2019); Budget: USD 12,050,00 financed by GEF; Executing entity: UNEP, Ministry of Environment and Forests, Regional Administrations

The project is being implemented at the regional level and aims at reducing the vulnerability of the coastal zone to climate variability and change through institutional capacity building, concrete coastal adaptation interventions and integration of climate change into policy and planning. The proposed project will build upon the regional approach to coastal management for adaptation focused on ecosystem and livelihoods.

- ***Malawi***

While the focus is still on rural areas, in Malawi the attention to climate change adaptation in urban areas is increasing due to rapid urbanisation and the increased frequency and intensity of disasters affecting urban settlements in recent years. The following relevant initiatives represent lessons learnt that are taken into consideration in designing this project:

- Enhancing Communities' Resilience Programme (ECRP) 2011-Sept 2017; Budget: GBP 28,000,000; Donors: Donors: DFID, Governments of Ireland and Norway; Executing entities: Two consortia led by Christian Aid and Concern Universal

The programme aimed at increasing the resilience of vulnerable communities to climate variability

and change and was implemented in 11 disaster prone districts. It promoted a variety of interventions including disaster risk reduction and early warning systems (EWS), agroforestry, disability and youths. Relevant lessons learnt and recommendations from this project are manifold:

1. Community involvement at all stages of project cycle enhances participation and sense of ownership.
2. With the alarming deforestation rates currently prevailing, cook stoves of any type should continuously be promoted.
3. Engaging youth in disseminating weather-related forecasts has been more helpful than just using the official DRM structures.
4. Partners are advised to link up with the Department of Climate Change and Meteorological Services through the Malawi Weather Forum for weather updates.

In response to this, the project design involves i.) meaningful participation by communities by consulting them throughout detailed project design (quotas in consultations) and involving them as local labour, ii.) promotion of energy efficient cook stoves; iii.) involving youth groups in the communication strategy, trainings and drills for the EWS; iv.) linking up with recommended institutions for timely weather information.

- Integrated waste management in Zomba City (2015); Budget: USD 100,000; Donor: Sister Cities International under the Sino-African Initiatives; Executing agency: Zomba City Council

This project focused on building a waste composting centre close to the sewerage centre in Likangala ward managed by Zomba city council. Poor community engagement and participation resulted in low uptake on waste separation and composting in this project. Lack of integration with existing programmes, weak procurement and project management also affected its implementation. As a lesson learnt from this project, the sub-project on solid waste management in Zomba builds on full community level involvement

- MASAF IV project: Strengthening safety nets systems in Malawi (safety net programs on productive community driven public work, Sept 2014-Sept 2018); Budget: USD 1,019,000; Donors: Malawi Government and World Bank; Executing Agency: Local Development Fund

This annual government programme targeting the poor to build small community assets in exchange for cash has built strong foundations for community engagement in project implementation. This lesson learnt is taken into account in the proposed project in that it will involve local labour as much as possible to ensure ownerships and sustainability. The proposed project will influence the productive public works projects in Zomba by integrating climate proofing in the created community assets.

- Lake Chilwa Basin Climate Change Adaptation programme (2010-2017); Donor: Embassy of Norway in Malawi; Executing Agency: LEAD International with the Malawi Forest Research Institute (FRIM).

The programme implemented afforestation activities in the three basin districts of Machinga, Phalombe and Zomba. LEAD International explains a very high survival rate of trees raised in tree nurseries (16% higher than the national average) with ownership by the communities. Bee keeping as alternative livelihood had furthermore provided security against theft of trees. Taking up this lesson learnt, community involvement is strongly anchored in the proposed project. The appropriate techniques regarding afforestation will be chosen with direct advice from the executing entities, hence lessons learnt will directly be integrated from the source. The creation of alternative livelihood options has been included into the project design as well. The project also installed weather stations within the basin that focus on recording data for scientific purposes on water resource management, established a community radio in Zomba City, installed gauges in the upper streams of two rivers in Zomba and included a communication and outreach

component. The proposed project will make use of the two river gauges and include them in the automated early warning system. It will also build upon the existing community radio station to include it in the dissemination strategy of early warning information.

- Waste for wealth project (2009-2012); Budget: USD 500,000; Donors: UNDP and One UN Fund; Executing Agency: UNDP and UN-Habitat

The project set up a waste transfer station and trained women to make compost. These "waste entrepreneurs" collected garbage from Lilongwe's slums, sorting it and processing organic material into compost for sale. The project has proven to be very successful and driven economic growth: it has shown that turning trash to cash enables poor slum-dwellers to make a living. Such spontaneous growth reflects the project's potential. The project ended in 2012 and has shown to be very sustainable thereafter. Six years after the project the women have built upon the model and expanded the same. The lessons learnt have been taken up in the project design which aligns with the income generating rationale (community waste entrepreneurs, see sub-project fiche solid waste management for Zomba). The project adopted a more decentralised/ localised approach in order to avoid one community being favoured over another.

- ***Mozambique***

The initial mapping for complimentary projects in Mozambique resulted in a list of initiatives related to water resource management, disaster risk management and climate change adaptation. A vast portfolio of projects on climate change adaptation was found, especially in rural areas. The growing demand for urban adaptation projects is still not adequately met. The following relevant initiatives represent lessons learnt that are taken into consideration:

- Regional Multi-Sectoral DRR Assistance Programme for Southern Africa (concluded in 2013); Budget: USD 200,000, financed by European Union, DG ECHO; Executing entity: UN-Habitat; Municipality of Chokwe; Samaritans

The main objective of this project was to provide national and local institutions with technical support on disaster-resistant shelter and basic infrastructure as well as on urban resilience and risk reduction, in order to feed evidence for policy making at national and regional levels. In Chokwe two flood-adapted infrastructures were built and risk maps were developed. The infrastructure built by the project will be utilised in this project: an elevated community radio will be integrated as part of the proposed early warning system. Resulting from previous experiences, security will be reinforced to avoid possible vandalism and the management of the radio station will be transferred to the municipal authorities. A key lesson from this project was the importance of building capacities at the community level for promoting adaptive architecture in housing and public buildings such as schools, and improving local construction techniques.

- Achieving Sustainable Reduction of Risks through Consolidation of Multi-Hazards Architectural DRR Solutions and Physical Planning (2015); Budget: USD 80,000, Donor European Union, DG ECHO; Executing entity: UN-Habitat and Municipality of Chokwe

See Part II, Section A, Component 1 for achievements and lessons learned.

- Coastal Cities Adaptation Project (CCAP) (2014-2017); Budget: 15 million, Donor: USAID; Executing entity: Municipalities of Pemba and Quelimane, UN-Habitat

The project promoted and developed capacities to resilient housing construction through technical training to local builders and artisans. Outcomes were the construction of elevated flood-proof housing models using local building materials, and through a set of trainings and participatory sessions the development of the skills of local master builders. This project will build on the lessons learned for building adapted/elevated critical infrastructure, applying as much as possible techniques based on local material. Local builders will be involved in a set of training sessions to build their capacity for replicating the approach and ensure sustainability.

- Cities and Climate Change Project (concluded in 2013); Budget: USD 120,000,000: Donor: World Bank

The purpose of the project was to enhance the capacity of the city to adapt to climate change impacts like floods and sea level risk in the city of Maputo. The project implemented participatory risk mapping and the prioritization of actions to mitigate climate impacts and implemented rehabilitation of drainage channels and slum upgrading of the most vulnerable neighbourhoods. It further focused on local government capacity development in CCA, which resulted in the development of a Local Adaptation Plan for Maputo city. The lessons learned from the implementation of climate change adaptation and mitigation measures at city and neighbourhood level will bring an added value to the current proposal.

- ***Union of Comoros***

Most recent climate change adaptation related interventions in the Union of Comoros have focused on rural areas, such as the GEF project: *'Enhancing Adaptive Capacity and Resilience to Climate Change in the Agriculture Sector in Comoros'* implemented by UNDP. The following relevant initiatives represent lessons learnt that are taken into consideration in designing this project:

- Strengthening Comoros Resilience Against Climate Change and Variability Related Disaster (2018-2022); Budget: USD $8,932,421 (GEF) USD 250,000 (UNDP); pledged co-financing by the government USD 37,930,908; Donors: GEF-LDCF, UNDP; Executing entity: Government of Comoros - General Directorate for Civil Security (DGSC), UNDP

This 5-year project has recently started implementation and has the objective of strengthening the adaptive capacity of the Comorian population to manage the current disaster risks and reduce vulnerability to climate change. This proposal is highly aligned with the objective, outcomes and output of this project. The potential for complementarity is very high, as there are many areas of convergence but geographical focus differs for each project – as the GEF project targets various settlements and villages in 3 islands of the Union of Comoros. Discussions have been held and will continue with both UNDP and the DGSC to ensure a mutually beneficial collaboration especially for the following activities:

- The GEF project includes training on the integration of CC and DRR into policies and strategies. Activities under component 2 of the present project have a similar nature but with a focus on urban areas. Close cooperation with UNDP and DGSC will ensure that training and capacity building activities are integrated as much as possible with complimentary and mutually enriching contents.
- The GEF project will improve communication systems for the transfer of information and develop a telecommunications system to increase the capacity to receive and manage emergency calls at the national level. The flood early warning system will take this new technology into account and will be developed under the supervision of the DGSC.
- The GEF project will assess solutions, design and develop community-based water management systems in targeted local communities. Related collaboration will include exchanging know-how, experiences and overall information to contribute to better community rainwater harvesting systems under both projects.
- The GEF project will assess, design and implement flood prevention interventions. Coordination will be beneficial under the activities of the present project focusing on flood risk reduction.

- Establishment of system for disposal, collection and valorisation of recyclable waste in Moroni (2018); Budget: USD 285,000; Donors: European Union, Japanese Cooperation, French Cooperation; Executing entity: ONG 2Mains

This ongoing project will build a waste sorting and recycling centre and install 12 containers to serve as Voluntary Disposal Points (PAV) for recyclable waste, and conduct various awareness raising and capacity building activities. Extensive talks with the local NGO 2mains have already been held and contributed to designing the waste management intervention in Moroni. Importantly, the PAV container model served as inspiration for the collection points to be established in La Coulée and in the Medina by this project. They will also be integrated with the sorting and recycling centre, which will be functioning by July 2018. Close relationship will be kept with 2mains and joint awareness raising and training activities will be held when possible.

- Cities and Climate Change Initiative – City Resilience Action Planning in Moroni (2017); Budget: USD 50,000; Donors: Norway; Executing agency: UN-Habitat

See Part II, Section A, Component 1 for achievements and lessons learned.

- Integration of disaster risk reduction into policies for reducing poverty in the Union of Comoros (2012-2015); Budget: 475,000 USD; Donors: GFDRR; Executing entity: Ministry of Interior, Information and Decentralization, General Directorate for Civil Security (DGSC)

This project focused on establishing a database, developing a national policy and reinforcing capacities for disaster risk management. The lessons learned report mentions important challenges to be taken into account while implementing this project, such as the difficulty of mobilising international expertise, the lack of data, and a significant turn-over among key institutions and partners. The project has achieved important outputs that will be built upon during the implementation of this project:

- The elaboration of a National Strategy for Disaster Risk Reduction: under Component 2.1 of the present project, this document elaborated under the GFDRR project will be analysed and reviewed for introduction of concepts of urban resilience/climate change adaptation.
- The National Contingency Plan: this document is particularly relevant for the establishment of an early warning system and appropriate alignment will have to be ensured. Gaps related to urban risk and specific contingency measure should be also addressed.
- The GFDRR project organised trainings and workshops at different levels on DRM and climate change. Lessons learned from conducting these trainings are taken into account.

- Institutional and community support for early warning system for volcanic eruption (2008-2010); Donors: European Union (DG ECHO); Executing entities: Comorian red crescent, COSEP, Observatory of the Karthala

The project was successful establishing an early warning system for monitoring volcanic activity at the national level. A series of lessons learnt have been taken into account for the conception of the flood early warning system sub-project under the present proposal. The need for local systems closely linked with national coordination mechanisms, and to raise awareness at community level regarding the risks they face. Local media are key actors for a functional and efficient early warning system. Use of satellite phones with subscription is efficient but problematic due to complications to maintain subscription and difficulties of use by communities. UHF/VHF radio may be a viable alternative.

H. Learning and knowledge management

Lessons learned from earlier projects in the countries that relate to climate change adaptation have systematically been taken into account and influenced the project design as outlined in section G above. For the sake of continuous learning from the proposed sub-projects and initiatives at the city, national and regional levels, as well as fostering knowledge transfer and sharing, the learning and knowledge management strategy of the proposed project is inspired by UN-Habitat's Results Based Management Framework which focuses on achieving results, improving performance, integrating lessons learned into management decisions and monitoring

and reporting on performance. The project's knowledge management system includes clear mechanisms on how to capture, analyse, learn, transfer and share lessons from the sub-projects and initiatives to be undertaken.

First, the KM system enables **capturing and analysing information and learning lessons** from knowledge related to the adaptation focused projects.

The Project Supervision Team (PST), which will include a Knowledge Management Assistant, will coordinate the overall knowledge management and project communication. It will carry out regular project monitoring at all levels in line with the arrangements for monitoring, reporting and evaluation (see Part III, section D). As such, it will be responsible for producing/facilitating (i) M&E plans; (ii) a project inception report; (iii) 6-month, annual and terminal project performance reports; (iv) the mid-term review; (v) technical reports; and (vi) the independent terminal evaluation.

A database for all information on the project will be managed by the PST, including but not limited to the reports above. It will be the central storage for all project outputs captured under project monitoring and review documents and knowledge products and will reduce time required for locating information. This will ensure retrieving and capturing lessons learnt. The database will become a knowledge base of the types of interventions that are successful, and more generally, what works, what does not, and why. In order to ensure that documents are not simply being accumulated, it will be ensured that lessons learnt are fed back to the process for continuous learning and that they influence strategy development and further implementation.

Second, the KM system integrated in the project enables **transferring the lessons learnt and fostering knowledge sharing** with all climate change stakeholders. This will be realised through Components 2 and 3 of the project. Component 2 includes systematic bottom-up dissemination of lessons learnt from local to national levels, whereby lessons learnt from the local level will be presented at the national level and translated into useful training guidelines and recommendations for evidence-based policy making. Component 2 includes the further refinement of the CityRAP tool. Under this aspect the project aims at widely disseminating the tool and making it accessible to other cities and communities at no cost. The knowledge management strategy foresees producing informative and easily accessible formats (e.g. videos and online tutorials) that guide municipalities/stakeholders to use the tool independently.

Component 3 is dedicated to inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level. The component focuses on transferring knowledge from one city and country to another to improve processes, capitalizing on key lessons learned and will assist in streamlining currently scattered and sometimes duplicated efforts. It further focuses on systematically keeping track of experiences gained from the project both to enrich the local, national and global knowledge on climate change adaptation and to accelerate understanding about what kinds of interventions and processes can be seen as best practices for potential replication in the region. Knowledge exchange between the four countries is at the core of the project. Regional workshops will be organised with a view to capturing and disseminating lessons learnt from the locally implemented sub-projects.

DiMSUR will be the custodian for knowledge management and sharing, in line with its Charter's objective to "enable DRR, CCA and urban resilience knowledge, information and exchanges between member States." DiMSUR aims at compiling and disseminating technical knowledge, functioning as a service provider and performing as a partnership hub for the benefit of its members in its core areas. Key findings of the project will be published in peer-reviewed journals and presented at international conferences to enrich the global debate. DiMSUR has mechanisms for information sharing on progress, lessons, plans, and milestones through its website which is

frequently being visited (www.dimsur.org),[55] social media (Facebook and Twitter), and a regular newsletter that is distributed to a wide audience. These will be leveraged to disseminate information on the process in all four countries as well as lessons learnt throughout the project. Another relevant tool for capturing lessons learnt is the SADC web portal for sharing DRR experiences in the region. A media outreach strategy will include issuing press releases and inviting local and national media to participate at key project stages.

Overall, knowledge sharing will include webinars, workshops, conferences and a wide range of knowledge products (lessons learned, data, and information on the processes) that will be publicly accessible and widely disseminated, as well as increased capacity/knowledge among all stakeholders. An overview table is given below for each component and relevant knowledge management products.

Expected project outputs	Learning objectives (lo) & indicators (i)	Knowledge products
Expected Output 1.1. Sub-projects implementation plans	(lo): Improved understanding of local social and environmental risks pertaining to the sub-projects (i): Number of environmental and social risk assessment studies	Detailed plans for sub-projects, including all technical specifications and designs
Expected Output 1.2. Priority sub-projects implemented	Improved knowledge of concrete urban climate adaptation projects implemented locally (i): Number of best practices obtained and shared	• Project reports and detailed data collected in each city • Where applicable, physical demonstration sites, including innovative solutions, and training material related to adaptive architecture/infrastructure
Expected Output 1.3. Municipal staff and community members mobilised, trained and equipped	(lo): Improved knowledge of management/ maintenance of the priority interventions locally (i): Number of municipal staff and community members trained	• Training material for each city targeting communities (at both city and community level) • Reports of community-to-community learning exchanges within the target cities
Expected Output 2.1 National tools/guidelines/policies/ legislation for promoting urban climate adaptation	(lo): Improved national guidelines/policies/legislation for promoting urban climate adaptation (i): Number of guidelines, policies, legislation developed	Madagascar: Climate risk assessment guide for urban areas, integrated in the national directives for promoting urban climate resilience; Updated National Strategy for Climate Change Adaptation for Urban Areas Malawi: National guidelines for assessing climate change impacts and for climate proofing infrastructure in urban areas; policy documents for building urban resilience, with focus on climate-related risk; guidelines for promoting the green cities concept; climate-related building codes/standards integrated in the Revised Safer Housing Construction Guidelines Mozambique: Report on the possibility of transforming the CityRAP tool into a legal instrument; studies to further integrate climate change adaptation and urban resilience into existing legislation and strategies Comoros: Improved existing guidelines on urban resilience and adaptation to climate change; feasibility report on introducing concepts of urban resilience/climate change adaptation in existing policy and legislation

[55] In the second half of 2016, the website showed a total of 225,646 visitors, with monthly visitors of up to 56,000 people, highlighting the demand and interest in the region.

Expected Output 2.2 National and local officers trained in urban climate adaptation techniques and approaches	Io): improved capacity in urban climate adaptation (i): number of national/local officers trained	Madagascar: Improved academic curricula and training resources for promoting climate change adaptation in urban areas at the national level; training materials for adapting to climate change in urban areas targeting local and regional authorities Malawi: Training materials in climate change and urban resilience targeting municipal and national officers; training materials of urban disaster risk management committees Mozambique: Report on organised National Urban Resilience Dialogues with focus on climate change adaptation; training materials on urban resilience and climate change adaptation tailored to different target groups Comoros: Training of trainers materials; report on implementation of CityRAP in at least 2 or 3 cities on every island
Expected Output 3.1. Lessons learnt and best practices captured and disseminated through the SADC DRR Unit in partnership with DiMSUR	(Io): Improved knowledge and experience exchange around urban climate adaptation in southern Africa (i): number of publicly shared knowledge products	• Articles published on the DIMSUR and SADC web portals for the general public, informing of the process of project implementation in the different countries • At least one scientific article published in a peer reviewed journal capturing the lessons learnt from project implementation for the global academic audience
Expected Output 3.2. Cross-fertilisation activities among the participating countries		• One detailed report per country on project Component 2 capturing lessons learnt and best practices • One video per country on project Component 2 capturing lessons learnt and best practices • Good practice guides on climate change adaptation solutions derived from local project implementation • Reports of country-to-country and city-to-city learning exchanges
Expected Output 3.3. Regional workshops for experience sharing and participation in global events		Reports of regional best practice workshops for project stakeholders and for global dissemination

Table 24: Knowledge management objectives and indicators

I. Consultative process

This project proposal is funded by the Adaptation Fund and aims to comply with all policies with special attention to its Environmental, Social and gender Risk policies. To this end, relevant project information has been timely and regularly presented to relevant stakeholders, from the concept stage to the full proposal stage, to ensure the engagement of partners, targeted institutions and communities allowing to address comments and concerns and make the necessary changes in the project design. Public consultations considered all Parties affected by possible social and environmental risks, involving marginalised and vulnerable groups and guaranteeing a gender sensitive process.

This section provides an overview what consultations took place during project preparation. Public consultations with target communities/marginalised and vulnerable groups focused on: 1) identification of specific needs and issues regarding proposed interventions that address climate

change related issues (as identified through the CityRAP process); 2) identification and verification of potential environmental and social risks and impacts related to these interventions; and 3) identification of mitigation measures when needed. As outlined in the Part I, Section A, consultations at the regional level focused on project design with the SADC Disaster Risk Reduction Unit. At the national level, consultations focused on line ministries in order to identify national needs and concerns regarding the project, especially concerning Component 2 (see table 25 below). At the local level, consultations focused on identifying local needs and concerns regarding the project and to identify relevant technical standards and how to comply with these.

Annex 2 (Cross-cutting issues) includes information about specific groups needs and issues and how proposed interventions address these

Annex 3, in which all information demonstrating compliance with the ESP is consolidated, will be made available as a separate document for public consultation after approval from the Fund, as otherwise more expectations will be raised (which, if not fulfilled, may give place to frustration of community members already consulted several times on the same). The ESMP and this whole project proposal is the result of all the consultations held. **Annex 3** includes: Purpose, Process to comply to the AF ESP, Summary description of the project, Screening and categorisation, Environmental and social impact assessment and Environmental and Social Management Plan (ESMP).

Arrangements to implement the ESMP are described in Part III Section C and include: (i) Risks management arrangements; (ii) Risks monitoring and evaluation arrangements; (iii) Grievance mechanism; (iv) Overview of potential risks and mitigation measures; and (v) monitoring arrangements.

Annex 4 provides evidence, details and the methodological approach of all consultations held.

Stakeholders	Directly involved in project implementation	Indirectly involved in the project implementation	Minority, indigenous stakeholder and groups	Gender consideration in stakeholder identification
Madagascar				
National and Regional level	• Ministry of Environment, Ecology, Sea and Forestry (AF Designated Authority)	• Menabe region representatives • Regional Directorate of the Environmental Ministry • Regional Directorate of the Ministry of Population, Social and Woman Protection • BNGRC • World Wide Fund for Nature (WWF)	• Association of women with disabilities • Grass-roots associations (Ambohotsimarani) • Morondava school district authority • There is no indigenous population in Morondava • The Red Cross	• Morondava women association involved • Gender parity have been encouraged for every consultation exercise
Municipal level	• Morondava City Council including Mayor, deputy mayor, focal points of the CityRAP process • Chiefs of relevant municipal departments and technical staff	• Chiefs of other municipal departments and technical staff • Focal point of ongoing relevant projects • Journalists • Environmental local associations • Local development and risk committees		
Community level	• Targeted neighbourhood population: Ampasy, Avaradrova, Sans fil and Tanambao	• Representatives of other neighbourhoods		

Malawi				
National level	• Ministry of Finance, Economic Planning and Development (AF Designated Authority); DoDMA; • Department of Environmental Management Affairs – Climate Change Section; Department of Forestry	• Forest research Institute of Malawi (FRIM)	• Marginalized and vulnerable groups (Youth, older persons, Disabled, HIV, orphans) have been consulted • There is no indigenous population in Zomba	• Consultations with women groups have been organised in Chambo and Sadzi • Gender parity have been encouraged for each consultation
Municipal level	• Zomba City Council including Chief Executive, Chief Urban Planner; Chief Engineer and focal points of the CityRAP process	• Head of municipal departments and technical staff • Community Mobilizer • Zomba District Forest Office • Relevant NGOs Representatives (LEAD international) • Sub-contractors for engineers works in Zomba		
Community level	• Targeted neighbourhoods: Chambo, Likangala, Mbedza and Mtiya	• Representatives of other neighbourhoods		
Mozambique				
National level	• Ministry of Land, Environment and Rural Development (MITADER) (AF Designated Authority); INGC	• Oxfam Mozambique • FIPAG (Investment fund for Water Supply Assets) • ARA-Sul (Water Administration of the Southern Region)	• Marginalised and vulnerable groups (Youth, Older persons, Disabled) have been consulted • There is no indigenous population in Chokwe • The Red Cross	• Consultations with women groups have been conducted in the targeted neighbourhoods • Gender parity have been encouraged for every consultation or working group
Municipal level	• Chokwe City Council including the Mayor, municipal councillors of Urbanization, Environment and Social Sectors and technical staff from the urbanization sector	• HICEP (Chokwe Hydraulic)		
Community level	• Targeted neighbourhood 2, 3, 4 and 5's communities members	• Representatives of other neighbourhoods		
Union of Comoros				
National level	• General Directorate of Civil Security (DGSC) (AF Designated Authority); different ministries • Directorate General of Civil Security	• The Karthala Volcanological Observatory • Ulanga Ngazidga NGO • The Comorian Red Crescent Society • The Comoros University • The National Agency for Civil Aviation and Meteorology • The National association of Mayors • National Department of Statistics Department of Environment and the Climate Change Alliance	• Comorian Red Crescent Elderly, people with disabilities and youth have been invited to participate in the consultations. • There is no indigenous	• The National Network for Women and Development participated in different stages of the project proposal design • Groups of women actively participated in the community consultations

		Office. • Department of Environmental and Climate Change Alliance Office	population in Moroni	• Gender parity have been encouraged for every consultation
Municipal level	• Moroni City Council	• Local NGO 2 Mains • Consultant engineer		
Community level	• Chief of communities and community representatives of La Coulée and Medina	• Chief of communities of other neighbourhoods		

Table 25: Stakeholders' map

Project information available for public disclosure

Project information has been shared with government representatives involved in the project proposal in each country (see **Annex 4**). Also, all relevant project information has been shared with each targeted municipality at the different stages of the project design, allowing them to raise concerns and make comments on the content. At the community level, due to the high level of illiteracy, the fact that communities mostly speak local languages and the complexity of the project proposal, information has been translated, simplified and presented to the communities in order to maximize the level of understanding and interaction/participation during local consultations. Response delivery has been done orally during on-site meetings due to the limited capacity of the consulted population to provide written comments and thus ensuring that everyone had the opportunity to raise their concerns.

Particular attention has been given to the timing and location of the consultations, taking into account local work habits and culture to ensure a maximum access for all to participate, including marginalized and vulnerable groups and women. Consultations in the targeted neighbourhood have been organised in community centres or open common areas to be easily accessible by participants. Groups of discussion have been organised with women due to the fact that in the targeted communities of the project, women often face difficulties to be heard in public. Also, discussions with marginalised and vulnerable groups such as HIV persons have been conducted in most private areas to ensure their freedom of expression and security. Due to the difficulty of organising groups of discussion in the Comorian context with HIV positive persons, the consultations were organised with the Comorian Crescent to ensure that the needs of this group and other marginalised and vulnerable groups are taken into account.

Stakeholder, incl. role / function	Consultation objective	Outcome	Conclusion
Madagascar			
Ministry of Environment, Ecology, Sea and Forestry (AF Designated Authority)	Identification of national needs and concerns regarding the project, (especially for Component 3) and role in project execution	Project proposal endorsed; Activities under Component 3 have been more detailed	Priority tools, guidelines and trainings identified
Malawi			
Ministry of Finance, Economic Planning and Development (AF Designated Authority); DoDMA; Department of Environmental Management Affairs – Climate Change Section; Department of Forestry	Identification of national needs and concerns regarding the project, (especially concerning Component 3) and role in project execution	Project proposal endorsed; Activities under Component 3 have been more detailed	Priority tools, guidelines and trainings identified

Mozambique			
Ministry of Land, Environment and Rural Development (MITADER) (AF Designated Authority); INGC	Identification of national needs and concerns regarding the project, (especially concerning Component 3) and role in project execution	Project proposal endorsed by MITADER and INGC, with some few recommendations to be integrated, and agreement in implementing part of Component 3	Detailing of the activities which will be under MITADER and INGC responsibility
Union of Comoros			
General Directorate of Civil Security (DGSC) (AF Designated Authority); different ministries	Identification of national needs and concerns regarding the project, (especially concerning Component 3) and role to in project execution	Project proposal endorsed Activities under Component 3 have been more detailed	Priority tools, guidelines and trainings identified

Table 26: Overview of main stakeholder groups consulted during project preparation at national level

Consultation timeline

At city and community level, as mentioned the project background, UN-Habitat has carried out preliminary work through the CityRAP Tool in the target countries. The identification of priority actions for building urban resilience has been a highly participatory and comprehensive process. In each target city, a team of municipal technicians was trained and conducted the process of data collection and analysis, prioritisation and drafting of a city resilience action plan under the lead of the municipality, with UN-Habitat providing support and strategic advice. The consultations involved local authorities, municipal technical staff and communities most affected by risks and climate change, as well as civil society organisations.

The priorities set by key stakeholders consulted in each city have formed the basis for selecting priority investments/activities, in the form of sub-projects, as outlined in Part II, Section A. The final selection of these priority interventions has been made with the target communities through in-depth local consultations between June and October 2017, as well as in March 2018 by using the following selection criteria:

- Critical resilience building needs responding to climate change impacts;
- Cost-effectiveness of the identified priority investments/activities;
- Consideration of potential environmental and social impact and risks and the required mitigation measures, as necessary;
- Envisaged positive economic, social and environmental benefits of the priority investments/ activities;
- Sustainability of the priority investments/activities;
- Avoidance of possible duplication of efforts already undertaken at the city level.

It is important to note that a mapping of marginalised and vulnerable groups of the targeted communities of the project have been conduct in a participatory manner during the first step of the CityRAP process. Indeed, the selection of the most vulnerable neighbourhoods selected for the project implementation is based on multiple selection criteria. It includes the analyse of risk prone areas but also social and economic vulnerability such as unemployment rate particularly affecting woman and youth, age composition, number of people living with disabilities, presence of minorities and their integration within the communities, among others. This information has been used to prepare the consultation process together with the municipal support and knowledge to engage with relevant groups that could potentially be affected by the project implementation according to local specificities.

After the preliminary work carried out through the participative process of the CityRAP methodology to identified and select the priority activities at the community level at the concept proposal stage, detailed information of each sub-project have been duly presented to targeted communities. In-depth local consultations have been conducted including marginalized and vulnerable groups and adopting a gender-sensitive approach with priority given to all directly affected stakeholders. The process of local consultations included further collection of specific data about the communities and their specific concerns and needs. In addition, climate risks and the barriers faced by the communities to adapt and address climate risk have been discussed.

In all local consultations it was ensured that the voices of marginalized and vulnerable groups were captured and that there was appropriate gender representation. Marginalized and vulnerable groups were specifically consult din a series of consultations in all target cities in September and October 2017 as well as in March 2018 with a view to collect more information on the revising the final selection of interventions by considering the specific needs of marginalised and vulnerable groups. Special attention had been paid to identify and involve groups with increased vulnerability to climate change. For example, fishermen of Tanambao neighbourhoods in Morondava have been very active during communities' consultations. Their livelihood activity depends on the preservation of mangroves, which play a considerable role in coastal protection and mitigate chronic disturbance events accentuated by climate change. Through community consultations they have been informed about project design allowing them to raise comments and concerns, all of which have been addressed while finalising the project proposal.

Between October and November 2018, more consultations have been conducted to develop Environmental and Social Impact Assessments (ESIA) and propose Environment and Social Management Plans (ESMP) for each targeted city. To proceed, a team of expert collected data, visit project sites and organise consultations with regional and local authorities, community representatives, CSOs and NGOs and other relevant stakeholders to produce and agree on an ESMP for the four cities. ESMPs have been structured into screening, assessment, mitigation measures and monitoring during on-site mission and presented to communities, municipal representatives and other relevant partners in Morondava, Moroni, Chokwe and Zomba (see links to attendance lists in **Annex 4**). Comments and concerns have been collected during the respective public disclosures and the proposal has been revised accordingly. In each city, the presented ESMP has been approved and a letter of support was signed by the respective Mayors (see **Annex 4**).

The consultative process for each country took place following the consultative timeline as described below:

	Consultation	Date	Participants	Results
Madagascar				
Municipal level	CityRAP prioritisation workshop	15 March 2016	26 representatives of local stakeholders, including communities and municipal staff	Priority activities to build urban resilience in Morondava identified
	CityRAP validation workshop	15-17 March 2016	23 representatives of local stakeholders, including communities and municipal staff	Validation of the priority issues and activities identified in the City Resilience Action Plan of Morondava
	Assessment of project activities	6 December 2016	20 representatives from the Menabe Region, the Morondava municipality, the fokontanys (neighbourhoods) of Ampasy, Avaradrova, Sans fil and Tanambao, the technical services of the Ministry, the Morondava Women and Youth Association, journalists and the local development and risk management committees.	The participants approved the proposed activities to be carried out in the project.
	Preparation of the environmental	Between 23-26 October 2017	City council: Mayor, deputy mayor; focal points of the CityRAP process	City council fully supported the mission (with technical specialist made available for the full week).

	and social risk screening sheets and grievance mechanisms			They propose that grievance mechanism should be done through radio, based on what already exist but should be improve. The question needs also to be raised during community consultations.
Municipal level	Meetings to review the ESIA and develop the ESMP	8 -11 October 2018	City council: Mayor, deputy mayor; focal points of the CityRAP process, officers of municipal departments of social services, water and sanitation and urban planning. Representative of regional authorities: chef of the forests regional services, regional director of the Ministry of Population, representative of the school district representative, focal point of the Disaster Risk Management Unit, responsible of landscape preservation of WWF and the Red Cross.	City council fully supported the mission and facilitated requested meetings with regional authorities and other relevant partners.
	Public disclosure of the ESMP	12 October 2018	Mayor, deputy Mayor, Secretary General of the Prefecture, red cross representative, chief of communities, CityRAP focal points, 2 representatives of youth associations.	The draft ESMP has been presented, including identified risks and mitigation measures. One comment regarding the social risk link to employment rules to emphasized the specificity of the IMO (Intensité de Main d'Oeuvre) rule at the national level.
Community consultations	Local consultations to discuss proposed activities with targeted communities	Between 26-30 June 2017	Community members of Tanambao, Ampass, Avaradrova and Sans Fil.	Preliminary activities selected
	Site visits and local consultations	Between 23-26 October 2017	Community members of Tanambao, Avaradrova and Sans Fil	Assessment conducted of the feasibility and social and environmental risks of the planned project activities.
	Technical environmental and social assessment	March 2018	Community members and focus group discussion with women with vulnerabilities and women associations	After presentation of project content, comments, concerns and recommendation have been raised by participants
	Community consultations for the development of the ESIA and ESMP	8 -11 October 2018	Community members of Tanambao, Ampass, Avaradrova and Sans Fil	A set of questions has been asked to check population composition, and existent public facilities and services, understand income generating activities, as well as discussing environmental risks.
Malawi				
Municipal level	CityRAP prioritisation workshop	27 November 2015	Representatives from the local communities of Chambo, Likangala, Mbedza and Mtiya and municipal technicians	Priority activities to build urban resilience in Zomba identified
	CityRAP validation workshop	27 November 2015	Representatives from the Zomba City Council, municipal technicians and community representatives.	Validation of the priority issues and activities identified in the City Resilience Action Plan of Zomba
	Assessment of project activities	December 2016	Zomba City Council	Validation of proposed activities at the concept note stage
	Preparation of the environmental and social risk screening sheets and grievance mechanisms	25-29 September 2017	City council: Chief Executive, Chief Urban Planner; Chief Engineer; Community Mobilizer	Environmental and social risk screening sheets filled in; Agreement reached on final interventions subsequent to project site visits and analysis of all data at the end of the week; Understanding reached regarding grievance mechanism

	Meetings to review the ESIA and develop the ESMP	23-26 October 2018	City council: Chief Executive, Chief Urban Planner; Chief Engineer; Community Mobiliser. Representative of regional authorities: Zomba District Forest Office, Forest Research Institute of Malawi, Malawi National Herbarium/ Zomba Botanical Gardens	City council fully supported the mission and facilitated requested meetings with regional authorities and other relevant partners.
	Public disclosure of the ESMP	25 October 2018	City Council members (including the CEO), community leaders and members, NGOs, local institutions and academics.	The draft ESMP was presented, including identified risks and mitigation measures. Participants raised some questions and made some comments and suggestions in particular regarding the management of afforestation and reforestation activities.
Community consultations	Local consultations to discuss proposed activities	Between 12 - 16 June and 22 - 24 July 2017	Representatives from all wards participated including representation of women, youth, older persons and disabled	Preliminary activities selected
	Project site visits and local consultations	25-29 September 2017	Ward committee members and representatives in Likangala ward (two females and five males, out of which 2 youths); marginalized and vulnerable groups (youth, older persons, disabled, HIV, orphans) and women in Chambo and Sadzi ward	Assessment conducted of the feasibility and social and environmental risks of the planned project activities based on the project presentation. Comments, concerns and recommendation have been raised by participants
	Community consultations for the development of the ESIA and ESMP	23- 26 October 2018	Representatives from the local communities of Chambo, Masangola and Mtiya and municipal technicians	A set of questions has been asked to check population composition, existent public facilities and services, understand income generating activities, as well as discussing environmental risks.
Mozambique				
Municipal level	CityRAP prioritisation workshop	1 September 2015	30 representatives of local stakeholders, including communities and municipal staff	Priority activities to build urban resilience in Chokwe identified
	CityRAP validation workshop	3 September 2015	40 participants of local stakeholders, including communities and municipal staff	Validation of the priority issues and activities identified in the City Resilience Action Plan of Chokwe
	Preparation of the environmental and social risk screening sheets and grievance mechanisms	30 October to 3 November 2017	Municipal Councillors of Urbanisation, Environment and Social Sectors staff including municipal technicians from the urbanization sector	Work plan for field visits agreed to conduct the feasibility and social environment risks assessment
	Meetings to review the ESIA and develop the ESMP	15 -17 October 2018	City council: Mayor, Responsible of the urban planning and sanitation service, municipal departments of agriculture, heritage, urban planning and sanitation as well as social services, Chokwe Hydraulics Representative of regional authorities: Water Administration for the Southern Region	City council fully supported the mission and facilitated requested meetings with regional authorities and other relevant partners.
	Public disclosure of the ESMP	19 October 2018	HICEP representative, chiefs of communities (neighbourhoods 3B, 4, 5 and 6), chiefs of municipal department for urban planning and social services, 3 municipal staff of both urban planning and social services.	The draft ESMP has been presented, including identified risks and mitigation measures; One comment regarding the risk of erosion and proposed mitigation measures: the cost of gabions will probably be too expensive.

Community consultations	Local consultations to discuss proposed activities with targeted communities	10 and 14 July 2017	Community members of targeted neighbourhoods	Preliminary activities selected
	Project site visits and local consultations to validate the selected priority interventions	30 October to 3 November, 2017	More than 200 people attended community members; Separate sessions have been undertaken in the four target neighbourhoods with marginalised and vulnerable groups, i.e. women, older persons as well as people with disabilities.	Assessment conducted of the feasibility and social and environmental risks of the planned project activities based on the project presentation. Comments, concerns and recommendation have been raised by participants
	Community consultations for the development of the ESIA and ESMP	15 -17 October 2018	Communities representatives of targeted neighbourhood, including METRAMO representatives (traditional medicine association)	A set of questions has been asked to check population composition, existent public facilities and services, understand income generating activities, as well as discussing environmental risks.
Union of Comoros				
Municipal level, including government counterparts	Preliminary stakeholder consultation	9 December 2016	Representatives from the Directorate General of Civil Security, the Karthala Volcanologic Observatory, the NGO Ulanga Ngazidja, the National Network for Women and Development, the Comorian Red Crescent Society, the Comoros University, the National Agency for Civil Aviation and Meteorology, the Association of Mayors	Activities discussed at the concept note stage
	CityRAP prioritisation workshop	August 2017	Local stakeholders, including communities and municipal staff	Priority activities to build urban resilience in Moroni identified
	Preparation of the environmental and social risk screening sheets and grievance mechanisms	20-24 November 2017	City council: General Secretary, urban planner; chief of communities, local NGOs	Assessment conducted of the feasibility and social and environmental risks of the planned project activities.
	Meetings to review the ESIA and develop the ESMP	2-5 October 2018	City council: Mayor, Deputy Mayor, General Secretary, responsible for logistics, head of urban services, Mayor's adviser. Representative of regional/ national authorities: Civil protection, national department of statistics, department of Environment and the Climate Change Alliance Office	City council fully supported the mission and facilitate requested meetings with regional authorities and other relevant partners.
	Public disclosure of the ESMP	30 November 2018	Secretary General of the Municipality, CATI representative, Deputy Mayor, community representatives, representative of the DGSC, urban planning department officer.	The draft ESMP was presented, including identified risks and mitigation measures. Some comments have been made regarding the location of waste disposal sites and the design of the drainage system construction. In addition, the municipality shared its experience with the union of association to ensure the dialogue with communities that can contribute to the implementation phase.
Community consultations	Local consultations to discuss proposed activities with	June 2017	Community members of targeted neighbourhoods	Preliminary activities discussed

	targeted communities			
	Project site visits and local consultations to validate the selected priority interventions	20 and 24 November. 2017	Community members and representatives of La Coulée, Madjadjou-Djomani, Oubodoni-Mboueni and Badjanani-Mtsangani; Among them, groups of older persons and women	Assessment conducted of the feasibility and social and environmental risks of the planned project activities
	Technical environmental and social assessment	March 2018	42 community members of La Coulée, including a women focus group (25 women)	After presentation of project content, comments, concerns and recommendation have been raised by consulted population
	Community consultations for the development of the ESIA and ESMP	2-5 October 2018	Consultation with La Medina and La coulee community leaders and members of the community including women, older persons and youth.	A set of question has been asked to check population composition, existent public facilities and services, understand income generating activities, as well as discussing environmental risks.

Table 27: Consultation timeline with municipalities and communities

J. Justification for funding request

The proposed project components, outcomes and outputs fully align with national and local government/institutional priorities/gaps identified, with identified community and marginalized and vulnerable groups needs and, as described in the project objectives, with the Adaptation Fund outcomes as stated in the Adaptation Fund Results Framework. This has resulted in the design of a comprehensive and integrated approach in which the different project components are inter-related and strengthen each other, and whose expected outputs and planned activities are meant to fill identified gaps in the South-East Africa sub-region in terms of urban climate adaptation.

In all the target countries, the need to adopt and implement urban climate adaptation policies and interventions have been widely recognized and commitments have been taken to strengthen coherence and integration between disaster risk reduction, climate change adaptation; but -given the limited capacity of the countries in term of technical expertise and financial resources- concrete urban interventions on climate resilience have hardly been planned and implemented.

The requested funding, therefore, will contribute to (i) piloting priority urban initiatives at local level (as per the 23 sub-projects) that will not only directly address adaptation needs of the most vulnerable in the four cities but also boost other similar initiatives in urban areas in the region; (ii) fostering knowledge and the establishment of institutional and legal framework for climate resilience at urban level (iii) mobilizing additional resources at national and local level (iv) promoting the discussion - among the SADC Countries - on urban resilience and the sharing of concrete good practices that can be easily replicated in other urban areas and Countries. It will indeed support SADC in implementing its mandate of regional integration and coordination and in advancing the development of the SADC regional resilience strategy (currently under development) for the urban context.

Furthermore, in line with the unique goal of the Fund, the funding will support Member States to tackle disaster risk reduction and climate change adaption when setting the Sustainable Development Goals (SDGs), particularly in light of an insufficient focus on risk reduction and resilience in the original Millennium Development Goals (MDGs).

The project targets four countries over four years for a total project cost of almost **US$14 million.** Specifically, four cities have been targeted for climate adaptation planning and will benefit from the implementation of sub-projects under Component 1. This physical adaptation component will be allocated with over half of the direct project costs, directly benefitting the target communities.

The impact that the AF funding will have with this 23 sub-projects is detailed in the sub-project fiches in **Annex 5**. Funding allocation for 'softer' components is required:

- Under Component 1, to prepare for and support the effective, appropriate and sustainable execution of the 23 sub-projects, including local trainings for long-term capacities in maintaining and managing adequately the interventions
- Under Component 2, to institutionalise knowledge and produce adequate guidelines, policies, strategies and legislation to ensure priority on climate change adaptation in urban areas and mobilize resources;
- Under Component 3, to ensure inter-country/city knowledge exchange and to build the basis for dissemination, replication and scaling-up in the southern Africa region, thus influencing existing SADC Regional resilience initiative to strengthen the focus on the urban dimension.

The project proposal makes detailed observations in other sections with regard to the great project potential in terms of economic, social and environmental benefits of the physical interventions, the underlying climate change hazards and resilience building needs for each target city, as well as cost effectiveness and sustainability aspects, which are not repeated in this section.

The table below provides a justification for funding requested, focusing on the full cost of adaptation reasoning, by showing the impact of the requested AF financing compared to no funding (baseline) related to expected project outcomes.

Outcomes under project Components	Baseline (without AF)	Additional (with AF)	Alternative adaptation scenario
Under project Component 1: Municipal staff, communities and local stakeholders have successfully implemented priority sub-projects for increasing the climate resilience of their city and have acquired the required capacity to manage and maintain the realised investments	Municipal staff, communities and local stakeholders have limited understanding of climate change induced risks affecting their city and have not identified concrete strategies for adaptation planning and design. They have limited understanding on management and maintenance needs of climate change related interventions. As a result, target cities and vulnerable communities are not implementing strategic physical and ecosystem interventions focused on enhancing climate change resilience, leading to an increase in future climatic threats (e.g. floods, cyclones, sea level rise/coastal erosion, drought, etc.) victims, destruction of property, infrastructure and assets, health risks, crops failure, loss of livelihoods, etc.	Target cities have implemented strategic priority investments and activities for enhancing their climate change resilience, especially targeting the most vulnerable urban areas. The project outcomes benefit the poor and vulnerable population by protecting their lives, property, assets and livelihoods from the impact of climatic threats, and by enhancing their living conditions, especially in terms of access to basic services and resilient infrastructure. Municipal staff, communities and local stakeholders in each target city have increased understanding of their vulnerabilities and how to respond to their adaptation needs. The required knowledge and skills to effectively and sustainably implement these priority interventions has been ensured.	Alternatively, interventions could focus solely on capacity building and awareness-raising to adapt to climate change. However, the effects of climate change in these cities are predicted to be so severe that, considering the low financial capacity, the lack of skills and the poor living conditions, physical interventions are absolutely needed to protect lives, property, assets, infrastructure and livelihoods. Larger scale interventions (e.g. building protecting infrastructure, or large relocation operations of the population at risk) could also be envisaged, but the costs are prohibitive and they would not respond to the needs of the poor and most vulnerable.
Under project Component 2:	National institutions and local governments in the	Concerned local government authorities and the majority of	Without proper awareness of the level of climatic risks to

National governments have created enabling conditions for scaling up and replicating the same climate resilience approach in other urban settlements	target countries have limited knowledge, capacity and practice for planning and institutionalising urban climate resilience building. With lack of technical knowledge, guidelines, policies and strategies, the level of vulnerability (and subsequently of the risk) of fast-growing urban areas to climatic threats would inevitably increase dramatically.	the national institutions mandated to deal with climate change adaptation have increased their knowledge/capacity to enhance urban climate adaptation. Guidelines, rules, policies and strategies were defined to prioritise and institutionalise an urban resilience building agenda at the country level, enabling replication and scaling up of best practices.	which the growing urban population in the target countries is being exposed to, the needed guidelines, rules, policies and strategies in place to address these risks, and without proper and enhanced institutional capacity at the national and city levels, good local practices cannot be replicated and scaled up to benefit other urban settlements of these countries.
Under project Component 3: Local and national governments of the 4 countries have learned from each other good urban climate adaptation practices and are better prepared to face common transboundary climate-related natural hazards	Throughout the southern Africa region, especially the eastern part that is exposed to cyclones generated in the Indian Ocean, common transboundary climatic hazards are badly affecting cities and towns located either in the coastal areas or inland. A general lack of strategies, capacity and practice in the region is observed for planning towards urban resilience and sharing of best approaches, tools and practices to respond to common climatic threats.	Inter-country and city-to-city knowledge exchange on best practices and sharing of local experiences have been facilitated at the sub-regional level thanks to a strengthened DiMSUR and strong SADC engagement, thus establishing the conditions for designing and implementing concrete cross-fertilisation activities and enhanced inter-country cooperation programmes for addressing urban climate adaptation priorities. This will enable the replication and scaling up of the adopted project approach in the four target countries and beyond, laying the foundations for reaching out to other southern African countries thanks to improved regional policies and strategies and follow-up regional and national initiatives with an urban climate adaptation focus.	A weak regional approach would frustrate the possibility for the target countries/cities to learn from each other thanks to the innovative local initiatives for urban adaptation to common climatic threats that were implemented at the local level. In addition, without a reinforced DiMSUR and a strong SADC role the possibility to improve regional policies and strategies, by integrating the recommendations derived from the project lessons learned, will be missed. Finally, the potential for replication and scaling up to other southern African countries would also be reduced if regional exchange and dissemination mechanisms are not in place.

Table 28: Overview of impact of requested AF financing compared to no funding (baseline) related to expected project outcomes

K. Sustainability of project outcomes

The sustainability of the project is inherently embedded in its design. The project is following the principle of sustainability mainly through the aspects of capacity building, bottom-up and participatory approach, knowledge sharing, national and regional replication and scaling up.

As mentioned in Part I under Project Background and Context, local governments in the target countries lack the financial and institutional capacity to effectively plan for adapting to climate change hazards. The project's capacity building efforts will strengthen the municipalities and communities' planning and management mechanisms to reduce their fragility in the face of climatic threats, hence have *'per se'* a sustainable influence on the future urban resilience of the target cities. Involvement of the respective countries' local and national governments and academic/training institutions in the implementation of Component 2 is thereby also an important element towards the sustainability of the project's outcomes. Importantly, under Component 1,

local capacity will also be developed to ensure the management/maintenance of the sub-projects' outcomes in the longer term.

As outlined in Part I of the proposal and in more detail in Part II, Section A, project activities under Component 2 will occur at the national level to create the conditions for scaling up and replicating the CityRAP approach in other urban settlements. This is a critical project component to ensure greater sustainability and a lasting impact of the project. The CityRAP tool will be improved to make it more adapted to the national/local contexts[56] and proposed activities are designed for wide dissemination and enabling replication and autonomous implementation of the tool by other cities beyond financial or technical support from UN-Habitat or the executing entities of this project. To that end, partnerships will be established with qualified academic institutions in each country, in the region and beyond for carrying out specific training modules at the bachelor or master degree level, benefiting the four target countries. In addition, the development of online tutorials of the tool will ensure its dissemination in the target countries and beyond.

At the national level, guidelines, policies, legislation or strategies will be developed or adapted, and knowledge and best practices will be shared widely, with the aim to enhance urban resilience in each country. These will be mainstreamed into the national urban resilience building efforts by serving as basis for training workshops for government and municipal officials for replication of the tool deployment in other cities/towns in the target countries. Existing national institutions and networks will be involved in organising and conducting the training workshops, and partnerships/synergies established with on-going initiatives at the national level.

Furthermore, the project is designed to achieve enhanced knowledge, communication and information exchange between cities and national governments to strengthen urban climate resilience practices under project Component 3. A multiplier effect and cross fertilisation through learning exchanges at the regional level is thus embedded in the project's design that caters for sustainable future exchange on urban climate resilience tools, information, strategies and best practices. Hereby the sustainability is directly linked to the institutional level and the involvement of the SADC DRR Unit and DiMSUR as established organisations.

Lastly, the physical interventions and capacity building components of the project will lead to long-term economic, social and environmental benefits as outlined in Sections C and D in Part II. The rationale of arrangements for sustainability and maintenance of the realised physical/hard investments in the four target cities under Component 1 are detailed in the 23 sub-project fiches presented previously.

The table below summarises the main strategies and arrangements for sustainability for each of the six main areas of intervention, which will be further detailed during the first phase of project implementation. The targeted communities, municipalities and local stakeholders (NGOs, sub-contractors, etc.) will be further consulted and agreements established to ensure economic, social and environmental sustainability, with maximum benefits for the most vulnerable groups. The project team will work hard to enhance the establishment of sound partnerships between municipality and local community, based on the mutual recognition of each one's role and responsibilities. These trustful relationships, and their formalization into formal agreements and/or the setting-up/reinforcement of local committees and/or the finalisation of community by-laws, will be accompanied as they will constitute the basis for the sustainability of the planned infrastructural investments, beyond the duration of the project.

[56] Several local governments and other government organisations have already expressed interest in adopting the CityRAP as the main tool to guide resilience building and adaptation at urban level in the target countries. In Mozambique, for example, CityRAP activities have already involved 14 different cities (Angoche, Nampula, Dondo, Chiure, Montepuez, Alto Molocue, Maganja da Costa, Cuamba, Metangula, Malema, Ribabue, Vilankulo, Mocuba and Chokwe) and all have requested further access and support to continue applying the tool, while the Ministry of Land, Environment and Rural Development (MITADER) has demonstrated interest in the tool in several occasions.

Main sectors of intervention	Sub-projects	Overall sustainability / Maintenance efforts *(for more specific measures see Sub-Project Fiches in **Annex 5**)*
Improvement of drainage conditions	Enhancing the drainage capacity in the city centre (5.1.7 Morondava) Rehabilitation of existing drainage channels and construction of new drainage channels (5.2.3 Zomba) Improving the overall drainage capacity of the city (5.3.1 Chokwe) Reinforcing the drainage capacity in La Coulée neighbourhood (5.4.1 Moroni)	*Social sustainability:* Campaigns and trainings will be carried out to raise awareness about the relation between waste dumping and flooding and diseases. In some contexts, communities will also be involved in the construction works as paid labour to increase ownership. Already identified community leaders will play a key role in monitoring the drainage efficiency and mobilising the communities for carrying out the maintenance operations. In addition, when needed, capacity building of local master builders will be ensured to enable them to maintain the resilient infrastructure. *Institutional sustainability:* Local committees resulting from the collaboration between the community and the municipality will be set up to monitor garbage disposal and the application of sanitation and hygiene codes, and be trained in cleaning the drainage systems. Committees will be supported to draft community by-laws to ensure, inter alia, that drainage is protected from indiscriminate dumping and damage and is cleared especially before the rains. *Economic sustainability:* The municipalities will be responsible for including funds for maintenance in their annual in budget once the project infrastructure is handed over to the city/ies. Some, like the Municipality of Zomba, already committed resources to this kind of activities in their provisional budget for next year. Environmental sustainability: The improvement of drainage conditions can involve both “hard” infrastructures and an Ecosystem-based approach. Thus, green and blue areas can contribute to the proper working of the drainage system and lower the load of pressure in case of heavy rains. The two approaches have no point of conflicts and if though together (see the “Rehabilitation of existing ecosystems and reinforcement of sustainable use of natural resources” sector of intervention) can be more effective. Municipal offices in charge of ecosystems and green areas will be involved in the process with this purpose.
Establishment of early warning system	Establishment of a city-wide early warning system for floods (5.1.3 Morondova) Establishment of a city-wide early warning system for floods (5.2.1 Zomba) Strengthening early warning for floods at community level (5.3.4 Chokwe) Establish a flood early warning system in La Coulée neighbourhood (5.4.4 Moroni)	*Social sustainability:* A training of municipal technicians for using and maintaining early warning equipment (e.g. hydrometric and pluviometric material, weather station, water gauges for flooding early warning) will be delivered and awareness-campaigns organised. *Institutional sustainability:* These activities will be integrated in the contingency plan of each city. The city council will assure implementation, monitoring and evaluation of the same. In particular, for sustaining the improved early warning system, the city council will work in coordination with community leaders and concerned local stakeholders. Relevant Directorate Generals of concerned Ministries will also be involved in the design, training delivery and maintenance of the EWS.
Improvement of solid waste management	Improving solid waste management in the city centre (5.1.8 Morondova)	*Social sustainability:* The population will be mobilised and sensitised through awareness raising campaigns on waste management and separation. The capacity building/training to the communities will empower people, especially women, by providing the necessary skills, knowledge and awareness that will ensure the ownership and – therefore – the continuity of the services rendered.

	Improving solid waste management (5.2.4 Zomba) Improving solid waste management (5.3.3 Chokwe) Improving solid waste management in La Coulée and Médina neighbourhoods (5.4.3 Moroni)	Importantly, to avoid tensions due to location of garbage treating centre, areas have already been pre-selected at appropriate distances with participation of the local population. *Institutional sustainability:* The municipalities will be responsible for collecting and allocating funds for maintaining the waste treatment centre through their annual budgets. Public-private partnerships between municipalities and micro-entrepreneurs will also be encouraged to for waste management. *Economic sustainability:* The municipalities will be responsible for including funds for sustaining operations in their annual in budget once the project infrastructure is handed over to the city/ies. Environmental sustainability: It is direct interest of the community and of all the authorities in charge of the environment to make sure a proper SWM is carried out. Poor SWM can affect the quality of water and pollute both soil and air, with heavy impacts on health and economies. On the contrary, recycling activities and properly designed collection point can ensure healthy environments. There are no negative effects in the environment by improving the SWM and, on the contrary, interest of the department in charge of ecosystems and green areas to make it happen.
Construction of multi- safe havens	Construction of a resilient and multi-purpose safe-haven (5.1.4 Morondova) Construction of multi-purpose evacuation centres (5.2.2 Zomba) Construction of safe-havens (5.3.2 Chokwe)	*Social sustainability:* Communities will be continuously involved in the construction of the evacuation centres and in trainings on resilient houses construction to raise awareness on the same. *Institutional and Economic sustainability:* The evacuation centres will become critical facilities serving different tasks: training centres, social centres, etc. For this reason, the Municipalities are willing to sustain the maintenance and management-related costs of the Centres. The communities and local committees will also work closely with the Municipalities to ensure the Centres are well maintained and activities are continuously occurring, even beyond the project's end. *Environmental sustainability:* In case the safe heavens would include some open spaces, these spaces can play a double role by being also designed to enhance climate adaptation (by mitigating run-off, regulating the climate, etc.) during the emergencies and by mitigating climate-related hazards over time. Proper design of these open spaces will imply the intervention of universities or environmental experts.
Rehabilitation/ protection of critical ecosystems and sustainable use of natural resources	Rehabilitation of 180 ha of mangroves (5.5.1 Morondova) Urban greening interventions in high risk areas (5.1.2 Morondova) Sustainable urban forest management (5.2.7 Zomba) River-focused interventions to prevent erosion and flooding (5.2.5 Zomba)	*Social sustainability:* Through coordination and cooperation between the line Ministry/ies, the cities and communities the interventions will be sustained. The use of local labour will result in ownership of the intervention. The population will be mobilised and sensitised through awareness raising campaigns and to introduce a shift towards more sustainable practices for what concerns land and natural resources' use. Specific trainings will also be organized and partnerships (or establishment of) associations promoted. Key community leaders will be involved as their involvement, support and example is crucial to support this change. The drafting of community by-laws regarding forest management will also be used as a tool to enforce the change. *Institutional sustainability:* Laws in the target countries and commitment taken by governments (INDCs, NAPs, etc. see Part II -Section E for more information) are highly favourable to the rehabilitation of ecosystems. In some countries, traditional customary rules will be used to monitor on practices such as reforestation (like the 'dina' in Madagascar, a local agreement between the city traditional leaders and community representatives based on a set of rules and fines for the breach of the same). *Economic sustainability:* The municipality will provide maintenance of green spaces or enter into public-

	Establishing community-managed rainwater harvesting systems in La Coulée neighbourhood (5.4.2 Moroni)	private partnerships with a private operator for such a purpose. *Environmental sustainability:* The cooperation with academia, universities, research institutes (i.e. the Forest Research Institute and Malawi) and communities to rely on traditional knowledge will ensure selecting appropriate species for all what concern reforestation/creation of green spaces. Additionally, ecosystem restoration represents a win-win, no regret and multi-purpose solution. This implies sustainability over time of the interventions that will be undertaken and a long-term interest on their positive impacts.
Improvement of urban mobility	Construct a flood-proof elevated road (920 m) with improved drainage capacity (5.1.5 Morondava) Reconstruction of 3 bridges connecting different neighbourhoods in a resilient manner (5.1.6 Morondava) Construction and rehabilitation of bridges and dams on Likangala River (5.2.6 Zomba)	*Social sustainability:* A communication strategy will be developed around the new infrastructures, for raising awareness on the importance of the new infrastructures (and their location) in case of a climate change related event. *Economic sustainability:* The municipalities will be responsible for including funds for maintenance in their annual in budget. Similar to what is planned for maintaining the improved drainage system, in some contexts, contractual agreements will be signed with communities to be involved as paid labour, so to increase at the same time ownership over the new infrastructure.

Table 29: Overview of sustainability efforts for each main intervention area

L. Overview of environmental and social risks and possible impacts

The proposed project fully complies with the Adaptation Fund's Environmental and Social Policy (ESP) and its 15 safeguard areas (or principles) and the Adaptation Fund's Gender Policy (GP). To align with these policies and related guidelines, this section provides a brief summary of the risks assessment outcomes, which are shown in detail in **Annex 3**. Part III Section C gives an overview of the environmental and social management plan (ESMP). The environmental and social risk screening, assessment and ESMP are presented in **Annex 3** at two levels. The first level is general, analysing all three components of the project. The second level zooms into the activities belonging to the first component (subprojects implementation – the only level that includes physical interventions/infrastructure projects) because it needs a technical and detailed view and presents related risks and mitigation measures.

The project fully complies with all applicable national laws and regulations (see Part II, Section F), focuses on marginalised and vulnerable groups, positively discriminates in favour of women, incurs no infringement on labour rights, plans no resettlement whatsoever, and does not affect indigenous peoples (none present). With regards to the subproject implementation in Component 1, activities have been designed to minimise potential risks by selecting numerous, small scale and very localised interventions, proposed and managed by the communities themselves (where possible) who have a stake in avoiding environmental and social impacts. This means that the potential for direct impacts is small and localised, that there can be few indirect impacts, and that transboundary impacts are highly unlikely. Given this, cumulative impacts are also unlikely. In addition, even though the table below shows the presence of the majority of risks, as it can be seen in **Annex 3**, the only risk presenting a potential high impact is related to one sub-project, if

not properly implemented (see Table 3 of **Annex 3**, risks under principle 13, solid waste management group, Chokwe).

All activities have been screened against the 15 Adaptation Fund principles and potential risks have been identified, impacts assessed, and risk avoidance/mitigation measures proposed where needed (as shown in detail in **Annex 3**). Because of the nature of some activities/interventions under output 1.2., which entail physical interventions, the entire project is regarded as a **Medium Risk** (**Category B**) project. Therefore, an ESMP has been developed (which is included in **Annex 3**).

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
Compliance with the Law	x	
Access and Equity		x
Marginalised and Vulnerable groups		x
Human Rights	x	
Gender Equity and Women's Empowerment		x
Core Labour rights		x
Indigenous Peoples	x	
Involuntary Resettlement	x	
Protection of Natural Habitats		x
Conservation of Biological Diversity		x
Climate Change		x
Pollution Prevention and Resource Efficiency		x
Public Health		x
Physical and Cultural Heritage	x	
Lands and Soil Conservation		x

Table 30 Risk Screening Results against all Adaptation Fund ES Principles

As it was described previously in Part II, Section C, the project has many benefits both social and environmental and meets the national standards as it was mentioned in Section F above. Different stages of the risk screening and the ESMP itself were presented for public disclosure and results are available online for public consultation. A public grievance mechanism has been put in place for the entire duration of the project.

PART III: IMPLEMENTATION ARRANGEMENTS

A. Arrangements for project management

As there are no accredited National Implementing Entities (NIEs) to the Adaptation Fund (AF) in the target countries, the project will be implemented by UN-Habitat, which is accredited as AF Multilateral Implementing Entity. In terms of project management structure, there will be three levels of implementation, i.e. regional, national and local (city level) with different Executing Entities, as shown in the table below.

Implementing and Executing Entities	Level of implementation	Project role and responsibilities
Multilateral Implementing Entity: UN-Habitat	Regional National Local/city level	Overall project supervision, oversight, support to implementation, monitoring and evaluation, and fund distribution to Executing Agencies
Regional Executing Entities: SADC DRR Unit / DiMSUR	Regional National	Partial execution of Component 2 (Output 2.2) and full execution of Component 3
National Executing Entities: In Madagascar: Ministry of Environment, Ecology, Sea and Forestry / National Climate Change Coordination Bureau (BNCCC) In Malawi: Office of the Vice President / Department of Disaster Management Affairs (DoDMA) In Mozambique: Ministry of Land, Environment and Rural Development (MITADER) In Comoros: Ministry of Interior, Information and Decentralisation / General Directorate for Civil Security (DGSC)	National	Partial execution of Component 2 (Expected Outputs 2.1)
Local Executing Entity: Oxfam International	Local/city level	Full execution of Component 1 through collaboration with municipalities, communities, local NGOs and sub-contractors

Table 31: Project management structure

1. Project governance

- Project Supervision Team (PST)

UN-Habitat, as MIE for this project, will recruit and establish a Project Supervision Team (PST) to be led by the Senior Human Settlements Officer (SHSO), Focal Point for Climate Change, Risk Reduction and Resilience within the UN-Habitat Regional Office for Africa. As part of the PST, the SHSO will be supported by a dedicated Project Manager (PM), an Administrative, Financial and Knowledge Management Assistant and four (one per country) National Project Managers (NPMs). The PST will have the following responsibilities:

(i) Facilitate the coordination, supervision, oversight, monitoring and evaluation of the overall project implementation at the different (regional, national and local/city) levels, including supervision, oversight and backstopping of the various Executing Entities;

(ii) Produce progress reports every 6 months and financial reports every 12 months to be submitted to the donor (Adaptation Fund - see also Section D, Part III, on reporting requirements);

(iii) Ensure budgeting and financial management, with the support of UN-Habitat administration;

(iv) Prepare and manage all contractual agreements with the different Executing Entities listed in Table 31, as well as for national/international consultants, including terms of reference, work plans, budgets and payment schedules, and perform payments upon progress;

(v) Carry out regular project monitoring at all levels (regional, national and local/city level), ensuring compliance and quality control in accordance with UN-Habitat and AF standards and requirements;

(vi) Organise the mid-term and the independent terminal project evaluations;

(vii) Coordinate overall knowledge management and project communication;

(viii) Facilitate inter-country communication and cooperation for positive projects outcomes and beyond, when and where possible, and

(ix) Management responsibility of the ESMP (see **Annex 3**) will be under the National Project Managers. They will manage and monitor the progress of all project activities, including measures to comply with the ESP, risks mitigation measures and GP. As part of the Project Supervision Team, the Project Manager will have oversight / final compliance responsibility.

- Project Steering Committee (PSC)

The Project Steering Committee (PSC) is the overall decision-making body in terms of project coordination and orientation. It will meet once a year at the regional level and will have the following responsibilities:

(i) Review, discuss and provide substantive comments and main recommendations to the annual narrative reports prepared and presented by the Executing Entities during the annual PSC meetings;

(ii) Review, discuss and approve the annual work plans submitted by the Executing Entities;

(iii) Define the main strategies and provide overall policy guidance, recommendations and orientations for project implementation and coordination throughout the implementation period.

In terms of membership, the PSC will basically be composed of the same members of the DiMSUR Executive Board[57] (DiMSUR being the umbrella institution of the project), plus representatives of the four target cities (NB: efforts will be made to ensure a gender balance) namely:

- *Chair:* DiMSUR Executive Board Chairperson[58]
- *Secretariat:* DiMSUR Secretariat
- PM / UN-Habitat
- SADC DRR Unit
- Government representatives of the four project target countries, dealing with disaster risk reduction and/or climate change adaptation and/or Chairs of the National Project Coordination Teams (see below the role of these Teams)
- Municipal representatives of the four project target cities, Chairs of the City Project Teams (see below the role of these Teams)
- Oxfam International, in representation of the civil society
- North-West University (South Africa) and Antananarivo University (Madagascar), in representation of the academic sector

Importantly, it is at the level of the PSC that coordination takes place between the participating countries. That's where the high-level project management decisions are undertaken. The

[57] Please refer to the DiMSUR MoU and Charter at: http://dimsur.org/dimsur-mou-and-charter/.

[58] According to the DiMSUR Charter the chairmanship of the Executive Board is ensured by the Government Representative of one of the four countries targeted by the project and is rotational on an annual basis.

annual PSC meetings will be organised back-to-back to the regional workshops where, in addition to decision-making, the countries' representatives will be able to interact from a substantive and information sharing perspective, thus learning from each other and identifying possibilities for cross-fertilisation of best practices, hence enhancing inter-country cooperation.

- National Project Coordination Teams (NPCTs)

In each target country a National Project Coordination Team (NPCT) will be set up, which will meet twice a year to discuss the status of project implementation at the national level and provide guidance and recommendations for the next 6 months, including adaptive management decisions for all project activities occurring within the country. The National DiMSUR Focal Points will act as the Secretariat of the NPCT. The NPCTs will report to the PSC, especially by attending the PSC annual meetings. The NPCT will be gender-balanced and composed of the following members:

- *Chair:* Designated Authority to the Adaptation Fund, or a National Government representative specifically appointed for this purpose
- *Secretariat:* DiMSUR National Focal Point
- NPM or UN-Habitat representative
- Representatives of the National Executing Entities, i.e. concerned government officials for Component 2, and Oxfam International for Component 1
- Other government representatives directly concerned by the project
- Municipality representative(s) of the target city (maximum 2), including the Chair of the City Project Team
- Community leaders (maximum 4)
- Representatives from the academic sector

- National Project Managers (NPMs)

At both the national and local/city levels, the four National Project Managers (NPMs), who are part of the PST, will play a very critical role during project implementation. In particular, they will:

(i) Support the NPCTs in preparing their annual work plans for project implementation at the country level, for review of the Project Manager (PM), which will then have to be submitted to the PSC for endorsement at least two weeks prior the annual PSC meeting;
(ii) Support the PM in drafting terms of reference for national or international consultancies to provide specific/punctual technical assistance and training & capacity building to facilitate project implementation, as needed;
(iii) Supervise the work of the different National Executing Entities at the country level, as per the signed contractual agreements with UN-Habitat, concerning project Components 1 and 2; they will ensure quality control of all outputs being produced at the national/local level;
(iv) Monitor the progress of all project activities at the national/local level, as per the requirements of the ESMP (see **Annex 3**), and provide timely advice and/or support to overcome any difficulties, including proposing strategies to recover from eventual delays in implementation;
(v) Represent the UN-Habitat PST at the country level, hence ensuring the regular liaison with the concerned national/municipal governments, as well as coordination with other interested national/local partners/stakeholders, the United Nations, development partners, potential donors, the academic sector, among others;
(vi) Prepare the 6-month progress reports at the country level to be submitted to the PM for review and integration in the overall 6-month project reports (see also Section D, Part III, on reporting requirements);
(vii) Liaise by email, Skype or phone with the PM on a regular/weekly basis for updating on project progress and request for guidance, as needed.

For carrying out all these tasks, the NPMs will need proper office facilities and equipment, have access to a vehicle to conduct regular field visits, as well as some administrative/logistic/technical assistance at the country level. In addition, it has to be noted that while the NPMs will be based in

the countries' respective capital cities (especially for purposes of coordination with central government authorities, national/international partners, etc.), in the cases of Madagascar, Malawi and Mozambique, the project targeted cities are secondary/intermediate cities that require few hours' drive to be reached. At the city level, the day-to-day project manager will be hired by Oxfam International, hereafter referred to as the City Project Manager (CPM).

- City Project Teams (CPTs)

Considering that the greatest share of the project budget is allocated to Component 1 whose activities will take place in the four target cities, it is essential to establish proper coordination and implementation mechanisms at the city/local level. For this purpose, a gender-balanced City Project Team (CPT) will be established in each target city, which will meet quarterly or whenever judged necessary. Adaptive management decisions regarding city level activities will be taken in this forum. The CPT is composed of the following members:

- *Chair:* City Mayor of his/her representative
- *Secretariat:* DiMSUR National Focal Point
- NPM or UN-Habitat representative
- Central/Sub-National Government entities directly concerned by the project
- Community leaders (one per target neighbourhood/ward)
- The City Project Manager (CPM), or Oxfam International representative
- Representatives of Local NGOs/sub-contractor working under contract with Oxfam International for implementing specific activities under Component 1

The CPT will be the decision-making organ at the city level. CPT meetings can be called at any point in time whenever an important issue related to the project has to be discussed and an executive decision needs to be taken. The DiMSUR National Focal Point, as the Secretariat of the CPT, will facilitate discussions as needed and be the mediator whenever conflicts arise between CPT members. The DiMSUR National Focal Point will maintain a neutral position. The CPT reports to the NPCT by participating to the NPCT biannual meetings or through the Secretariat.

- City Project Managers (CPMs)

As mentioned, Oxfam International being the main Executing Entity in each of the four target cities, it will be responsible for hiring the City Project Managers (CPM). The CPMs will work in close coordination with the four concerned municipalities and support local implementing partners (e.g. NGOs/sub-contractors) as required. In particular, the CPMs, in coordination with the other local stakeholders, will consult regularly with the community leaders/representatives in the different areas of interventions of the city, by organising neighbourhood-level consultations as required. The CPMs will have to ensure a transparent, consensual and participatory decision-making process throughout project implementation.

The CPMs will support/oversee detailed participatory design of sub-projects (as required) to be implemented under Component 1. They will then be responsible for monitoring and supervising the implementation of the sub-project activities on a daily/weekly basis (as required), in close coordination with and the support of the NPMs, making sure that they comply with the ESMP, national standards/legislation and local by-laws, as applicable.

Oxfam International, under the leadership of the CMPs, will be responsible for carrying out in full Component 1.

The project organogram is shown in Figure 30.

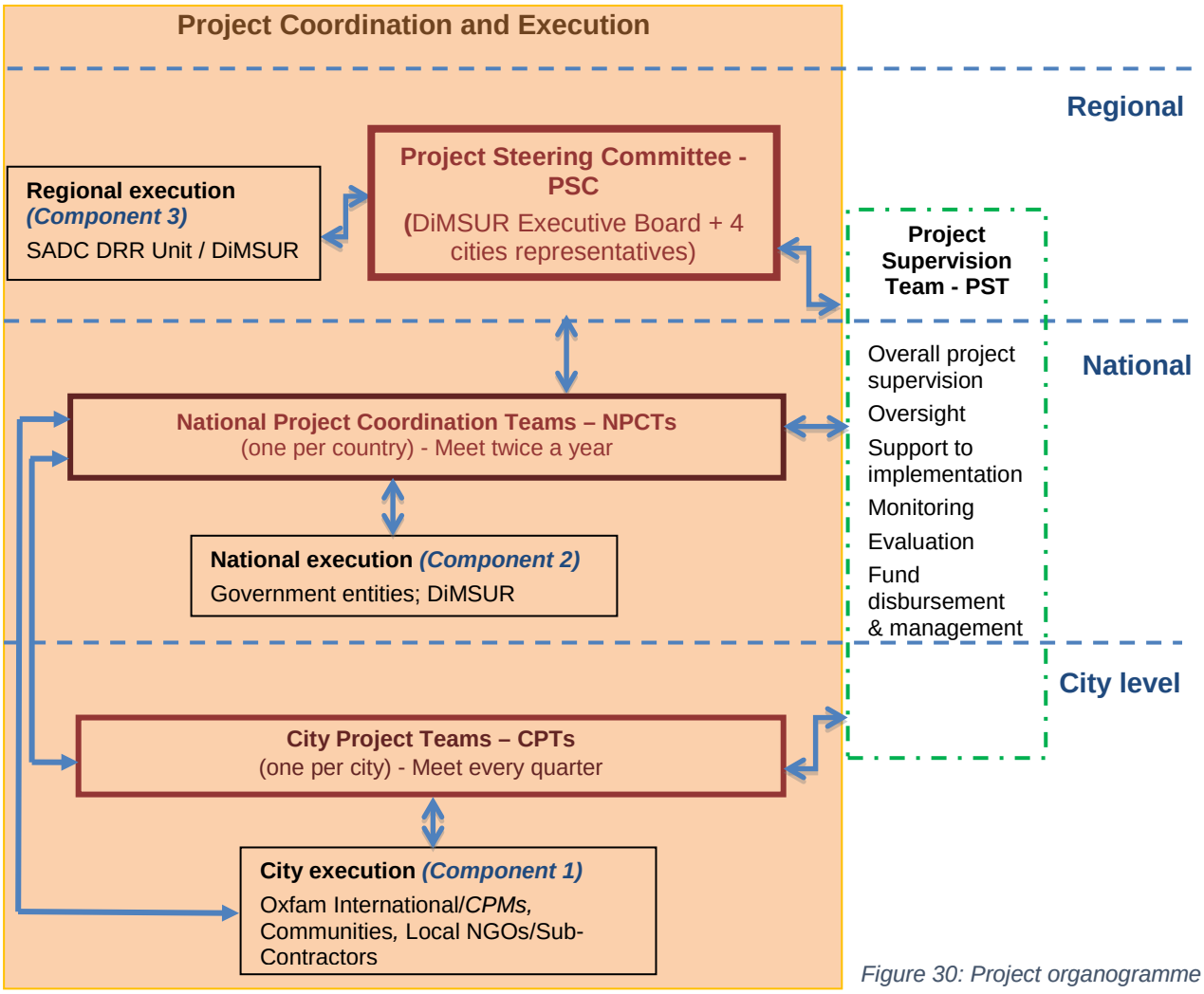


Figure 30: Project organogramme

2. Legal and financial arrangements

UN-Habitat, as MIE, has the overall responsibility for preparing contractual agreements with the identified Regional/National Executing Entities, within the rules and regulations of the United Nations Secretariat.

At the regional level, as already mentioned, an Agreement of Cooperation (AoC)[59] will be prepared with the SADC DRR Unit for fully executing activities under Component 3, in particular by supporting the full operationalisation of DiMSUR.

At the national level, the National Government institutions mentioned in Table 31 (which may choose to work with other concerned government partners, such as INGC in Mozambique, or BNGRC in Madagascar) will be made responsible through separate Agreements of Cooperation (AoCs) for executing the planned activities under *Expected Output 2.1*, Component 2. *Expected Output 2.2*, Component 2, will be executed by DiMSUR with technical assistance from UN-Habitat, as needed.

At the local/city level, another (although much larger in financial terms) AoC will be signed with Oxfam International, which is a long-standing member of the DiMSUR Executive Board, based on

[59] Agreements of Cooperation are legal instruments that can only be used for contracting public or not-for-profit institutions, under the UN Secretariat rules and regulations.

a competitive and well-prepared Expression of Interest. Under this AoC Oxfam International will be responsible for fully executing project activities under Component 1, in partnership with experienced local NGOs, through direct community involvement or, after a tendering process, through qualified local sub-contractors. The latter will always be required to hire local skilled/unskilled man power, as much as possible, so that the project can represent a source of temporary income for the targeted poor communities.

B. Measures for financial and project risk management

Under guidance of the UN-Habitat Project Manager supported by the Deputy Project Manager, the National Project Managers (NPMs) will monitor the status of financial and project management risks at the country/city levels, including those measures required to avoid, minimise or mitigate these risks, throughout the project (please see also Part III).

The main financial and project risk is related to the lack of capacity of some National Executing Entities to execute the planned project activities under their responsibility (*Expected Output 2.1*). To mitigate this risk, qualified NPMs and technical consultants will ensure quality control and build capacity of these institutions by working closely with them in their project execution responsibilities to comply with the UN-Habitat and Adaptation Fund financial/project management standards and requirements.

After a due financial capacity and management assessment in the four target cities during the project preparation period, a decision was taken by UN-Habitat to avoid any direct contracting of the respective city councils/municipalities for executing project activities under Component 1 due to their severe lack of capacity to manage project funds according to these standards/requirements. Instead, Oxfam International will recruit qualified CPMs to support the implementation of this crucial project component. The CPMs will, however, make efforts during project implementation, to strengthen the capacities for project coordination and supervision at the local level, through the training and capacity building activities planned under the *Expected Output 1.3*. In addition, whenever office space will be available, the CPMs will be embedded within the premises of the targeted city councils, so that they can build capacities of the municipal staff concerned by the project implementation 'on the job'.

The table below gives an overview of overall project management and financial risks, an assessment of the significance of the pertaining risks in terms of probability and impact and outlines measures that have been embedded in the project design in order to manage and/or mitigate these risks.

No.	Category and risk	Rating of probability and impact (1: Low; 5: High)	Management/mitigation measure
1	**Financial and Institutional:** Capacity constraints of municipal/national institutions may limit the effective implementation of interventions under Components 1 and 2	Prob: 2 Impact: 3	❑ The project has a strong capacity building and training component, designed to promote effectiveness and sustainability at the national government level. Related to this, and to ensure compliance to UN-Habitat and AF (financial) management standards and requirements, qualified NPMs will be hired by UN-Habitat to provide technical support to the execution of the national level activities in each country. ❑ Direct financial transfers to the target municipalities imply a high level of risk (as identified in a financial and management capacity assessment conducted by UN-Habitat during project preparation). Therefore, city level activities will be executed by Oxfam international, by hiring qualified City Project Managers (CPMs) who will work in close cooperation with the municipalities, as their office

			space (when available) will be within the targeted city councils, hence to build capacities 'on the job'. ❑ For larger infrastructure sub-projects Oxfam will perform a regular procurement process of qualified sub-contractors according to their rules which abbey to international standards. The contract will be awarded to the successful bidder. These contracts will include conditions for construction such as adhering to environmental and social standards and for hiring community members directly in construction activities.
2	**Financial:** Complexity of financial management and procurement procedures under the UN Secretariat rules and regulations, which could delay the project execution	Prob: 2 Impact: 3	❑ Not-for-profit executing partners like National Government entities and Oxfam International will be engaged through standard Agreements of Cooperation (AoCs) that set out the general and project specific terms and conditions for timely disbursement of funds for project activities while at the same time ensure provisions on good financial management, hence minimizing the risk of fund mismanagement or corruption. ❑ Under the financial rules and regulations of the UN Secretariat, UN-Habitat ensures that proper documentation is produced according to clear auditing rules for performing payments under the AoCs. For any AoC above 100,000 USD one independent external audit on the use of the received funds by the implementing partner is required. For AoCs above 200,000 USD two independent external audits are required. For AoCs above 300,000 USD the number of audits is defined by the UN-Habitat Management and Operations Division (MOD). ❑ As per the UN Secretariat rules and regulations, in UN-Habitat there is a clear separation roles and responsibilities between substantive officers (such as the PM and the DPM) and financial/certifying officers (also called Programme Management Officers – PMOs) to avoid any conflict of interest. PMOs report to MOD while substantive officers report to the Programme Division.
3	**Institutional and social:** Disagreement amongst stakeholders with regards to adaptation measures	Prob: 2 Impact: 3	❑ The selected adaptation sub-projects have been and will continue to be reviewed and awarded based on clear and mutually agreed criteria, including community priorities, environmental and social risks as well as costs. ❑ There has been and will continue to be a participatory approach to prepare and implement this AF project proposal, particularly with regarding to the planning, identification of priority adaptation measures, site selection and monitoring. ❑ At the regional, national and city/local levels, UN-Habitat will be continuously liaising with executing partners on their needs and priorities through its established PST; in particular, at the local level potential conflicts between stakeholders (e.g. between municipal officials and poor communities) will be mediated by the DiMSUR NFPs who will be part of the CPMTs.
4	**Environmental & social:** Current climate and seasonal variability and/or hazard events result in implementation delays or undermine confidence in adaptation measures by local communities	Prob: 2 Impact: 3	❑ Current climatic variability will be taken into account in the planning and execution of project activities and especially into project Component 1. Infrastructure will be mainly constructed during the dry/non-cyclonic season. ❑ Incentives will be provided to municipalities/communities to cooperate towards resilience building through sub-projects' implementation as they are based on long-term climate change predictions.
5	**Institutional and social:** Communities may not	Prob: 2 Impact: 2	❑ As much as possible, some of the adopted project implementation approaches/methodologies will be institutionalised within the ministries, local government bodies and communities to ensure

	adopt activities during or after the AF project, including infrastructure maintenance		sustainable delivery of (post-)project implementation, including agreements for infrastructure maintenance at the city and community level ❑ Capacity building and training of communities and municipal officials will be undertaken under *Expected Output 1.3* to improve their awareness and understanding of the benefits of the activities, including infrastructure maintenance ❑ Bottom-up approach: communities have been and will continue to be involved in project implementation/decision-making throughout the project, to ensure ownership of the realised interventions in the targeted project areas
6	**Institutional:** Different pace of project implementation in the different countries may delay overall project implementation and affect regional activities	Prob: 2 Impact: 2	❑ UN-Habitat will establish appropriate project management and quality control structures at regional, national and local/city levels to monitor, report on and discuss progress on a regular basis and take corrective action where needed to ensure that the project moves at the required pace in all four countries. ❑ National level implementation plans will be developed on an annual basis to guide national activities
7	**Institutional:** A lack of coordination between national governments	Prob: 2 Impact: 1	❑ The main mandate of SADC DRR Unit within the project, with DiMSUR support, will be to coordinate activities among member states at the regional level, especially regarding climate change and disaster risk reduction. Regional coordination mechanisms, especially through the annual PSC meetings, should mitigate this risk.
8	**Institutional:** Loss of government support to the project may result in lack of prioritization of AF project activities (e.g. elections during the project implementation period in 3 out of 4 target countries)	Prob: 1 Impact: 3	❑ The overall participatory project design has ensured ownership at the national and city levels, and thus enhanced government support for project implementation. Government staff is and will continue to be strongly networked into the project execution thanks to the coordination mechanisms established at the regional (PSC), national (NPCTs) and city (CPTs) levels ❑ Importantly, this project has a strong emphasis at the city level considering that the majority of funds are allocated for executing interventions at the community level; hence by ensuring a strong project engagement locally, the probability that national political crises disrupt the smooth project implementation is reduced.
9	**Institutional:** Political influence affects adoption of lessons learned into national and regional adaptation strategies	Prob: 1 Impact: 2	❑ The project partners will work together in a consultative manner with all stakeholders, relevant government departments and institutions to ensure that lessons learned from the project are considered and adequately incorporated in national and regional adaptation strategies. UN-Habitat has been liaising with national government partners on their priorities and needs, especially regarding *Expected Outputs 2.1 and 2.2*, and will continue to do so.
10	**Financial:** Instability in currencies, market prices and availability of project funds	Prob: 1 Impact: 2	❑ As per the UN rules, all project spending is done in USD; this will reduce the impact of price and currency fluctuations at the country level.
11	**Institutional:** Limited coordination with other on-going adaptation initiatives in the target countries	Prob: 1 Impact: 1	❑ A thorough review of on-going initiatives has already been conducted (see Section G, Part II) and partners will be continually consulted to ensure that there is alignment and establishment of synergies with this project proposal in the target countries.

Table 32: Project management and financial risks, significance of risks and measures to manage/mitigate risks

C. Measures for the management of environmental and social risks

Sections E and K, Part II, show the outcome of a systematic screening and impact assessment process detailed in **Annex 3** and that has been done based on information from consultation with

national and local government stakeholders, local and international experts, a wide range of other concerned stakeholders as well as the target communities (emphasizing the inclusion of marginalized and vulnerable groups). As shown in Part II Section I and in the related **Annex 4**, consultation with communities focused on: 1) identification of activities / interventions that address the climate change vulnerabilities of specific groups; 2) identification of exact needs, issues and risks following the 15 Adaptation Fund's environmental and social principles; and, 3) identification of risk mitigation measures where required. **Annex 4** contains the detailed outcomes of these consultations.

Based on a screening against the stipulated principles in the AF ESP, the project has been categorized as a B Category risk project.

An Environmental and Social Risk Management Plan has been developed (see **Annex 3**) to ensure that risks are avoided, and that, where this is not the case, they are detected in a timely manner and appropriately mitigated. The ESMP lists all potential risks identified and the preventative / mitigation measures proposed to minimize potentially adverse environmental and social impacts. The plan also shows how these potential risks and mitigation measures will be further monitored, including delegating responsibilities.

The essence of the ESMP entails:

1. Risks management arrangements

Responsibilities: direct management of the ESMP will be the responsibility of the National Project Managers. They will manage and monitor the progress of all project activities, including compliance with the risk mitigation measures and other instructions provided by the ESMP, and compliance with the gender policy. As part of the Project Supervision Team, the Project Manager will have overall oversight / final compliance responsibility.

Management and implementation of sub-projects and mitigation measures: all sub-project activities have been screened against the 15 environmental and social principles during the project preparation phase, and the resulting ESMP has been presented for public disclosure, and inputs from the participants, including representatives of the identified marginalized and vulnerable groups, have been integrated. The ESMP will be presented to all stakeholders again during the project's inception to ensure that there is clear understanding of its implications and the process, and information about grievance mechanisms will be reemphasized. Individual management plans will be developed for each sub-project, covering environmental studies, where required, for the compliance with national technical standards in line with Section F, Part II.

Adaptive management: dealing with changes during project implementation and approval requirements: if during inception or during project implementation changes in activities or additional activities are required, a 'screening safeguarding procedure' (see Figure 1 in **Annex 3**) will be used, together with a sub-project risks screening questionnaire (see Figure 2 in **Annex 3**). This process includes consultations with beneficiaries and marginalized and vulnerable groups. The grievance mechanism (see below) can also be used to express concerns regarding possible risks and impacts. The ESMP has been revised so that adaptive management is possible. As the bulk of activities are occurring at the city level, the City Project Teams (which meet quarterly or whenever judged necessary) will be able to undertake adaptive management decisions as required. It is reminded that over 70% of the budget will be spent on activities which will occur at the city-level. Secondly, for activities taking place at the country level for which adaptive management is necessary, the National Project Coordination Teams will be able to take decisions every 6 months or when required. The PSC will be concerned mainly with the high-level project decisions, including approving the annual workplan, etc.

The ESMP is designed with the understanding that any changes to project activities are subject to the established process with the Adaptation Fund Secretariat (*Operational Policies & Guidelines* –

Annex 7), and will comply with the requirement of the IE informing the secretariat and the designated authority of changes in project activities or associated indicators or targets, including introductions, modifications and deletions, as soon as possible (decision B.29/32), by:

(i) obtaining prior approval from the Board;
(ii) communicating such changes to the secretariat; and
(iii) submitting a letter from the designated authority endorsing such changes to the secretariat, in order to obtain such approval.

Budget: there are no specific budget requirements for project compliance to the ESP and GP. When new screening is required, this will be done by project staff.

2. General environmental and social risks management reduction measures

In addition to the risk management measures identified below, the following elements will be put in place to ensure compliance with the ESP:

- All MoUs and Agreements of Cooperation with executing entities will include detailed reference to the ESMP and GP, the 15 ESP Principles and especially compliance to law (Principle 1), human rights (Principle 4), gender approach (Principle 5) and labour and public health standards (Principles 6 and 13).
  - Principle 1: References to standards and laws to which the activity will need to comply will be included in all legal agreements with all sub-contractors, including steps and responsibilities for compliance.
  - Principle 4: References to relevant Humans rights declarations will be included in all legal agreements with all sub-contractors.
  - Principle 5: References to the gender approach will be included in all legal agreements with all sub-contractors, ensuring and promoting equal opportunities and access to activities / interventions, also for vulnerable and marginalized groups through a participatory and decision-making process, using quotas, where possible.
  - Principe 6: Employment and working conditions following ILO standards will be included in legal agreements with all sub-contractors.
  - Principle 13: Ensure that ICSC international health and safety standards are clearly accessible and understood. e.g. by putting clearly visible signs detailing health and safety standards to be located at projects sites and by supplying protective equipment.
- The UN-Habitat Human Rights Officer and the Project Appraisal Group will check project compliance to the AF ESP during the project (in addition to the Senior Human Settlements Officer) (Principle 4). A gender specialist within Oxfam International will check project compliance to the AF GP during the project.
- Continuous coordination with focal points within ministries and municipalities, responsible for compliance to national and local standards (especially related to EIAs and GP), will take place.
- Capacity-building and awareness-raising: the management teams, executing entities and target communities, will receive training / capacity development to better understand and be able to manage the 15 Principles, the ESMP and their responsibilities. This will be completed during the inception phase.

3. Risk monitoring arrangements

- This monitoring program is commensurate with the actions identified below, and will report on the monitoring results to the Fund in the mid-term, annual, and terminal performance reports. Monitoring will be done to ensure that actions are taken in a timely manner and to determine if actions are appropriately mitigating the risk / impact or if they need to be modified in order to achieve the intended outcome (as presented in Table 3 of **Annex 3**). The monitoring programme shall commence from site preparation through implementation

to operation stages in order to keep track of all project activities and performance. The programme will provide information on impacts compared with prediction and by doing so provide advance warning of any adverse changes in both the environmental and socioeconomic dimensions. The main objectives of the monitoring programme are to:

- Ensure compliance with Environmental and Social safeguards
- Monitor changes in existing social characteristics of the environment, compared to both the environmental baseline and predicted conditions
- Ensure continual interactions and flow of information between Contractor, the Project Management Team and the stakeholders
- Determine whether any significance changes in socio- economic and environmental components are caused by the project or by other forces
- Determine the effectiveness of the control and mitigation/ enhancement measures and provide basis for recommending additional measures
- Ensure that the established transparent procedures for carrying out the proposed project are sustained
- Ensure sustenance of accountability and a sense of local ownership throughout the project lifecycle.
- The lessons learnt from the monitoring will be used to further strengthen the respective teams

City Project Teams (CPT) Team and the contractors shall strictly comply with the provisions of this ESMP and operate a monitoring programme that would lead to sustainable project-environment relationship. This will be strengthened with the occasional monitoring visits of the National Project Coordination Teams (NPCT).

Annual reporting will include information about the status of implementation of this ESMP, including those measures required to avoid, minimize, or mitigate environmental and social risks. The reports shall also include, if necessary, a description of any corrective actions that are deemed necessary.

Direct monitoring responsibilities will be under the national project managers. The regional project manager will have oversight / final compliance responsibility. When changes or additional activities are required, monitoring indicators will be changed or added as well.

Gender specific indicators and targets have been developed as shown in the results framework and summarized in **Annex 2.**

There are no specific budget requirements for risks monitoring other than show in Part III Section D and the budget.

The monitoring frequency will be subject to review after the first year to determine its effectiveness and possibly include other identified areas of concern. The National Project Coordination Teams shall ensure that the monitoring programme is fully implemented by the contractors and City Project Teams.

Grievance mechanism

UN-Habitat will implement a grievance mechanism in the target areas, which will allow an accessible, transparent, fair and effective means of communicating any concerns regarding project design and implementation. Employees, and people benefitting/affected by the project will be made aware of the grievance mechanism for any criticism or complaint of an activity.

In order to ensure transparency and accountability during the implementation process, a Grievance Committee at the municipal level, including community representatives, will be

established in each city. Its constitution was already discussed during the public consultations with the local community, stakeholders and the local government of the four countries.

This mechanism considers the special needs of different marginalized and vulnerable groups (as identified in **Annex 2**) as well as gender considerations and potential environmental and social risks. A combination of mailboxes (at community level), confidential persons in the community and phoning options will offer an immediate way for employees and people affected by the project to safely express their concerns. These options will allow local languages and offer the opportunity for people affected by the project to complain or provide suggestions on how to improve project design and implementation, which will be reviewed and taken up by the project implementation team.

In order to deal with the grievances that may arise during the implementation of the sub-projects (Component 1), a grievance redress process has been incorporated within the ESMP. The grievance redress process will be carried out by the Grievance Committee, which will hear the complaints, provide solutions, and reduce unnecessary litigation by resolving disputes through mediation, with the support of the NPMs. The committee will be responsible for preparing and explaining to the communities potential project impacts and negotiating with the project proponent on any matter that may be of interest at the implementation stage. The target areas shall play a role in the committee through representatives headed by a Chairperson, to be elected by the target neighbourhoods who will carry out the following as regards redressing grievances:

(a) Hear the grievances of the targeted people and provide an early solution to those they are able to;

(b) Immediately bring any serious matters to the attention of the Grievance Redressing Committee/Focal Points;

(c) Inform the aggrieved parties about the progress of their grievances and the decisions of the Grievance Redressing Committee/Focal Points, and

(d) Grievance Redressing Committee/Focal Points address grievances.

Main issues:

- Register the grievances raised by the targeted communities affected by the projects.
- Address the grievances forwarded by the Grievance Redressing Committee/Focal Point representatives.
- The Grievance Redressing Committee/Focal Point in each city will thereby try as much as possible to arrive at a compromise for complaints raised. This may be obtained through a series of reconciliation, mediation and negotiation exercises conducted with the target communities affected by the projects. If the communities affected by the project accept the recommendations made by the Committee, the Committee will hold mediation meetings that include the community representative in the Committee.
- Project staff and the Grievance Redressing Committee/Focal Points will be trained in procedures for receiving messages and on the reporting of any grievances. Community chiefs will also be briefed how to obtain feedback from community members on a regular basis. In addition, monitoring activities will allow project participants to voice their opinions or complaints as they may see fit.
- The location and contact details of the members of the Grievance Redressing Committee/Focal Points will be made public as well as the address and e-mail address of the Adaptation Fund (i.e. project website, Facebook and mailbox) for anyone to raise concerns related to the project: Adaptation Fund Board Secretariat, Mail stop: MSN P-4-400, 1818 H Street NW, Washington DC, USA.

D. Arrangements for monitoring, reporting and evaluation

This project will comply with formal guidelines, protocols and toolkits issued by the Adaptation

Fund, UN-Habitat and the respective target countries' governments. The Monitoring and Evaluation (M&E) of progress in achieving project results will be based on targets and indicators established in the Project Results Framework (see below). Besides that, the status of identified environmental and social risks and the ESMP, including those measures required to avoid, minimise or mitigate environmental and social risks, will be monitored throughout the project (6-month and annual project reports, mid-term and terminal independent evaluation reports). The same applies to financial and project management risks and mitigation measures.

Participatory monitoring mechanisms (involving national and local levels of government and communities) will be put in place for the collection and recording of data to support M&E against the defined indicators. The CityRAP planning processes and in-depth community consultations have generated data to inform programming and will also provide a solid baseline for monitoring. In fact, the CityRAP process has resulted in City Resilience Action Plans (for Morondava, Zomba and Chokwe) and a 'Resilience Framework for Action' (for Moroni), which outline targets as well as M&E frameworks to measure these targets, and partly form the basis of the proposed result framework for this project.

Communities will be involved in data collection and analysis. This will allow beneficiary communities to work directly within the project's M&E mechanism with the support of the CPMs, to highlight issues with regard to project delivery and to strengthen adaptation benefits, including the replication and sustainability of the project's gains. Data collected will include marginalised groups and will be disaggregated as much as possible.

Guided by the UN-Habitat PST, the NPMs and the CPMs will coordinate in developing **M&E Plans** during the project's inception phase, which will be distributed and presented to all stakeholders during the first regional workshop. The emphasis of the M&E Plan will be on (participatory) outcome/result monitoring, project risks (financial & project management and environmental & social), learning and sustainability of the project. Periodic monitoring will be conducted through project staff visits to the intervention sites.

UN-Habitat will ensure that through the established PST and in collaboration with the CPMs, the executing partners are fully briefed on the M&E requirements to ensure that baseline and progress data is collected and that a connection between the Knowledge Management component and M&E is established. The different contractual agreements to be prepared will reflect these aspects as well.

Annual **Project Performance Reviews** (PPRs) will be prepared to monitor progress made since the project's start and in particular for the previous reporting periods. The PPRs will include, but will not be limited to, reporting on the following:

- Progress on the project's objective and outcomes – each with indicators, baseline data and end-of-project targets (cumulative);
- Project outputs delivered per project outcome (annual);
- Lessons learned/good practice;
- Annual work plan and expenditure (i.e. annual financial reports);
- Annual management;
- Environmental and social risks (i.e. status of implementation of ESMP, including those measures required to avoid, minimise, or mitigate these risks); the reports shall also include, if necessary, a description of any corrective actions that are deemed necessary;
- Project financial and management risks (same as per above).

Independent mid-term evaluation and a terminal evaluation will be conducted in accordance with the UN-Habitat Evaluation Policy and norms and standards for evaluation in the UN system. UN-Habitat will lead the evaluation process in consultation with implementing partners and national stakeholders as a participatory process.

The **mid-term evaluation** will take place after 24 months of project implementation as is UN-Habitat practice for projects with 4 years or more duration. The mid-term evaluation will assess implementation progress and achievements so far, verify the validity of the intervention logic and provide practical recommendations for follow-up during the remaining period of the project.

An **independent terminal evaluation** will take place as the last activity before the operational closure of the project in accordance with AF guidance and following UN-Habitat standard practices for project that are budgeted over 1 million USD. The terminal evaluation will focus on the delivery of the project's results, as initially planned and then reflected in the M&E framework, including the implementation of environmental and social mitigation measures. The terminal evaluation will assess the impacts and sustainability of results, including their contribution to capacity development and the achievement of adaptation benefits.

The **reports** that will be prepared specifically in the context of the M&E are: (i) the M&E Plans; (ii) the project inception report; (iii) 6-month, annual and terminal project performance reports; (iv) the mid-term evaluation; (v) technical reports; and (vi) the independent terminal evaluation.

E. Results framework

Expected Result	Indicators	Baseline data	Targets	Risks & assumptions	Data collection method	Frequency	Responsibility
Project Component 1: Preparation, implementation and sustainable management of priority sub-projects at the city level							
Outcome 1 Municipal staff, communities and local stakeholders have successfully planned and implemented priority sub-projects for increasing the climate resilience of their city, and have acquired the required capacity to manage and maintain the realised investments Within this panorama, gender equity and justice are promoted at city level trough the active involvement of women in the design and implementation of the sub-projects. An environment that recognises the role of women and enables their empowerment is created.	Nr. of people that have got access to resilient basic services and infrastructure; Nr. of people that got access to improved ecosystem services; Nr. of people that participated to the enhancement of above (in line with AF indicators 3.1, 4.2 and 5)	0	Morondova: 11 communities (with 39,015 inhabitants) Zomba: 8 communities (with 122,239 inhabitants Chokwe: 3 communities (with 45,873 inhabitants) Moroni: 2 communities (with 19,745 inhabitants)	Assumption: most proposed interventions are at community/neighbourhood scale and have an impact on the total community/neighbour-hood (sometimes even city-wide).	Count of communities with access to improved/ newly constructed resilient basic services/ infrastructure and/or ecosystem services and natural assets. Sub-project database reports will show the number of people (disaggregated by age/gender) that have access and how resilience has improved	Baseline, mid-term and end	UN-Habitat
	Number of municipal divisions and staff with increased capacity to minimise exposure to climate variability risks (in line with AF indicator 2.1 % of women who– at different level in the city – have actively participated to the implementation of the sub-projects % increased of women who - at different level and different sector – are actively engaged in socioeconomic development of the City	0	4 municipalities 2 departments per municipality, at least 40% of staff 60% of the women in each of the 4 Cities	Staff need to actively engage in trainings Risks: cultural perceptions are strong and hamper the active engagement of the women Assumptions: women are interested and available to be engaged in activities beyond their traditional tasks	Reporting of participation in trainings, including photos Women feedback reports (training and sub-projects reports) Training attendance register (participation) Women focused survey Community/ neighbourhood survey	Baseline, mid-term and end	UN-Habitat and executing entities
Expected Output 1.1 Sub-projects	No. of sub-project implementation plans developed	0	23 sub-project implementation	Assumption: Designed sub-project	Review of plans for sub-projects	Baseline, mid-term and end	UN-Habitat

implementation plans developed with communities and municipalities, including detailed engineering studies Gender perceptions, capacities and skills are taken into consideration and gender needs addressed in the Cities sub-projects implementation plan	Nr. of sub- projects implementation plans that have a gender approach which clearly define the role and reasonability' of the women in the execution and the gender needs addressed % women satisfied with the sub-projects implementation plan as responding to their need and enhancing their role		plans with all technical specifications for each planned investment/activity	implementation plans are fully based on technical assessments and adequately reflect community priorities/needs. Women are interested and have the skills and capacities for taking part in the design of the sub-projects implementation plan Risks: women are relegated to a passive role in the design of the sub-projects implementation plan	Women feedback on the sub-project implementation plan processes Activities' attendance register		
	Nr. of detailed engineering studies to assess environmental and social risks prepared – in line with AF and national requirements	0	4 assessment reports, including risks and mitigation measures per hard intervention	Risk assessments need to be aligned with national standards and include AF environmental and social risk safeguard areas	Review of assessments taking into account AF and national requirements	Baseline, mid-term and end	UN-Habitat
Expected Output 1.2 Priority sub-projects are implemented in the four target cities mainly through community involvement as labour-intensive manpower Women are actively involved and engaged in the implementation of the cities sub-projects and make sure that that gender	Nr. of municipal staff and community members mobilised/trained to ensure proper management/ maintenance of the realised priority actions (in line with AF indicator 2.1.1. and 3.1.1.) – by gender Nr. of women who have a leadership position in the implementation of the sub-projects implementation plan % of the women who agree that gender needs (as in the sub-project implementation plan) are addressed	0	16 municipal level trainings (4 per city) – adequate female participation to be ensured 32 community level trainings (avg. 8 per city) – 60% women/youth	Assumption: training support the effective, appropriate and sustainable implementation of the hard interventions; Risk: trainees express concern on the implementation plan of the proposed interventions Risk: women roles/leadership is not accepted by the male counterparts Assumption: women	Feed-back training reports and photos of activities Women survey on their contribution in the implementation of sub-projects Sub-projects Implementation reports	Baseline, mid-term and end	UN-Habitat

needs and perspective are concretely addressed.				are able to commit themselves in contributing to the implementation of the sub-projects	Women Feedback on the achievement of a gender approach in the implementation		
Expected Output 1.3 Municipal staff and community members mobilised, trained and equipped for ensuring the sustainable management and/or maintenance of the implemented priority sub-projects Women's role, capacities and skills are enhanced and are included into the sustainability plan of the Cities priority sub-projects	Nr. of municipal staff and community members mobilised/trained to ensure proper management/ maintenance of the realised priority actions (in line with AF indicator 2.1.1. and 3.1.1.) – by gender (At least) 50% of the women have been trained and capacitated % of women whose capacity has been recognized and is reflected into the sustainability plan % of women who have been trained to have an active role in the priority sub-projects	0	16 municipal level trainings (4 per city) – adequate female participation to be ensured 32 community level trainings (avg. 8 per city) – 50% women/youth	Training support effective, appropriate and sustainable implementation of hard interventions; trainees are concerned by the proposed interventions Assumption: women are available to take long -term commitments for ensuring the sustainability of the sub-projects Risks: cultural biases obstacle the engagement of the women	Feedback training reports and photos of activities	Baseline, mid-term and end	UN-Habitat
Activities 1.1.1. Design of detailed sub-project documents, including technical specifications, roles and budgets 1.2.1. Conduct in-depth environmental and social risks and impacts assessments of sub-projects (especially for 'hard'/larger-scale investments) 1.2.2. Developing or strengthening currently vulnerable physical, natural, and social assets and ecosystems in response to climate change impacts, including variability, based on identified and prioritised needs as articulated in detailed sub-projects 1.2.3. Organising trainings for municipal staff and community members on the sustainable management and maintenance of the realised priority interventions				*Milestones* • Detailed sub-project documents developed (month 6) • In-depth assessments conducted (month 9) • Infrastructure/natural assets constructed/developed: month 24 - 10%, month 36 - 50%, month 48 - 100% • Municipal staff and communities trained (month 12 - 10%, month 24 - 25%, month 36 - 50%, month 48 – 100 %)			

Expected Result	Indicators	Baseline data	Targets	Risks & assumptions	Data collection method	Frequency	Responsibility
Project Component 2: Tools and guidelines development and training delivery at the national level							
Outcome 2 National governments have created institutional arrangements and process for scaling up and replicating the climate resilience approach in other urban settlements Climate resilience approach and decision making is gender based informed	Nr. and type of targeted institutions with increased capacity to minimise exposure to climate variability risks (in line with AF indicator 2.1) Nr. and type of targeted institutions whose staff has been trained %. of women of women who are actively part of high level climate resilience decision making processes and platforms Nr. of inter- departmental high level meetings on climate resilience agenda	0	4 ministries (1 per country)	Assumption: there is clarity on the process to follow, on the measures to taken and on the institutions and ministries to involve Women in leadership position are able and interested in being involved in climate resilience decision-making Risk; national Departments included the ones who deal with gender issues – and officials , do not prioritize climate change resilience process and measures	Minutes of the meetings held at national level for climate resilience decision making Attendance register and agenda of the meetings Content of Inter-departmental decision on climate change	Baseline, mid-term and end	UN-Habitat
Expected Output 2.1: National tools/guidelines/policies/ legislation for promoting urban climate resilience are developed and adopted	% increased integration of Climate change priorities into national development strategy (in line with AF indicator 7) % increased capacity of the staff to respond to, and mitigate impacts of, climate-related events from targeted institutions i (in line with AF indicator 2.1.2.) Nr. of guidelines/policies adapted, developed or law adjustments Nr. of national departments that deal with women and gender issues have prioritize climate resilience issues % increased of climate resilience policies that are gender sensitive	0	At least 4 (1 for each country)	Assumption: relevant institutions – included the ones that deal with women and gender issues - have been identified and are interested Risk: institutions are reluctant to adopt new tools, guidelines and/ or to revise the existing ones for including gender sensitive climate resilience approach and measures	Report of the high level meeting held and decision taken Agenda of the meeting Attendance register	Baseline, mid-term and end	UN-Habitat
Expected Output 2.2: National and local	Nr of workshops/trainings held at ministerial level Nr. of officials who participate to	0	32 workshops/ trainings (8 per country)	Assumptions: officials –	Content of the training	Baseline, mid-term and end	UN-Habitat

officers are trained in urban climate adaptation techniques and approaches and have increased their understanding on the importance of climate resilience measures/approaches	training for responding to, and mitigating impacts, of climate-related events on urban areas (in line with AF indicator 2.1.1.) % awareness/knowledge increased of the understanding of climate resilience approach /measures Nr. of female l officials who take actively part in the training %increased awareness on the need to take gender informed decisions on climate resilience			especially female officials- are interested and are available in increasing knowledge and awareness on urban climate resilience tools/issues Risks: officials are overwhelmed by other tasks and have a passive and non-interactive approach towards the training	Training agenda timeframe Training attendance register Feedback training survey		
Activities 2.1.1 Develop or adapt national guidelines/policies or propose law adjustments for promoting urban climate change adaptation 2.1.2 Organise trainings of ministerial staff to respond to, and mitigate impacts, of climate-related events on urban areas				*Milestones* • National guidelines/policies/legislations developed or adjusted (month 36) • National guidelines disseminated (month 48) Ministerial staff trained (month 12 - 10%, month 24 – 25 %, month 36 -50%, month 48 - 100%)			
Project component 3: Inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level							
Outcome 3 Local and national governments of the 4 countries have learned from each other appropriate and gender sensitive urban climate adaptation practices and are better prepared to face common transboundary climate-related natural hazards and related impact	Nr. of good practices /lessons learnt per country at national and city level that are shared Nr. of multi-countries meeting held % increased interest and availability in jointly managed climate change transboundary risks and impact, included gender Nr. of policies on gender sensitive climate resilience that have been developed/revised (for incorporating the good practices)	0	4 national reports 4 city level reports	Assumptions: Countries are keen to share good practices and lean from each other Risks: Political consideration interference and different cultural contest	Content of the good practices disseminated and shared ‘ Agenda and minutes of the multi-countries meetings Position taken by the Countries Content of new/revised climate resilience policies	Baseline, mid-term and end	UN-Habitat
Expected Output 3.1 Lessons learned and best practices on gender sensitive climate resilience are captured and disseminated through	Number of materials shared on SADC DRR Unit and DiMSUR platforms % increased of gender-sensitive good practices shared	0	At least 10 good practice guides on climate change adaptation solutions derived from the local implementation of	Assumption: Support from the SADC/DRR UNIT and DIMSUR Interest and availability of the Countries in being part of knowledge exchange	Online	Regular	UN-Habitat

the SADC DRR Unit in partnership with DiMSUR as regional knowledge management platform			sub-project in the 4 countries	Risk: Delay in sharing good practices among the Countries and receiving feedback			
Expected Output 3.2 Cross-fertilisation activities among the participating countries are discussed and prepared and space is specifically allocated for the sharing of gender and climate change issues	No. of exchange missions conducted and lessons learned shared No. of exchange mission with a focus on gender and climate change No. of participants to the missions (gender disaggregated)	0	8	Assumptions: SADC provide support in liaising with the countries; countries are interested and able to support mission Risk: bureaucratic delays by the countries in organizing cross-fertilization activities	Mission agenda and reports Minutes of the meeting held Missions' feedback reports	Regular	UN-Habitat
Expected Output 3.3: Regional workshops for sharing of experience on gender sensitive climate resilience are organized among the different countries, and participation to global events (such as conferences organized for agencies and/or the academia)	No. of regional workshops organized Type of material utilized and best gender sensitive practices presented No. of participants (gender disaggregated) who actively participated to the workshop No. of bilateral meeting among the countries on gender sensitive climate resilience measures	0	5 regional workshops 20 presentations (5 by each country)	Assumptions: SADC provide support in liasoning with the Countries and logistical assistance Countries are keen to share experience and learn from each other's Risks: organizational and bureaucratic delays in organizing regional workshop	Workshop agenda and attendance register Workshops reports Feedback from the participants Content of the presentations	Regular	UN-Habitat
Activities 3.1.1. Share lessons learned and best practices online 3.2.1. Organise cross-country advisory and learning missions (by municipalities, ministries and/or communities) 3.3.1. Organise annual regional workshops for experience sharing				*Milestones* • Exchange missions conducted (4 by month 36, 4 by month 48) • Regional workshops organized (month 1, 13, month 25 month 37, month 49)			

Table 33: Project results framework with indicators, their baseline, targets, risks & assumptions and verification means

Activity	Year 1				Year 2				Year 3				Year 4			
1.1.1. Design of detailed sub-project documents, incl. technical specifications, roles and budgets		x														
1.2.1. Implementation of 23 priority sub-projects in the 4 targeted cities				x				x				x				x
1.3.1. Organisation of trainings for municipal staff and community members on the sustainable management and maintenance of the realised physical interventions								x				x				x
2.1.1. Development of national tools, guidelines, policies and/or legislation for promoting urban climate change adaptation												x				
2.2.1. Organisation of trainings of national and local officers to respond to, and mitigate impacts of climate-related events on urban areas												x				x
3.1.1. Share lessons learned and best practices online				x				x				x				x
3.2.1. Organise cross-country advisory and learning missions (by municipalities, ministries and/or communities)								x				x				x
3.3.1. Organise annual regional workshops for experience sharing	x				x				x				x			

Table 34: Project activities and milestones (x)

Adaptation Fund Core Indicators	Indicative Targets	Comments
1. Number of Beneficiaries The number of people who have received an input of support from the project as a proxy for increasing adaptive capacity to respond to the impact of climate change	Morondova: 57,910 inhabitants Zomba: 64,692 inhabitants Chokwe: 60,217 inhabitants Moroni: 31,173 inhabitants	Morondova: Total inhabitants of 18 communities Zomba: Total inhabitants of 7 communities Chokwe: Total inhabitants of 4 communities Moroni: Total inhabitants of 4 communities Direct assistance related to assets, development, trainings, communication and information
2. Early Warning Systems (EWS) • Risk knowledge • Monitoring and warning services • Dissemination and communication • Response capacity	EWS in four target cities (with specific neighbourhood focus) with escape routes identified and improved. Main hazard targeted: flood	EWS interventions are a combination of awareness raising and training (especially on the use of EWS equipment), clear and efficient communication channels established, and evacuation routes and safe havens identified/improved
3. Assets produced, developed, improved, or strengthened	To be defined exactly after implementing planned Activity 1.1.1	Count of intervention and indication of change
5. Natural assets protected or rehabilitated	To be defined exactly after implementing planned Activity 1.1.1	Count of intervention and indication of change

Table 35: Indicative Core Indicator Targets

F. Project alignment with the Results Framework of the Adaptation Fund

Project outcomes	Project Outcome Indicator	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
AF Goal: Assist developing-country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change in meeting the costs of concrete adaptation projects and programmes in order to implement climate-resilient measures. **AF Impact:** Increased resiliency at the community, national, and regional levels to climate variability and change.				
Outcome 1: Municipal staff, communities and local stakeholders have successfully planned and implemented priority sub-projects for increasing the climate resilience of their city and have acquired the required capacity to manage and maintain the realised investments	Number of municipal divisions and staff with increased capacity to minimise exposure to climate variability risks Number of communities (and inhabitants) that have access to resilient basic services and infrastructure; and/or improved ecosystem services and natural resource assets, and have participated in the enhancement of above	**Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses **Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level **Outcome 4:** Increased adaptive capacity within relevant development and natural resource sectors **Outcome 5**: Increased ecosystem resilience in response to climate change and variability-induced stress	2.1. No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks 3.1. Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses 4.1. Development sectors' services responsive to evolving needs from changing and variable climate 4.2. Physical infrastructure improved to withstand climate change and variability-induced stress 5. Ecosystem services and natural assets maintained or improved under climate change and variability-induced stress	10,491,599
Outcome 2: National governments have created enabling conditions for scaling up and replicating the same approach in other urban settlements	Number and type of targeted institutions with increased capacity to minimise exposure to climate variability risks	**Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses **Outcome 7:** Improved policies and regulations that promote and enforce resilience measures	2.1. No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks 7. Climate change priorities are integrated into national development strategy	760,000

Project Outputs	Project Output Indicator	Fund Output	Fund Output Indicator	Grant Amount (USD)
AF Goal: Assist developing-country Parties to the Kyoto Protocol that are particularly vulnerable to the adverse effects of climate change in meeting the costs of concrete adaptation projects and programmes in order to implement climate-resilient measures. **AF Impact:** Increased resiliency at the community, national, and regional levels to climate variability and change.				
Expected Output 1.3 Municipal staff and community members mobilised, trained and equipped for ensuring the	Number of municipal staff and community members mobilised/trained to ensure proper management/	***Output 2.1***: Strengthened capacity of national and regional centres and networks to	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events	1,290,000

sustainable management and/or maintenance of the implemented priority sub-projects	maintenance of the realised priority actions	respond rapidly to extreme weather events		
Expected Output 1.2 Priority sub-projects are implemented in the four target cities mainly through community involvement as labour-intensive manpower	Number of beneficiaries involved as manpower per intervention	***Output 3***: Targeted population groups participating in adaptation and risk reduction awareness activities	3.1.1 No. and type of risk reduction actions or strategies introduced at local level	10,491,599
	Number and type of health/social infrastructure or physical assets developed in a climate resilient manner or no. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability/change (by type)	***Output 4:*** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	4.1.1. No. and type of health or social infrastructure developed or modified to respond to new conditions resulting from climate variability and change (by type) 4.1.2. No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)	
		Output 5: Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	5.1. No. and type of natural resource assets created, maintained or improved to withstand conditions resulting from climate variability and change (by type of assets)	

Project Outputs	Project Output Indicator	Fund Output	Fund Output Indicator	Grant Amount (USD)
Expected Output 2.1 National tools, guidelines, policies and/or legislation for promoting urban climate adaptation developed	Climate change priorities are integrated into national development strategy and capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased Number of guidelines/ policies adapted or produced or law adjustments proposed	**Output 7**: Improved integration of climate-resilience strategies into country development plans	7.1. No., type, and sector of policies introduced or adjusted to address climate change risks	270,000
Output 2.2 National and local officers trained in urban climate adaptation techniques and approaches	Number of ministerial level workshops/trainings and count of participants to respond to, and mitigate impacts, of climate-related events on urban areas (by gender)	**Output 2.1:** Strengthened capacity of national and regional centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events	490,000

Table 36: Project alignment with the AF Results Frame

G. Detailed Budget (please see Excel file in Annex 1)

Project component	Outputs	Activity	Total budget	Year 1	Year 2	Year 3	Year 4	Notes
1. Preparation, implementation and sustainable management of priority sub-projects at the city level	Output 1.1. Sub-projects implementation plans fully developed with communities and municipalities, including detailed engineering studies	1.1.1. Design of detailed sub-project documents, incl. technical specifications, roles and budgets	$396,000	$396,000	$0	$0	$0	A
	Output 1.2. Priority sub-projects are implemented in the four target cities mainly through community involvement as labour-intensive manpower	1.2.1. Implementation of 23 priority sub-projects in the 4 targeted cities	$7,749,999	$1,500,000	$2,200,000	$2,200,000	$1,849,999	B
	Output 1.3. Municipal staff and community members mobilised, trained and equipped for ensuring the sustainable management and/or maintenance of the implemented priority sub-projects	1.3.1. Organisation of trainings for municipal staff and community members on the sustainable management and maintenance of the realised physical interventions	$2,345,600	$586,400	$586,400	$586,400	$586,400	C
	Project component total		**$10,491,599**	**$2,482,400**	**$2,786,400**	**$2,786,400**	**$2,436,399**	
2. Tools and guidelines development and training delivery at the national level	Output 2.1 National tools, guidelines, policies and/or legislation for promoting urban climate adaptation developed	2.1.1. Development of national tools, guidelines, policies and/or legislation for promoting urban climate change adaptation	$270,000	$40,000	$80,000	$80,000	$70,000	F
	Output 2.2. National and local officers trained in urban climate adaptation techniques and approaches	2.2.1. Organisation of trainings of national and local officers to respond to, and mitigate impacts of climate-related events on urban areas	$490,000	$80,000	$160,000	$160,000	$90,000	G
	Project component total		**$760,000**	**$120,000**	**$240,000**	**$240,000**	**$160,000**	
3. Inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level	Output 3.1. Lessons learned and best practices captured and disseminated through the SADC DRR Unit in partnership with DiMSUR as regional knowledge management platform	3.1.1.Compilation and dissemination of lessons learned and best practices online (i.e. through knowledge hub)	$170,000	$0	$50,000	$70,000	$50,000	H
	Output 3.2. Cross-fertilisation activities among the participating countries are discussed and prepared	3.2.1. Organisation of cross-country advisory and learning missions (by municipalities, ministries and/or communities)	$120,000	$0	$40,000	$40,000	$40,000	I
	Output 3.3. Regional workshops for experience sharing among the different countries, and participation to global events	3.3.1. Organisation of annual regional workshops for experience sharing, and participation to global events	$240,000	$60,000	$60,000	$60,000	$60,000	J
	Project component total		**$530,000**	**$60,000**	**$150,000**	**$170,000**	**$150,000**	
		Sub-Total Project Activities	**$11,781,599**	**$2,662,400**	**$3,176,400**	**$3,196,400**	**$2,746,399**	
Project Execution Costs (9.5%)		Project Manager (P3 level / 75% staff time)	$400,000	$100,000	$100,000	$100,000	$100,000	K
		National Project Managers (NPMs)	$620,000	$155,000	$155,000	$155,000	$155,000	
		Travel for project execution purposes (PM and so on)	$40,000	$10,000	$10,000	$10,000	$10,000	
		Mid term evaluation	$15,000	$0	$15,000	$0	$0	
		Final Evaluation of the project	$15,000	$0	$0	$0	$15,000	
		Misc/operational/other costs for NPMs	$29,252	$7,313	$7,313	$7,313	$7,313	
		Sub-Total Project Execution	**$1,119,252**	**$272,313**	**$287,313**	**$272,313**	**$287,313**	
		Total Project Costs	**$12,900,851**	**$2,934,713**	**$3,463,713**	**$3,468,713**	**$3,033,712**	
Project Cycle Management (8.5%)		Senior Human Settlements Officer (P5 level / 5% staff time)	$40,000	$10,000	$10,000	$10,000	$10,000	L
		Project Assistant and KM expert (NO-B level / 50% staff time)	$132,000	$33,000	$33,000	$33,000	$33,000	
		Travel for monitoring/oversight missions	$21,512	$5,378	$5,378	$5,378	$5,378	
		Project Support Costs = 7% of Total Project Costs	$903,060	$205,430	$242,460	$242,810	$212,360	
		Project cycle management total	$1,096,572	$253,808	$290,838	$291,188	$260,738	
Amount of Financing Requested			**$13,997,423**	**$3,188,521**	**$3,754,551**	**$3,759,901**	**$3,294,450**	

Item/ Note	Budget description and related outputs	Description of expenditure	Countries	Number per country	Quantity / months per country	US$ per quantity / month	Total US$
A	Contractual services, workshops, materials & goods and travel Output 1.1. Sub-projects implementation plans fully developed with communities and municipalities, including detailed engineering studies	Lead developer of detailed sub-project documents	4.00	1.00	3.00	$ 5,500.00	$ 66,000.00
		Experts (engineers, architects, etc.) to provide technical inputs and carry out engineering studies to complete sub-project documents	4.00	3.00	3.00	$ 4,500.00	$ 162,000.00
		Lead organizer community consultations	4.00	1.00	3.00	$ 3,000.00	$ 36,000.00
		City/community consultation and analysis assistance	4.00	2.00	3.00	$ 2,500.00	$ 60,000.00
		City/community workshops	4.00	2.00	1.00	$ 2,500.00	$ 20,000.00
		Communication (data for tablets, GIS, etc.)	4.00	1.00	1.00	$ 1,000.00	$ 4,000.00
		Laptops/tablets, printer	4.00	2.00	1.00	$ 2,000.00	$ 16,000.00
		Transport (travel / der diem also for consultations)	4.00	4.00	1.00	$ 2,000.00	$ 32,000.00
		Total					**$ 396,000.00**
B	Contractual services for the implementation of priority sub-projects Output 1.2. Priority sub-projects are implemented in the four target cities mainly through community involvement as labour-intensive manpower	Implementation of priority sub-projects - see detailed budget in separate sheet (Expected Output 1.2)					**$ 7,749,999.00**
C	Contractual services, workshops, materials & goods and travel Output 1.3. Municipal staff and community members mobilised, trained and equipped for ensuring the sustainable management and/or maintenance of the implemented priority sub-projects	Lead organizer/developer trainings	4.00	1.00	48.00	$ 4,500.00	$ 864,000.00
		Trainings assistance + technical inputs	4.00	2.00	24.00	$ 3,000.00	$ 576,000.00
		Municipality/community mobilizer / technical expert	4.00	1.00	48.00	$ 2,300.00	$ 441,600.00
		Trainings and materials city-level	4.00	4.00	1.00	$ 4,000.00	$ 64,000.00
		Trainings and materials community level	4.00	8.00	1.00	$ 2,500.00	$ 80,000.00
		Transport (travel / der diem)	4.00	40.00	1.00	$ 2,000.00	$ 320,000.00
		Total					**$ 2,345,600.00**
	Sub-Total Project Outcome 1						**$ 10,491,599.00**
F	Contractual services, workshops, materials & goods and travel Output 2.1 National tools, guidelines, policies and/or legislation for promoting urban climate adaptation developed	Lead writer guidelines/policies/legislation	4.00	2.00	4.00	$ 3,000.00	$ 96,000.00
		Technical expert to provide inputs guidelines/strategies/plans/tools	4.00	2.00	4.00	$ 2,000.00	$ 64,000.00
		Workshops, Production and dissemination	4.00	4.00	1.00	$ 5,000.00	$ 80,000.00
		Transport (travel / der diem)	4.00	4.00	1.00	$ 1,875.00	$ 30,000.00
		Total					**$ 270,000.00**
G	Contractual services, workshops, materials & goods and travel Output 2.2. National and local officers trained in urban climate adaptation techniques and approaches	Lead organizer/developer trainings	4.00	1.00	12.00	$ 3,000.00	$ 144,000.00
		Technical expert to provide inputs to trainings	4.00	1.00	12.00	$ 2,000.00	$ 96,000.00
		Trainings, workshops and materials	4.00	4.00	1.00	$ 10,000.00	$ 160,000.00
		production and dissemination	4.00	1.00	1.00	$ 6,500.00	$ 26,000.00
		Transport (travel / der diem)	4.00	4.00	1.00	$ 4,000.00	$ 64,000.00
		Total					**$ 490,000.00**
	Sub-Total Project Outcome 2						**$ 760,000.00**
H	Contractual services, workshops, materials & goods and travel Output 3.1. Lessons learned and best practices captured and disseminated through the SADC DRR Unit in partnership with DiMSUR as regional knowledge management platform	Consultants for drafting the best practioes		4.00	2.00	$ 5,000.00	$ 40,000.00
		Drafting of regional guidelines and training materials		1.00	10.00	$ 4,000.00	$ 40,000.00
		Senior trainers		2.00	5.00	$ 6,000.00	$ 30,000.00
		Training workshops	4.00	1.00	1.00	$ 10,000.00	$ 40,000.00
		Transport (travel / der diem)		8.00		$ 2,500.00	$ 20,000.00
		Total					**$ 170,000.00**
I	Contractual services, workshops, materials & goods and travel Output 3.2. Cross-fertilisation activities among the participating countries are discussed and prepared	Technical peer reviewers	4.00	1.00	2.00	$ 5,000.00	$ 40,000.00
		Technical expert for project design and resource mobilisation	4.00	1.00	2.00	$ 5,000.00	$ 40,000.00
		Cross-country advisory and learning exchange missions (by municipalities/ministries/comunities)	4.00	1.00	1.00	$ 10,000.00	$ 40,000.00
		Total					**$ 120,000.00**
J	Output 3.3. Regional workshops for experience sharing among the different countries, and participation to global events	Regional workshops (including travel costs of participants)	4.00	1.00	1.00	$ 50,000.00	$ 200,000.00
		Participation to international/global events	4.00	1.00	1.00	$ 10,000.00	$ 40,000.00
		Total					**$ 240,000.00**
	Sub-Total Project Outcome 3						**$ 530,000.00**
	Sub-Total Project Activities						***$ 11,781,599.00***
K	**Project Execution Costs (9.5%)**	Project Manager (P3 level / 75% staff time)	1.00	1.00	48.00	$ 8,333.33	$ 400,000.00
		National Project Managers (NPMs)	4.00	1.00	48.00	$ 3,229.17	$ 620,000.00
		Travel for project execution purposes (PM and so on)	4.00	1.00	1.00	$ 10,000.00	$ 40,000.00
		Mid term evaluation	1.00	1.00	1.00	$ 15,000.00	$ 15,000.00
		Final Evaluation of the project	1.00	1.00	1.00	$ 15,000.00	$ 15,000.00
		Misc/operational/other costs for NPMs	4.00	1.00	1.00	$ 7,313.00	$ 29,252.00
	Sub-Total Execution Costs						**$ 1,119,252.00**
	Total Project Costs						***$ 12,900,851.00***
L	**Project Cycle management (8.5%)**	Senior Human Settlements Officer (P5 level / 5% staff time)	1.00	1.00	48.00	$ 833.33	$ 40,000.00
		Project Assistant and KM expert (NO-B level / 50% staff time)	1.00	1.00	48.00	$ 2,750.00	$ 132,000.00
		Travel for monitoring/oversight missions	4.00	1.00	1.00	$ 5,378.00	$ 21,512.00
		Project Support Costs = 7% of Total Project Costs					$ 903,060.00
	Sub-Total Project Cycle Management						**$ 1,096,572.00**
	Amount of Financing Requested						***$ 13,997,423.00***

Activity	Responsible parties	Budget USD	Time frame														Notes
			Year 1				Year 2				Year 3				Year 4		
Measurements of means of verification (baseline and M&E plans)	Project Manager and National Project Managers	20,000 from Project Execution Costs															Before and during first regional meeting
Direct project monitoring and quality assurance including progress and financial reporting, project revisions, technical assistance and risk management	Project Manager and National Project Managers (25% staff time + mission costs)	270,000 from Project Execution Costs															Every six months and annually. Building on executing parties' and community level monitoring.
Independent mid-term evaluation	External consultants	15,000 from Project Cycle Mgt Costs															At the mid-term of the project
Independent terminal evaluation	External consultants	15,000 from Project Cycle Mgt Costs															At the end of project implementation
Monitoring, oversight and supervision	SHSO in UN-Habitat Regional Office for Africa (ROAf)	61,512 from Project Cycle Mgt Costs															Every six months and annually and as needed
Total		381,512															

Table 37: Project M&E work plan and budget

H. Disbursement schedule

	Year 1	Year 2	Year 3	Year 4
Milestone	1st disbursement – upon agreement signature Milestones (by end of year) set for activities: 1.1.1. 1.2.1. 1.3.1 3.1.1. 3.3.1.	2nd disbursement – One Year after project start ▪ Upon First Annual Report ▪ Upon financial report indicating disbursement of at least 70% of funds Milestones (by end of year) set for activities: 1.2.1. 1.3.1. 2.1.2. 2.1.1. 2.2.1. 3.1.1. 3.2.1. 3.3.1.	3rd disbursement - Two years after project start ▪ Upon Second Annual Report ▪ Upon financial report indicating disbursement of at least 70% of funds Milestones (by end of year) set for activities: 1.2.1. 1.3.1. 2.1.2. 2.1.1. 2.2.1. 3.1.1. 3.2.1. 3.3.1.	4th disbursement – Three years after project start ▪ Upon Third Annual Report ▪ Upon financial report indicating disbursement of at least 70% of funds Milestones (by end of year) set for activities: 1.2.1. 1.3.1. 2.1.2. 2.2.1. 3.1.1. 3.2.1. 3.3.1.
Schedule date	Jul. 2018	Jul. 2019	Jul.2020	Jul. 2021
Project activities	US$2,662,400	US$3,176,400	US$3,196,400	US$3,746,399
Execution costs	US$272,313	US$287,313	US$272,313	US$287,313
MIE fee	US$253,808	US$290,838	US$291,188	US$260,738

Table 38: Disbursement schedule

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

A. Record of endorsement on behalf of the government

Government of Malawi: Mr. Peter K. Simbani Director, Debt & Aid Management Division, Ministry of Finance	Date: *4 April 2018*
Government of Madagascar: Ms. Jane Alice Laurette Razanamiharisoa Chef du Service Adaptation au Changement Climatique, direction du Changement Climatique	Date: *4 April 2018*
Government of Mozambique: Mrs. Sheila Santana Afonso Permanent Secretary Ministry of Land, Environment and Rural Development	Date: *7 March 2018*
Government of the Union of Comoros: Colonel Ismael Monge Daho Directeur Général de la Sécurité Civile	Date: *2 April 2018*

B. Implementing Entity certification

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans of Madagascar, Malawi, Mozambique and the Union of Comoros and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
Rafael Tuts, Director Programme Division, UN-Habitat Implementing Entity Coordinator 17/12/18	
Date: *17 December 2018*	Tel. nr: +254-20-7623726 email: rafael.tuts@unhabitat.org
Project Contact Person: *Mathias Spaliviero, Senior Human Settlements Officer, Regional Office for Africa, UN-Habitat*	
Tel. nr: +254-20-7624716 Email: mathias.spaliviero@unhabitat.org	

United Nations Human Settlements Programme
P.O. Box 30030, Nairobi 00100, KENYA
Tel: +254-20 7623120, Fax: +254-20 7624266/7
infohabitat@unhabitat.org, www.unhabitat.org

Nairobi, Kenya, 7 January 2019

Subject: Board Decision B.31-31/19 and resubmission of project proposal

Dear Mr. Ollikainen,

It is our pleasure to resubmit to the Secretariat of the Adaptation Fund the fully-developed and revised project document "***Building urban climate resilience in South-eastern Africa" for Madagascar, Malawi, Mozambique and the Union of Comoros***". This project document was previously submitted in May 2018. On 30 August 2018 we were informed that the Project and Programme Review Committee of the Adaptation Fund Board, at its intersessional period between the thirty-first and thirty-second meetings, considered the above mentioned fully-developed project document, decided not to endorse the project (Board Decision B.31-32/19), and offered a list of observations for UN-Habitat's consideration in revising the proposal.

Given our deep-rooted commitment to the project and our wish to fully respect and comply with the policies and guidelines of the Adaptation Fund, the project development team of UN-Habitat proceeded with a revision process that included a month-long mission covering all four project countries and cities, extensive desk review and field research, and additional activities organised, such as community consultations and public disclosure events for the environmental and social risks assessment and resulting management plan.

We feel that through this process our project has become further enriched and responds even more appropriately to the needs and circumstances of the target communities. In technical terms the proposal has changed in the following main ways:

- All comments of the Technical Review and the Board have been addressed (see response sheet).
- Vulnerably groups are now adequately identified and described in Annex 2 – which has informed the rest of the project, especially the gender strategy and human rights approach.
- To ensure adaptive management of the project that is compliant to the established process within the Adaptation Fund secretariat, the project now incorporates and explicitly states how such compliance will be ensured.
- There is a duly revised social and environmental risk screening, assessment and responding plan along with management measures detailed in Annex 3 (and sections of the main proposal).
- There is broad evidence of compliance with the public disclosure requirement of the Adaptation Fund (ESP para 33) for the environmental and social assessment and plan.
- All inconsistencies have been resolved between the main document and annexes.
- The size of the document, in response to new policies of the Fund, has been drastically reduced **from 668 pages** in total (including annexes) to now around **250 pages** in total.

I am at your disposal in case of any questions about the revised proposal. Thank you for giving our project consideration again, we look forward to receiving the decision of the Board.

Sincerely,

Mathias Spaliviero
UN-Habitat Project Proposal Focal Point

Mr. Mikko Ollikainen
Manager, Adaptation Fund Board Secretariat
Washington DC, USA

REPOBLIKAN'I MADAGASIKARA
Fitiavana - Tanindrazana - Fandrosoana

MINISTRY OF ENVIRONMENT, ECOLOGY, SEA AND FOREST

N° 01/2018

Antananarivo, April 4th 2018

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Subject: Endorsement for "Building urban climate resilience in South-Eastern Africa" project

In my capacity as designated authority for the Adaptation Fund in Madagascar, I confirm that the above regional project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above full project proposal with support from the Adaptation Fund. If approved, the project will be implemented by United Nations Human Settlement Programme (UN-Habitat) and executed by the Disaster Risk Reduction Unit of the Southern Africa Development Community (SADC), in partnership with DiMSUR: Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience at the regional level, the BNCCC and the Ministry of Territorial Management and Urban Development at the national level and Oxfam International in cooperation with the municipality of Morondava at the town and community level.

Sincerely,

MINISTERE DE L'ENVIRONNEMENT, DE L'ECOLOGIE ET DES FORETS
BUREAU NATIONAL DE COORDINATION DES CHANGEMENTS CLIMATIQUES
REPOBLIKAN'I MADAGASIKARA

RAZANAMIHARISOA Jane

UNION DES COMORES

Unité - Solidarité – Développement

MINISTERE DE L'INTERIEUR, DE L'INFORMATION, DE LA DECENTRALISATION, CHARGE DES RELATIONS AVEC LES INSTITUTIONS

DIRECTION GENERALE DE LA SECURITE CIVILE

N°018-026/DGSC-DG

Moroni, April 2, 2018

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: +1 202 522 3240/5

Subject: Endorsement for "Building urban climate resilience in South-Eastern Africa" full project proposal by the Government of the Union of Comoros

Dear Sir/Madam,

In my capacity as designated authority for the Adaptation Fund in the Union of Comoros, I confirm that the above regional project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above full project proposal with support from the Adaptation Fund. If approved, the project will be implemented by United Nations Human Settlement Programme (UN-Habitat) and executed by the Disaster Risk Reduction Unit of the Southern Africa Development Community (SADC), in partnership with DiMSUR: Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience at the regional level, the Directorate-General of Civil Security at the national level and Oxfam International in cooperation with the municipality of Moroni at the city and community level.

The Government of the Union of Comoros sincerely hopes that the proposal will be approved by the Board of the Adaptation Fund.

Yours sincerely,

DIRECTION GENERALE DE LA SECURITE CIVILE
UNION DES COMORES
Le Directeur

Le Colonel Ismael MOGNE DAHO

Telephone: +265 1 788 888
Telefax: +265 1 788 093/247
Telex: 44648
Email: epd@Malawi.net,
mepd@globemw.net

MINISTRY OF FINANCE,
ECONOMIC PLANNING AND
DEVELOPMENT
P.O. BOX 30136
CAPITAL CITY
LILONGWE 3
MALAWI

Ref. No. EPD/14/12/2

4th April 2018

The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

Dear Sir/Madam,

Subject: Endorsement for 'Building Urban Resilience in South Eastern Africa Project' Full Proposal by the Government of Malawi

In my capacity as designated authority for the Adaptation Fund in Malawi, I confirm that the above regional project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above full project proposal with support from the Adaptation Fund. If approved, the project will be implemented by United Nations Human Settlement Programme (UN-Habitat) and executed by the Disaster Risk Reduction Unit of the Southern Africa Development Community (SADC), in partnership with DiMSUR: Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience at the regional level, the Department of Disaster Management Affairs (DoDMA) at the national level and Oxfam International in cooperation with the City of Zomba at the city and community level.

It is our hope that the proposal can be supported by the Adaptation Fund.

Yours faithfully,

Peter K. Simbani
Adaptation Fund National Designated Official
For: **SECRETARY TO THE TREASURY**

REPUBLIC OF MOZAMBIQUE
MINISTRY OF LAND, ENVIRONMENT AND RURAL DEVELOPMENT

7th March 2018

To: The Adaptation Fund Board
c/o Adaptation Fund Board Secretariat
Email: Secretariat@Adaptation-Fund.org
Fax: 202 522 3240/5

ADAPTATION FUND

Subject: Endorsement for Building Urban Resilience in South-eastern Africa

In my capacity as designated authority for the Adaptation Fund in Mozambique, I confirm that the above regional project/programme proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks, posed by climate change in the country.

Accordingly, I am pleased to endorse the above full project/programme proposal with support from the Adaptation Fund. If approved, the project/programme will be implemented by United Nations Human Settlement Programme (UN-Habitat) and executed by the Disaster Risk Reduction Unit of the Southern Africa Development Community (SADC), in partnership with DiMSUR: Technical Centre for Disaster Risk Management, Sustainability and Urban Resilience at the regional level, the Ministry of Land, Environment and Rural Development (MITADER) at the national level and Oxfam International in cooperation with the municipality of Chókwè at the town and community level.

Sincerely,

Sheila Santana Afonso
Permanent Secretary
Ministry of Land, Environment and Rural Development

Project component	Outputs	Activity	Total budget	Year 1	Year 2	Year 3	Year 4	Notes
1. Preparation, implementation and sustainable management of priority sub-projects at the city level	Output 1.1. Sub-projects implementation plans fully developed with communities and municipalities, including detailed engineering studies	1.1.1. Design of detailed sub-project documents, incl. technical specifications, roles and budgets	$396,000	$396,000	$0	$0	$0	A
	Output 1.2. Priority sub-projects are implemented in the four target cities mainly through community involvement as labour-intensive manpower	1.2.1. Implementation of 23 priority sub-projects in the 4 targeted cities	$7,749,999	$1,500,000	$2,200,000	$2,200,000	$1,849,999	B
	Output 1.3. Municipal staff and community members mobilised, trained and equipped for ensuring the sustainable management and/or maintenance of the implemented priority sub-projects	1.3.1. Organisation of trainings for municipal staff and community members on the sustainable management and maintenance of the realised physical interventions	$2,345,600	$586,400	$586,400	$586,400	$586,400	C
	Project component total		**$10,491,599**	**$2,482,400**	**$2,786,400**	**$2,786,400**	**$2,436,399**	
2. Tools and guidelines development and training delivery at the national level	Output 2.1 National tools, guidelines, policies and/or legislation for promoting urban climate adaptation developed	2.1.1. Development of national tools, guidelines, policies and/or legislation for promoting urban climate change adaptation	$270,000	$40,000	$80,000	$80,000	$70,000	F
	Output 2.2. National and local officers trained in urban climate adaptation techniques and approaches	2.2.1. Organisation of trainings of national and local officers to respond to, and mitigate impacts of climate-related events on urban areas	$490,000	$80,000	$160,000	$160,000	$90,000	G
	Project component total		**$760,000**	**$120,000**	**$240,000**	**$240,000**	**$160,000**	
3. Inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level	Output 3.1. Lessons learned and best practices captured and disseminated through the SADC DRR Unit in partnership with DiMSUR as regional knowledge management platform	3.1.1.Compilation and dissemination of lessons learned and best practices online (i.e. through knowledge hub)	$170,000	$0	$50,000	$70,000	$50,000	H
	Output 3.2. Cross-fertilisation activities among the participating countries are discussed and prepared	3.2.1. Organisation of cross-country advisory and learning missions (by municipalities, ministries and/or communities)	$120,000	$0	$40,000	$40,000	$40,000	I
	Output 3.3. Regional workshops for experience sharing among the different countries, and participation to global events	3.3.1. Organisation of annual regional workshops for experience sharing, and participation to global events	$240,000	$60,000	$60,000	$60,000	$60,000	J
	Project component total		**$530,000**	**$60,000**	**$150,000**	**$170,000**	**$150,000**	
Sub-Total Project Activities			**$11,781,599**	**$2,662,400**	**$3,176,400**	**$3,196,400**	**$2,746,399**	
Project Execution Costs (9.5%)	Project Manager (P3 level / 75% staff time)		$400,000	$100,000	$100,000	$100,000	$100,000	K
	National Project Managers (NPMs)		$620,000	$155,000	$155,000	$155,000	$155,000	
	Travel for project execution purposes (PM and so on)		$40,000	$10,000	$10,000	$10,000	$10,000	
	Mid term evaluation		$15,000	$0	$15,000	$0	$0	
	Final Evaluation of the project		$15,000	$0	$0	$0	$15,000	
	Misc/operational/other costs for NPMs		$29,252	$7,313	$7,313	$7,313	$7,313	
Sub-Total Project Execution			**$1,119,252**	**$272,313**	**$287,313**	**$272,313**	**$287,313**	
Total Project Costs			**$12,900,851**	**$2,934,713**	**$3,463,713**	**$3,468,713**	**$3,033,712**	
Project Cycle Management (8.5%)	Senior Human Settlements Officer (P5 level / 5% staff time)		$40,000	$10,000	$10,000	$10,000	$10,000	L
	Project Assistant and KM expert (NO-B level / 50% staff time)		$132,000	$33,000	$33,000	$33,000	$33,000	
	Travel for monitoring/oversight missions		$21,512	$5,378	$5,378	$5,378	$5,378	
	Project Support Costs = 7% of Total Project Costs		$903,060	$205,430	$242,460	$242,810	$212,360	
Project cycle management total			**$1,096,572**	**$253,808**	**$290,838**	**$291,188**	**$260,738**	
Amount of Financing Requested			**$13,997,423**	**$3,188,521**	**$3,754,551**	**$3,759,901**	**$3,294,450**	

Item/ Note	Budget description and related outputs	Description of expenditure	Countries	Number per country	Quantity / months per country	US$ per quantity / month	Total US$
A	Contractual services, workshops, materials & goods and travel Output 1.1. Sub-projects implementation plans fully developed with communities and municipalities, including detailed engineering studies	Lead developer of detailed sub-project documents	4.00	1.00	3.00	$ 5,500.00	$ 66,000.00
		Experts (engineers, architects, etc.) to provide technical inputs and carry out engineering studies to complete sub-project documents	4.00	3.00	3.00	$ 4,500.00	$ 162,000.00
		Lead organizer community consultations	4.00	1.00	3.00	$ 3,000.00	$ 36,000.00
		City/community consultation and analysis assistance	4.00	2.00	3.00	$ 2,500.00	$ 60,000.00
		City/community workshops	4.00	2.00	1.00	$ 2,500.00	$ 20,000.00
		Communication (data for tablets, GIS, etc.)	4.00	1.00	1.00	$ 1,000.00	$ 4,000.00
		Laptops/tablets, printer	4.00	2.00	1.00	$ 2,000.00	$ 16,000.00
		Transport (travel / der diem also for consultations)	4.00	4.00	1.00	$ 2,000.00	$ 32,000.00
		Total					**$ 396,000.00**
B	Contractual services for the implementation of priority sub-projects Output 1.2. Priority sub-projects are implemented in the four target cities mainly through community involvement as labour-intensive manpower	Implementation of priority sub-projects - see detailed budget in separate sheet (Expected Output 1.2)					**$ 7,749,999.00**
C	Contractual services, workshops, materials & goods and travel Output 1.3. Municipal staff and community members mobilised, trained and equipped for ensuring the sustainable management and/or maintenance of the implemented priority sub-projects	Lead organizer/developer trainings	4.00	1.00	48.00	$ 4,500.00	$ 864,000.00
		Trainings assistance + technical inputs	4.00	2.00	24.00	$ 3,000.00	$ 576,000.00
		Municipality/community mobilizer / technical expert	4.00	1.00	48.00	$ 2,300.00	$ 441,600.00
		Trainings and materials city-level	4.00	4.00	1.00	$ 4,000.00	$ 64,000.00
		Trainings and materials community level	4.00	8.00	1.00	$ 2,500.00	$ 80,000.00
		Transport (travel / der diem)	4.00	40.00	1.00	$ 2,000.00	$ 320,000.00
		Total					**$ 2,345,600.00**
	Sub-Total Project Outcome 1						**$ 10,491,599.00**
F	Contractual services, workshops, materials & goods and travel Output 2.1 National tools, guidelines, policies and/or legislation for promoting urban climate adaptation developed	Lead writer guidelines/policies/legislation	4.00	2.00	4.00	$ 3,000.00	$ 96,000.00
		Technical expert to provide inputs guidelines/strategies/plans/tools	4.00	2.00	4.00	$ 2,000.00	$ 64,000.00
		Workshops, Production and dissemination	4.00	4.00	1.00	$ 5,000.00	$ 80,000.00
		Transport (travel / der diem)	4.00	4.00	1.00	$ 1,875.00	$ 30,000.00
		Total					**$ 270,000.00**
G	Contractual services, workshops, materials & goods and travel Output 2.2. National and local officers trained in urban climate adaptation techniques and approaches	Lead organizer/developer trainings	4.00	1.00	12.00	$ 3,000.00	$ 144,000.00
		Technical expert to provide inputs to trainings	4.00	1.00	12.00	$ 2,000.00	$ 96,000.00
		Trainings, workshops and materials	4.00	4.00	1.00	$ 10,000.00	$ 160,000.00
		production and dissemination	4.00	1.00	1.00	$ 6,500.00	$ 26,000.00
		Transport (travel / der diem)	4.00	4.00	1.00	$ 4,000.00	$ 64,000.00
		Total					**$ 490,000.00**
	Sub-Total Project Outcome 2						**$ 760,000.00**
H	Contractual services, workshops, materials & goods and travel Output 3.1. Lessons learned and best practices captured and disseminated through the SADC DRR Unit in partnership with DiMSUR as regional knowledge management platform	Consultants for drafting the best practices		4.00	2.00	$ 5,000.00	$ 40,000.00
		Drafting of regional guidelines and training materials		1.00	10.00	$ 4,000.00	$ 40,000.00
		Senior trainers		2.00	5.00	$ 6,000.00	$ 30,000.00
		Training workshops	4.00	1.00	1.00	$ 10,000.00	$ 40,000.00
		Transport (travel / der diem)		8.00		$ 2,500.00	$ 20,000.00
		Total					**$ 170,000.00**
I	Contractual services, workshops, materials & goods and travel Output 3.2. Cross-fertilisation activities among the participating countries are discussed and prepared	Technical peer reviewers	4.00	1.00	2.00	$ 5,000.00	$ 40,000.00
		Technical expert for project design and resource mobilisation	4.00	1.00	2.00	$ 5,000.00	$ 40,000.00
		Cross-country advisory and learning exchange missions (by municipalities/ministries/comunities)	4.00	1.00	1.00	$ 10,000.00	$ 40,000.00
		Total					**$ 120,000.00**
J	Output 3.3. Regional workshops for experience sharing among the different countries, and participation to global events	Regional workshops (including travel costs of participants)	4.00	1.00	1.00	$ 50,000.00	$ 200,000.00
		Participation to international/global events	4.00	1.00	1.00	$ 10,000.00	$ 40,000.00
		Total					**$ 240,000.00**
	Sub-Total Project Outcome 3						**$ 530,000.00**
	Sub-Total Project Activities						***$ 11,781,599.00***
K	**Project Execution Costs (9.5%)**	Project Manager (P3 level / 75% staff time)	1.00	1.00	48.00	$ 8,333.33	$ 400,000.00
		National Project Managers (NPMs)	4.00	1.00	48.00	$ 3,229.17	$ 620,000.00
		Travel for project execution purposes (PM and so on)	4.00	1.00	1.00	$ 10,000.00	$ 40,000.00
		Mid term evaluation	1.00	1.00	1.00	$ 15,000.00	$ 15,000.00
		Final Evaluation of the project	1.00	1.00	1.00	$ 15,000.00	$ 15,000.00
		Misc/operational/other costs for NPMs	4.00	1.00	1.00	$ 7,313.00	$ 29,252.00
	Sub-Total Execution Costs						**$ 1,119,252.00**
	Total Project Costs						***$ 12,900,851.00***
L	**Project Cycle management (8.5%)**	Senior Human Settlements Officer (P5 level / 5% staff time)	1.00	1.00	48.00	$ 833.33	$ 40,000.00
		Project Assistant and KM expert (NO-B level / 50% staff time)	1.00	1.00	48.00	$ 2,750.00	$ 132,000.00
		Travel for monitoring/oversight missions	4.00	1.00	1.00	$ 5,378.00	$ 21,512.00
		Project Support Costs = 7% of Total Project Costs					$ 903,060.00
	Sub-Total Project Cycle Management						**$ 1,096,572.00**
	Amount of Financing Requested						***$ 13,997,423.00***

City/Country	Sub-Project	BL	Detailed Activity	Unit	Nr. of Units	Avg. Unit Cost in USD (all included)	Total Cost in USD
Morondova, Madagascar	5.1.1. Rehabilitation of 180 ha of mangroves	1	Hiring a local sub-contractor/NGO to prepare the tree nurseries, recruit and train local labour and plant/maintain the mangroves **(see detailed costs in separate file)**	lumpsum			388,000
		2	On-site technical assistance for community mobilisation, gender mainstreaming and planting techniques	per month	36	2,000	72,000
		3	Preparation of awareness raising and training materials and dissemination	lumpsum			10,000
		4	Training and awareness raising activities on mangrove planting and conservation	per session	12	2,000	24,000
		5	Purchase of equipment for mangrove planting and maintenance (truck, drone, tools, etc.)	lumpsum			50,000
		6	Operational costs, communication, sundries	per month	36	444	16,000
						Total Costs of Sub-Project 5.1.1	**560,000**
	5.1.2. Urban greening interventions in high risk areas	7	On site technical assistance, urban design, monitoring and supervision	per month	5	4,000	20,000
		8	Hiring a local sub-contractor/NGO to hire local labour, purchase the plants and construct the public space **(see detailed costs in separate file)**	lumpsum			100,000
						Total Costs of Sub-Project 5.1.2	**120,000**
	5.1.3. Establishment of a city-wide early warning system for floods	9	Technical studies and assessments	lumpsum			15,000
		10	Cost of materials and equipment of the centre of surveillance	lumpsum			20,000
		11	Training and capacity building	lumpsum			10,000
		12	Installation of the raingauging stations and sirenes	lumpsum			40,000
						Total Costs of Sub-Project 5.1.3	**85,000**
	5.1.4. Construction of a resilient and multi-purpose safe-haven	13	On site technical assistance, building design, monitoring and supervision	per month	5	4,000	20,000
		14	Safe-Haven construction costs **(see detailed costs in separate file)**	lumpsum			181,000
						Total Costs of Sub-Project 5.1.4	**201,000**
	5.1.5. Construction of a flood-proof elevated road with improved drainage capacity	15	On site technical assistance, road design, monitoring and supervision	per month	5	4,000	20,000
		16	Road construction costs **(see detailed costs in separate file)**	lumpsum			405,000
						Total Costs of Sub-Project 5.1.5	**425,000**
	5.1.6. Reconstruction of 3 bridges connecting different neighbourhoods in a resilient manner	17	On site technical assistance, bridge design, monitoring and supervision	per month	5	4,000	20,000
		18	Bridges construction costs **(see detailed costs in separate file)**	lumpsum			230,000
						Total Costs of Sub-Project 5.1.6	**250,000**
	5.1.7. Enhancing the drainage capacity in the city centre	19	On site technical assistance, drainage design, monitoring and supervision	per month	5	4,000	20,000
		20	Drainage construction costs **(see detailed costs in separate file)**	lumpsum			110,000
		21	Rehabilitation and cleaning of 4,389m of drainage channels through labour-intensive activities	per 100 m	40	1,000	40,000
						Total Costs of Sub-Project 5.1.7	**170,000**
	5.1.8. Improving solid waste management in the city centre	22	On site technical assistance of waste management specialist, monitoring and supervision	per month	5	4,000	20,000
		23	Hiring of a local NGO to set up the community-based SWM mechanisms, purchase equipment, train community members, etc.	lumpsum			100,000
		24	Purchase of a waste transport truck	per unit	1	60,000	60,000
		25	Operational costs (fuel, etc.)	lump sum			10,000
						Total Costs of Sub-Project 5.1.8	**190,000**
						Sub-Total Morondava	**2,001,000**
	5.2.1. Establishment of a city-wide early warning system for floods	26	Provision of technical assistance for setting up the early warining system (EWS) in Zomba, including assessments, design, training and supervision	per month	7	5,000	35,000
		27	Modernise/rehabilitate 2 weather stations including materials upgrade and automated measuring system	per unit	2	15,000	30,000
		28	Installation of 3 automated water gauges and sirens	per unit	3	15,000	45,000
		29	Training and awareness raising of surrounding communities	per community	3	5,000	15,000
		30	Training of EWS operators	lumpsum			10,000
		31	purchase of equipment (mobile phones for EWS operators, etc.)	lumpsum			5,000
						Total Costs of Sub-Project 5.2.1	**140,000**
	5.2.2. Construction of multi-purpose evacuation centres	32	On site technical assistance for building design, works supervsion, etc.	per site	3	7,500	22,500
		33	Accommodation blocks (2 rooms per block) – 2 blocks per site	per block	6	25,000	150,000
		34	General purpose room (admin, clinic etc) – 1 per site	per site	3	3,000	9,000
		35	Toilet blocks (2 per site)	per block	6	7,000	42,000
		36	Kitchen (1 per site)	per site	3	4,000	12,000
		37	Rehabilitation and signalling of 3 evacuation routes	per route	3	6,000	18,000
		38	Training and capacity building	lumpsum			9,500
		39	purchase of equipment (bycicle ambulances, etc.)	per site	3	4000	12,000
						Total Costs of Sub-Project 5.2.2	**275,000**

Zomba, Malawi	**5.2.3. Rehabilitation of existing drainage channels and construction of new drainage channels**	40	On site technical assistance for drainage design, works supervsion, etc.	per ward	4	10,000	40,000
		41	Drainage works in Sadzi ward - 1,655 m **(see detailed costs in separate file)**	lumpsum			83,000
		42	Drainage works in Chinamwali ward - 1,400 m **(see detailed costs in separate file)**	lumpsum			66,000
		43	Drainage works in Mtyia ward - 450 m **(see detailed costs in separate file)**	lumpsum			32,000
		44	Drainage works in Masongola ward - 1,970 m **(see detailed costs in separate file)**	lumpsum			92,000
						Total Costs of Sub-Project 5.2.3	**313,000**
	5.2.4. Improving solid waste management	45	Technical assistance to the city council and to the communities (policy formulation, training, marketing, etc.)	lumpsum			20,000
		46	Construction of community waste management centres - composting	per centre	4	11,000	44,000
		47	Construction of community waste management centres - paved surface	per centre	4	3,000	12,000
		48	Construction of community waste management centres - washroom	per centre	4	450	1,800
		49	Construction of community waste management centres - office	per centre	4	400	1,600
		50	Construction of community waste management centres - perimeter fencing	per centre	4	5,000	20,000
		51	Equipment (protective clothing, hand carts, wheelbarrows, shovels, rakes, etc.)	per centre	4	1,825	7,300
		52	Waste collection vehicle for municipal use - tractor with trailer	per unit	1	28,000	28,000
		53	Training of community groups and awareness raising	per ward	4	10,000	40,000
		54	Communication, advocacy, marketing, etc.	lumpsum			10,000
						Total Costs of Sub-Project 5.2.4	**184,700**
	5.2.5. River-focused interventions to prevent erosion and flooding	55	On site technical assistance for design, engineering calculations, supervision, etc.	lumpsum			40,000
		56	Purchase of gabions (1 m x 1 m x 2 m)	per unit	2,000	150	300,000
		57	Recruitment of local workers	lumpsum			40,000
		58	Training and awareness raising	lumpsum			20,000
		59	Transport, logistics, hiring of machinery and other operational costs	lumpsum			50,000
						Total Costs of Sub-Project 5.2.5	**450,000**
	5.2.6. Construction and rehabilitation of bridges and dams on Likangala River	60	On site technical assistance, bridge design, monitoring and supervision	lumpsum			20,000
		61	Two Million Bridge construction costs **(see detailed costs in separate file)**	lumpsum			87,000
		62	Likangala Bridge rehabilitation costs	lumpsum			15,000
		63	Mpondabwino Bridge rehabilitation costs	lumpsum			10,000
		64	Rehabilitation of two dams in the Likangala River	per dam	2	14,000	28,000
						Total Costs of Sub-Project 5.2.6	**160,000**
	5.2.7. Sustainable urban forest management	65	On site technical assistance	per ward	7	5,000	35,000
		66	Establishment of 14 tree nurseries (2 per ward), incl. equipment (water canes, polythene tubes, wheel barrows), seeds, manure and labour	per nursery	14	15,000	210,000
		67	Tree planting incl. labour (clearing, planting, weeding) - approx 290,000 seedlings to cover 225 hectares	per 1,000 seedlings	290	300	87,000
		68	Training of community groups to manage the nurseries and planting	per ward	7	2,571	18,000
						Total Costs of Sub-Project 5.2.7	**350,000**
						Sub-Total Zomba	**1,872,700**
Chokwe, Mozambique	**5.3.1. Improving the overall drainage capacity of the city**	69	On site technical assistance, drainage design, monitoring and supervision	lump sum			100,000
		70	Drainage construction/rehabilitation costs **(see detailed costs in separate file)**	lumpsum			900,000
						Total Costs of Sub-Project 5.3.1	**1,000,000**
	5.3.2. Construction of safe-havens	71	On site technical assistance, building design, monitoring and supervision	per safe haven	2	20,000	40,000
		72	Safe-haven construction costs **(see detailed costs per building in separate file)**	per building	2	80,000	160,000
						Total Costs of Sub-Project 5.3.2	**200,000**
	5.3.3. Improving solid waste management	73	Technical assistance for building design, training of and support to community groups, supervision, etc	per neighbourhood	3	20,000	60,000
		74	Construction of community waste management centres	per centre	3	50,000	150,000
		75	Equipment (pallet stacker, bulk bags, waste bins, trolleys, etc.)	per centre	3	8,333	25,000
		76	Training and awareness raising	per neighbourhood	3	10,000	30,000
						Total Costs of Sub-Project 5.3.3	**265,000**
	5.3.4. Enhancing early warning for floods at community level	77	On site technical assistance for assessments, strategy formulation and training	lumpsum			15,000
		78	Marking and signaling escape routes, safe havens and areas at risk	per neighbourhood	7	2,000	14,000
		79	Purchase of equipment (megaphones, radio, mobiles, etc.)	per neighbourhood	7	4,000	28,000
		80	Institutional coordination/capacity development	lumpsum			8,000

		81	Training and awareness raising at community level, incl. emergency drills, theatre, debates, etc.	per neighbourhood	7	5,000	35,000
						Total Costs of Sub-Project 5.3.4	**100,000**
						Sub-Total Chokwe	**1,565,000**
Moroni, Comoros	**5.4.1. Reinforcing the drainage capacity in La Coulée neighbourhood**	82	On site technical assistance, drainage design, monitoring and supervision	lumpsum			100,000
		83	Topsoil excavation for drainage ditches and conveyance system	per metre	1,245	120	149,400
		84	Rock excavation for drainage ditches and conveyance system	per metre	1,545	290	448,050
		85	Constuction of concrete ditches	per metre	905	480	434,400
		86	Pipe connections	per metre	87	120	10,440
		87	Outlet structure	per cubic metre	12	480	5,760
		88	Digging and preparing the Dog detention pond	per cubic metre	10,510	75	788,250
						Total Costs of Sub-Project 5.4.1	**1,936,300**
	5.4.2. Establishment of community-managed rainwater harvesting systems in La Coulée neighbourhood	89	On site technical assistance, design, suprevision, etc.	lumpsum			20,000
		90	Construction of of 4 ferro-cement water tanks of 10 m^3	per tank	4	4,000	16,000
		91	Installation of metallic roofing in the community-managed rainwater harvesting systems	per m^2	455	62	28,000
		92	Construction of of 4 ferro-cement water tanks of 5 m^3	per tank	50	2,000	100,000
		93	installation of pipes and gutters	per unit	60	100	6,000
						Total Costs of Sub-Project 5.4.2	**170,000**
	5.4.3. Improving solid waste management in La Coulée and Médina neighbourhoods	94	On site technical assistance, strategy design, training and community support	lumpsum			20,000
		95	Purchase of waste containers of 360 litres volume	per unit	30	1,000	30,000
		96	Purchase of other equipment	per neighbourhood	2	5,000	10,000
		97	Preparation of awareness raising and advocacy materials	lumpsum			10,000
		98	Awareness raising campaigns	per neighbourhood	2	10,000	20,000
		99	Training and capacity building	per neighbourhood	2	15,000	30,000
						Total Costs of Sub-Project 5.4.3	**120,000**
	5.4.4. Setting up a flood early warning system in La Coulée neighbourhood	100	Specialised technical assistance (studies, training, etc.)	lumpsum			15,000
		101	Construction of river water gauges	per unit	2	7,500	15,000
		102	Construction of automated weather stations	per unit	2	15,000	30,000
		103	Purchase and installation of equipment	lumpsum			15,000
		104	Training and capacity building of system operators	lumpsum			10,000
						Total Costs of Sub-Project 5.4.4	**85,000**
						Sub-Total Moroni	**2,311,300**
						Total Expected Output 1.2	**7,749,999**

Annex 2 – CROSS-CUTTING ISSUES

A. MARGINALISED AND VULNERABLE GROUPS ASSESSMENT

This section aims to provide an overview on marginalised and vulnerable groups in the four cities involved in the project.

The data was gathered both through surveys, local consultations held in the targeted neighbourhoods and from official documents (desk review). Some data refers to the whole city, and other refers to the communities individually targeted by the project (sub-project sites). It is important to stress that the latter type relies in some cases on the perceptions of the community members themselves.

The population characteristics in the four cities are summarised in the following table (community-level data combined with the data from every project community in each city):

Group	Morondava	Zomba	Chokwe	Moroni
Children and youth rate	The majority (60% approx. < 15 years)*	40% approx. < 15 years*	44% approx. < 15 years*	The majority (mostly < 15 years)
Women and girls	> 50%*	> 50%	> 50%	> 50%
Older persons rate	Low (3% approx. > 60 years)*	Very low		Low
Indigenous people	N/A	N/A	N/A	N/A
Tribal groups	N/A	N/A	N/A	N/A
Displaced/ migrant people	Seasonal internal migrant families from the southern part of the Country (mostly fishermen)*	Seasonal internal migrant from the rural areas*	N/A	Internal migrant families from the rural areas/ flood-affected areas (only in La Coulée neighbourhood)
Refugees	N/A	N/A	N/A	N/A
Persons with disabilities rate	Very low*	Very low	Very low	Very low
People living with HIV/AIDS rate	Under-reported; no reliable data are available*	Under-reported; no reliable data are available	Adult men, young and elderly women are the most affected; no reliable data on children are available	Under-reported; no reliable data are available
Other marginalised/vulnerable groups	· Albinos* · Lepers*	N/A	N/A	Fishermen (they are particularly vulnerable due to the pollution in the sea)
Poverty	25% below poverty line	16.3 % poor 3% ultra-poor	60% below poverty line	45.6% (poverty rate)

* City level data

More detailed information about each city is provided below.

Morondava

Children and youth: in the city the majority of children live in single-parent families (usually the mother) and a high level of early marriage is reported. Domestic violence (toward children) is quite high while support for children victims of violence (included sexual violence) is very low. Families are generally supported by community associations. There is also sporadic support from international organizations such as UNICEF through distribution of food, counselling, etc.

In the targeted communities children generally attend school and can speak and read Malagasy; however, only a few can read or speak French. The school is not far from where they live but the number of students per class is quite high (44 children per class on average). For infants, there are a few crèches and support structures in the target communities. Child labour is mainly domestic.

Almost 90% of the people living in the most vulnerable areas of the city are food insecure and/or malnourished. Given the poor sanitary conditions in these areas, children present different types of diseases, from diarrhoea to skin diseases. Infant mortality is still high in the entire city. Most of the youth (75%) between 13 and 18 years old go to school but less than half get a degree. As for the children, they all know Malagasy while only a minority can fluently read or speak in French. There is gender balance in the classes although, especially for the girls (mainly due to early pregnancy), the school drop-out rate is high. Schools are not properly equipped in terms of educational materials and the number of pupils per class is high. Access to job opportunities or technical training (outside the technical colleges) is very low.

Women and girls: the majority of women can read and write in Malagasy but not in French; in general, the educational level of women is lower than men due to early marriage, early pregnancy, poverty and cultural/traditional habits.

Many women are single parents (divorced or widowed) with five children on average. Divorced women are usually stigmatised, abandoned by the families and forced to leave the house with the children. Gender-based violence and domestic violence rates are very high throughout the city. It has been reported that in many communities, there is one case of rape per day and 35% of women are exposed to prostitution. There seem to be no women's support services in the city; there are only some project-based programs (dependent on funding) implemented by organizations in the most vulnerable areas.

Almost 60% of women are unemployed; they are usually excluded from formal jobs and are engaged in informal businesses or temporary/seasonal jobs (including mangroves). There are no reported restrictions on women's freedom to access public spaces and in decision-making; nevertheless, women's active engagement is quite limited. Traditional and cultural gender dynamics still play a key role in the communities.

Older persons: some of them live alone while others live with their family. They are generally considered a "burden" for the families (often already poor) and, therefore, not always accepted and integrated. The majority have ageing-related physical problems such as mobility and deafness. In many communities, there are elderly associations taking care of the older persons.

Displaced/migrant families: in the city there are seasonal (from March to December) internal migrant families from the southern region of the country. They are usually fishermen and they reside in the most vulnerable areas. They are not well accepted in the host communities and conflicts over resources are frequent. Migrant children do not always go to school.

Persons with disabilities: There is an equal distribution between males and females with disabilities; some of them have congenital disabilities, others have disabilities due to diseases and ageing. They live with their families but are generally considered a burden; many of them are dependent on other family members (meaning not head of the family). It has been reported that stigma is still high. The level of education for persons with disabilities is generally low and they are inactive (they do not work and do not look for any employment). Disability associations at the community level and religious institutions are the main institutions that take care of

persons with disabilities; nevertheless, given the limited resources, access to basic services remains the major challenge for this group.

People living with HIV/AIDS: HIV/AIDS is increasing as a consequence of gender-based violence, early marriage, early pregnancy and increasing prostitution. It should be noted that there is not sufficient awareness about this topic, especially among young women.

Other marginalised/vulnerable groups: no data is available on the exact number of albinos in the city; they are usually stigmatised and marginalised. It is also reported that there is a community of victims of leprosy: they are quite isolated and excluded by the rest of the communities. They are mainly assisted by religious organizations and the children attending schools are stigmatised.

Zomba

Children and youth: in the targeted communities the number of orphans among children and youth is still high due to the increasing rate of HIV/AIDS. Orphans usually live with the extended family. Food insecurity and children with severe malnutrition due to poverty is very high (almost 90% of the targeted communities are food insecure). Children living with single parents have increased in the last years. The number of domestic violence cases in Zomba has also increased: the cases concern more girls than boys. In some of the target communities, there are children's support programs managed by local NGOs but regular financing remains a challenge. Malaria, TB, respiratory infections, diarrhoea and other communicable diseases are still one of the main causes of morbidity among children and youth. This is mostly due to poor housing and inadequate sanitary conditions. Some communities are benefiting from the schools feeding programs.

The majority of children and youth can speak the local language but cannot read or write in English. In general, children face multiple barriers to enrolment and satisfactory performance in school including: cost of school uniforms and materials, lack of concentration due to insufficient nutrition intake, withdrawal due to need for children to work at home and – more generally – neglect by the parents. There are different technical colleges in the city but not easily accessible by less educated and marginalised/vulnerable youth.

Youth unemployment is very high in the target communities; lack of opportunities for training and/or skills development has been reported as one of the main challenges. The Youth Public Works Programme (managed by the Government) remains one of the main opportunities even if salaries are low and it is a temporary employment rotation programme. The main market in the city (the biggest in the surrounding area) and the wood cutting season offer temporary jobs.

Women and girls: discrimination against women and girls is still rooted in a lack of gender equality, and discriminatory traditional norms. Women still experience serious challenges in accessing and controlling productive resources and opportunities outside the management of the home. Within the households, decisions are taken by the male counterpart. Women and girls generally participate in the life of their communities, but they do not actively take part in it or get involved in decision-making. There is a sort of acceptance (by the women) of this situation. Under Malawian law, men and women have equal ownership rights to property, however under customary law women's access to land is often through the head of family, who are usually men. Despite no legal restrictions on women's access to financial services including credit, they face difficulties due to the need for supporting documents and guarantees. In general, their educational attainment level is lower than men.

The number of single female heads of family (separated/divorced or widowed) is generally high in the target communities. There are also high rates of child marriage (customary law does not set a minimum age for marriage) and maternal mortality due to early marriage, early pregnancy, poverty and insecurity. Physical and sexual violence frequently leads to increased rates of HIV/AIDS and sexually transmitted diseases.

The main employment opportunities for women are in public works programme (tree planting, road maintenance, waste collection, etc.). The salary is low, but these jobs at least provide some skills development. Some women have small businesses on the street (selling food/wood, etc.) and they are members of community savings/loans groups. Women are often the custodians of traditional knowledge, especially in relation to the use of seeds and plants.

Older persons: the majority live with their (extended) family. Most of them have physical problems (mobility, deafness, etc.) due to ageing and/or illness. Elderly support programmes are almost not existent and members of this group often live at the margins of society.

Displaced/migrant families: in the city there are seasonal internal migrants from the rural areas. They usually arrive during tree cutting season and stay for 3 to 4 months. They are well integrated in the community; it has been reported that they often marry, have children, then leave the family looking for other jobs and come back the next year. Hence, there are many female heads of the family in the community, and "seasonal families."

Persons with disabilities: in the target communities there is an equal distribution between male and female persons with disabilities. They may have both mentally and physical disabilities and usually live with the family. It has been reported that stigma is still high, due to the fact that disability, especially mental disorder, is associated with alcohol and illicit drug abuse, brain disease and spirit possession. Mental disorder in women is often due to psychological trauma.

The level of education of persons with disabilities is generally low and they are generally inactive. Almost all disabled children do not attend school as a result of a lack of social and financial support. In some communities, local NGOs have programs to support persons with disabilities.

People living with HIV/AIDS: HIV/AIDS is increasing as a consequence of gender-based violence, early marriage, early pregnancy and increasing levels of prostitution. There are few interventions at the community level and insufficient awareness, especially amongst young women. They are largely excluded from essential services and lack the protection of the family and community. This often leaves them at risk of exploitation and abuse.

Chokwe

Children and youth: in the targeted communities, girls are the majority among children. Most of them live in extended families. In general, children go to schools near their home, and most of them can speak Portuguese. When they are not in school, they support the family in domestic activities and in the informal market. Some cases of child work have been reported in Neighbourhood n.5. Almost all children play in the street. Adequate public spaces for them are reported in two of the targeted neighbourhoods and consist of two football fields.

Women and girls: in the targeted neighbourhoods the majority of women are single parents with more than two children. They can generally speak or read Portuguese. Women are actively involved (sometimes more than men) in community life where their relevant role in the decision-making processes is well-recognised. They usually work in the same area where they live, mostly in the informal sector and many of them belong to women's saving groups. Women believe that their participation in community life is very important for social and economic well-being.

Older persons: some older persons live alone while others live with extended families. Most of them have no disabilities but do not speak Portuguese. All of them (including those who have disabilities) participate in the life of the community. Most of them originate from Chókwè.

Persons with disabilities: among children and youth both physical and mental disabilities have been reported (among children the main disability is mental). Most of the persons with physical disabilities are assisted by their families. They can speak or read in Portuguese and go to school. They are well integrated into the community, actively participating in community life, especially those between 18 and 35 years. Communities consider the contribution of persons

with disabilities to be relevant and really value these people. In general, they do not work and do not look for any employment. In the targeted neighbourhood, most of the disabled women are reported in Neighbourhood n.4.

People living with HIV/AIDS: most people living with HIV/AIDS are assisted by their family; they practice all kinds of economic activities, go to school, participate in community life. There is no stigma; communities consider the contribution of people living with HIV/AIDS to be relevant.

Moroni

Children and youth: in Moroni children normally live with their families and play within their houses/compounds. In Medina, they usually play in the streets because there is no space for playing at home even if it is not a child-friendly neighbourhood. In both targeted neighbourhoods of the project the majority go to school and can read and speak French. However, school drop-out and discontinuity is quite frequent mainly due to poverty. It has been reported that child labour is low even if children usually contribute to household management. Access to employment or training opportunities in the city is extremely limited. In both neighbourhoods, the majority of youth are unemployed; some of them are employed in occasional or informal jobs and some are still studying. In Medina they usually work in the market, especially young women. There is still quite a high level of child mortality, mainly due to diseases (poverty related and HIV/AIDS). Other major diseases affecting children and youth are malaria, cholera and diarrhoea, all linked to poor water and sanitation conditions.

Women and girls: traditional and cultural gender dynamics still play a key role in the targeted communities. It has been reported that almost half of the total households are headed by women: the majority of them are divorced, very poor and often stigmatised and marginalised. A high number of women above 20 are unmarried and still living with their family.

Women are allowed to work, and they attend school equally to men, but the majority of them prefer to stay at home and take responsibility for household management. They usually manage the food and water budget. The majority of the working women are in the informal sector and they work in the big market in Medina. Women are members of associations, but a gender unbalance has been reported in key positions. Women have less access to opportunities in comparison to men and rarely have access to credit. Gender-based violence, including domestic violence (physical, verbal and psychological) is still high.

Older persons: the elderly live with their family (sometimes extended family); the majority have physical problems due to ageing. The layout of the two neighbourhoods is not friendly to older persons: in fact, Medina is narrow and overcrowded, while La Coulée is located on a steep slope. Few of them can read or speak French.

Displaced/migrant families: in La Coulée, there are internal migrant families from the rural/flood-affected areas, from other islands, and from the City Centre (Medina) that is overpopulated. The neighbourhood has limited space for children to play and has few schools. Usually, they are second generation displaced households and they are quite well integrated. In Medina, no displaced or migrant households are reported.

Persons with disabilities: they are generally quite well accepted by their families and communities even if they are not actively engaged and integrated in their activities. They usually stay at home and contribute to household management. Due to the limited resources, persons with disabilities experience difficulty in accessing basic services and/or opportunities. The majority of them are dependent on other family members (meaning not head of the family). Their level of education is generally low and they are inactive socially. It has been reported that stigma is low.

People living with HIV/AIDS: HIV/AIDS is increasing as a consequence of gender-based violence. Few interventions exist at the community level and there is insufficient awareness, especially in relation to mother to child transmission. Significant stigma has been reported.

SECTION B. GENDER STRATEGY

1. Purpose

This section provides an overview of how the project intends to contribute to promoting women's empowerment, gender equality and justice in the targeted countries, cities and communities. It explains and presents: (i) which considerations at regional, national and local levels have been taken into account; (ii) which aspects have been considered key for advancing gender equality and justice; (iii) how the different activities (within the different project components) contribute to the achievement of the four key areas of the SADC Gender Protocol (below); (iv) what are the indicators (for each project component) for monitoring and measuring effective contribution to women's empowerment, gender equity and justice.

2. Initial gender assessment

The SADC Gender Protocol includes the SDGI (SADC Gender and Development Index) with 36 indicators measuring progress on achieving gender equality in the member States. They have been categorised in four key areas: access, voice, choice and control. The SADC Gender Protocol Barometers (2017) highlight that, in general, across the region the gender gap in SADC is still very high with a SDGI average score of 61%.

For the purpose of this project, five aspects - across the four key areas - have been selected as crucial in providing an indication of the status of resilience of women in relation to climate change variability and exposure to risks. The five aspects are: (i) Education; (ii) Access to productive resources; (iii) Gender-based violence (GBV), health and other social and cultural practices; (iv) Media, information and communication; (v) Climate change and sustainable development.

In relation to the four target countries, these five key aspects provide a quick overview of the status of women in the countries and in the target cities. There is, however, limited official data at the city level and on the Union of Comoros. It has therefore been assumed that the general trends in the countries are applicable to the four target cities. For the Union of Comoros, through the consultations held in the different communities/municipalities, these same trends have been confirmed.

A deeper gender baseline study in the four cities will be carried out at the beginning of project implementation.

Education: The level of education of women (including all forms of education, beyond school classrooms) is still low in the three countries. School graduation attainment is lower than enrolment.

	Madagascar	Mozambique	Malawi	Comoros
Girls secondary education rates (%)	32	19	36	N/A

Women's consultations have confirmed that – in the communities – women's education (in the wider sense) plays a central role in coping and adaptive capacity since it is often linked to access to information and risks knowledge. Thus, people with higher levels of education are less vulnerable and possess greater adaptive capacity to risks.

Access to productive resources: Women in the four countries remain under-represented in economic decision-making and have less access to economic opportunities, resources and ownership in relation to their male counterparts. Further, the perception of the gender divide in household tasks and the idea that women are subordinate to men is still quite high. In general a decline in women's labour-force participation has been recorded in the last two years in these countries.

	Madagascar	Mozambique	Malawi	Comoros
% of women in decision making	17	25	13	N/A
% of women with access to economic opportunities	16	18	18	N/A

Consultations have confirmed that access to economic resources and livelihood diversification is generally linked to a situation of "flexibility and adaptivity", especially during crisis/disaster. They also provided an indication of the decision-making power of women and their stronger participation and interest in climate change adaptation/mitigation activities. Women have limited access to credit and other insurance system at the local level – which is key, since it often leads to a slow capacity to recover from a disaster/crisis.

Gender-Based Violence (GBV), health and other social and cultural practices – such as child marriage, teenager pregnancies – are still frequent. Despite the existence of GBV laws in these countries, evidence has shown that they have not always been translated into enforcement and implementation. Still, the legislation criminalising rape/violence is not extended to marital rape/violence. In terms of access to health services, especially for pregnant women, these countries have made progress even if Malawi still has a high rate of maternal mortality, especially in urban contexts where sanitation conditions are precarious.

The percentage of HIV positive women is still high in these countries (data for Comoros not available).

	Madagascar	Mozambique	Malawi	Comoros
% of women who experience GBV	55	50	45	N/A
Maternal Mortality Ratio (per 100,000)	353	490	634	N/A
Women who are HIV positive	46	58	59	N/A
Comprehensive knowledge of HIV/AIDS (%)	3	66	70	N/A

Consultations with women confirmed that the high rate of GBV, HIV and maternal mortality provides a general overview of women's vulnerabilities and of their level of disempowerment.

Media, information and communication: women's access to media and communication is still very low in these countries.

	Madagascar	Mozambique	Malawi	Comoros
% of women with access to media	21	25	21	N/A

During the women's consultations, it was recognised that access to information and communication is key since a higher level of awareness and knowledge can lead to a quicker reaction, especially in preventing or responding to crises and disasters. Furthermore, access to communication and the media can provide a space where women can be heard.

Climate change and sustainable development: in these countries the percentage of women involved in climate change decision-making and as positive agents for climate change mitigation/adaptation is low. Among many reasons, the SADC Gender Barometer refers to a lower awareness and knowledge by women regarding climate change, and less participation in developing mitigation/adaptation initiatives at the local level, even if their knowledge and skills could potentially be higher than their male counterparts.

	Madagascar	Mozambique	Malawi	Comoros
% of women in climate	33	17	8	N/A

change decision-making				
% of sources on gender and climate change	23	30	14	N/A

Consultations held with public officials and other stakeholders confirmed the lack of space for women to become “agents of change” in relation to effective response to climate variability. Community consultations revealed that women show a higher degree of self-mobilisation and most belong to self-help women’s groups. This clearly indicates the level of women’s cohesiveness and participation in the community, and if leveraged, provides an opportunity for building community resilience and enhanced participation around climate change and exposure to risks.

Climate change variability has a greater impact on women in all four target countries. Since they are generally responsible for collecting water and preparing food, in all consulted communities it was observed that at times of crisis or disaster the daily tasks of women have increased. During the recent El Niño drought that affected all four countries to different extents, women had to walk longer distances many times a day (usually during sunrise/sunset) to collect water. This increased their exposure to violence, negatively impacted their health and nutritional status and affected their caring responsibilities for other family members, especially children. Due to a lower availability of food and increased food prices in the market, women and girls received and self-selected for less food to ensure the health of their children and male relatives. Many cases of malnutrition have been registered among pregnant and breastfeeding women. There are increasing reports of child marriage in all interviewed communities. In an effort to reduce the number of mouths to feed and increase the family resources through the dowry, young girls have been forced to marry wealthier men resulting in school drop-out and curtailing their opportunities in life. Other girls have been forced into exploitative behaviours, including sexual abuse, to obtain resources for themselves and their families. Many interviewers have indicated that crises and disasters increase tension within their households, leading to a higher likelihood of domestic violence.

In all the four cities, the variability in income (also due to the impact of climate change) has pushed men to leave their communities in search of employment in neighbouring cities or countries, leaving the women as heads of households under precarious conditions. In all four countries women are more restricted from travel due to the cultural context. They usually stay at home or are engaged in informal business on the streets. They are therefore more exposed to the risks associated with climate change such as local flooding and air/ground pollution due to water scarcity. Local flooding can have a disruptive effect and compromise their informal economic activities for many weeks. Women are also more reluctant to leave their houses when floods happen since they often feel responsible for the household assets.

Nevertheless, in all consulted communities, women have shown a greater capacity and ability to adapt then men, and –given their role of caregivers- to develop resilient skills quicker than their male counterparts. Women are generally more active than men in responding to disasters.

3. Project design

Based on the findings of the initial gender assessment and on the mandate of UN-Habitat as part of the United Nations system, the project intends to promote gender equality by: (i) reducing the vulnerability of women while building their resilience to climate risks; and ii) empowering women by promoting an enabling environment where they are not considered as vulnerable individuals but as powerful agents of change.

The three components of the project are therefore designed to challenge the gender-based discrimination culture characterising the four target countries, cities and communities. In particular, the project components contribute directly or indirectly, - at different extents and levels- to the achievement of four aspects that are crucial for advancing gender equality and

justice and promoting the empowerment of the women: 1. Access to resources; 2. Raising voice; 3. Right to choose; and 4. Control over resources.

Component 1 is designed around a set of 23 sub-projects that will be implemented in the four target cities. These sub-projects are grouped into six thematic categories: (i) Improvement of drainage capacity; (ii) Establishment of early warning systems; (iii) Improvement of solid waste management; (iv) Construction of multi-purpose safe-havens; (v) Rehabilitation/protection of critical ecosystems and sustainable use of natural resources; and (vi) Improvement of urban mobility through construction/rehabilitation of roads and bridges.

The sub-projects aiming to **establish early warning systems (EWS) and safe-havens** entail the participation and active involvement of at least 60% women. In particular, while developing EWS the meaningful participation of women will ensure that their role as primary household caregivers and as first responders in case of imminent risks is recognised and enhanced. Similarly, while designing safe-havens, women (especially the most vulnerable) will be actively involved in ensuring that their own needs are properly addressed and that the proposed layout solutions take advantage of their knowledge and capacity. Alert dissemination and evacuation procedures will be tailored to the needs and different behavioural patterns of women and men. Means of communication will be reachable and understandable to both women and children, especially the most vulnerable, in order to ensure that they have full control over their protection. Their participation in training/capacity building activities and simulation exercises will provide them access to information and knowledge from which they are traditionally excluded. Women's capacity to mobilise people, network and their sense of solidarity will be taken into consideration and reflected in evacuation procedures during emergencies.

Regarding sub-projects focusing on **improving solid waste management**, responsible community groups will be composed at least 50% by women. A gender analysis will be conducted in the target areas and included in the waste management strategy and waste management training plans. Women's active involvement in waste-related activities will grant them access and control over resources, such as waste equipment and waste management centres. Importantly, the daily working period (from morning to early afternoon) will be defined so that it will not compromise their role as household manager. Waste operation plans, including timetables and division of tasks between women and men, will ensure that women are part of the decision-making process and will enable women to take up leadership positions in managing waste operations. Access to technical knowledge (related to the management of different types of waste) and increased awareness of the link between waste and climate change will raise their interest and create opportunities for women to be more actively engaged in other waste-related activities such as creating art and handicrafts out of the waste. Additional income for the households will promote a sense of autonomy for the women and, ultimately, challenge the traditional gender power relations within the households. It is then envisaged that the equal participation of women in the community groups responsible for managing waste operations will provide a space for women's aggregation and enable dialogue among women on other critical issues such as GBV, HIV-AIDS, etc.

The sub-projects dealing with **rehabilitation/protection of ecosystems and sustainable use of natural resources** will enable women to access important information and to promote their role in conservation and protection of natural resources. Women often spontaneously adopt climate change mitigation/adaptation measures to address risks. These positive behaviours will be valued by the project, as they can be enhanced through greater community participation and involvement. Women's involvement in ecosystem rehabilitation has been proven effective and their active participation in training and capacity building activities will allow them to share their knowledge and take the lead in advocating for more sustainable environmental practices that reduce disaster risks within their communities. Communities will be sensitised on the importance of adopting a gender lens and approach for the development of the ecosystem initiatives and related awareness initiatives, and maintenance and conservation plans will

allocate specific roles to women. During implementation, jobs' timetables will be developed in a way that respects women's household responsibilities, and fair salary and no discrimination between men and women will be ensured.

The sub-projects aiming to improve **urban drainage conditions** and **mobility (roads and bridges rehabilitation/construction)** will enable women to benefit from enhanced mobility and a subsequently increased sense of independency, which is especially important during emergency times. They will also be better protected from flooding and stagnating waters that can generate water-borne diseases. While implementing these sub-projects a gender lens will be adopted regarding the design of roads, bridges and drainage systems so that women's practical needs can be taken into account in terms of movement and physical safety, especially for pregnant women, mothers with small children and older persons. It will then indirectly promote discussions in the targeted communities around gender-sensitive urban development and city layout/architectural design. Constructions execution plans, work timetables and related arrangements will be discussed with women and take their needs into consideration, and equal salaries between male and female workers will be guaranteed.

"Safe spaces" will be established at all relevant project sites in all four cities, for receiving inputs/complains/concerns from women/ female workers.

Components 2 and 3 refer to institutional, policy, training and capacity building and exchange of experiences between cities and between countries. Planned activities under these project components will offer the opportunity for increasing women's engagement in high-level climate change discussions, decision-making processes and to learn from others. Gender-based discussions and informed decisions will translate into the design of gender-sensitive tools, guidelines, legislation and policies for enhancing climate adaptation in urban settings.

Full gender balance will be pursued in both the groups of participants in project activities at all levels, as well as in the construction of the management, implementation, training and leadership teams.

Data collection activities conducted within the project will ensure gender sensitivity and will be sex-disaggregated. All produced materials will be fully engendered.

Further information regarding the assessment of potential project risks related to gender equality and women's empowerment (especially as it relates to the physical interventions entailed in the sub-projects of Component 1) and proposed mitigation measures is available in the Environmental and Social Management Plan in **Annex 3**.

4. Monitoring, evaluation and learning

Key indicators have been identified for each project component to monitor and measure their effective contribution to women's empowerment, gender equity and justice.

Under Project Component 1: Preparation, implementation and sustainable management of priority sub-projects at the city level

- **Indicators on the establishment of community early warning system and construction of safe-havens**
  - Nr of women who take active part in the design of the EWS and evacuation procedures;
  - Nr of women who participate in training/capacity building activities and have acquired life-saving skills;
  - Nr of gender-sensitive aspects in the design of EWS and of safe-havens, division of roles and responsibilities and other issues related to early warning dissemination to communities;

- % of women who consider that the established EWS and safe-haven design respond to their needs and are gender-sensitive; and
- % of people within a given community/neighbourhood who are more aware on the important role played by women in early warning and evacuation procedures.

- **Indicators on the improvement of solid waste management**
  - % of women within the community groups responsible for solid waste management;
  - Nr of women who participate in training/capacity building and awareness-raising activities;
  - % of waste operations managed/controlled by women;
  - % of women with increased awareness regarding the link between waste and climate change;
  - % of people within a given community/neighbourhood who are more aware of the important role played by women in waste-related activities; and
  - Nr of opportunities per month for women's discussions on critical issues as GBV, HIV/AIDS, etc.
- **Indicators regarding the rehabilitation/protection of ecosystems and the sustainable use of natural resources**
  - Nr of women who are engaged in ecosystems rehabilitation/protection activities and the sustainable use of natural resources;
  - Nr of women who participate in related training and capacity building activities;
  - % of women who lead/ participate in awareness campaigns within targeted communities for promoting more sustainable environmental practices to reduce/prevent disaster risks; and
  - % of people within a given community/neighbourhood who are more aware that women can play a transformative leadership role in sustainable environmental management.
- **Indicators regarding the improvement of drainage and urban mobility (roads and bridges) conditions**
  - Nr of women who are consulted in the design of streets/bridges and drainage system;
  - % of women who are satisfied with the way roads, bridges and drainage systems were rehabilitated; and
  - Increased awareness within a given community on the need to advocate for more gender-sensitive urban development.

Indicators for Components 2 and 3: Tools and guidelines development and training delivery at the national level and *inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level*

- % of women who are actively part of high-level climate resilience decision-making processes and platforms;
- Increased awareness of the need to take gender-informed decisions at national and regional levels regarding urban climate resilience; and
- % of urban climate resilience tools, guidelines, policies and legislation at national level that are gender-sensitive.

SECTION C. HUMAN RIGHTS APPROACH

The project has been designed by putting the rights of the people to a dignified life at the centre. It has been planned and will be implemented by adopting a people-centred and human rights approach entailing the promotion – in all activities - of an enabling environment for people to concretely exercise their rights while promoting a process of accountability by the duty bearer towards the communities and all stakeholders. In doing so, the project has taken into consideration the last Human Rights Council Periodic Review "*Report of the Working Group on the Universal Periodic Review*" for the four Countries (Madagascar, December 2014; Malawi, July 2015; Mozambique, April 2016; Comoros, April 2014) and related recommendations for fulfilling human rights obligations, and the Amnesty International reports for the four Countries for the years 2017-2018.

Special attention will be paid to ensuring the participation, at all levels, of marginalised and vulnerable persons and communities, including women and people living with low incomes, who are not protected by law and with poorly recognised rights (see Section A of this Annex for details on these groups in the target cities). Their participation is essential to strengthen their capacity to face stresses and shocks. By highlighting the needs and special considerations of these marginalised and vulnerable populations, the project will draw the attention of the national and city governments to these areas and issues and strengthen the dialogue within these populations. It will build their understanding of the political system and reinforce their role in the planning process, hence promoting a culture of social dialogue based on citizens' participation.

This section presents key challenges that each country faces in relation to the enjoyment of human rights and how the sub-projects of Component 1, in all their phases (from planning to implementation until the achievement of impacts), as well as project Components 2 and 3, contribute to the progressive implementation of the recommendations (by the Government).

COMPONENT 1 – *Preparation, implementation and sustainable management of priority sub-projects at the city level*

- **Group 1: Establishment of early warning systems**

Design phase: These initiatives have been designed through extensive consultations with all the marginalised and vulnerable groups (see Section A of this Annex), in particular women, older persons and persons with disabilities, who had equal opportunity in providing inputs and expressing their perceptions and needs during the sub-project design phase.

Implementation phase: In the implementation phase, continuous attention will be given to ensuring that the ESW equally meets the expectations of communities - especially women, older persons, persons with disability and albinos - and fairly addresses their security and safety needs and perceptions. Particular attention will be paid to reach the albinos who are traditionally neglected and not included in "community-based" mechanisms. The EWS will be built on existing community protection capacities (existing self-protection mechanism) and it will, therefore, provide a platform for further discussing the concept of "protection" and "safety" especially for the most vulnerable groups.

Impact: Developed EWS will ensure equal and fair access to all the groups to information about imminent climate related risks; action will be taken based on informed decisions; and actions and decisions will be accessible, non-discriminatory and equally appropriate for all segments of society.

- **Group 2: Construction of multi-purpose safe havens**

Design phase: These initiatives have been designed through the involvement of different stakeholders. The local governments have been held accountable for making sure that the right to safety can be exercised by all the people, without discrimination. The people, especially women, children, persons with disabilities and older persons, have been informed of their right

to have access to a safe place in case of imminent risks. The layouts of the multi-purpose havens have been designed by equally assessing the needs/capacities (self-protection mechanism) of all the vulnerable groups and by giving a fair opportunity to all to express their ideas without prejudice.

Implementation: The implementation phase will include the establishment of a "safe space" for all to provide feedback (negative/positive) on implementation progress to allow on-going adjustments. The construction works will provide equal employment opportunities to all without distinction; a working environment that is respectful of the needs of the workers, especially the most marginalised and vulnerable groups, and working conditions which are respectful of the workers' rights and compliant with ILO labour standards. Dialogue on the right of all to be protected without discrimination will be promoted.

Impact: the construction of the multi-purpose safe havens will contribute to the attainment of the right to be protected and safe in case of an imminent risk, without distinction and discrimination.

- **Group 3: Improvement of the solid waste management**

Design phase: These initiatives have been planned by providing opportunity to all marginalised and vulnerable groups to design (craft/express) their own ideas on how solid waste management should be improved for the benefit of all and not discriminatory. The planning, which included the layout of the recycling stations, has therefore incorporated the views of all the groups in an equal manner. The initiative has been planned to indirectly contribute to create economic opportunities for marginalised and vulnerable populations and - therefore – contribute to the right to a decent work.

Implementation phase: The implementation phase will be realised through a process that ensures a "safe space" for all to provide feedback (negative/positive) on the implementation to allow on-going adjustments. The implementation will: (i) provide equal and inclusive employment opportunities to all without distinction; and (ii) a working environment that is respectful of the needs of the workers, especially the most marginalised and vulnerable groups, and working conditions which are respectful of the workers' rights and comply with ILO labour standards and principles.

Impact: All marginalised and vulnerable groups will equally benefit from improved waste management which will ensure their right to safe and healthy living condition and accountability by the local government toward the right to access basic services. It will indirectly contribute to creating opportunities for sustainable livelihoods.

- **Group 4: Rehabilitation/protection of existing ecosystem and sustainable use of natural resources**

Design phase: These initiatives have been designed by putting the right of the people to live in a clean and sustainable environment at the centre of the design phase. During the planning, cities have been consulted and held accountable for environmental protection and the rights of the communities to a higher quality of life. Communities have been consulted on how productive environmental resources should be managed and protected in order to ensure equal access for all – including traditionally excluded marginalised and vulnerable groups. The cultural and traditional knowledge of the local people has been incorporated while planning these sub-projects.

Implementation: The implementation phase will be realised by ensuring the equal participation of all the marginalised and vulnerable groups in the implementation of the environmental activities to concretely address the root causes that are acting as barriers to their right to safe and sustainable living conditions. During implementation, the traditional knowledge of local people will be concretely applied. The implementation process will provide a "safe space" for all the marginalised and vulnerable populations to be informed, discuss and contribute to the promotion of local climate resilience development. This will enable adjustments during the

activities implementation progress. The activities will create employment and skills development opportunities, particularly for women. Working environments will be respectful of the needs of the workers, especially the most marginalised and vulnerable groups, and working conditions will be respectful of the workers' rights and comply with ILO labour standards and principles.

Impact: the rehabilitation/protection of existing ecosystem and use of natural resources will contribute to the attainment of the right to safe, clean and sustainable living conditions while holding the cities accountable to all the people.

- **Group 5: Improving drainage conditions**

Design phase: This category of sub-projects has been designed through extensive consultations at different levels and all the marginalised and vulnerable groups had equal access to participate and provide "safe and free" feedback on the planning/drainage lay out phase.

Implementation phase: The implementation phase will ensure full and fair participation and involvement in construction work, and an impartial feedback mechanism on drainage work progress. The construction works will offer employment opportunities for all the marginalised and vulnerable groups, with particular attention to the most affected, and create employment and skills development opportunities, particularly for women. Working environments will be respectful of the needs of the workers, especially the most vulnerable groups, and working conditions will be respectful of the workers' rights and comply with ILO labour standards and principles.

Impact/Outcome: The improvement of the drainage system will equally benefit all groups and contribute to providing access to safe and decent conditions of living. It therefore contributes to protecting people from harmful living conditions.

- **Group 6: Improved urban mobility trough construction and/or rehabilitation of roads and bridges**

Design phase: These sub-projects have been planned by putting the right of safe and free movements -including voluntary displacement in case of disasters- at the centre of planning. Inclusive consultations were conducted at different levels to ensure that the perceptions, mobility needs and requirements of marginalised and vulnerable groups and the most affected are included in the design of the rehabilitation/construction works. Particular attention has been paid to the mobility needs of women and children, persons with disabilities and older persons.

Implementation: The implementation phase will be realised by ensuring that information on the progress of the construction/rehabilitation works will reach those who experience mobility problems and that they have the possibility to continuously provide inputs/feedback. During implementation, the mobility patterns/habits of communities will be taken into consideration. The construction works will offer employment opportunities for all the marginalised and vulnerable groups, with particular attention to the most vulnerable, and create employment and skills development opportunities, particularly for women. Working environments will be respectful of the needs of the workers, especially the most vulnerable groups, and working conditions will be respectful of the workers' rights and comply with ILO labour standards and principles.

Impact: Improved urban mobility will contribute to attaining the right to safe and free movements, included voluntary displacement in case of imminent risks or disasters.

All the initiatives have been planned and will contribute to addressing the following human rights challenges in the four countries - as reported in the "Report of the Working Group on the Universal Periodic Review" and Amnesty Report 2017-2018:

Countries' challenges \ Groups	1	2	3	4	5	6
Madagascar						
Still restricted freedom of expression, especially on environmental/development issues	X	X	X	X	X	X
Low participation/representation of vulnerable groups in the local planning and decision-making	X	X	X	X	X	X
Gender discrimination largely present in many communities; economic dependence of women and/or lack of access to economic resources	X	X	X		X	X
Persistence of vulnerable conditions for vulnerable groups	X		X	X	X	X
Respect for the human right not fully embraced by the different actors and at different levels	X				X	
Weak process of inclusion		X		X		
Low protection awareness and consciousness		X				
Persistent poverty due to limited access to service delivery			X			
Existence of child labour			X			
Opposition towards defenders of environmental exploitation					X	
Malawi						
Discrimination against people with albinism, gender- based and HIV/AIDS affected groups and/or indigenous communities	X	X	X	X	X	X
Weak attention to safe conditions for the protection of the street children	X					
Weak attention to protect and promote safe conditions for marginalised communities				X		
Weak attention to safe conditions for the protection of the vulnerable communities/groups		X				X
Weak attention to protect and promote safe conditions for the workers			X			
Poverty reduction trough infrastructure improvements and/or environmental sustainability	X				X	X
Non-guaranteed access to fair information for all		X				
Limited freedom of expression and access to information			X	X	X	
Mozambique						
Low women participation and inequality in access in the planning and/or decision-making processes	X	X	X	X	X	X
Limited freedom of expression	X	X	X	X	X	X
Limitation in protecting people with disabilities, elderly and people with albinism	X	X	X	X	X	X
Restricted access to information	X	X	X		X	X
Scarce delivery in public services	X		X			X
Limited promotion of decentralisation process		X			X	
Food insecurity/unemployment				X	X	

Comoros						
Weak human rights consciousness	X	X	X	X	X	X
Low participation of women and people with disabilities	X	X	X	X	X	X
Limited workers' protection	X		X		X	X
Low freedom of expression and information	X	X			X	
Limited platforms for communities' participation	X	X	X			
Limited security measures for vulnerable groups		X		X		

COMPONENT 2: ***Tools and guidelines development and training delivery at the national level***

Design phase: Component 2 was designed by taking into consideration the right of vulnerable and the most excluded groups to be represented and take informed decisions.

Implementation: The implementation of Component 2 will offer opportunities to women for presenting and advocating for gender sensitive policies/law in climate change decision-making platforms. It will support inclusive and participatory internal reflection on the country's existing accountability process towards human rights fulfilment.

Impact: Component 2 will contribute to creating a favourable environment for the rights of traditionally excluded groups to be represented and to take part in decision-making and national accountability processes.

COMPONENT 3: ***Inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level***

Design phase: The Human Rights Council Periodic Review "Report of the Working Group on the Universal Periodic Review" for the four countries (Madagascar, December 2014; Malawi, July 2015; Mozambique, April 2016; Comoros, April 2014) and related recommendations for fulfilling human rights obligations and the Amnesty International reports for the four countries for the years 2017-2018 present similarities across the countries. In the design phase of this Component, these similarities have been taken into consideration.

Implementation: The implementation of Component 3 will promote inclusive and participatory dialogue, discussion and exchange of good practices on how climate resilience initiative can contribute to the Human Right Agenda and countries progress towards its attainment.

Impact: Component 3 will contribute to holding the Governments accountable to an inclusive, participatory and integrated approach to attaining human rights for all.

Annex 3 – Environmental and Social Management Plan (ESMP)

Table of contents of the Annex:

1. Purpose

The purpose of this overview is to demonstrate compliance of the project with the Environmental and Social Safeguards of the Adaptation Fund. It provides a summary of the measures taken in the project design phase to ensure that the project promotes positive environmental and social benefits and avoids, reduces, or mitigates adverse environmental and social risks and impacts taking into consideration the 15 Adaptation Fund principles. It further details the measures put in place to uphold the principles throughout project implementation. The Environmental and Social Management Plan (ESMP) provides the implementation mechanism for the environmental and social mitigation measures during the project implementation stage. Its objective is to forecast, prevent, manage and mitigate the potentially adverse impacts of the activities comprised within the project in a way that minimises the adverse impact on people and the environment.

2. Process to comply with the AF ESP

In line with the Adaptation Fund's Environmental and Social Policy (ESP) and Gender Policy (GP) UN-Habitat and concerned project partners completed a risk screening and impact assessment for all planned project components. In particular, for all sub-projects under Component 1 (see **Annex 5**) to be implemented at the local/city level, ESIA requirements have been followed by analysing relevant national standards and legislation and by verifying the requirements with concerned ministries and municipalities in the targeted countries and cities, respectively.

Community surveys and public consultations were used to collect disaggregated data focused on climate change related issues, needs and perceptions of marginalized and vulnerable groups, activity prioritisation and the identification and verification of potential risks and impacts (see **Annex 4**) where needed measures to avoid or mitigate potential risks have been duly identified. The risk screening and design of the ESMP was conducted in collaboration with local municipalities and communities, and its outcomes were subject to public consultations/ disclosure (see **Annex 4**), from which feedback was incorporated in the current version.

The ESMP contains the risk impact assessment, mitigation and monitoring measures to address the risks that were identified through the screening.

3. Summary description of the project and rationale of the Annex

The project has two objectives:

1. To develop capacities and establish conditions to adapt to the adverse effects of climate change in vulnerable cities of Madagascar, Malawi, Mozambique and the Union of Comoros, and
2. To promote inter-country experience sharing and cross-fertilisation regarding the adaptation to transboundary climate-related natural hazards and disseminate lessons learned for progressively building urban climate resilience in south-eastern Africa.

There are three project components, the first two contributing to objective 1 and the third one contributing to objective 2, namely:

1. Preparation, implementation and sustainable management of priority sub-projects at the city level;
2. Tools and guidelines development and training delivery at the national level, and
3. Inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level.

In this Annex the project is presented at two levels. The first level is general, analysing all three components of the project (see Section 4 of this Annex). The second level zooms into the activities belonging to the first component (sub-projects implementation – the only level that includes physical interventions/ infrastructure projects) because it requires a more technical and detailed assessment and presents related risks and mitigation measures (see Section 5 of this Annex). The planned activities under project component 1 may entail more risks than the normative, planning and training activities under project components 2 and 3.

4. Screening, categorisation and ESMP for Components 1, 2 and 3

An initial screening and assessment process was carried out to identify and evaluate the environmental and social risks and impacts of proposed activities for **the entire project**. Due to the nature of some of the proposed sub-projects under Component 1, the entire project has been categorised as **Medium Risk** (**Category B**). Consequently, an ESMP was developed.

In terms of process, normative, planning and capacity development activities under Components 1, 2 and 3 were screened against the Adaptation Fund's 15 environmental and social principles. Then, if risks under a principle were identified, the ESMP was prepared accordingly. Table 1 below shows the results of both the screening and ESMP for the three components. More specifically, for the screening part, it is specified whether the risks exist or not, for each principle and for each component, and when no risk is identified, the evidence for the absence of the risk is presented. In case risk is present, a description of the risk (a synthetic and qualitative assessment) is provided, and mitigation measures are proposed, as ESMP. Overall, results from this screening show that potential risks impacts are not considered to be significant, as the project activities were designed to minimise potential risks. Nevertheless, measures will be undertaken to ensure that no environmental or social impacts can occur. General monitoring measures are presented in **Part III, Section C** of the main project document.

In terms of methodology, both the screening and ESMP development were carried out adopting the ESMP guidelines provided by the Adaptation Fund as a basis. From the guidelines, a list of questions and desk review resources necessary for screening the existence of risks under each principle were prepared. Results and, if required, mitigation measures emerged through field missions of environmental and social experts to all project sites, desk research, surveys, focus group discussions and community-led planning and decision-making processes. All steps, as mentioned under Section 2 of this annex, were presented for public disclosure in every city, the results of which are available in **Annex 4** (including links to supplementary documentation available online).

Table 1: Risk screening and ESMP for project Components 1, 2 and 3

Principle	Component 1*: Preparation, implementation and sustainable management of priority sub-projects at the city level *the screening and assessment of risks for this component are presented in more detail in the table below by group of sub-projects.	Component 2: Tools and guidelines development and training delivery at the national level	Component 3: Inter-country experience sharing, cross-fertilisation and dissemination of lessons learned at the regional level	Overall potential risk in the project
1. Compliance with the Law	**Risk: NONE** Evidence: there are no obstacles to comply with national technical standards for developing sub-project implementation plans and technical studies (see **Part II.F**). No additional measures.	**Risk: NONE** Evidence: the planned activities under this component will be implemented in respect of the countries' legislation.	**Risk: NONE** Evidence: the planned activities under this component will be implemented in respect of the SADC policies and strategies.	NONE
2. Access and equity	**Risk: YES** **Probability: low** **Significance: medium** Evidence: although the project preparation process has been fully participatory, there can still be a risk of non-equal participation / representation and decision-making during project implementation activities, which should be avoided. Mitigation measures: planned interventions will be presented to the target communities and their perceptions will be included in the detailed design. In addition, control mechanisms will be set up to ensure activities under implementation keep including representatives from all groups of the communities (with a particular focus on vulnerable and marginalised groups - Principle 3).	**Risk: YES** **Probability: low** **Significance: medium** Evidence: training and related tools may not adopt a fully inclusive and participatory approach during design, implementation and production of final results. Mitigation measures: different stakeholders will be mapped and their needs assessed while the training materials and tools. Training activities and related tools will take into consideration the social/economic impacts of climate change on these stakeholders. Synergy and cooperation among mechanisms among different sectors/departments at the national level will be developed.	**Risk: YES** **Probability: low** **Significance: medium** Evidence: planned cross-fertilisation and lesson-learned activities at the regional level may be weak in: (i) promoting sufficient exchange among countries on the social dimension of climate change; and (ii) adopting a fully inclusive approach to value the different countries' experiences and enabling all country representatives to actively participate and provide inputs. Mitigation measures: emphasis on the social dimension of climate change will be put in the regional agenda. The importance of civil society in regional strategies will be highlighted. All countries will be stimulated to actively participate in regional activities.	YES

3. Vulnerable and marginalised groups	**Risk: YES** **Probability: low** **Significance: medium** Evidence: women, children, older persons and persons with disabilities represent the vulnerable and marginalised groups in the target communities. Mitigation measures: a more detailed mapping of the vulnerable and marginalised groups will be conducted prior sub-projects' implementation to further discuss and get their inputs on the detailed designs and proposed solutions. Communication channels with vulnerable people/households will be established. Finally, employment requirements in the different sub-projects' implementation will be discussed with these vulnerable and marginalised groups to ensure access to job opportunities.	**Risk: YES** **Probability: low** **Significance: medium** Evidence: developed training and tools may not sufficiently promote understanding and linkages between climate change, marginalisation/vulnerability and poverty. Mitigation measures: while developing these trainings and related tools, special attention will be paid to the social impact of climate change on the most marginalised and vulnerable categories. Social understanding will be strengthened across the different sectors/departments at the national level based on principles of equity and social justice, especially for the most marginalised and vulnerable people. While developing national policies/guidelines, transparent decision-making processes will be advocated, ensuring the inclusion vulnerable and marginalised people.	**Risk: YES** **Probability: low** **Significance: medium** Evidence: cross-fertilisation and lessons-learned activities at the regional level may fail to take sufficiently into account the needs of the vulnerable and marginalised groups. Mitigation measures: these regional activities will ensure that vulnerable and marginalised groups are included and their voice is heard. Special attention will be paid to solutions/initiatives that effectively address their needs and reduce their vulnerability to climate change. This will also be an occasion to strengthen regional policies to better take into account the needs of the most vulnerable and marginalised in the climate change agenda.	YES
4. Human rights	**Risk: NONE** Evidence: it is the mandate of the UN to ensure that human rights are safeguarded. All activities have been designed and controlled to support this principle. The project will increase the quality of life of people and contribute to the attainment of human rights principles. Lastly, compliance with the law (see Principle 1) of the countries involved reinforces the compliance with this principle.	**Risk: NONE** Evidence: all the countries adhere to the Human Rights Convention. Training and capacity development activities will therefore be carried out by referring to and respecting this principle.	**Risk: NONE** Evidence: activities under this component are designed to support this principle. They will advocate for a stronger respect of human rights principles at the regional level.	NONE
5. Gender equality and women's empowerment	**Risk: YES** **Probability: low** **Significance: medium** Evidence: there is a risk that women are excluded from the detailed design and implementation of sub-projects because of inadequate consultations/time tables and/or excluding skills/job requirements. Mitigation measures: women's needs and perceptions will be systematically captured during the design phase. Awareness-raising activities and training sessions will be organised at community level to sensitise on the important role played by women in society and on the need to actively involve them in sub-projects' implementation. To encourage women's involvement, adequate security and safety conditions at the workplace will be ensured for the required positions will be proposed. Jobs time tables will be organised in a way that respect their household's responsibilities.	**Risk: YES** **Probability: low** **Significance: medium** Evidence: trainings and tools to be developed and delivered may not take sufficiently into consideration gender issues in climate change. There is also a risk that women do not participate in national level activities equally as men. Mitigation measures: activities under this component will ensure that women are fairly included and represented in training workshops, and their voice considered in the development of guidelines. Further, in developing training/capacity building activities, related tools and policies/guidelines, particular attention will be paid to incorporate gender-related aspects and empower women as agents of change and innovation to address climate change's negative impacts.	**Risk: YES** **Probability: low** **Significance: medium** Evidence: cross-fertilisation and lesson-learned activities may not sufficiently adopt a gender lens in addressing climate change at the regional level, e.g. by including women's perspective in decision-making. Mitigation measures: while implementing this component, it will be ensured that the voices of women are included and heard. Gender equality and women's empowerment will be highlighted as a key aspect in experiences' sharing. Discussions at regional/SADC level will be held on the importance of carrying out women-focused impact assessments in order to adopt gender-sensitive measures to respond to climate change issues.	YES
6. Core labour rights	**Risk: YES** **Probability: low** **Significance: medium** Evidence: despite the four	**Risk: NONE** Evidence: there is no risk related to the implementation of the planned activities under this component.	**Risk: NONE** Evidence: there is no risk related to the implementation of this component.	YES

	countries having labour laws, not all ILO standards and principles are clearly regulated and enforced, especially the ones related to social security and occupational safety and health. Mitigation measures: in consultation with the local authorities and communities, inclusion of minimum social security, occupation safety and health standards as per ILO standards will be included when contracting community members and local NGOs/sub-contractors. Employment contracts will be written documents and registered according to the country's labour law and conditions. Lastly, *safe spaces* for workers' complaints will be established.			
7. Indigenous people	**Risk: NONE** Evidence: no indigenous people have been identified in target areas. NGOs, municipalities and communities have been consulted (see Annex 4).	**Risk: NONE** Evidence: national trainings and guidelines will concern climate change adaptation and mitigation, as well as urban resilience. Emphasis will be put on the need to consider marginalised and minority groups.	**Risk: NONE** Evidence: there is no risk related to the implementation of this component.	NONE
8. Involuntary resettlement	**Risk: NONE** Evidence: no planned activities in the different sub-projects will determine involuntary resettlement as such. Roads and drainage improvement activities may temporarily disrupt informal vendors. However, this cannot be considered resettlement and vendors will be able to move to nearby suitable locations during the works' period. Participatory planning and involvement of the local residents in decision-making will minimise negative impacts provoked by the sub-projects' works.	**Risk: NONE** Evidence: activities related to this component do not present any risk of resettlement. Nevertheless, the issue of involuntary resettlement in the context of climate change will be discussed and included in guidelines and training modules.	**Risk: NONE** Evidence: The activities related to this component do not present any risk of resettlement.	NONE
9. Protection of natural habitats	**Risk: YES** **Probability: low** **Significance: medium** Evidence: even though there are no protected areas as such in the target cities, some sub-projects may have a negative impact on critical natural habitats. Mitigation measures: please refer to the ESMP in Table 3.	**Risk: NONE** Evidence: activities related to this project component do not present any risk since they do not imply any physical interventions.	**Risk: NONE** Evidence: activities related to this project component do not present any risk since they do not imply any physical interventions.	YES
10. Conserving biodiversity	**Risk: YES** **Probability: low** **Significance: medium** Evidence: As for Principle 9, even though there are no species at risk in the targeted cities, some sub-projects may have a negative impact on areas considered relevant for biodiversity. Mitigation measures: please refer to the ESMP in Table 3.	**Risk: NONE** Evidence: activities related to this project component do not present any risk since they do not imply any physical interventions.	**Risk: NONE** Evidence: activities related to this project component do not present any risk since they do not imply any physical interventions.	YES
11. Climate change	**Risk: NONE** Evidence: sub-projects were thoroughly screened for this risk (for more detail, please see Table 2 below) and do not present any	**Risk: YES** **Probability: low** **Significance: low** Evidence: this project component does not include any physical	**Risk: YES** **Probability: low** **Significance: low** Evidence: this project component does not include any physical	YES

	critical source of GHG emissions and will not determine any maladaptation issues.	interventions, hence none of the sectors considered key causes of GHG emissions are involved. However, flights and transportation needed for meetings and missions will result in GHG released. The impact can be considered marginal. Mitigation measures: greening and reforestation sub-projects under Output 1.2 can be considered as mitigation measures through carbon offsetting.	interventions, hence none of the sectors considered key causes of GHG emissions are involved. However, flights and transportation needed for meetings and missions will result in GHG released. The impact can be considered marginal. Mitigation measures: greening and reforestation sub-projects under Output 1.2 can be considered as mitigation measures through carbon offsetting.	
12. Pollution and resource efficiency	**Risk: YES** **Probability: low** **Significance: medium** Evidence: some sub-projects may trigger indirect pollution effects and the risk of over-use of resources (for more detail, please see Table 2 below). No over-use of energy by the sub-projects is foreseen. Mitigation measures: please refer to the ESMP in Table 3.	**Risk: NONE** Evidence: activities related to this project component do not present any risk under this principle since they do not imply any physical intervention. The only risk is related to GHG emission, already addressed under Principle 11, for which mitigation measures under such a principle apply.	**Risk NONE** Evidence: activities related to this project component do not present any risk under this principle since they do not imply any physical intervention. The only risk is related to GHG emission, already addressed under Principle 11, for which mitigation measures under such a principle apply.	YES
13. Public health	**Risk: YES** **Probability: low** **Significance: high** Evidence: some sub-projects may trigger indirect pollution effects with public health implications (for more detail, please see Table 2 below). Mitigation activities: please refer to the ESMP in Table 3.	**Risk: NONE** Evidence: Considering the guidelines for health assessments of WHO (www.who.int/hia/evidence/doh/en/index5.htlm), activities under this component have a positive or neutral effect on issues related to public health.	**Risk: NONE** Evidence: Considering the guidelines for health assessments of WHO (www.who.int/hia/evidence/doh/en/index5.htlm), activities under this component have a positive or neutral effect on issues related to public health.	YES
14. Physical and cultural heritage	**Risk: NONE** Evidence: No physical and cultural heritage is present in the target sub-projects areas or in their immediate surroundings. Hence, there is no risk.	**Risk: NONE** Evidence: The activities under this component do not present any risk for heritage, since they do not imply any physical intervention.	**Risk: NONE** Evidence: The activities under this component do not present any risk for heritage, since they do not imply any physical intervention.	NONE
15. Land and soil erosion	**Risk: YES** **Probability: low** **Significance: low** Evidence: There is valuable land in the target areas which may be impacted negatively by some sub-projects. However, this is a marginal risk as most sub-projects are actually meant to restore degraded land and their dependent ecosystem services. Mitigation activities: please refer to the ESMP in Table 3.	**Risk: NONE** Evidence: Activities under this component do not present any risk of land degradation since they do not imply any physical interventions.	**Risk: NONE** Evidence: Activities under this component do not present any risk of land degradation since they do not imply any physical interventions.	YES

5. Screening and detailed ESMP for Component 1

As mentioned above, Output 1.2 under Component 1 includes physical interventions to be carried out in the four cities targeted by the project (see sub-project fiches in **Annex 5**). During project preparation some potential risks were identified, however, most are not significant. Project activities are generally small-scale, with few exceptions. The physical interventions will mostly be managed by trained community groups with the support of local authorities and Oxfam International, which will be responsible for executing Component 1. Thanks to this strong community involvement, environmental and social impacts will be minimised. This means that the potential for direct impacts is small and localised, with non-significant indirect impacts, and that transboundary impacts are highly unlikely. Given this, cumulative impacts are also unlikely.

The risk screening for all activities under expected output 1.2 is presented in Table 2 below.
For all risks identified through the screening process, an ESMP was designed and is presented in Table 3.

Table 2: *Risk screening for Expected Output 1.2, Component 1 by groups of sub-projects*

Note: The social risk screening and assessment has been carried out for all the different activities within each initiative; for this purpose, initiatives have been grouped by type of similar activities that present the same social and environmental risks. For example, drainage and mobility related initiatives (construction of road, rehabilitation of bridges and channels) have been grouped together, since they entail construction work and the development of infrastructural maintenance plans. In conducting the risk screening, social data and information related to the target communities and to the vulnerable and marginalised groups (see **Annex 2**) have been taken into consideration and evaluated against the principles. No major risks have been identified. Nevertheless, during the stakeholders' consultations, some level of risk has been highlighted. The concerns refer to factors that may represent or trigger the insurgence of risks of 'non-fully compliance' to the social and environmental principles during the implementation of the planned activities.	
Principle 1: Compliance with the Law - Risk: NO **Approach:** to assess whether the project will comply with applicable domestic and international law, legal and regulatory frameworks relevant to each sub-project that may require prior permission (such as planning, environmental, construction, water extraction, emissions or production/storage of harmful substances permits) were duly analysed. For each such requirement, the current status, steps already taken and plan to achieve compliance with relevant legislation is outlined in **Part II** of the proposal, **Section F**. Based on the detailed evidence for each sub-project, no risk is triggered.	
Principle 2: Access and Equity - Risk: YES **Approach:** a risk analysis has been undertaken to assess the provision of: (i) fair and impartial active participation by all groups in all planned activities; (ii) equitable access to benefits from all planned activities, in an inclusive manner that does not impede access to any rights and essential services such as basic health, clean water and sanitation, education, housing, safe and decent working conditions and land rights. The same analysis assessed whether the project exacerbates existing inequities, particularly with respect to marginalised or vulnerable groups. The analysis was carried out through surveys during field missions, collecting information and perceptions from local governments, communities and other stakeholders. In conducting the risk screening surveys, social data and information related to the target communities and vulnerable groups (see **Annex 2**) was gathered, which served as basis for the assessment. The survey results for **Moroni, Morondava, Chokwe and Zomba** are presented in **Annex 2**.	
Group	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Drainage and 6. Mobility initiatives Sub-projects belonging to these thematic areas: **Morondava:** 5.1.5; 5.1.6; 5.1.7; **Moroni:** 5.4.1 **Zomba:** 5.2.3; 5.2.5; 5.2.6 **Chokwe:** 5.3.1	**YES** Evidence: all four cities and related initiatives, construction/rehabilitation and cleaning works (for drainage channels in Morondava, Moroni, Zomba and Chokwe; road and bridges in Morondava and bridges and dam in Zomba) may: i) create temporary physical impediment to the target communities; ii) result in complaints and dissatisfaction; iii) represent a skill development/job opportunity (including cleaning and maintenance of the channels, roads and bridges) that is not accessible by or considered appropriate for all the groups, resulting in discrimination in accessing job opportunities (see also Principle 5); and iv) not take into account local knowledge on building resilient infrastructure. There is also a potential risk that water & sanitation awareness campaigns and related measures may not reach illiterate groups, persons with disabilities and older persons. WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance with the principle a possibility.
2. Early warning system (EWS) and 4. Safe havens Sub-projects belonging to these thematic areas: **Morondava:** 5.1.3; 5.1.4 **Moroni:** 5.4.4 **Zomba:** 5.2.1; 5.2.2 **Chokwe:** 5.3.2; 5.3.4	**YES** Evidence: for the sub-projects under this thematic group there is a risk that community groups are not adequately involved in the initial design and, consequently, EWS do not address the different needs, constrains, capacities and problems through appropriate preparedness plans and special measures in response and pre- and post-emergencies phases. Communication measures and technical tools/systems may not be easily accessible to all community groups. WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
3. Improvement of solid waste management Sub-projects belonging to the thematic area: **Moroni:** 5.4.3 **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	**YES** Evidence: for all sub-projects: (i) the creation of the waste committees and awareness initiatives could inadvertently exclude some groups such as young women and migrants, especially in Zomba and Morondava; (ii) the locations selected for installing the waste containers/equipment may fail to address specific needs and recurrent WASH problems resulting in lower access to waste facilities/collection and, consequently, to worsened hygiene practices for some groups; (iii) waste management/drainage maintenance plans may fail to represent a job/training opportunity for all; and (iv) weak coordination among municipal departments (e.g. Social-Waste-Water/WASH) may result in a poorly integrated social approach by the waste management committees vis-à-vis the rest of the community. WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects belonging to these thematic areas: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2 **Zomba:** 5.2.5; 5.2.7	**YES** Evidence: there is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, water sustainability (Moroni), climate change and livelihoods (Morondava and Zomba); (ii) community conflict around environmental resources usage (rice fields, water management, wood usage and river fishing); and (iii) exclusion/discrimination of particular community groups (e.g. people living with low incomes, women, older persons, children and persons with disabilities) from designing/benefitting from planting activities (mangroves in Morondava and trees in Zomba), green public spaces (Morondava) and rainwater harvesting systems (Moroni). WHY RISK COULD NOT BE AVOIDED: the social composition of the target communities makes the risk of non-compliance to the principle a possibility.

Principle 3: Marginalised and Vulnerable Groups - Risk: YES **Approach:** a risk screening was undertaken to: (i) make sure that the marginalised and vulnerable groups are not excluded from any activities as a consequence of lower motivation, weaker social status, sense of disempowerment and/or lack of skills or knowledge; (ii) to take into consideration their needs/perceptions; and (ii) to avoid imposing any disproportionate adverse impacts on marginalised and vulnerable groups especially children, women and girls, older persons, indigenous people, tribal groups, displaced people, refugees, persons with disabilities, and people living with HIV/AIDS or other vulnerable groups. In conducting the risk screening survey, social data and information related to the target communities and, in particular, the vulnerable and marginalised groups within each community (see **Annex 2**) was gathered, which served as a basis for the assessment. The survey results for **Moroni, Morondava, Chokwe and Zomba** are presented in **Annex 2**.	
Group	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Drainage and 6. Mobility initiatives Sub-projects: **Morondava:** 5.1.5; 5.1.6; 5.1.7 **Moroni:** 5.4.1 **Zomba:** 5.2.3; 5.2.5; 5.2.6 **Chokwe:** 5.3.1	**YES** Evidence: - *Women, children, older persons, persons with disabilities:* the perceptions, constrains and needs of those living close to the construction areas may not be prioritised; - *Women* may experience temporary impediments in accessing informal income-generation activities on the streets (Morondava), activities along the river (Zomba) during construction, rehabilitation and cleaning works (see also Principle 5); - *Older persons, children and persons with disabilities:* construction and rehabilitation work may temporarily limit their physical movements, impeding access to play grounds (for *children*) and public facilities such as markets and hospitals (*older persons/persons with disabilities*); - *Unskilled youth:* presence of contracted skilled workers for the construction/rehabilitation works may create unbalanced power relationships and dynamics, especially in relation to *young women* (see also Principle 5). WHY RISK COULD NOT BE AVOIDED: presence in the target communities of vulnerable and marginalised groups that, given their status, may experience discrimination in taking part in and/or benefitting from these initiatives. Hence, there is a potential risk of non-compliance with this principle.
2. Early warning system and 4. Safe havens Sub-projects: **Morondava:** 5.1.3; 5.1.4 **Moroni:** 5.4.4 **Zomba:** 5.2.1; 5.2.2 **Chokwe:** 5.3.2; 5.3.4	**YES** Evidence: - Early warning systems, action plans and contingency plans may fail in fully recognising the role, constrains, needs and perceptions of *women* in their role as primary caretakers of the households' assets and custodians of the most vulnerable in the family (children and older persons); - *Persons with disabilities, older persons, leprosy survivors* (Morondava) *and migrants* (Morondava and Moroni) are often marginalised and with low educational capacity/skills; as a consequence, they may be excluded from early information and warning systems; - *Illiterate and/or low-skilled women, children, persons with disabilities and older persons,* given their status and stigma, may be excluded from: (i) the design of the safe havens, especially in terms of accessibility and division of spaces (female/male/family) during emergencies; and ii) the definition of activities and organisational aspects of the multipurpose centres during non-emergency times; - *Seasonal migrant families* (Morondava) *and individual migrants* (Zomba), often not fully integrated in the communities, may not be involved (or may feel themselves not motivated to participate) in community decisions and activities related to the safe havens; - Awareness campaigns and preparedness measures (e.g. emergency simulations) may fail to reach and involve *older persons, persons with disabilities and women or female heads of families,* who are often illiterate, marginalised and not supported by any community safety net. WHY RISK COULD NOT BE AVOIDED: presence in the target communities of vulnerable and marginalised groups that, given their status, may experience discrimination in taking part in and benefitting from these initiatives. Hence, there is a potential risk of non-compliance with this principle.
3. Improvement of solid waste management Sub-projects: **Moroni:** 5.4.3 **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	**YES** Evidence: *Persons with disabilities and older persons* may have problems in accessing waste management facilities and benefiting from improved waste management services. *Young mothers/single parents with children* may not be consulted on the waste containers resulting in inappropriate locations, especially for *children*. *Unskilled youth* may not be prioritised for job opportunities in waste collection. *Migrants* who are not integrated in the communities may not be consulted and not benefit from waste management training and awareness campaigns. Waste management activities may increase health risks for the communities, especially for *children and older persons* (see also Principle 13). WHY RISK COULD NOT BE AVOIDED: presence in the target communities of vulnerable and marginalised groups that, given their status, may experience discrimination in taking part in and benefitting from these initiatives. Hence, there is a potential risk of non-compliance with this principle.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2 **Zomba:** 5.2.5; 5.2.7	**YES** Evidence: In Morondava, *poor women/youth* working close to the areas where greening activities will be carried out may be negatively affected. *Single mothers, female heads of families* that are dependent on mangroves for livelihoods may not be adequately: (i) involved in mangroves plantation and maintenance-related works; or (ii) consulted on awareness-raising activities and in identifying sustainable alternative livelihood activities (such as fishing, cooking, heating, etc.). Power relations between local NGO workers (external to the community and employed for mangroves planting) and *vulnerable youth, especially young women*, may result in social tensions. *Seasonal migrant families* (Morondava*) and individual migrants* (Zomba) may be excluded from the mangroves plantation and afforestation activities. *Children and youth* (especially those not attending school) may be excluded from awareness-raising activities on the importance of maintaining the targeted ecosystems. Green areas (Morondava), afforestation activities (Zomba) and rain water harvesting systems (Moroni) may not be easily accessible for *older persons and the disabled.* WHY RISK COULD NOT BE AVOIDED: presence in the target communities of vulnerable and marginalised groups that, given their status, may experience discrimination in taking part in and benefitting from these initiatives. Hence, there is a potential risk of non-compliance with this principle.
Principle 4: Human Rights - Risk: NO	

Approach: a risk screening was undertaken to assess possible violations of human rights or the raising of human rights issues during sub-projects' implementation. The Human Rights Council special procedures in each target country have been analysed (see **Annex 2**). The screening resulted in no risks of human rights violation or related issues. On the contrary, their implementation represents an opportunity for promoting and advocating the full respect of human rights of all community members. In conducting the risk screening surveys, social data, information and perceptions related to the exercise of the human rights in the target communities and for the vulnerable and marginalised groups was gathered and analysed. Survey results for the 4 cities are presented in **Annex 2**.	
Principle 5: Gender Equality and Women's Empowerment - Risk: YES **Approach:** a gender-sensitive risk screening was undertaken to make sure that: (i) both women and men have equal opportunities to participate in the different activities; (ii) both women and men equally benefit from the outputs and outcomes of the different initiatives, and women are not disproportionately affected; and (iii) the initiatives do not maintain or exacerbate existing gender inequalities and, on the contrary, represent an opportunity for women's empowerment (see **Annex 2**).	
Group	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Drainage and 6. Mobility initiatives Sub-projects: **Morondava:** 5.1.5; 5.1.6; 5.1.7; **Moroni:** 5.4.1; **Zomba:** 5.2.3; 5.2.5; 5.2.6 **Chokwe:** 5.3.1	**YES** Evidence: the final design and construction plans may fail to consider women's' needs and constraints. Construction works may limit women's' ability to access livelihoods and hamper their mobility. Women could be considered as not 'fit' for any construction/maintenance works due to their perceived status, role and/or lack of skills; this would result in failing to promote gender equity and women's empowerment. Awareness campaigns may not reach all women and, as a result, exclude them from a better understanding of the relation between waste, the risks of flooding, sanitation and public health. WHY RISK COULD NOT BE AVOIDED: gender issues related to unequal access to opportunities and resources and often rooted in cultural traditions and/or customary law exist in each of the target communities. This makes the risk of non-compliance with this principle possible.
2. Early warning system (EWS) and 4. Safe havens Sub-projects: **Morondava** 5.1.3; 5.1.4; **Moroni:** 5.4.4 **Zomba:** 5.2.1; 5.2.2 **Chokwe:** 5.3.2; 5.3.4	**YES** Evidence: the development of EWS and awareness activities may fail to recognise and take into consideration existing negative gender dynamics, especially gender-based violence (GBV); as a result, this may continue to inadvertently discriminate women and reinforce exclusion mechanisms, especially for stigmatised women as HIV/AIDS victims, GBV survivors or single female heads of the family. The development and design of a safe haven and its management during emergency and normal times may continue to unintentionally discriminate women and/or reinforce existing gender dynamics, especially towards the most vulnerable or stigmatised women such as young single parents, HIV and GBV victims and migrant women. Women's' roles as custodians of the household and responsible for families may prevent them from participating in external activities and events such as community consultations and vocational training. WHY RISK COULD NOT BE AVOIDED: gender issues related to unequal access to opportunities and resources and often rooted in cultural traditions and/or customary law exist in each of the target communities. This makes the risk of non-compliance with this principle possible.
3. Improvement of solid waste management Sub-projects: **Moroni:** 5.4.3 **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	**YES** Evidence: women are responsible for household management and have limited time for other activities. Furthermore, waste is often considered inappropriate for women to handle. This may result in failing to involve them in the RF2 Committees (Morondava) and result in loss of job opportunities for them. Maintenance, sanitation and awareness-raising activities may exclude or not reach less educated and marginalised women. As a result, they may be excluded from a better understanding of the relationship between waste, flooding risks, sanitation and public health. WHY RISK COULD NOT BE AVOIDED: gender issues related to unequal access to opportunities and resources and often rooted in cultural traditions and/or customary law exist in each of the target communities. This makes the risk of non-compliance with this principle possible.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2 **Zomba:** 5.2.5; 5.2.7	**YES** Evidence: women's opinions (including in their role as mothers of children who will benefit from green spaces) may not be considered sufficiently relevant in the design of these green spaces. Furthermore, given their perceived role and status, they may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to the maintenance of these green areas. The implementation of the activities may reinforce existing discriminatory practices against women (often representing over 60% of the population) due to their perceived status, role and traditionally unbalanced gender dynamics. This may result in: (i) women not being consulted; (ii) difficulty in taking part in mangroves plantation and maintenance related works; and (iii) not fully benefitting from the outcomes of the activities (fishing/sustainable mangroves management and alternatives livelihood). Ultimately, this would reinforce women's disempowerment. WHY RISK COULD NOT BE AVOIDED: gender issues related to unequal access to opportunities and resources and often rooted in cultural traditions and/or customary law exist in each of the target communities. This makes the risk of non-compliance with this principle possible.
Principle 6: Core Labour Rights - Risk: YES **Approach:** a risk screening was undertaken: (i) to assess the labour laws of each country and evaluate if the minimum ILO standards are reflected; and (ii) to make sure that that minimum ILO standards are taken into account during implementation of the planned activities, as appropriate. Hence, compliance of countries to the ILO Conventions on the fundamental principles and rights at work has been analysed and assessed against the national legislation.	
Group	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Drainage and 6. Mobility initiatives Sub-projects: **Morondava:** 5.1.5; 5.1.6;	**YES** Evidence: these initiatives entail construction and rehabilitation works so labour contracts will be established in the four countries. Since the national labour laws of Madagascar (*Loi n° 2003-044 - Code du Travail*), Comoros (*Loi 84-108 - Code du Travail*), Mozambique (*Lei du Trabalho* N.23/2007) and Malawi (Employment Act, 2000) do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning

5.1.7; **Moroni:** 5.4.1; **Zomba:** 5.2.3; 5.2.5; 5.2.6; **Chokwe:** 5.3.1	compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence, there is a potential risk of non-compliance with this principle.
2. Early warning system and 4. Safe havens Sub-projects: **Morondava:** 5.1.3; 5.1.4; **Moroni:** 5.4.4; **Zomba:** 5.2.1; 5.2.2; **Chokwe:** 5.3.2; 5.3.4	**YES** Evidence: these initiatives entail construction works so labour contracts will be established in the four countries. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non-compliance with this principle.
3. Improvement of solid waste management Sub-projects: **Moroni:** 5.4.3 **Morondava:** 5.1.8; **Chokwe:** 5.3.3; **Zomba:** 5.2.4	**YES** Evidence: these initiatives entail construction works so labour contracts will be established in the four countries. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non-compliance with this principle.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2; **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	**YES** Evidence: these initiatives entail intensive labour so contracts will be established in the four countries. Since the above-referred national labour laws do not clearly regulate and enforce the ILO standards and principles -especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work. WHY RISK COULD NOT BE AVOIDED: national labour laws do not clearly integrate some of the ILO core principles and rights. Hence there is a potential risk of non-compliance with this principle
Principle 7: Indigenous People - Risk: NO **Approach:** a risk assessment was undertaken to determine whether the planned sub-projects bear any risk in relation to indigenous peoples as in the UN Declaration on the Rights of Indigenous Peoples and other applicable international instruments related to indigenous peoples. Through the risk screening, the presence of indigenous people was checked and it was verified that there are no indigenous peoples in the target areas. Hence, no further assessment is required to demonstrate compliance.	
Principle 8: Involuntary Resettlement - Risk: NO **Approach:** a risk assessment was undertaken to determine the risk of involuntary resettlement or economic disruption as a consequence of the implementation of planned activities. The risk screening was conducted through local consultations, field missions, expert interviews and mapping of the areas of intervention against the location of households and socio-economic activities. It resulted that none of the planned activities in the different sub-projects will determine involuntary resettlement as such. Roads and drainage improvement works may temporarily disrupt informal vendors. However, this cannot be considered resettlement as such, since vendors will be able to move to nearby suitable locations while the physical works are being implemented. Participatory planning and involvement of the local residents in decision-making will minimise negative impacts provoked by the project works. No further assessment required for compliance.	
Principle 9: Protection of Natural Habitats - Risk: YES **Approach:** an assessment regarding the presence of protected areas in the four countries was carried out using a set of sources and database such as: UNESCO Man and the Biosphere programme, IUCN website, Environmental Ministries in the four countries, municipal/city departments in charge of the environment, environment-related stakeholders (e.g. NGOs, universities, etc.) in the four cities. The retrieved information was cross-checked through community consultations. Based on the definition of critical natural habitat by the Convention of Biological Diversity, sites were identified and some level of risk exists. More specifically, the identified critical natural habitats in the project areas are: **Moroni:** the Channel of Mozambique; it does not present a unique or rare ecosystem, but is impacted and degraded by this coastal city due to poor solid and liquid waste management, pollution, etc.; **Morondava:** the mangroves are protected; they represent a crucial ecosystem for the resilience of the city; the Hellot Channel is part of such an ecosystem; **Chokwe:** no critical natural habitat has been identified in the project areas; **Zomba:** the only critical natural habitat identified is the Likangala River with its banks.	
Group	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	**YES** Evidence: In **Moroni**, the drainage network discharges directly into the Channel of Mozambique without passing through a water treatment plant, hence potentially harming the marine ecosystem. The situation is worsened by the waste accumulated in the drainage network and the uncontrolled discharge into the marine ecosystem. In **Morondava**, similarly to Moroni, the drainage network discharges directly into the Hellot Channel which separates the city from the mangroves, a sensitive critical habitat, before going into the Indian Ocean. The sub-project, by reinforcing the drainage system, would increase the level of discharge of dirty water with waste into the Channel and potentially affect the mangrove area. In **Chokwe**, as mentioned above, no critical natural habitat has been identified in the project areas.

	In **Zomba** no protected area or critical natural habitat is present in the project areas; however, the improved drainage system may risk increasing the level of discharge of dirty water with waste into the Likangala River. WHY RISK COULD NOT BE AVOIDED: any drainage intervention would trigger the risk, no matter which project areas are selected. In the case of Moroni, the only way to avoid risk would be to construct a water treatment plant before the water is discharged into the sea. This is a very expensive intervention which would be difficult to justify considering the small scale of the project. The latter is meant to reduce the risk of flooding upstream, in La Coulée neighbourhood. In Morondava and Zomba, the alternative option to avoid the identified risk would be to rebuild the existing drainage system from scratch, which is not financially viable within this project's budget. Again, similarly to Moroni, drainage interventions are very critical to reduce the level of risk of the target population.
2. Establishment of early warning systems Sub-projects: **Moroni:** 5.4.4 **Morondava:** 5.1.3; **Chokwe:** 5.3.4; **Zomba:** 5.2.1	**NO** Evidence: despite the presence of the above-mentioned critical natural habitats, the activities under this thematic group do not present any risk for these habitats.
3. Improvement of solid waste management (SWM) Sub-projects: **Moroni:** 5.4.3 **Morondava:** 5.1.8; **Chokwe:** 5.3.3; **Zomba:** 5.2.4	**NO** Evidence: the planned SWM interventions are small scale, i.e. no landfill site involved, only containers for temporary collection or sorting/recycling points. These interventions do not threaten any of the identified critical natural habitats in the targeted cities. More specifically: - In **Moroni** and **Morondava**, physical activities only consist of placing containers as waste collection points, not in proximity to any critical natural habitat; - In **Chokwe and Zomba,** the construction of sorting/recycling community centres is not planned in proximity of any critical habitat; therefore no risk has been identified.
4. Construction of multi-purpose safe havens Sub-projects: **Morondava:** 5.1.4; **Chokwe:** 5.3.2; **Zomba:** 5.2.2	**NO** Evidence: the planned interventions under this thematic group are not located within or in proximity of any critical natural habitat.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2 **Zomba:** 5.2.5; 5.2.7	**YES** Evidence: planned activities related to ecosystem restoration are actually meant to reinforce critical natural habitats, not harming them. The sub-projects under this thematic group concern: (i) water harvesting in **Moroni**; (ii) mangroves reforestation and creation of a green area in **Morondava**; and (iii) reforestation and river rehabilitation in **Zomba**. Only the latter one (sub-project 5.2.5 in Zomba) presents a risk since the planned river rehabilitation involves protecting sections of the river banks with gabions to reduce flooding and erosion. This intervention may affect the health and functioning of the Likangala riverine ecosystem. WHY RISK COULD NOT BE AVOIDED: there are two main ways to reinforcing river banks, which constitutes an absolutely necessary protective measure to reduce risk in the city of Zomba: (i) to build more stable banks; or (ii) to reinforce them through nature-based solutions. The second option requires adequate space and sufficient time, which do not match the present conditions in the site and the urgent requirement to reduce the riverine communities' vulnerability to the effects of floods and erosion. In addition, the most vulnerable sections of the river banks are too steep to create green areas to absorb the impact of floods and creating the needed space for such an intervention would lead to the involuntary resettlement of many community members. Thus, the only viable option is the first one, i.e. to reinforce the river banks using gabions (NB: using concrete would impact even more on the natural habitat of the river banks).
6. Improvement of urban mobility through construction and/or rehabilitation of roads and bridges Sub-projects: **Morondava:** 5.1.5; 5.1.6; **Zomba:** 5.2.6	**NO** Evidence: activities related to mobility focus on the rehabilitation of existing infrastructure, more specifically, a road and three bridges in **Morondava** and bridges in **Zomba**. Despite the presence of critical natural habitats in some of the project areas, these sub-projects are not located within or in proximity of these habitats.

Principle 10: Conserving Biodiversity - Risk: YES

Approach: to assess if planned project activities trigger any reduction or loss of biological diversity or introduce invasive species, the presence of species at risks or areas of relevant biological diversity were first identified according to the IUCN red list, recognition as a UNESCO Man and the Biosphere reserve or as RAMSAR site (Convention on Wetlands of International Importance). According to the IUCN red list, there are species at risk or there is presence of known biological diversity importance around the four target cities, within an area of 2,000 km^2. However, based on the UNESCO Man and the Biosphere reserve programme, RAMSAR, local biodiversity maps, consultations with local WWF representatives, the Environmental Ministries in the four countries, municipal/city departments in charge of the environment, environment-related stakeholders (e.g. NGOs, universities, etc.) in the four cities, no species at risk were identified (see **Annex 4**). This said, some relevant areas in terms of biological diversity were identified and considered in the risk screening per category of sub-projects (see below). The risk of introduction of invasive species was also assessed and found to be negative. The information was cross-checked through community consultations. The only areas of known biological diversity which are relevant to the project are:

Moroni: the Channel of Mozambique; it is not a rare ecosystem and no species at risk characterise it, but it can be considered as part of a fragile coastal ecosystem, according to the Ministry of Environment and the Climate Alliance's experts;

Morondava: the mangroves are not considered a highly important biodiversity area by both the Ministry of Environment and WWF (i.e. no species at risk); however, they are an important ecosystem because rich in terms of flora and fauna according to the municipality and communities. Hence, for the scope of this project, mangroves can be considered relevant for their biodiversity;

Chokwe: no area of known biological diversity importance has been recorded or reported; **Zomba:** the area of known biological diversity importance is, again, the Likangala River with its banks, according to the City of Zomba and the consulted Botanic Garden's experts.	
Group	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	**YES** Evidence: as mentioned, no species at risk have been identified in any of the target areas. No activity related to drainage networks will harm any species or compromise its movement by interrupting major biodiversity corridors, and no invasive species will be introduced. However, the discharge may represent some risks (related to Principle 9): - In **Moroni**, by discharging directly into the Channel of Mozambique, the drainage to be built can harm the marine ecosystem and impact on its coastal biodiversity; - In **Morondava** as well the improved drainage, by discharging directly into the Hellot Channel, may impact on biodiversity because of the mangroves; - In **Chokwe** no presence of known biological diversity importance has been recorded or reported in the sub-project areas; - In **Zomba** the improved drainage may discharge dirty water with waste into the Likangala River and impact on the riverine ecosystem, including its flora and fauna. WHY RISK COULD NOT BE AVOIDED: these sub-projects present a risk for biodiversity as consequence of the fact that they present a risk for the critical natural habitat. Thus, the reasons for which risk could not be avoided are the same as the ones presented for this thematic group of sub-projects under Principle 9.
2. Establishment of early warning systems Sub-projects: **Moroni:** 5.4.4; **Morondava:** 5.1.3; **Chokwe:** 5.3.4; **Zomba:** 5.2.1	**NO** Evidence: despite the presence of the above-mentioned areas of known biological diversity, the planned activities under this thematic group do not present any risk for the biodiversity since they do not imply any physical interventions and have no impact on the flora and fauna. Hence, there is no loss or degradation of biodiversity and no risk of invasive species.
3. Improvement of solid waste management Sub-projects: **Moroni:** 5.4.3; **Morondava:** 5.1.8; **Chokwe:** 5.3.3; **Zomba:** 5.2.4	**NO** Evidence: the planned solid waste management interventions are small scale, i.e. no landfill site involved, only containers for temporary collection or sorting/recycling points. These interventions do not threaten any of the identified critical natural habitats in the targeted cities. This means that no loss or degradation of biological diversity is triggered. There is no introduction of flora or fauna species in the planned activities, hence no risk of invasive species either.
4. Construction of multi-purpose safe havens Sub-projects: **Morondava:** 5.1.4; **Chokwe:** 5.3.2; **Zomba:** 5.2.2	**NO** Evidence: the planned activities under this thematic group do not present any risk for biodiversity since they do not involve construction in any of the above-identified critical areas. This means that no loss or degradation of biological diversity is triggered, and that there is no risk of invasive species.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2 **Zomba:** 5.2.5; 5.2.7	**YES** Evidence: the sub-projects under this thematic group are meant to improve conditions for biodiversity. They include: (i) water harvesting in **Moroni**; (ii) mangroves reforestation and creation of a green area in **Morondava**; and (iii) reforestation and river rehabilitation in **Zomba**. Only the last one (sub-project 5.2.5 in Zomba) presents a risk of biodiversity reduction since the planned river rehabilitation involves protecting sections of the river banks with gabions to reduce flooding and erosion. This intervention may affect the health and functioning of the Likangala riverine ecosystem. No invasive species will be introduced by the sub-projects under this thematic group. For the sub-projects involving tree planting (5.1.1 and 5.1.2) and reforestation (5.2.7), local experts and authorities will collaborate from the onset to ensure that only indigenous species will be planted. Beside this, no risk of invasive species will be triggered. WHY RISK COULD NOT BE AVOIDED: as explained in Principle 9, sub-project 5.2.5 presents a risk for biodiversity as consequence of the fact that it poses a risk for the critical natural habitat. Thus, the reasons for which risk could not be avoided are the same as the ones presented for this particular sub-project under Principle 9.
6. Improvement of urban mobility through construction and/or rehabilitation of roads and bridges Sub-projects: **Morondava:** 5.1.5; 5.1.6; **Zomba:** 5.2.6	**NO** Evidence: activities related to mobility focus on the rehabilitation of existing infrastructure, more specifically, a road and three bridges in **Morondava** and bridges in **Zomba**. Despite the presence of areas of known biological diversity in some of the project areas, these sub-projects are not located within or in proximity of these areas. This means that no loss or degradation of biological diversity is triggered. There is no introduction of flora or fauna species in the planned activities, hence no risk of invasive species. Finally, even though the construction or rehabilitation of a road may not directly harm flora and fauna, it can represent a barrier to the movement of animals and compromise biodiversity corridors. Hence, core biodiversity areas, linkages and biodiversity corridors were checked in Morondava and it is confirmed that the road to be built there will not represent such kind of barrier, hence no risk is identified.

Principle 11: Climate Change - Risk: NO

Approach: No planned sub-project will determine maladaptation aspects to climate change. On the contrary, they were all identified and design to increase adaptation and resilience to climate change. according to the IPCC Guidelines for national GHG inventories, relevant sectors/categories to focus on when considering GHG emissions are: (i) energy; (ii) industrial processes (sub-category 'construction') and product uses; (iii) agriculture, forestry and land use; and (iv) waste. The EU (EU, 2014: GHG emissions from waste disposal) considers road transport as an additional sector/category. Based on this classification, when analysing the six thematic groups of sub-projects, the following can be stated:

- **Drainage** (group 1) and **safe havens** (group 4) can be considered under the "construction" sub-category. Drainage does not involve buildings' construction consuming energy, thus there is no risk of GHG emissions. The envisaged safe-havens are low tech and small scale buildings for which the GHG emissions can be considered negligible.
- **Early warning systems** (group 2) do not fall under any of the above-mentioned categories producing GHG emissions.

- **Solid waste management** (group 3) falls under the "waste" sector. According to official reporting to the UNFCCC, 95% of GHG emissions result from landfill operations while only 5% of GHG emissions originate from incineration and other treatment operations (composting, recycling, etc.). As mentioned, activities belonging to this thematic group of sub-projects do not consider land fill or incineration, thus they will result in non-relevant GHG emissions. Furthermore, the hectares that will be covered by reforestation and ecosystem rehabilitation activities (thematic group 5) well compensate for these minor emissions.
- **Ecosystem rehabilitation** (group 5) falls under the "forestry" sector. Deforestation, forest degradation and land-use change contribute to 12% of the world's GHG emissions. However, activities under this thematic group will actually improve forests and mangroves through planting. The most important ecosystem service of forests is the absorption of CO_2 produced by burning of fossil fuel through photosynthesis. In addition, wood-fuel collection or timber extraction will be discouraged during project implementation, as explained in the sub-project fiches related to this thematic group by providing alternative livelihood options.
- **Mobility** (group 6) falls under "road transport". The planned rehabilitation of bridges under this thematic group of sub-projects does not produce buildings consuming energy, thus do not trigger any risk of GHG emissions. Meanwhile the planned roads' rehabilitation contributes only 5-10% of the total transportation-related global GHG emission (equivalent to 13.9%). More specifically, the construction of 15 km of provincial road is equivalent, in terms of emissions, to the construction of 1 km of express road (World Bank, GHG emissions mitigation measures in road construction and rehabilitation). Sub-project 5.1.5 in Morondava relates to the rehabilitation of less than one km of a road that is of a smaller category as compared to a provincial road; the GHG emissions triggered by this sub-project can be considered minor and will be, here too, compensated by the reforestation and ecosystem rehabilitation sub-projects under the thematic group 5.

Principle 12: Pollution and Resource Efficiency - Risk: YES

Approach: planned interventions in this project are all low-tech and do not imply major use of energy or production of waste/pollutants. In addition, all sub-projects are small-scale and to be implemented at the local level, maximising community involvement. Therefore, no risk related to major use of energy or massive production of waste will occur during project implementation. However, some sub-projects involve construction activities that may lead to some level of non-sustainable use of resources. Furthermore, even though no sub-project implies the release of polluting substances, some of them may trigger polluting mechanisms. All risks are described in the table below, which is structured according to the principle itself i.e. risk of overuse of resources and risk of pollution. International standards to minimise the non-sustainable use of resources and prevent pollution will be followed during detailed sub-project design and implementation phases.

Group	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	**YES** Evidence: ➢ *Over-use of resources:* construction activities under this thematic group of sub-projects may trigger this risk. - **Moroni:** according to the preliminary design, volcanic rock will be used as building material for drainage construction. Gravels from volcanic rock can be found locally and be used to mix with cement instead of sea-sand according to the municipality, the Ministry of Environment and the community. Therefore, no risk of over-use of resources is foreseen considering that Grand Comore is a purely volcanic island. - **Morondava:** sand is usually extracted in an uncontrolled manner from the beach and river banks. Dedicated solutions to avoid such a risk will be identified and adopted. - **Chokwe:** it was agreed with local authorities that building materials will be purchased in Maputo, the capital city (230 km away from Chokwe), from a certified enterprise. The needed soil to build the drainage channels will be obtained through the re-profiling of the ground. Therefore, there is no risk of over-use of resources. - **Zomba:** sand is usually extracted in an uncontrolled manner from the river banks. Dedicated solutions to avoid such a risk will be identified and adopted. ➢ *Pollution:* planned activities related to drainage, as mentioned under Principles 9 and 10, may pollute soil and water due to discharge of dirty water with waste. - **Moroni:** as mentioned earlier, the direct discharge into the Channel of Mozambique may pollute the sea water and the fragile coastal ecosystem due to the presence of waste in the drainage network. - **Morondava, Chokwe and Zomba**: improvements of the drainage system may cause the direct discharge of dirty water with waste into rivers and sea, thus increase the polluting effect and lowering the water quality of these ecosystems. WHY RISK COULD NOT BE AVOIDED: this group of sub-projects presents a risk of over-use of resources because of uncontrolled local practices and lack of environmental policies' enforcement in the construction sector, which need to be addressed. The risk of pollution under this principle is one of the causes of risks under Principles 9 and 10. Thus, the reasons for which risk could not be avoided are the same as those explained for this thematic group of sub-projects under Principle 9.
2. Establishment of early warning systems Sub-projects: **Moroni:** 5.4.4; **Morondava:** 5.1.3; **Chokwe:** 5.3.4; **Zomba:** 5.2.1	**NO** Evidence: activities belonging to this thematic group of sub-projects do not imply major use of energy, waste production nor pollution. Therefore, no risk of over-use of resources or of pollution has been identified.
3. Improvement of solid waste management Sub-projects: **Moroni:** 5.4.3; **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	**YES** Evidence: ➢ *Over-use of resources:* planned activities under this thematic group of sub-projects in **Moroni** and **Morondava** will not lead to any over-use of resources since they only consist of placing some containers to facilitate waste collection. For **Chokwe** and **Zomba** the construction of waste sorting/recycling centres leads to potential risks of over-use of resources (sand for concrete) as already presented above under drainage system. However, for Chokwe risks can be excluded because all materials will be obtained from sustainable sources in Maputo while risk is present for Zomba where sand is typically being extracted from the river. However, this is a small scale construction, so there is minor risk. ➢ *Pollution:* even though no landfill intervention is being considered, minor pollution of soil and water may occur in some cities, as follows: - **Moroni:** the containers will be located over cemented/asphalted roads therefore even if waste dumped outside the containers or waste is not properly collected soil

	pollution will be avoided. As there is no presence of ground water in Medina Neighbourhood, where the containers will be located, there is no risk of water pollution; - **Morondava:** there may be minor soil and ground water pollution in case of waste overflow and leakage from the containers, in case of irregular waste collection; - **Chokwe and Zomba:** community waste sorting/recycling centres are planned; if the ground is not impermeable, leachate may pollute the soil and groundwater. WHY RISK COULD NOT BE AVOIDED: the risk of over-use of sand from the river banks in Zomba for constructing the community waste centres depends on uncontrolled local practices and lack of policy enforcement; however, as stated above, these are small scale construction activities. With regard to the risk of pollution, this will be minor and will only occur if waste is not properly collected or managed from the containers to be acquired by the project. Concerning the community waste sorting/recycling centres, they will be designed with impermeable ground so that the risk of soil/ground water pollution is minimised.
4. Construction of multi-purpose safe havens Sub-projects: **Morondava:** 5.1.4 **Chokwe:** 5.3.2 **Zomba:** 5.2.2	**YES** Evidence: ➢ *Over-use of resources:* sub-projects belonging to this thematic group include construction activities and, similarly to group 1 (drainage improvement), may present some level of risk of over-use of sand only for Morondava and Zomba. However, the construction of safe havens can be considered to be of relatively small scale. ➢ *Pollution:* sub-projects belonging to this thematic group do not present any risk of pollution. WHY RISK COULD NOT BE AVOIDED: this group of sub-projects presents a risk of over-use of resources because of uncontrolled local practices and lack of environmental policies' enforcement in the construction sector, which need to be addressed.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2 **Zomba:** 5.2.5; 5.2.7	**NO** Evidence: ➢ *Over-use of resources:* there is no over-use of resources involved in the planned activities under this group of sub-projects, which are mainly nature-based solutions. Even for the river rehabilitation in Zomba, which plans to use gabions to reduce erosion of the river banks and flood risk, despite being an engineering solution, will not represent a risk of over-use of resources since gabions will be bought from an enterprise. In Zomba there is a branch of LEED (Leadership in Energy and Environmental Design), an internationally recognised green building certification agency that provides third-party verification that a building is designed and constructed according to standards aimed to improving performance across all the metrics that matter most: energy saving, water efficiency, CO_2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts. The municipality will request LEED to support this intervention to ensure its maximum sustainability. ➢ *Pollution:* ecosystem rehabilitation/protection activities and the sustainable use of resources will not determine any risk of pollution. No fertilizers or pesticide, which may represent sources of pollution, will be used for the afforestation intervention in Zomba and the rehabilitation of mangroves in Zomba, as per the current community practices. This was decided based on consultation with the communities, representatives from the botanic garden and concerned municipalities and authorities in charge of reforestation in Morondava and Zomba.
6. Improvement of urban mobility through construction and/or rehabilitation of roads and bridges Sub-projects: **Morondava:** 5.1.5; 5.1.6; **Zomba:** 5.2.6	**YES** Evidence: ➢ *Over-use of resources:* the rehabilitation of roads and bridges may lead to an over-use of resources, therefore the risk potentially exists. ➢ *Pollution:* since sub-projects under this thematic group refer to the rehabilitation of existing infrastructure and not the construction of new roads and bridges, no increase of traffic will be determined and, thus, no risk of pollution will be triggered. WHY RISK COULD NOT BE AVOIDED: this group of sub-projects presents a risk of over-use of resources because of uncontrolled local practices and lack of environmental policies' enforcement in the construction sector, which need to be addressed.
Principle 13: Public Health - Risk: YES **Approach:** to assess potential risk of the sub-projects on public health, the screening was done according to the short guide "Focusing on health" (Sweden) listed in the WHO website. The tool is based on a matrix considering determinants of health: democracy, financial security, employment/education, social network, access to health care, belief in the future, physical environment and living habitats (for more information please consult: www.who.int/hia/evidence/doh/en/index5.htlm). Generally speaking, no sub-project presents any risk for **democracy** or **belief in the future** since implementation emphasises participation and equity, with special consideration for marginalised and vulnerable groups, gender and freedom of choice. This may hopefully reinforce existing **social networks**. The sub-projects will not impact negatively on **employment** or **education**; on the contrary they will provide job opportunities and capacity building activities. The activities enhance sustainable financial security as well. **Access to health care facilities** will be enhanced thanks to the roads and bridges improvement works in Morondava and Zomba. These interventions may also positively impact on economic activities; however, ensuring **financial security** of the target communities is beyond the scope of this project. Risks related to **living habitats** were already assessed under Principle 9 when referring to natural critical habitats. The only health determinant that may be impacted is the **physical environment**, meant as safe water, clean air, healthy environment, safe housing, etc. See the table below for more details.	
Group	**NO** (No further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1; **Morondava:** 5.1.7; **Chokwe:** 5.3.1 **Zomba:** 5.2.3	**YES** Evidence: as mentioned under Principle 12, the discharge from improved drainage systems in these cities may represent a pollution risk. Even though none of these water bodies represent a drinking source, they are fishing grounds and sources for agricultural irrigation, or places where people play and swim. This implies that the pollution of these water bodies may have a direct or secondary impact on public health. WHY RISK COULD NOT BE AVOIDED: these sub-projects present a risk for public health mainly because of the potential pollution risk as highlighted under Principle 12. Thus, the reasons for which risk could not be avoided are the same as the ones exposed for this thematic group of sub-projects under Principle 12.

2. Establishment of early warning systems Sub-projects: **Moroni:** 5.4.4; **Morondava:** 5.1.3; **Chokwe:** 5.3.4; **Zomba:** 5.2.1	**NO** Evidence: this category of sub-projects does not impact on any of the above mentioned determinants and hence does not represent a threat to public health.
3. Improvement of solid waste management (SWM) Sub-projects: **Moroni:** 5.4.3; **Morondava:** 5.1.8; **Chokwe:** 5.3.3; **Zomba:** 5.2.4	**YES** Evidence: no exposure to toxic chemicals, industrial wastes, radioactive wastes or health care wastes is triggered by the proposed SWM activities. However, the activities may lead to some level of pollution of the soil and/or ground water (see Principle 12) with direct and indirect impacts on health. If ground water is polluted (as explained under Principle 12, this is a very minor risk) and then consumed as drinking water, it may affect the health of people. In addition, for all cities, in case of irregular waste collection from the installed containers or inefficient management of the waste sorting/recycling centres, waste may attract mosquitos and increasing the risk of malaria or water-borne diseases in case of rainfall among the communities living nearby. WHY RISK COULD NOT BE AVOIDED: these sub-projects present a risk for public health mainly because of the potential pollution risk as highlighted under Principle 12. Thus, the reasons for which risk could not be avoided are the same as the ones exposed for this thematic group of sub-projects under Principle 12.
4. Construction of multi-purpose safe havens Sub-projects: **Morondava:** 5.1.4; **Chokwe:** 5.3.2; **Zomba:** 5.2.2	**NO** Evidence: this category of sub-projects does not impact on any of the above mentioned determinants and hence does not represent a threat to public health.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	**YES** Evidence: these sub-projects do not impact on any of the above-mentioned determinants and hence do not represent a threat to public health. On the contrary, they will contribute to obtain a safer environment, cleaner air and water, healthier soil, etc. The only potential risk may be represented by the river rehabilitation intervention in **Zomba** (sub-project 5.2.5) as the use of gabions, if not properly conceived and managed, may harm the natural habitat (see Principle 9 for more details), which is one of the public health determinants. WHY RISK COULD NOT BE AVOIDED: the river rehabilitation sub-project may present a risk for public health mainly because of its natural habitat dimension among the public health determinants. Thus, the reasons for which risk could not be avoided are the same as the ones exposed for this thematic group of sub-projects under Principles 9 and 10.
6. Improvement of urban mobility through construction and/or rehabilitation of roads and bridges Sub-projects: **Morondava:** 5.1.5; 5.1.6; **Zomba:** 5.2.6	**NO** Evidence: as mentioned, access to health care facilities will be enhanced thanks to the roads and bridges improvement works in Morondava and Zomba. Some level of risk for public health may be represented by possible increase of air pollution or noise due to traffic intensification and increased CO_2 emission. However, since the planned sub-projects do not entail the construction of new infrastructure but the rehabilitation of existing roads and bridges, none of these potential threats will be triggered.

Principle 14: Physical and Cultural Heritage - Risk: NO

Approach: the presence of physical and cultural heritage sites in the four target cities was mapped. For this purpose, the UNESCO Convention concerning the Protection of World Cultural and Natural Heritage was taken as reference, as well as the UNESCO list of World Heritage Sites and the list of World Heritage in Danger. Buildings and areas recognised as heritage at national or local level were added during this mapping exercise, based on heritage maps provided by the concerned city administrations that were cross-checked during community consultations. The mapping exercise lead to these findings:

- in **Moroni:** no heritage was identified in La Coulée Neighbourhood, while La Medina is indeed considered physical and cultural heritage of Moroni city. Some buildings are already protected by local by-laws, while the process to recognise the entire Medina area as UNESCO World Heritage is underway. The only sub-project concerning La Medina is related to the installation of containers to improve solid waste management in this area (sub-project 5.4.3), which does not represent any risk for existing heritage. In fact, the location of the waste containers will be done in close collaboration with the municipality and the resident community to avoid any impact on heritage.
- in **Morondava, Chokwe and Zomba** no internationally recognised heritage exists. The heritage maps provided by the local administrations show some buildings of recognised value, but none of them will be concerned by the planned activities in the different sub-projects. Therefore, hence there is no risk for physical and cultural heritage in these three cities.

Principle 15: Land and Soil Erosion - Risk: YES

Approach: for this principle, potential impact of each sub-project was assessed based on two aspects: (i) soil conservation, meant by FAO "avoiding changes in the soil health status resulting in diminished capacity of the ecosystem services provisioning"; and (ii) conservation of valuable lands. For the first aspect, fragile soils were identified based on the knowledge of municipal experts and other institutions dealing with soli/land-related issues; these were, essentially: coastal soil, soil located on steep slopes, rocky areas with very thin soil, areas showing evidence of soil erosion due to lack of water, soil erosion provoked by run-off or deforestation. In the second case, valuable lands were mapped using local/existing knowledge, such as: agricultural land, important land ecosystems for the city's resilience, natural habitats due to their biodiversity or relevance (see Principles 9 and 10). As a result, the following fragile soils and valuable lands were identified in the four cities:

- in **Moroni**: *(i) fragile soils:* coastal soils in La Coulée; steep slopes in La Coulée were not considered fragile soils since they are essentially composed of basaltic rock; *(ii) valuable lands:* the coastal marine ecosystem in La Coulée;
- in **Morondava**: *(i) fragile soils:* none; soils are unstable due to their sandy composition but do not suffer from degradation issues; *(ii) valuable lands:* mangroves and its lagoon/river channels;

- in **Chokwe**: *(i) fragile soils:* drainage network banks eroded by water; (ii) *valuable lands:* agricultural areas; - in **Zomba**: *(i) fragile soils:* deforested areas, especially along the slopes of the Zomba Plateau and in the river banks; (ii) *valuable lands:* agricultural lands, the river and its banks, and the forest areas.	
Group	**NO** (no further assessment required for compliance) **or YES** (Potential impacts and risks: further assessment required for compliance)
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	**YES** Evidence: - in **Moroni:** (i) no risk of soil degradation; (ii) as for the valuable lands, the only risk is linked to the marine ecosystem due to uncontrolled discharge of dirty water with waste through the improved drainage system (see Principles 9, 10 and 12); however, this discharge would not directly impact on land but, in a highly diluted manner, only on the sea waters; - in **Morondava:** (i) no risk of soil degradation because of the sandy soil; (ii) identified valuable lands may be at risk as mentioned under Principles 9, 10 and 12 because of the impact of the uncontrolled discharge of dirty water with waste through the improved drainage system on the mangroves and the Hellot Channel; - in **Chokwe:** (i) soil degradation is currently observed along the existing drainage channels' banks, hence improvement works should be accompanied by planting vegetation along the banks; (ii) regarding valuable lands, agricultural areas are located outside the city and will not be impacted by the drainage works improvement; - in **Zomba:** (i) the planned drainage improvement works will not impact on the identified fragile soils; on the contrary, they will reduce the degradation currently observed due to uncontrolled run-off; (ii) as for valuable lands, uncontrolled discharge of dirty water with waste through the improved drainage system (see Principles 9, 10 and 12) may affect the ecosystem functions of the river and its banks. WHY RISK COULD NOT BE AVOIDED: as mentioned under Principle 9 for this thematic group of sub-projects, any drainage intervention would trigger the risk on the identified valuable lands in Moroni, Morondava and Zomba. Thus, the reasons for which risk could not be avoided are the same as those explained under Principle 9.
2. Establishment of early warning systems Sub-projects: **Moroni:** 5.4.4 **Morondava:** 5.1.3; **Chokwe:** 5.3.4; **Zomba:** 5.2.1	**NO** Evidence: sub-projects belonging to this thematic group do not present any risk to fragile soils and valuable lands since they do not involve any physical intervention.
3. Improvement of solid waste management (SWM) Sub-projects: **Moroni:** 5.4.3 **Morondava:** 5.1.8; **Chokwe:** 5.3.3; **Zomba:** 5.2.4	**NO** Evidence: SWM activities in the four cities do not take place in any areas characterized by degraded soil or in any areas that can be categorized as "valuable land". In addition, the activity does not cause soil degradation and no land conversion is required.
4. Construction of multi-purpose safe havens Sub-projects: **Morondava:** 5.1.4; **Chokwe:** 5.3.2; **Zomba:** 5.2.2	**NO** Evidence: the planned safe havens in Morondava, Chokwe and Zomba will not be located on or in proximity of fragile soils or valuable lands; therefore, no risk is identified.
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2; **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	**YES** Evidence: the planned ecosystem rehabilitation interventions are meant to improve the soils' health and will not impact on valuable lands; hence, they will not represent a risk for this principle. However, concerning the river rehabilitation intervention in **Zomba** (sub-project 5.2.5), the use of gabions may affect the river ecosystem and may, therefore, represent a risk in terms of soil degradation and for the identified valuable lands, i.e. the river itself and its banks. WHY RISK COULD NOT BE AVOIDED: as mentioned in Principle 9, there are two main ways to reinforcing river banks, which constitutes an absolutely necessary protective measure to reduce risk in the city of Zomba: (i) to build more stable banks; or (ii) to reinforce them through nature-based solutions. Thus, the reasons for which risk could not be avoided are the same as those explained for this thematic group of sub-projects under Principle 9.
6. Improvement of urban mobility through construction and/or rehabilitation of roads and bridges Sub-projects: **Morondava:** 5.1.5; 5.1.6; **Zomba:** 5.2.6	**NO** Evidence: all mobility-related sub-projects do not imply any change of land use or soil degradation: therefore there is no risk.

Based on all risks identified through the screening process (Table 2), a detailed ESMP is presented in Table 3 below. This detailed ESMP is organised by principle and focuses solely on Output 1.2 under Component 1, since the general ESMP for all project components is included in Table 1. Table 3 shows the

results of the risk assessment by highlighting solely the identified risks. In the last two columns, it then proposes the corresponding mitigation measures and monitoring mechanisms. The information presented was corroborated with environmental and social experts and through desk research and missions to the four cities, including field work, surveys and focus group discussions including key community representatives and local stakeholders. Importantly, **this ESMP was presented for public disclosure in each city** (see **Annex 4** for more details) **and results are available online for public information.**

Table 3: *ESMP for Expected Output 1.2, Component 1 by group of sub-projects*

Group	Potential risks impact assessment	Measures to avoid or mitigate potential risks	Monitoring
Principle 2: Access and Equity - Risk: YES			
1. Drainage and 6. Mobility initiatives Sub-projects: **Morondava:** 5.1.5; 5.1.6; 5.1.7; **Moroni:** 5.4.1 **Zomba:** 5.2.3; 5.2.5; 5.2.6 **Chokwe:** 5.3.1	Construction/rehabilitation and cleaning works may: i) create temporary physical impediment to the target communities; ii) result in complaints and dissatisfaction; iii) represent a skill development/job opportunity that is not accessible by or considered appropriate for all the groups, resulting in discrimination in accessing job opportunities; and iv) not take into account local knowledge on building resilient infrastructure. There is also a potential risk that water & sanitation awareness campaigns and related measures may not reach illiterate groups, persons with disabilities and older persons.	- Final drainage design plans will be presented to the different communities' groups and inputs/perceptions will be integrated in the plans; - Works implementation plan (cleaning, rehabilitation/construction and maintenance) including an indicative timeframe will be presented and discussed openly with the concerned populations; this will include drafting strategies to avoid that the drainage works constitute a physical impediment to the target communities for too long; - Grievance/reporting mechanisms will be set up to capture complaints, feedback, inputs and updates from the concerned communities; - Job descriptions and vacancies for the construction works will be tailored to allow women, youth and other marginalised groups to apply; - Drainage maintenance will be carried out by assigning clear roles/responsibilities between the city and the concerned communities; - Regular awareness-raising activities using images and other audio-visual means.	- Regular meetings with key local stakeholders (communities, local authorities, etc.) during works' implementation (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
2. Early warning system and 4. Safe havens Sub-projects: **Morondava:** 5.1.3; 5.1.4; **Moroni:** 5.4.4 **Zomba:** 5.2.1; 5.2.2 **Chokwe:** 5.3.2; 5.3.4	There is a risk that community groups are not adequately involved in the initial design and, consequently, early warning systems (EWS) do not address the different needs, constrains, capacities and problems through appropriate preparedness plans and special measures in response and pre- and post-emergencies phases. Communication measures and technical tools/systems may not be easily accessible to all community groups.	- Needs and constrains of the various community groups (especially the most vulnerable) in the target areas will be mapped and profiled; - Grievance/reporting mechanisms will be set up to capture complaints, feedback, inputs and updates from the concerned communities; - Design of the safe havens and evacuation centres will be discussed with all the community groups to integrate their inputs/concerns/suggestions; - Flood EWS and related strategies will be explained and discussed with community representatives, especially those from groups most at risk; - Training sessions on EWS and related simulation exercises using escape routes will be delivered by involving directly community members, especially the most vulnerable, ensuring that they respond to their needs and concerns.	- Regular meetings with key local stakeholders (communities, local authorities, etc.) (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
3. Improvement of solid waste management (SWM) Sub-projects: **Moroni:** 5.4.3 **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	(i) The creation of the waste committees and awareness initiatives could inadvertently exclude some groups such as young women and migrants; (ii) The locations selected for installing the waste containers/equipment may fail to address specific needs and recurrent WASH problems; (iii) Waste management/drainage maintenance plans may fail to represent a job/training opportunity for all; and (iv) Weak coordination among municipal departments may result in a poorly integrated social approach in waste management.	- Detailed design and planning related to these interventions will be presented and discussed with all community groups, especially the most vulnerable and marginalised such as women, youth and seasonal migrants; - Grievance/reporting mechanisms will be set up to capture complaints, feedback, inputs and updates from the concerned communities; - WASH needs of these groups will be assessed and findings shared with the relevant municipal departments for integration and creation of synergies; - Job descriptions and vacancies related to community SWM will be tailored to allow women, youth and persons with disabilities to apply.	- Regular meetings with key local stakeholders (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports

5. Rehabilitation/ protection of ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	There is a risk to not sufficiently take into consideration the specific needs and/or to not actively involve specific community groups given traditional habits and stereotypes for women, low-educated people and seasonal migrant families. This may result in: (i) low participation in awareness-raising activities around ecosystem services, water sustainability, climate change and livelihoods; (ii) community conflict around environmental resources usage; and (iii) exclusion/discrimination of particular community groups from designing/benefitting from planting activities, green public spaces and rainwater harvesting systems.	- The detailed design and planning of these sub-projects will discussed with all concerned community groups, especially the vulnerable and marginalised; - Grievance/reporting mechanisms will be set up to capture complaints, feedback, inputs and updates from the concerned communities; - The direct involvement of these groups will be encouraged, especially through tailored awareness-raising activities; - Job descriptions and vacancies related to these sub-projects will be tailored to allow women, youth and older persons and seasonal migrants to apply; - Alternative livelihood options will be identified to reduce potential conflict on the use of the target environmental resources (mangrove, green spaces, forests, etc.)	- Regular meetings with key local stakeholders (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
Principle 3: Marginalised and Vulnerable Groups - Risk: YES			
1. Drainage and 6. Mobility initiatives Sub-projects: **Morondava:** 5.1.5; 5.1.6; 5.1.7 **Moroni:** 5.4.1 **Zomba:** 5.2.3; 5.2.5; 5.2.6 **Chokwe:** 5.3.1	- *For women, children, older persons, persons with disabilities:* the perceptions, constrains and needs of those living close to the construction areas may not be prioritised; - *Women* may experience temporary impediments in accessing informal income-generation activities on the streets or along the river during construction, rehabilitation and cleaning works; - *Older persons, children and persons with disabilities:* construction and rehabilitation work may temporarily limit their physical movements, impeding access to play grounds and public facilities such as markets and hospitals; - *Unskilled youth:* presence of contracted skilled workers for the construction/rehabilitation works may create unbalanced power relationships and dynamics, especially in relation to *young women*.	- Community representatives, grass-root organisations, municipal officials, construction companies and other local stakeholders will be sensitised on the importance of capturing the perceptions, constraints and needs of all concerned community groups living close to the construction sites when planning/implementing these initiatives, in particular the marginalised and vulnerable including women, children, older persons and persons with disabilities; this will be done through training and awareness-raising activities; - Safe grievance/reporting mechanisms will be set up to capture complaints, feedback, inputs and updates from the concerned community groups; - Alternative measures for minimising the negative impacts of temporary interruption of informal income-generation activities during construction, rehabilitation and cleaning works will be identified in a participatory manner with the concerned community members under the leadership of local officials; - Alternative access routes for older persons, children and persons with disabilities to access key amenities will be identified and duly communicated; - Job descriptions and vacancies related to these sub-projects will be tailored to allow low-skills and uneducated youth, especially women to apply.	- Regular meetings with key local stakeholders (communities, local authorities, etc.) (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
2. Early warning system (EWS) and 4. Safe havens Sub-projects: **Morondava:** 5.1.3; 5.1.4 **Moroni:** 5.4.4 **Zomba:** 5.2.1; 5.2.2 **Chokwe:** 5.3.2; 5.3.4	- EWS and related action/contingency plans may fail in fully recognising the role, constrains, needs and perceptions of *women*; - Marginalised people like *the disabled, older persons, leprosy survivors and migrants* may be excluded from EWS; - *Illiterate and/or low-skilled women, children, persons with disabilities and older persons* may be excluded from: (i) the design of the safe havens; and ii) the definition of activities and organisational aspects of the multipurpose centres during non-emergency times; - *Seasonal migrants* may not be involved in community decisions and activities related to the safe havens; - Awareness campaigns and preparedness measures may fail to reach and involve *older persons, persons with disabilities & women*.	- Needs, constraints and capacities of the marginalised and vulnerable groups will be mapped and profiled; - Safe grievance/reporting mechanisms will be set up to capture complaints, feedback, inputs and updates from the concerned community groups; - The detailed design, planning and organisation of EWS and safe-havens will discussed with all concerned community groups, especially women, the most vulnerable and marginalised; - Simulation exercises involving vulnerable groups will be organised; - Job descriptions and vacancies related to these sub-projects will be tailored to allow seasonal migrants, vulnerable and marginalised to apply; - Awareness raising campaigns and preparedness measures will be designed/ delivered to reach older persons, persons with disabilities and women.	- Regular meetings with key local stakeholders (communities, local authorities, etc.) (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
3. Improvement of solid waste management (SWM) Sub-projects: **Moroni:** 5.4.3 **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	- *Persons with disabilities and older persons* may have problems in accessing/benefitting from SWM facilities/services; - *Young mothers/single parents with children* may not be consulted on the waste containers, resulting in inappropriate locations for children; - *Unskilled youth* may not be prioritised for job opportunities in waste collection; - *Migrants* may not be consulted and not benefit from waste management training and awareness campaigns; - Waste management activities may increase health risks for the communities, especially for *children and older persons.*	- Community representatives, grass-root organisations, municipal officials and other local stakeholders, when planning/implementing these initiatives, will be sensitised on the importance of capturing the perceptions, constraints and needs of the marginalised and vulnerable including women, children, older persons and persons with disabilities; this will be done through training and awareness-raising activities, especially to actively involve them in the implementation of waste activities; - Safe grievance/reporting mechanisms will be set up to capture complaints, feedback, inputs and updates from the concerned community groups; - Job descriptions and vacancies related to these sub-projects will be tailored to allow local unskilled youth, migrants, vulnerable and marginalised to apply; - To minimise health risks and safety/security concerns, protective measures for waste related works will be developed and disseminated through appropriate	- Regular meetings with key local stakeholders (communities, local authorities, etc.) (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports

		channels to reach young mothers, children, older persons, etc.	
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2 **Zomba:** 5.2.5; 5.2.7	In Morondava, *poor women/youth* working close to the areas where greening activities will be carried out may be negatively affected. *Single mothers, female heads of families* that are dependent on mangroves for livelihoods may not be adequately: (i) involved in mangroves plantation and maintenance-related works; or (ii) consulted on awareness-raising activities and in identifying sustainable alternative livelihood activities (such as fishing, cooking, heating, etc.). Power relations between local NGO workers (external to the community) and *vulnerable youth, especially young women*, may result in social tensions. *Migrants* may be excluded from the mangroves plantation and afforestation activities. *Children and youth* may be excluded from awareness-raising activities on the importance of maintaining the targeted ecosystems. Green areas, afforestation activities and rain water harvesting systems may not be easily accessible for *older persons and the disabled.*	- Community representatives, grass-root organisations, municipal officials and other local stakeholders, when planning/implementing these initiatives, will be sensitised on the importance of capturing the perceptions, constraints and needs of the marginalised and vulnerable including women, children, older persons and persons with disabilities; this will be done in a participatory/ consultative way, including through training and awareness-raising activities, especially to actively involve these groups in the planned activities and identify alternative livelihood options; - Safe grievance/reporting mechanisms will be set up to capture complaints, feedback, inputs and updates from the concerned community groups; - Job descriptions and vacancies related to these sub-projects will be tailored to allow local vulnerable youth, especially young women, migrants and other vulnerable/marginalised groups to apply; - Awareness raising campaigns will be designed/delivered to reach children, youth and the marginalised/vulnerable through the use of appropriate platforms, approaches, languages, tools and materials; - Green areas, mangroves conservation and afforestation activities will be designed in a participatory manner to allow access/involvement of the marginalised and vulnerable groups.	- Regular meetings with key local stakeholders (communities, local authorities, etc.) (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
Principle 5: Gender Equality and Women's Empowerment - Risk: YES			
1. Drainage and 6. Mobility initiatives Sub-projects: **Morondava:** 5.1.5; 5.1.6; 5.1.7; **Moroni:** 5.4.1; **Zomba:** 5.2.3; 5.2.5; 5.2.6 **Chokwe:** 5.3.1	- The final design and construction plans may fail to consider women's' needs and constraints; - Construction works may limit women's' ability to access livelihoods and hamper their mobility; - Women could be considered as not 'fit' for any construction/ maintenance works due to their perceived status, role and/or lack of skills; - Awareness campaigns may not reach all women and, as a result, exclude them from a better understanding of the relation between waste, the risks of flooding, sanitation and public health.	- Training activities will be delivered to key local stakeholders on women's needs and constraints, especially through existing women's associations; - Consultations and participatory approach on the detailed sub-projects' design and implementation strategies to integrate a gender perspective, minimise negative impacts and actively involve women in the construction works; - Job descriptions and vacancies related to these sub-projects will be gender-sensitive to encourage women's applications; - Safe grievance/reporting mechanisms will be set up to capture women's complaints, feedback, inputs and updates; - Awareness raising campaigns will be designed and delivered in a gender sensitive manner to reach a maximum number of women.	- Regular meetings with key local stakeholders (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
2. Early warning system and 4. Safe havens Sub-projects: **Morondava** 5.1.3; 5.1.4; **Moroni:** 5.4.4 **Zomba:** 5.2.1; 5.2.2 **Chokwe:** 5.3.2; 5.3.4	- EWS and awareness activities may fail to recognise and take into consideration existing negative gender dynamics, especially GBV; - The development and design of a safe haven and its management may continue to unintentionally discriminate women and/or reinforce existing gender dynamics; - Women's' roles as custodians of the household and responsible for families may prevent them from participating in external activities and events such as community consultations and vocational training.	- Existing gender dynamics within the community will be assessed leading to critical recommendations to be integrated in the design of EWS and safe havens; - Women's needs and concerns, especially those of young women, single mothers, women living with HIV/AIDS, GBV victims and female migrants will be integrated in EWS and safe havens design and operationalization/construction; - Safe grievance/reporting mechanisms will be set up to capture women's complaints, feedback, inputs and updates; - Gender will be mainstreamed during community consultations and vocational training, paying special attention in organising these activities according to a time table that respects women's responsibilities within the target communities.	- Regular meetings with key local stakeholders (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
3. Improvement of solid waste management Sub-projects: **Moroni:** 5.4.3 **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	Women are responsible for household management and have limited time for other activities; waste is often considered inappropriate for them to handle; this may result in failing to involve them in these sub-projects and result in loss of job opportunities for them. Maintenance, sanitation and awareness-raising activities may exclude or not reach less educated and marginalised women; as a result, they may be excluded from a better understanding of the relationship between waste, flooding risks, sanitation and public health.	- Existing gender dynamics within the community will be assessed leading to critical recommendations to be integrated in solid waste management (SWM) strategies and trainings; - Specific tasks, roles and responsibilities in SWM will be assigned to women; - Meetings, trainings and awareness raising activities will be held at appropriate times and locations for women, and designed in a gender-sensitive manner; - Safe grievance/reporting mechanisms will be set up to capture women's complaints, feedback, inputs and updates.	- Regular meetings with key local stakeholders (monthly or when needed) - Progress reports - Meetings' attendance lists and minutes - Key documents - Grievance reports

5. Rehabilitation/ protection of ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2 **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	- Women's opinions may not be considered sufficiently relevant in the design of these green spaces; - Women may not be encouraged to participate in awareness-raising activities and to apply for job opportunities related to the maintenance of these green areas; - The implementation of the activities may reinforce existing discriminatory practices against women, which may result in: (i) women not being consulted; (ii) difficulty in taking part in mangroves plantation and maintenance related works; and (iii) not fully benefitting from the outcomes of the activities.	- Communities will be sensitised on the importance of adopting a gender lens and approach in the design and implementation of ecosystem rehabilitation/ protection initiatives; this will be done in a participatory and consultative manner; - Specific tasks during implementation and maintenance of the targeted green areas will be assigned to women; adequate protective measures and job time tables will be applied consequently; - Training and awareness activities will include and be designed according to a gender approach; - Safe grievance/reporting mechanisms will be set up to capture women's complaints, feedback, inputs and updates.	- Regular meetings with key local stakeholders (monthly or when needed) - Progress reports - Meetings' attendance lists, minutes and key documents presented/ discussed - Grievance reports
Principle 6: Core Labour Rights - Risk: YES			
All sub-projects	These initiatives entail construction works so labour contracts will be established in the four countries. Since national labour laws do not clearly regulate and enforce the ILO standards and principles - especially those related to social security and occupational safety and health- it may result in unfair treatment concerning compensation (living wage), gender equity, health and security standards in relation to dangerous and unhealthy work.	- In agreement with the local authorities and concerned communities, minimum social security, occupation safety and health (as per the ILO standards and principles) will be included in labour contracts and sub-contracts; - Employment contracts will be written documents and registered according to the country's labour law and conditions; - Safe grievance/reporting mechanisms will be set up to capture local workers' complaints, feedback, inputs and updates.	- Regular meetings with key local stakeholders (monthly or when needed) - Progress reports - Key documents - Grievance reports
Principle 9: Protection of Natural Habitats - Risk: YES			
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	- In Moroni, the drainage network discharges directly into the Channel of Mozambique without passing through a water treatment plant, hence potentially harming the marine ecosystem (NB: the impact will be highly diluted considering that the Channel of Mozambique is part of the Indian Ocean); - In Morondava, the drainage network discharges directly into the Hellot Channel which separates the city from the mangroves, a sensitive critical habitat, before going into the Indian Ocean; - In Zomba the improved drainage system may risk increasing the level of discharge of dirty water with waste into the Likangala River.	- Organise awareness-raising activities targeting the concerned local communities to highlight the importance of keeping the drainage ditches clean and the relationship between waste dumping and clogging of ditches, flooding and diseases (see also the Sustainability section of the referred sub-project fiches in **Annex 5**); - Where appropriate, metal grids can be used to protect drainage ditches to be clogged with waste; in fact, by minimising the storm water pollution the impact on critical habitats will be reduced (NB: this is also linked to sub-projects 5.4.3; 5.1.8 and 5.2.4 on solid waste management); - Monitoring regularly the state of the identified critical natural habitats.	- Monitoring of the identified critical ecosystems at risk every 4 months with local authorities - Monitoring of the state of the drainage channels every 2 months - Meetings' attendance lists and minutes - Progress reports
5. Rehabilitation/ protection of ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2; **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	Only sub-project 5.2.5 in Zomba presents a risk since the planned river rehabilitation involves protecting sections of the river banks with gabions to reduce flooding and erosion. This intervention may affect the health and functioning of the Likangala riverine ecosystem (NB: the impact will be minimal considering that the Likangala River is 50 km long and that gabions will be installed only in a limited number of spots in Zomba and will not harm the connectivity of the ecosystem).	- The design of the river rehabilitation intervention will pay particular attention to ensure that the connectivity of the ecosystem is not affected. The design will be done in collaboration with experts from the Department of Environment of the city council, the Botanic Garden and the University of Malawi in Zomba, in close coordination with the national authorities; - Activities will be organised in collaboration with these entities to protect the riverine ecosystems around the hotspots where gabions will be installed; - Awareness-raising campaigns will be carried out to increase the level of understanding regarding the negative impacts of sand mining in the river banks; - By-laws to prevent informal sand mining in the targeted areas will have to be enforced in a stricter manner, including payment of penalties; involving the riparian populations in this process through awareness-raising and surveillance/reporting mechanisms will be crucial; - Alternative livelihood options will have to be identified for the sand miners.	- Monitoring of the intervention on a regular basis (weekly) during implementation - Monitoring of the state of the river ecosystem and possible impacts by the mentioned entities every 4 months - Meetings' attendance lists and minutes - Progress reports
Principle 10: Conserving Biodiversity - Risk: YES			

1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	- In Moroni, by discharging directly into the Channel of Mozambique, the drainage to be built can harm the marine ecosystem and impact on its coastal biodiversity (NB: the impact will be highly diluted considering that the Channel of Mozambique is part of the Indian Ocean); - In Morondava the improved drainage may impact on biodiversity because of the mangroves, by discharging directly into the Hellot Channel; - In Zomba the improved drainage may discharge dirty water with waste into the Likangala River and impact on the riverine ecosystem, including its flora and fauna (NB: the water quality along the Likangala River today, i.e. before starting the project, varies due to existing pollution points and non-points along the river – see: https://en.wikipedia.org/wiki/Likangala_River)	- Organise awareness-raising activities targeting the concerned local communities to highlight the importance of keeping the drainage ditches clean and the relationship between waste dumping and clogging of ditches, flooding and diseases (see also the Sustainability section of the referred sub-project fiches in **Annex 5**); - Where appropriate, metal grids can be used to protect drainage ditches to be clogged with waste; in fact, by minimising the storm water pollution the impact on critical habitats will be reduced (NB: this is also linked to sub-projects 5.4.3; 5.1.8 and 5.2.4 on solid waste management); - Monitoring regularly the state of the identified critical natural habitats.	- Monitoring of the identified critical ecosystems at risk every 4 months with local authorities - Monitoring of the state of the drainage channels every 2 months - Meetings' attendance lists and minutes - Progress reports
5. Rehabilitation/ protection of existing ecosystems and sustainable use of natural resources Sub-projects: **Moroni:** 5.4.2; **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	Only sub-project 5.2.5 in Zomba presents a risk of biodiversity reduction since the planned river rehabilitation involves protecting sections of the river banks with gabions to reduce flooding and erosion. This intervention may affect the biodiversity of the Likangala riverine ecosystem (NB: the impact will be minimal considering that the Likangala River is 50 km long and that gabions will be installed only in a limited number of spots in Zomba).	- The design of the river rehabilitation intervention will pay particular attention to ensure that the connectivity of the ecosystem is not affected. The design will be done in collaboration with experts from the Department of Environment of the city council, the Botanic Garden and the University of Malawi in Zomba, in close coordination with the national authorities; - Activities will be organised in collaboration with these entities to protect the riverine ecosystems around the hotspots where gabions will be installed; - Awareness-raising campaigns will be carried out to increase the level of understanding regarding the negative impacts of sand mining in the river banks; - By-laws to prevent informal sand mining in the targeted areas will have to be enforced in a stricter manner, including payment of penalties; involving the riparian populations in this process through awareness-raising and surveillance/reporting mechanisms will be crucial; - Alternative livelihood options will have to be identified for the sand miners.	- Monitoring of the intervention on a regular basis (weekly) during implementation - Monitoring of the state of the river ecosystem by the mentioned entities every 4 months (NB: the existing inventory of species of the Likangala River will serve as baseline) - Meetings' attendance lists and minutes - Progress reports
Principle 12: Pollution and Resource Efficiency - Risk: YES			
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	➢ *Over-use of resources:* In Morondava and Zomba sand is usually extracted in an uncontrolled manner from the beach and/or river banks. ➢ *Pollution:* planned activities related to drainage may pollute soil and water due to discharge of dirty water with waste. - In Moroni: the direct discharge into the Channel of Mozambique may pollute the sea water and the fragile coastal ecosystem due to the presence of waste in the drainage network (NB: the impact will be highly diluted considering that the Channel of Mozambique is part of the Indian Ocean); - Morondava, Chokwe and Zomba: improvements of the drainage system may cause the direct discharge of dirty water with waste into rivers and sea, thus increase the polluting effect and lowering the water quality of these ecosystems.	- A mitigation plan to avoid over-use of sand in the planned construction activities (and to be rigorously followed) will be drafted for sustainable provisioning of sand before starting the construction phase; the plan will include, among other measures: (i) a detailed design of the drainage channels avoiding the over-use sand (e.g. substitution of sand with other construction materials); (ii) purchase of sand from non-impacting sources; etc. - To minimise the pollution of surface waters mitigation measures are the same as for Principles 9 and 10 to avoid negative impacts on critical natural habitat and biodiversity.	- Regular (weekly) monitoring of the intervention and adherence to the mitigation plan - Monitoring of the identified ecosystems at risk every 4 months with local authorities - Monitoring of the state of the drainage channels every 2 months - Meetings' attendance lists and minutes - Progress reports

3. Improvement of solid waste management Sub-projects: **Moroni:** 5.4.3; **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	➢ *Over-use of resources:* For Zomba the construction of waste sorting/recycling centres leads to potential risks of over-use of resources (sand for concrete). However, this is a small scale construction, so there is minor risk. ➢ *Pollution:* minor pollution of soil and water may occur in some cities, as follows: - Morondava: there may be minor soil and ground water pollution in case of waste overflow and leakage from the containers, in case of irregular waste collection; - Chokwe and Zomba: community waste sorting/recycling centres are planned; if the ground is not impermeable, leachate may pollute the soil and groundwater.	- Similarly to the drainage thematic group of sub-projects, a mitigation plan to avoid over-use of sand in the planned construction activities will be drafted for sustainable provisioning of sand before starting the construction phase; - To minimise the risk of pollution there is need to include a waterproof ground (e.g. using cement or underground plastic sheet) during the design phase to avoid leachate percolation that may affect the soil or ground water quality; - Ensuring timely and regular collection of waste by the local authorities in collaboration with the concerned communities will be crucial; awareness-raising activities will also be carried out for this purpose; - See more mitigation measures under the Sustainability section of the referred sub-project fiches in **Annex 5**	- Weekly monitoring of the intervention during construction and waste collection - Sub-projects' detailed design plans - Monitoring of the state of soil and ground water every 6 months with local authorities - Meetings' attendance lists and minutes - Progress reports
4. Construction of multi-purpose safe havens Sub-projects: **Morondava:** 5.1.4 **Chokwe:** 5.3.2 **Zomba:** 5.2.2	Sub-projects belonging to this thematic group include construction activities and, similarly to group 1 (drainage improvement), may present some level of risk of over-use of sand only for Morondava and Zomba. However, the construction of safe havens can be considered to be of relatively small scale.	Similarly to the drainage thematic group of sub-projects, a mitigation plan to avoid over-use of sand in the planned construction activities will be drafted for sustainable provisioning of sand before starting the construction phase.	- Regular monitoring (weekly) of the intervention and adherence to the mitigation plan during the construction phase - Progress reports
6. Improvement of urban mobility through construction/ rehabilitation of roads & bridges Sub-projects: **Morondava:** 5.1.5; 5.1.6; **Zomba:** 5.2.6	The rehabilitation of roads and bridges may lead to an over-use of resources.	Similarly to the drainage thematic group of sub-projects, a mitigation plan to avoid over-use of sand in the planned construction activities will be drafted for sustainable provisioning of sand before starting the construction phase.	- Regular monitoring (weekly) of the intervention and adherence to the mitigation plan during the construction phase - Progress reports
Principle 13: Public Health - Risk: YES			
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	As mentioned in Principle 12, the discharge from improved drainage systems may represent a pollution risk. Even though none of these water bodies represent a drinking source, they are fishing grounds and sources for agricultural irrigation, or places where people play and swim. This implies that the pollution of these water bodies may have a direct or secondary impact on public health.	As impacts on public health depend on potential water pollution, the mitigation measures to be applied are the same as for Principle 9, 10 and 12 (2nd bullet related to pollution) for this thematic group of sub-projects.	- Monitoring of the identified ecosystems at risk every 4 months - Monitoring of the state of the drainage channels every 2 months - Meetings' attendance lists and minutes - Progress reports
3. Improvement of solid waste management Sub-projects: **Moroni:** 5.4.3; **Morondava:** 5.1.8 **Chokwe:** 5.3.3 **Zomba:** 5.2.4	The planned activities may lead to some level of pollution of the soil and/or ground water (see Principle 12) with direct and indirect impacts on health. If ground water is polluted (as explained under Principle 12, this is a very minor risk) and then consumed as drinking water, it may affect the health of people. In addition, for all cities, in case of irregular waste collection from the installed containers or inefficient management of the waste sorting/recycling centres, waste may attract mosquitos and increasing the risk of malaria or water-borne diseases in case of rainfall among the communities living nearby.	- To minimise the risk of ground water pollution there is need to include a waterproof ground (e.g. using cement or underground plastic sheet) during the design phase to avoid leachate percolation; - Ensuring timely and regular collection of waste by the local authorities in collaboration with the concerned communities will be crucial; awareness-raising activities will also be carried out for this purpose; - See more mitigation measures under the Sustainability section of the referred sub-project fiches in **Annex 5**.	- Weekly monitoring of waste collection - Sub-projects' detailed design plans - Monitoring of the state of soil and ground water every 6 months with local authorities - Meetings' attendance lists and minutes - Progress reports

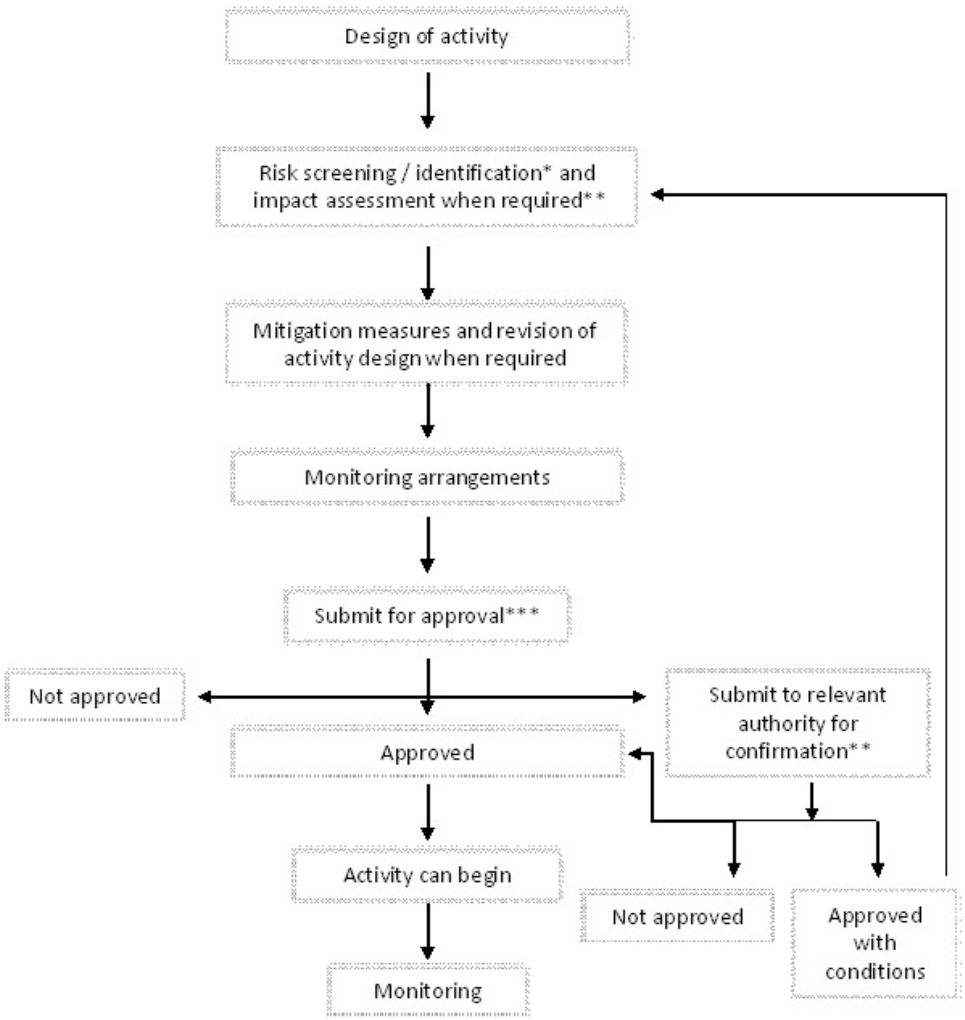
5. Rehabilitation/ protection of ecosystems and sust. use of natural resources Sub-projects: **Moroni:** 5.4.2; **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	The only potential risk may be represented by the river rehabilitation intervention in Zomba (sub-project 5.2.5) as the use of gabions, if not properly conceived and managed, may harm the natural habitat, which is one of the public health determinants.	As impacts on public health depend on the quality of the Likangala River, the mitigation measures to be applied are the same as for Principle 9 (1st and 2nd bullets) for this thematic group of sub-projects.	- Weekly monitoring of the intervention during implementation - Monitoring of the state of the river ecosystem every 4 months - Meetings' attendance lists and minutes - Progress reports
Principle 15: Land and Soil Erosion - Risk: YES			
1. Improvement of drainage conditions Sub-projects: **Moroni:** 5.4.1 **Morondava:** 5.1.7 **Chokwe:** 5.3.1 **Zomba:** 5.2.3	- in Moroni: some level of risk associated to the marine ecosystem due to uncontrolled discharge of dirty water with waste through the improved drainage system; this discharge impact, in a highly diluted manner, only on the sea waters; - in Morondava: identified valuable lands may be at risk because of the impact of the uncontrolled discharge of dirty water with waste through the improved drainage system on the mangroves and the Hellot Channel; - in Chokwe: soil degradation is currently observed along the existing drainage channels' banks; - in Zomba: uncontrolled discharge of dirty water with waste through the improved drainage system may affect the ecosystem functions of the river and its banks.	- To minimise the degradation of the identified valuable lands and avoid any negative impact on ecosystem services provisioning due to water pollution as described in the risk assessment, the mitigation measures to be adopted are the same as under Principles 9 and 10 (2nd bullet) for this thematic group of sub-projects; - Drainage improvement works in Chokwe will be accompanied by planting vegetation activities along the banks to reduce soil degradation - See more mitigation measures under the Sustainability section of the referred sub-project fiches in **Annex 5**.	- Monitoring of the identified ecosystems at risk every 4 months - Monitoring of the state of the drainage channels every 2 months - Meetings' attendance lists and minutes - Progress reports
5. Rehabilitation/ protection of ecosystems and sust. use of natural resources Sub-projects: **Moroni:** 5.4.2; **Morondava:** 5.1.1; 5.1.2; **Zomba:** 5.2.5; 5.2.7	Only the river rehabilitation intervention in Zomba (sub-project 5.2.5) including the use of gabions may affect the river ecosystem and may, therefore, represent a risk in terms of soil degradation and for the identified valuable lands, i.e. the river itself and its banks.	The same mitigation measures proposed under Principles 9, 10, 12 and 13 proposed for this thematic group of sub-projects may be applied.	- Weekly monitoring of the intervention during implementation - Monitoring of the state of the river ecosystem every 4 months - Meetings' attendance lists and minutes - Progress reports

6. Arrangements to implement the ESMP

The combination of the screening and the ESMP lists all potential risks identified, and the mitigation measures proposed to reduce potentially adverse environmental and social impacts to acceptable levels. The plan shows how these potential risks and mitigation measures will be further monitored, including responsibilities.

The measures put in-place to ensure compliance with the ESMP and the overall management of environmental and social risks is detailed in **Part III, Section C** of the main body of the proposal. This section provides information on risks management arrangements, risks monitoring and evaluation arrangements, and the grievance mechanisms.

Figure 1: screening safeguarding procedure when changes in activities or additional activities are required during the project



* For all activities against the 15 ESP principles.
Use of Risk Assessment Sheet where necessary

** In consultation with Project Supervision Team

*** All after activities to be approved by Project Management Committee

Sub-project risks screening questionnaire when changes in activities or additional activities are required during the project; steps:

1. Please fill out Tables 1 & 2 to provide the specific details for each activity / sub project;
2. Complete the checklist (Table 3), to assess the potential risk areas;
3. Identify risks mitigation measures for the questions answered 'yes' by filling Table 4;
4. Sign off the project for submission to approving authority (Table 5).

TABLE 1: GENERAL INFORMATION	
1. Activity / Sub-Project title	
2. Project number (if relevant)	
3. Project location (village, districts, geographical coordination)	
4. Person who filled the form	
5. Date of screening	
6. Signature	

TABLE 2: ACTIVITY / SUB-PROJECT DETAILS	
TECHNICAL INFORMATION (WHAT WILL BE DEVELOPED / CONSTRUCTED + DETAILS: LOCATION, LENGTH, SIZE, ETC.)	
7. Activity description and or asset to be developed	Mention relevant details, including length, size, etc.
8. Materials to be used	(Estimation of) type and quantity needed for construction and / or enhancement of ecosystems (where applicable)
9. Other technical specifications	Add any relevant information from an environmental point of view, e.g. what type of terrain (where applicable)
10. Who owns the land the activity is planned on and / or who uses the land and why?	Is the land public, private, etc.? Is land use legal / illegal? What is the land used for? Can land users be compensated? If so, how?
11. Start date of activity / works	
12. End date of activity / works	
USE OF ASSETS (BENEFITS AND ACCESS)	
13. How will the asset be used	What kind of use is planned for the asset? What benefits are expected? How will they will be distributed (equally) and who will use it (women, men, young people, minorities, etc.)?
14. Interventions required for appropriate use of the asset	List any other activity planned to ensure the asset is used as it should be; e.g. training and capacity building, sensitisation, accompanying measures like soil erosion management, drainage, quota systems, etc.
15. Interventions required for sustainable management and maintenance	What kind of maintenance will be needed? Who will be responsible and who will do it? How will the asset be managed? And by whom?
CONSULTATIONS	
16. Was the community (and specific groups) consulted	Yes or no and comment / outcome (any specific needs for specific groups)
17. Have relevant local authorities been consulted	Yes or no and comment / outcome (any specific needs / suggestions
ENVIRONMENTAL AND SOCIAL CONTEXT	
18. Description of the environmental context and the main environmental issues on the site / in the area	Give a short description of the environmental situation on the site and in the area and mention the main environmental issues (e.g.: presence of specific biodiversity; deforestation, soil fertility loss, water scarcity, lack of groundwater, water quality degradation, waste issues, etc.). The description should contain essential information on which of the risks identification (see below) is based.
19. Description of the social context and the main social issues on the site / in the area	Example: What groups live in target area? Land tenure conflicts, land ownership and use, high incidence of malaria or other diseases, recurrent conflicts between inhabitants, high number of indigenous people, etc. The description should contain essential information on which the risks identification (see below) is based
20. Is an ESIA required by law?	Comment

TABLE 3: CHECKLIST OF POTENTIAL RISK AREAS OF NON-COMPLIANCE WITHIN THE ADAPTATION FUND'S ENVIRONMENTAL AND SOCIAL PRINCIPLES	ANSWER (Y/N)
Principle 1: Compliance with the Law	
20 Is there a risk that the activity does not comply with an applicable domestic or international law? Is an ESIA	

required by national law? Check for what projects and size ESIAs are required and possibly discuss with municipality or ministry. What is the process and who is responsible?	
Principle 2: Access and Equity	
21. Is there a risk that the activity would exclude any potentially affected stakeholders from fully participating in decisions that may affect them?	
22. Is there a risk that the activity would impede access of any group to basic health services, clean water and sanitation, energy, education, housing, safe and decent working conditions, land rights, etc.?	
23. Is there a risk that the activity does not provide fair and equitable access to benefits from the project to all affected stakeholders?	
24. Is there a risk that the activity exacerbates existing inequities, particularly with respect to marginalized or vulnerable groups?	
Principle 3: Vulnerable and Marginalised Groups	
25. Are there any marginalised or vulnerable groups present among project beneficiaries?	
26. Is there likelihood that the activity would have inequitable or discriminatory adverse impacts on affected populations, particularly people living in poverty or marginalised or excluded individuals or groups?	
27. Could the activity potentially restrict availability, quality of and access to resources or basic services to marginalised individuals or groups?	
Principle 4: Human Rights	
28. Could the activity lead to adverse impacts on enjoyment of the human rights (civil, political, economic, social or cultural) of the affected population?	
29. Would the activity possibly affect land tenure arrangements and/or community based property rights/customary rights to land, territories and/or resources?	
Principle 5: Gender Equality and Women's Empowerment	
30. Is there likelihood that the proposed activity would have adverse impacts on gender equality and/or the situation of women and girls?	
31. Would the activity potentially reproduce discriminations against women based on gender, especially regarding participation in design and implementation or access to opportunities and benefits?	
32. Would the activity potentially limit women's ability to use, develop and protect natural resources, taking into account different roles and positions of women and men in accessing environmental goods and services?	
Principle 6: Core Labour Rights	
33. Does the activity involve support for employment or livelihoods that may fail to comply with national and international labour standards (i.e. principles and standards of ILO fundamental conventions)?	
Principle 7: Indigenous People	
34. Are indigenous peoples present in the project area?	
35. Would the proposed activity potentially affect the human rights, lands, natural resources, territories, and traditional livelihoods of indigenous peoples?	
36. Would the activity adversely affect the development priorities of indigenous peoples as defined by them?	
37. Has there been an absence of culturally appropriate consultations on matters that may affect the rights and interests, lands, resources, territories and traditional livelihoods of the indigenous peoples concerned?	
Principle 8: Involuntary Resettlement	
38. Would the activity potentially involve temporary or permanent and full or partial physical displacement?	
39. Is there a risk that the activity would lead to forced evictions?	
40. Will the activity lead to economic displacement (loss of assets or access to assets that leads to loss of income sources or other means of livelihood)?	
Principle 9: Protection of Natural Habitats	
41. Is the activity within or adjacent to critical habitats and/or environmentally sensitive areas, including legally protected areas (e.g. nature reserve, national park), areas proposed for protection, or recognized as such by authoritative sources and/or indigenous peoples or local communities?	
42. Would the activity potentially cause adverse impacts to habitats (e.g. natural, modified, and critical habitats) and/or ecosystems and ecosystem services?	
43. Does the activity involve changes to the use of lands and resources that may have adverse impacts on habitats, ecosystems, and/or livelihoods?	
Principle 10: Conserving Biodiversity	
44. Could the activity lead to the reduction or loss of biological diversity?	
45. Would the activity pose a risk of introducing invasive and/or non-native species?	
46. Is monoculture foreseen?	
47. Would the activity pose risks to endangered species?	
Principle 11: Climate Change	
48. Will the activity result in significant greenhouse gas emissions or may it exacerbate climate change / maladaptation (e.g. negative effects in other areas)?	
Principle 12: Pollution and Resource Efficiency	
49. Does the activity require significant consumption of raw materials, energy, and/or water?	
50. Would the activity potentially result in the generation of waste (both hazardous and non-hazardous)?	

51. Would the activity potentially result in the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts?	
52. Will the activity involve the application of pesticides?	
Principle 13: Public Health	
53. Would the activity result in potential increased health risks (e.g. from waterborne or other vector-borne diseases or communicable infections such as HIV/AIDS)?	
54. Would the activity pose potential risks to community health and safety due to the transport, storage, and use and/or disposal of hazardous or dangerous materials?	
55. Would elements of activity construction, operation, or decommissioning pose potential safety risks to local communities?	
Principle 14: Physical and Cultural Heritage	
56. Will the proposed activity result in interventions that would potentially adversely impact sites, structures, or objects with historical, cultural, artistic, traditional or religious values or intangible forms of culture (e.g. knowledge, innovations, practices)?	
Principle 15: Land and Soil Erosion	
57. Will the activity lead to the conversion of wetlands, waterways, or woodlots?	
58. Will the activity cause the clearing of natural vegetation and/or forest?	
59. Is there a risk that the activity leads to soil degradation?	
60. Is there a risk that the activity is designed without proper soil analysis and/or does not match soil capability?	

TABLE 5: SIGN OFF FOR SUBMISSION FOR APPROVAL

Signature	Date	Description
Assessor of activity sub-project		
Project leader		
UN-Habitat Project Manager		

Annex 4 – CONSULTATION DETAILS

➢ ***Madagascar***

In Morondava, the consultation process involved local authorities (regional, district, municipal, neighbourhood level), municipal technical staff, communities most affected by risks and climate change and civil society organisations (see the following link for more information about consultations in Morondava: http://dimsur.org/annex-4-local-consultations-and-support-letter-to-esmp-in-morondava-madagascar/). Overall, during the elaboration and adoption of the City Resilience Action Plan of Morondava using the CityRAP Tool, 124 persons directly participated in the data collection and identification of priority actions. Two workshops were organised for such a purpose:

- 15 March 2016: prioritisation workshop during which 10 priority issues in the short-, medium- and long-term were selected with the participation of 26 representatives of local stakeholders, including communities and municipal staff.
- 15-17 March 2016: validation workshop, during which 23 participants validated the priority issues and activities identified in the City Resilience Action Plan of Morondava prepared by the team of municipal focal points with the support of UN-Habitat.

An assessment of the proposed project activities at the concept note stage took place in Morondava in the form of a stakeholder consultation on 6 December 2016 with 20 representatives from the Menabe Region, the Morondava municipality, the fokontanys (neighbourhoods) of Ampasy, Avaradrova, Sans fil and Tanambao, the technical services of the Ministry, the Morondava Women's and Youth Association, journalists and the local development and risk management committees. The associations dealing with environmental issues were represented by the Deputy Mayor of Morondava. The participants approved the proposed activities to be carried out in the project. As important points validated were the consideration of gender and the participation of young people. It was further proposed that journalists should be involved in activities for transparency, and that existing studies within the municipality on environmental aspects should be taken into account. The activities foreseen in the concept note were also approved at the level of fokontany chiefs. It was found that the activities would improve the current living conditions (more decent and safer, thus offering alternative solutions to all forms of housing relocation). An additional priority for Morondava city would be reforestation actions with fast-growing and drought-resistant species to meet the growing need for energy.

In-depth local consultations took place between 26 and 30 June 2017. Additional ministerial level consultations to further detail activities under Component 3 took place in July 2017. Then, from 23-26 October 2017, project site visits and further local consultations took place with a view to assessing the feasibility and social and environmental risks of the planned project activities. The table below gives an overview of these consultations and summarises the outcomes.

Table 1: Overview of consultations carried out in Morondava from 23-26 October 2017

Stakeholder, incl. role / function	Consultation objective	Outcome	Conclusion
Morondava city level			
City council: Mayor, Deputy Mayor, Focal Points of the CityRAP process	Acquire required detail to fill environmental and social risk screening sheets and agree on interventions	Filled environmental and social risk screening sheets, agreement on interventions and understanding of grievance mechanism that can work in Morondava	City council fully supported the mission (with technical specialist made available for the full week). They proposed that grievance mechanisms should be done through radio, based on what already exist but should be improved. It was recommended to raise this issue during community consultations.
Meeting with the Focal Point of the "Sustainable management of coastal areas to face climate change" project	Gain understanding of the project to be initiated early next year and check potential overlaps	Relevant information collected concerning the project and discussion about	The project will focus on the stabilization and replanting of dunes; therefore, it was decided that the interventions of this proposal should focus on other complementary areas. Also, two irrigation canals will be dredged upstream.

in Morondava City Council	and/or synergies	synergies and coordination mechanisms	
Meeting (virtual) with the team in La Réunion jointly implementing the "Sustainable management of coastal areas" project	Gain understanding of the project to be initiated early next year and check potential overlaps and/or synergies	Relevant information collected concerning the project and discussion about synergies and coordination mechanisms	There is a common will to establish coordination mechanisms between the two projects especially regarding the implementation of activities at the local level, but also to share results of environmental and technical studies.
Morondava community level			
Community members and representatives of Tanambao neighbourhood	Gain understanding of issues and needs regarding proposed interventions / activities and validate risks mitigation measures.	Better understanding of the local organisation in case of disaster and challenges.	Since the central government was forbidden from using schools as shelter when a disaster occurs, community members are preoccupied knowing that the capacity of being hosted by other families is limited and depends on the number of households impacted. This system used to work until now, with no discrimination, but it would be insufficient. Also, the early warning system should be improved. With its current system of flag of colours, it makes it difficult to reach informal and remote communities.
Community members and representatives of Avaradrova and Sans Fil	These two neighbourhoods are located next to main flood prone areas. It was therefore necessary to understand the main climate change impacts and related needs.	Sustainability measures were discussed with the community regarding the preservation of the mangroves.	Community members understand the urgent need for replanting and preserving the mangroves since their main livelihood activity depends on crab fishery. They are committed to participate in planting and management activities to preserve the mangroves.

During an additional mission to Morondava in March 2018 where further technical, environmental and social assessments were done, marginalised and vulnerable groups were consulted in a series of focus group discussions in order to consider their in the project design (see **Annex 2** for data and information about marginalised and vulnerable groups in Morondava). The feedback from communities has directly influenced the project design of the following sub-projects: Rehabilitation of 180 ha of mangroves (Sub-Project Fiche 5.1.1); Establishment of a city-wide early warning system for floods (Sub-Project Fiche 5.1.3); Construction of a resilient and multi-purpose safe-haven (Sub-Project Fiche 5.1.4).

One consultation was organised with 8 women living with disabilities from different neighbourhoods in Morondava to discuss their views and needs on the proposed interventions. They flagged the problems they often face in evacuating when flood events occur. The water makes it particularly difficult for wheelchair users or other people with physical disabilities to move around and reach a safe place. They emphasised that the contingency plan should take this into account and make sure that mechanisms are in place to inform and support people with disabilities in the city (around 800, among which 30 with severe disability) in cooperation with the fire brigade. Concerning the construction of the safe haven, the group made two propositions that have been incorporated to the concept and design of the safe haven. Besides the fact that the resilient building needs to be easily accessible, it will also include a separate multi-function room in order to provide a safe place for women who feel particularly exposed to harassment and aggression. In addition, it was decided that the safe haven will serve as a community centre when not used as a shelter, where they can receive training to engage in income-generating activities.

Concerning the resilient and multi-purpose safe haven, a focus group discussion organised with 18 women from a women's association was particularly important for selecting the location. Three proposals were made, but only the location in Morondava centre was validated as a safe and suitable place. They emphasised the need for adequate sanitary conditions to avoid the spread of disease. The rehabilitation of mangroves was largely discussed with this group, which included the representative of a local association "Ambohotsimirany" of the Betania Neighbourhood which is already working on several topics such as hygiene, health and environment. The local association

counts around 30 members and they are ready to support the dissemination and replication of their activities relating to awareness-raising for mangrove protection in other neighbourhoods.

The issue of the rehabilitation of mangroves was also discussed during a community consultation in the Tanambao neighbourhood. 70 people were recorded (30 women, 40 men) by UN-Habitat staff, although only 30 people signed the attendance sheet. What emerged from this consultation is that 80% of the households live from crab fishery and they understand the importance and urgency of restoring the ecosystem in order to guarantee their livelihoods. Also, the lessons learned from a small-scale project of the Ministry of Fishery were discussed and the population agreed on the importance of working with local fishermen for successful implementation, especially regarding the choice of mangrove species and nursery.

To complete the consultative process, a series of meetings was organised, from 8-11 October 2018, to gather further data on marginalised and vulnerable groups in the project sites, review the Environmental and Social Impact Assessments (ESIA) and develop the Environmental and Social Management Plan (ESMP) for the city of Morondava. A public disclosure of the ESMP was held on 12 October 2018. The proposed ESMP for Morondava (see **Annex 3**) was validated by local authorities, community representatives and main relevant stakeholders (see the signed support letter in the following link: http://dimsur.org/annex4_supportlettermorondava_esmp/).

- ***Malawi***

In Zomba, the consultation process involved the national (Department of Disaster Management Affairs, DoDMA), city (Zomba City Council) as well as the neighbourhood levels (neighbourhoods Chambo, Likangala, Mbedza and Mtiya). Overall 200 people, among them municipal technical staff, community representatives, civil society organizations and the Zomba Polytechnic, directly participated in the data collection, risk mapping exercises and identification of priority actions during the resilience action planning process in 2015 (see the following link for more information about consultations in Zomba: http://dimsur.org/annex-4-local-consultations-and-esmp-support-letter-zomba-malawi-june-july-2017/). For the elaboration and adoption of the City Resilience Action Plan of Zomba using the CityRAP Tool, the following workshops were organised:

- 22-24 November 2015: data analysis workshop with the municipal focal points and the support of the UN-Habitat team;
- 25 November 2015: Prioritisation workshop with representatives from the local communities of Chambo, Likangala, Mbedza and Mtiya and municipal technicians. As a result, the City of Zomba came out with five priority actions for its Resilience Action Plan;
- 27 November 2015: Validation workshop with representatives from the Zomba City Council, municipal technicians and community representatives. The plan was approved and referred to the city council for further detailing of priority actions and related budgeting.

Further consultations were had with the Zomba City Council to validate the indicative provisions at the concept note stage. Zomba City Council management and Council studied the concept note in December 2016 and positively commented on the planned activities targeting the city of Zomba under Component 1. They informed that it would be appreciated if environmental enhancement projects such as tree planting and management, as well as land conservation would be reinforced under this component. They also emphasised the need to promote community exchanges at the national level, an activity that could be integrated under Component 2. In-depth local consultations took place between 12-16 June and 22-24 July 2017. During these consultations, representatives from all wards participated and representation of women, youth, older persons and persons with disabilities was ensured. Additional Ministerial-level consultations to further detail activities under Component 2 took place on 20 July 2017.

From 25-29 September 2017, project site visits and further local consultations took place with a view to assess the feasibility and social and environmental risks of the planned project activities and consider the needs of vulnerable people in the project design. Overall, more detail to assess the feasibility was gathered. The table below gives an overview of these consultations and summarises the outcomes.

Table 2: Overview of consultations carried out in Zomba from 25-29 September 2017

Stakeholder, incl. role / function	Consultation objective	Outcome	Conclusion
Zomba city level			
City Council: Chief Executive, Chief Urban Planner, Chief Engineer, Community Mobilizer	Obtain required detail to fill environmental and social risk screening sheets and agree on interventions	Environmental and social risk screening sheets filled in; Agreement reached on final interventions subsequent to project site visits and analysis of all data at the end of the week, and Understanding reached regarding grievance mechanism.	City council fully supported the mission (with technical specialists made available for the full week). Grievance mechanism should involve ward and community committee and traditional chiefs and communication should be by word, phone or letter.
Zomba District Forest Office	Gain understanding of the challenges and opportunities regarding afforestation / tree planting within the city boundaries of Zomba	Afforestation was successful in two wards due to drafting of community by-laws (by community and District Office).	The recommendation was made to work together with the District Forest Office to draft community by-laws in target wards.
Forest Research Institute of Malawi (FRIM)	Gain understanding of technical challenges and opportunities regarding afforestation / tree planting in urban context	The institute can advise on how to set up tree nurseries and on which species to plant. They would also provide seedlings for the same and have worked with communities to produce energy efficient cooking stoves.	During project implementation, collaboration should be ensured with FRIM to set up nurseries and plant trees. FRIM should also advise on the most effective techniques for producing and replicating cook stoves.
LEAD International	Gain understanding of the main issues and needs in Zomba and lessons learned regarding former projects carried out by LEAD International	LEAD International shared lessons learned regarding the establishment of an EWS and afforestation efforts, which have been integrated into the proposal (Part II Section G) and are in line with the needs and issues raised by the communities and vulnerable groups.	Possibly work together with LEAD International (through Oxfam) to execute the supporting interventions.
Sub-contractor for engineering works in Zomba	Explore feasibility and costs of drainage and river training interventions	Cost estimations	The costing estimates given proved to be in-line with former calculations based on information by the City Council
Zomba ward and community level			
Marginalized and vulnerable groups (youth, older persons, persons with disabilities, people living with HIV/ AIDS, orphans) and women in Chambo and Sadzi	Get an understanding of their particular issues and needs regarding proposed interventions /	For main issues and needs see information below the table	Issues and needs have been integrated in the design of interventions / activities

ward	activities and validate risks mitigation measures		
Ward committee members and representatives in Likangala ward (two female and five males, out of which 2 youths)	As Likangala is located next to the main river it was heavily impacted by the 2014/15 floods. It was therefore necessary to understand the main climate change impacts and related needs even though this ward was not prioritised during the CityRAP process before.	Ward committee members identified similar issues and needs as in the other wards located next to the main river.	Include EWS interventions and some small river training interventions (as part of the larger river system) in Likangala (see sub-project risk assessment sheets in **Annex 3**)
Discuss proposed intervention sites in all target wards with city council technical specialists and community members	Assess feasibility and risks of proposed interventions	Joint project site visits undertaken with Zomba City Council technical specialists and community members, and Details to understand feasibility and risks and to fill risks screening sheets acquired	Some interventions and activities have been simplified and in the case of waste, this was reduced to supporting activities (to sustain other interventions and mitigate risks)

Among the vulnerable groups typified by the Adaptation Fund, children, women and girls, older persons, persons with disabilities and people living with HIV/AIDS were consulted. Currently there are no indigenous or tribal groups and no displaced people or refugees living in Zomba (see **Annex 2** for data and information on vulnerable groups in Zomba).

For the consultations, the project screening team suggested the wards with most concrete interventions and those with high exposure to imminent flooding risks. Other selection criteria were the presence of a representative number of marginalized and vulnerable people. Accordingly, the two wards Chambo and Sadzi were chosen, which were particularly affected during the last flooding incidents. In Chambo, 25 people participated in the focus group discussions: 7 children, 12 women and 6 men. Out of the latter, 3 were elderly and one person differently abled. HIV positive individuals were present but did not identify themselves as such; hence, the number could not be quantified. In Sadzi, 21 people participated, out of which there were 2 with disabilities, 3 HIV positive, 6 children/youth, 5 women, 2 orphans and 3 elderly. The feedback from communities directly influenced the project design of the following sub-projects: Establishment of a city-wide early warning system for floods (Sub-Project Fiche 5.2.1); Construction of multi-purpose evacuation centres (Sub-Project Fiche 5.2.2); Sustainable urban forest management (Sub-Project Fiche 5.2.7).

As identified needs, the facilitators recorded that the design of the evacuation centres should be sensitive to gender issues and the needs of older persons and persons with disabilities. Specific needs were recorded for the respective groups as follows:

- Women raised the concern that they, together with small children, usually spend more time in the evacuation centres and are the ones left to cook food for their families. Sanitary facilities are oftentimes in short supply especially for them. Further, women, girls and children can be exposed to sexual abuse in times of disasters.
- Children said they would wish to have a place to play with others, a separate room if possible, in the evacuation centres.
- Elderly and persons with disabilities have problems reaching the evacuation centres before they are caught up in floods, as their mobility is compromised. Individuals with disabilities explained the additional challenge, in terms of sanitation and hygiene in times of floods, of using water borne toilets.
- HIV positive people mentioned facing difficulties of continuous antiretroviral therapy in times of disasters.

Accordingly, the evacuation centres will be designed with additional toilets/wash rooms built specifically for women and girls; water borne toilets and pit latrines for easier access by older persons, persons with disabilities and children, and overall better hygienic standards; separate rooms for women and young children, female youth, male youth, and men; as well as access ramps for persons with disabilities. In terms of outfitting of the centres, bicycle ambulances will be set up at each evacuation centre to enable rescuing elderly and persons with disabilities from disaster zones; first aid kits with medical supply of antiretroviral drugs (ARVs) will be stationed there as well. Women are overrepresented in the target areas and actively participate in deforestation. They confirmed this in the focus group discussions held. There is a need for them to develop alternative livelihoods to secure their family income. In response, women will be specifically targeted for training activities (e.g. construction of energy efficient cook stoves and briquette making).

From 23-26 October 2018 a series of meetings was organised to gather further data on marginalised and vulnerable groups in the project sites, to review the Environmental and Social Impact Assessments (ESIA) and develop the Environmental and Social Management Plan (ESMP) for the city of Zomba. A public disclosure of the ESMP was held on 25 October 2018. The proposed ESMP for Zomba (see **Annex 3**) was validated by local authorities, community representatives and main relevant stakeholders (see the support letter in the following link: http://dimsur.org/annex4_supportletterzomba_esmp/).

- ***Mozambique***

The consultation process in Chokwe involved key stakeholders in the spheres of urban governance and development including city councillors, management and technical staff, as well as communities and civil society (see the following link for more information about consultations in Chokwe: http://dimsur.org/annex-4-local-consultations-and-support-letter-esmp-in-chokwe-mozambique/).
Overall, 116 persons directly participated in the data collection and identification of priority actions contributing to the elaboration and adoption of the City Resilience Action Plan of Chokwe using the CityRAP Tool. Two workshops were organised for this purpose:

- 1 September 2015: prioritisation workshop during which 6 priority issues were selected with the participation of around 30 representatives of local stakeholders, including communities and municipal staff;
- 3 September 2015: validation workshop, during which 40 participants validated the priority issues and activities identified in the City Resilience Action Plan of Chokwe prepared by the team of municipal focal points with UN-Habitat support. During the consultative process, all municipal sectors were involved, and two local communities consulted.

The in-depth local consultations took place between 10 and 14 July 2017, where the priority interventions were selected including the target neighbourhoods. The priority interventions included improvement of the drainage systems, slum upgrading, establishing early warning systems and water absorption measures. Additional Ministerial-level consultations to further detail activities under Component 3 took place on 19 July 2017.

Further consultations were conducted with the Chokwe Municipal Council and the targeted neighbourhoods in order to validate the selected priority interventions. These consultations took place from 30 October to 3 November 2017. More than 200 people attended the consultations at the community level. The Chokwe Municipal Council emphasised the need for the selected interventions and stressed the fact that as part of its Five-Year Municipal Plan, it is very critical that activities are fully implemented since such interventions will reduce the vulnerability to floods. During the three days, field visits at the selected were conducted with the purpose of spatially identifying the interventions and drafting the priority interventions map which shows the location of the project sites. Moreover, each neighbourhood was consulted about the priority interventions and their special needs. Sustainability aspects of the projects were discussed with communities. Further, the need for developing feasibility studies regarding the proposed interventions was confirmed. Thus field visits to assess the proposed interventions and consultations with stakeholders took place for 3 days, from 28 February to 3 March 2018.

Table 3: Overview of consultations carried out in Chokwe from 30 October to 3 March 20178

Stakeholder, incl. role / function	Consultation objective	Outcome	Conclusion
Chokwe city level			
Municipal Council	Update the city council about the AF project proposal. Promote a receptive environment at the city level for the implementation of the activities. Provide a basis for the procedures on the preparation of the proposal: explain the importance of the consultation and the participatory planning for climate adaptation in the city of Chokwe.	Targeted neighbourhoods reinforced alternative options to reduce flood-related risks: improving the drainage system of the city and establishing early warning systems and well as investing in awareness-raising to climate change at the community level. The Mayor stressed the importance of continuing advocacy and capacity building in participatory planning for resilience building.	Ownership, engagement and commitment of the Municipal Technicians for supporting the public consultation and the activities for the proposal is demonstrated. The Directorate of Urbanization at the city level is responsible for leading the activities within the scope of the AF project proposal. The City Council, understands the next steps to be taken and the importance of creating a receptive environment for project implementation
Municipal Councillors of Urbanization, Environment and Social Sectors staff, including municipal technicians from the urbanization sector		The City Councillors and the Municipal Technicians understand the scope of the AF project proposal and what efforts are needed for a successful proposal. A work plan was agreed for the field visits and the public consultations with the target neighbourhoods. Priority interventions were also reviewed from the previous consultations and alternative solutions were briefly discussed.	The Municipal Technicians should work closely with the UN-Habitat staff during the field visits and the councillors should provide all the necessary guidance. The proposed interventions must be spatially represented in a good manner with the support of the municipal technicians, in order to make sure they contribute to floods mitigation.
Chokwe Neighbourhood and community level			
Neighbourhood´s community members	Public consultations with the local communities in the targeted neighbourhoods 2, 3, 4 & 5 including special consultations with the marginalized and vulnerable groups. Validate the proposed interventions. Field visit to the target neighbourhoods 2, 3, 4 & 5 to spatially identify where the interventions should take place and the high-risk areas. Understand the	Maps of the high-risk areas were produced; Concrete interventions were identified and located in the field, and Cost estimations performed.	The proposed interventions were consolidated in two big projects: rehabilitation/construction of drainage channels and establishment of the early warning systems, including escape routes and centres. The local communities demonstrated commitment to support the implementation of the planned interventions, including defining a grievance mechanism when necessary.

	whole drainage system and how it functions and understand how the early warning systems should work in the entire city, considering the priority neighbourhoods.		
Others			
FIPAG	Assess the water distribution and the available water for the communities affected by floods and droughts to decide on whether to include priority interventions for the water harvesting system.	FIPAG (Water Supply Assets Investment Fund) understands the scope of the project proposal and explains its plans regarding water accessibility in the city. UN-Habitat understands that the local communities in Chokwe have access to drinking water even during floods, however, some of the equipment for water distribution is affected during floods, compromising the access to safe water.	There is no necessity to invest in water harvesting system as the communities have access to drinking water and the coverage of water distribution is planned to increase in the coming year. FIPAG has already in its action plan to strengthen the capacity of the equipment for water distribution and treatment during floods emergency.
HICEP	Understand the functioning of the Drainage System and discuss the sustainability of interventions on the drainage.	HICEP (Chokwe Hydraulic) is responsible for the land irrigation channel management in Chokwe District (including the City of Chokwe). It has also supported the maintenance of the drainage channels. The outlet to the irrigation channel was subject to neglect in terms of structural upkeep, urban storm-water planning, and waste management procedures. This neglect has led to the increased risk of flooding and hygiene issues within the area. With the impacts of climate change rapidly increasing, and the sanitation issues in the area unanswered, a solution is needed to mitigate a potentially more devastating issue.	There is a need to rehabilitate the drainage outlets (southern drainage), as these are the primary reason for the weak functioning of the whole southern drainage channel. Moreover, maintenance of the drainage which is actually linked to the waste management is deemed necessary and HICEP was supporting the Municipality in providing such services, however, the efforts are not enough due to financing reasons. HICEP ensures it´s entire support on the drainage maintenance activities, which will work closely with the Municipality, and validated the proposed interventions on the drainage system.
ARA Sul		ARA-Sul (Southern Region Water Administration) is the water agency responsible for the river basins in southern Mozambique, including the trans-boundary flood prone rivers Limpopo	ARA Sul reinforces the need for strengthening the EWS at the city level. ARA Sul will fully support the intervention and proposed the creation of a multi-institutional committee for this purpose, comprised by INGC, ARA Sul, HICEP and the Municipality

		and Maputo. It is strongly involved in the hydrological modelling including water availability, dam operation and flood forecasting. ARA Sul is responsible for the early warning system of the Limpopo Region in Mozambique. The functioning of the EWS in Chokwe (from district to city level) was explained by ARA Sul and the weaknesses of the system were identified.	to address the EWS issues at the city level and ensure a good coordination and communication strategy with the whole region.

Separate consultation sessions were undertaken in the four target neighbourhoods with people who have disabilities such as blindness, deficiency in the lower limbs, and deficiency of the upper limbs, older persons and women. Particularly the persons with disabilities expressed their struggles when it comes to floods. Usually these individuals do not have specific assistance for evacuation, unless a friend, a neighbour or a close relative helps them. However, most of the time they cannot be evacuated since everyone needs to hurry to the safer places. The most they can do is to hide above tress or on the roof of the houses, accompanied by children or pregnant women, including older people who could not manage to be evacuated in time. There no social protection system for this group during emergency periods. Therefore, the evacuation routes should consider their conditions, as well as the evacuation centres. This group expressed interest in acquiring bicycles that could help them as well as an efficient EWS and regular drills, including children (see **Annex 2** for data and information on marginalised and vulnerable groups in Chokwe).

Table 4: Overview of consultations with vulnerable groups carried out in Chokwe from 30 October to 3 November 2017

Vulnerable group	Consultation meetings they participated in (dates)	Needs and issues regarding proposed project activities	Activities responding to these demands
Women, persons with disabilities and older persons	1 Nov. in neigh-bourhoods 4 and 5	Older persons need special attention for evacuation purposes during floods; Persons with disabilities have serious difficulties in escaping to safe areas and most of the times get support from friends, neighbours or close relatives to assist them to a safe place like the top of a tree or roof of a house; Women have to prioritize their small children first and sometimes they take care of them alone; and The existing evacuation centre is located far away in another settlement outside Chokwe, causing more difficulties to access easily and without support.	Special bicycles to be provided to the persons with disabilities for use during emergency periods; Evacuation centres in a closer place/ neighbourhood to ease the evacuation process; Evacuation centres with separate rooms for women and men, and A Neighbourhood Emergency Committee that can work closely with the Local Disaster Management Committees.
Women, persons with disabilities, older persons and children	2 Nov. in neigh-bourhoods 2 and 3	There is water available for drinking, no need to invest in new water pipes; Older persons need special attention for evacuation purposes during floods; Persons with disabilities have serious difficulties in escaping to safe areas and most of the time get support from friends,	Special bicycles to be provided to the persons with disabilities for use during emergency periods; Evacuation centres in a closer place/ neighbourhood to ease the evacuation process;

		neighbours or close relatives to assist them to a safe place like the top of tree or roof of a house; Woman have to prioritise their little children first and sometimes they take care of all of them alone; Children have no notion of what happens or how they should proceed, so drills are a priority for them to be aware on the disaster events and learn on how to make themselves safe during emergencies; and The existing evacuation centre is in located in another city outside of Chokwe and it is far, creating more difficult to access easily and without support.	Evacuation centres with separate rooms for women and men; A Neighbourhood Emergency Committee that can work closely with the Local Disaster Management Committees, and Emergency drills for everyone, especially involving and tailored for children.

To conclude the consultative process series of meetings was organised, from 15-19 October 2018, gather further data on marginalised and vulnerable groups in the project sites, to review the Environmental and Social Impact Assessments (ESIA) and develop the Environmental and Social Management Plan (ESMP) for the city of Chokwe. A public disclosure of the ESMP was held on 19 October 2018. The proposed ESMP for Chokwe (see integrated ESMP in **Annex** 3) was validated by local authorities, community representatives and main relevant stakeholders (see the support letter in the following link: http://dimsur.org/annex4_supportletterchokwe_esmp/).

- ***Union of Comoros***

During the concept note formulation stage, a preliminary stakeholder consultation was held on 9 December 2016 with several stakeholders, including representatives from government institutions, academia and civil society, in order to elicit views and opinions on the concept note. The participants involved representatives from the Directorate General of Civil Security, the Karthala Volcanological Observatory, the NGO Ulanga Ngazidja, the National Network for Women and Development, the Comorian Red Crescent Society, the Comoros University, the National Agency for Civil Aviation and Meteorology, the Association of Mayors (see the following link for more information about consultations in Moroni: http://dimsur.org/annex-4-local-consultations-and-esmp-support-letter-moroni-comoros/). The participants appreciated the relevance of the project concept note and especially that it will be a first in the country to choose the capital for a project of this type. There was no objection to what is being proposed.

Between April and August 2017 priority interventions for building urban resilience in Moroni were identified through the implementation of the CityRAP tool, including a self-assessment of relevant institutions dealing with different aspects of city management and in-depth community consultations. A team of government technicians, including from the municipality of Moroni[1], were trained and conducted the process of data collection and analysis, prioritisation and drafting of a preliminary City Resilience Framework for Action.

Between 20-24 November 2017, further consultation were held in Moroni to discuss and validate the proposed interventions with the City Council, relevant stakeholders and representatives of all selected neighbourhoods, including women, youth, older persons and persons with disabilities. The objective of the consultations was to assess the feasibility and social and environmental risks of the interventions proposed. The result of this procedure is presented in the table below. This consultative process facilitated the reorganisation of planned interventions according to the feasibility assessment.

[1] NB: The municipality of Moroni was established only in 2015, together with all other municipal authorities; it is still rather under-staffed. Various central government departments still have responsibilities in managing different sectorial issues in the city.

Table 27: Overview of consultations of consultations carried out in Moroni between 20 and 24 Nov. 2017

Stakeholder, incl. role / function	Consultation objective	Outcome	Conclusion
Moroni city level			
City council: General Secretary, Urban Planner; Chief of communities, local NGOs	Acquire required details for the environmental and social risk screening sheets, agree on interventions and grievance mechanism	Discussion conducted on environmental and social risks, agreement on interventions and decision to talk about grievance mechanism that can work in Moroni.	City Council fully supported the mission according to their capacity (low technical capacities), supporting coordination with local chiefs and communities. It was decided to discuss grievance mechanism during community consultations.
Disaster Risk Management Unit	Gain an understanding of the challenges and opportunities regarding an early warning system at the city level, in particular, regarding coordination and communication mechanisms with communities.	Better understanding of the necessary steps to implement an efficient early warning system.	The particular situation of Moroni, characterized by microclimates, requires adapted mechanisms to gather information (meteorological logic stations for example). The first step is to better understand needs at the local levels and organise workshop with the relevant stakeholder to design an adapted early warning system.
Comorian Red Crescent	Gain an understanding of the needs of marginalized and vulnerable groups and community organisations during disaster events as well as coordination and communication mechanisms with responsible authorities.	Better understanding of evacuation mechanisms organised by the communities and coordination with national force (army and DGSE) when needed.	The alert system is quite efficient in case of cyclone or volcanic eruption (at the national level using the mosques to alert communities), however there is no system in place in case of flash floods. Often communities self-organise and even have to alert authorities. People are often evacuated to community centres and schools or helped by other families. Community centres should be adapted to properly accommodate displaced people (sanitation facilities) instead of occupying schools.
Consultant engineer	Check feasibility and estimation costs of retention basins and drainage in La Coulée neighbourhood.	Cost estimations and feasibility completed.	Opened several questions regarding the dimension of interventions needed. Further hydrological and engineering studies are absolutely necessary to understand and design proper and adapted interventions.
Moroni neighbourhoods and community level			
Community members and representatives of La Coulée neighbourhood, and representatives of the neighbourhood association	Due to its location, La Coulée is particular affected by flash floods. The objective of the session was to better understand impacts and further discuss issues and needs regarding proposed interventions as well as risks mitigation measures	Better understanding of the neighbourhood organisation, including main challenges faced by the population.	The neighbourhood association is very strong in organising the community, including building and maintaining some infrastructure with very limited financial resources. The association will be a serious asset to support the construction and maintenance of planned interventions. Issues and needs have been integrated in the design of interventions / activities such as location of water standpipes and maintenance mechanisms. The neighbourhood association is a good channel for grievance mechanisms.
Members and representatives of Madjadjou-Djomani	Assess feasibility and risks of proposed interventions	Better understanding of land ownership situation and discuss potential solutions to be sure that the population will benefit from the interventions.	Since land is private in the neighbourhood, a “land readjustment” approach will be necessary including the commitment of the municipality, local population and the landowner.
Community members and	Assess feasibility and risks of proposed	The situation was very similar to the previous	Similar measures as mentioned above were proposed, but noting that some

representatives of Oubodoni-Mboueni	interventions	neighbourhood regarding intervention. Discussions were conducted to understand the land ownership situation and potential solutions.	lands belong to the municipality in this neighbourhood (more than 50%).
Badjanani-Mtsangani	Assess feasibility and risks of proposed interventions	Better understanding of root causes of flooding	Knowing that a drainage system is existent but absolutely non-functioning, the discussion lead to the conclusion that the most effective intervention would be to rehabilitate this existing drainage system by intervening on solid waste management. Equipment will have to be adapted to the characteristics of the Medina (narrow streets), using wheelbarrows or bikes to collect waste.

Marginalised and vulnerable groups were invited to participate in the consultations, including women and older persons (see **Annex 2** for data and information about marginalized and vulnerable groups in Moroni). It can be noted that HIV/AIDS is a taboo in Moroni, thus it was complicated to formally include this group in the discussions. The feedback from communities directly influenced the project design of the following sub-projects: Establishing a community-managed rainwater harvesting system in La Coulée neighbourhood (Sub-Project Fiche 5.4.2); Setting up a flood early warning system in La Coulée neighbourhood (Sub-Project Fiche 5.4.4).

A meeting was organised with the Comorian Red Crescent to ensure that the specific needs of all marginalised and vulnerable groups is taken into account. The first main area of discussion concerned the flood and cyclone early warning and evacuation system. Vulnerable groups testified of solidarity occurring in case of a disaster, being easily accepted to stay in host families until the situation returns to normal. Older persons however, expressed concerns concerning their belongings when they are evacuated.

During the expert mission conducted in March 2018, additional consultations were conducted with community members of La Coulée, the main area of intervention of the project: a general session, one focus group with the male population and one focus group with the female population. The general session was attended by 42 community members and focused on debating final proposed interventions in the area and how they will benefit the most marginalised and vulnerable in the neighbourhood. The participants agreed to the drainage proposal. Main discussions concerned solutions for improving water access. The community echoed that a communal rainwater harvesting system would be preferred. The possible set-ups and configurations of the system were discussed at length, the project representatives made a clear note that any system put in place will have its capacity limits, but the general consensus among participant was that any system will be an improvement over the current state. Inputs from this session were crucial to consolidate the sub-project that is proposed for establishing a rainwater harvesting community system.

The male focus group was attended by 17 participants. Further discussion was held over the distribution of harvested rainwater. It became apparent that many households will not be able to invest in a rainwater storage tank independently, which resulted in the proposal of mixed community systems that combines the construction of 4 community tanks with the construction of another 50 tanks through on-the-job trainings and participatory workshops. The men of the community would be very willing to help in maintaining all components of the system (tanks, pipes, channels) but request sufficient training on how to do so. Trainings and workshops will be conducted under Component 1 activities in La Coulée.

When asked about water use in the area, it became apparent that each household would require approximately 100 litres per day, with households allegedly being composed of 4 to 5 members on average. This differs from the information received from the female focus group, which was attended by 25 participants. The women informed that on average a family that is composed of 8 or 9 persons uses about 80 litres per day. This proposal used the higher daily value (20 litres per day) for specifying the rainwater harvesting community system sub-project. The women also highlighted that part of the population in La Coulée have higher incomes and are able to afford private water tanks in their homes. It was noted that the community system should benefit the ones in most need. Working with local associations and community leader for self-regulation was proposed as a solution for fair water access among the population. It was particularly important for the women to discuss water access due to their

current role in water collection. They clearly address that they are the ones collecting the water because they are the ones using it for cleaning, washing and bathing, among other domestic tasks.

Besides water access, the women also reinforced the negative impacts flash floods have especially due to the speed they run downstream, for which the drainage improvement proposal was welcomed. Finally, with regard to waste collection, it was informed that due to the lack of services they often have to add that to their domestic burdens, collecting the waste in their houses and bringing it to markets. Others have a hole in the ground on their own property where they put their waste. This can cause trouble during floods when waste is flushed away. Overall, the women were enthusiastic when affirming that they are willing to cooperate and work together to improve water and waste related condition, including with other communities up and downstream La Coulée.

To conclude the consultative process, a series of meetings was organised, from 2-5 October 2018, to gather further data on marginalised and vulnerable groups in the project sites, review the Environmental and Social Impact Assessments (ESIA) and develop the Environmental and Social Management Plan (ESMP) for the city of Moroni. A public disclosure of the ESMP was held on 30 November 2018. The proposed ESMP for Moroni (see **Annex 3**) was validated by local authorities, community representatives and main relevant stakeholders (see the support letter in the following link: http://dimsur.org/annex4_supportlettermoroni_esmp-2/).

Supporting photos

Elderly Group, Chokwe, November 2017

Women's Group, Chokwe, November 2017

Women's Group, Moroni, March 2018

Persons with disabilities group, Chokwe, September 2017

Disabled Women's Group, Morondava, March 2018

Women's associations Group, Morondava, March 2018

5.1. CITY: MORONDAVA, MADAGASCAR

SUB-PROJECT FICHE 5.1.1: Rehabilitation of 180 ha of mangroves

Overview

This intervention will rehabilitate a total mangrove area of 180 ha. and will mainly concern the neighbourhoods of Nosikely, Tanambao, Andakabe and Avaradrova. The mangrove ecosystem has been overexploited by the local population and its degradation has affected livelihoods and reduced its beneficial impact over the water system for coastal protection, flood buffer and stabilizing substrates composed of fine sediments, among other ecological benefits. The land status of this area is public and currently is used for fishing and fuel wood provision. To implement the sub-project Mangrove plants (300,000 propagules/year) and a drone are needed.

Figure 1: Location of mangroves rehabilitation interventions

Implementation strategy and planned activities

The sub-project will be implemented in a participatory manner, addressing the needs and concerns from the different social groups, especially focusing on the poor, most vulnerable and women (see **Annex 2** for data and information on marginalised and vulnerable groups in Morondava).

A local NGO will be hired to coordinate implementation and recruit local workers through labour-intensive man power established by the International Labour Organisation and successfully applied in several occasions in Madagascar. A national specialist in mangrove rehabilitation will be hired to coordinate and monitor the process.

The following activities are planned *(for the budget references, please see **Annex 1**)*:

1. Selection and contracting of NGO and local staff *(to be charged to Output 1.3 – see Budget Note C).*
2. Delimitation, assessment and preparation of land *(to be charged to BL1 – see Output 1.2).*
3. Harvesting and sorting of propagules, including establishment of tree nurseries *(to be charged to BL1 – see Output 1.2)*.
4. Recruitment of local labour, prioritizing women workers *(to be charged to BL1 – see Output 1.2)*.
5. Planting sessions (5-6 planting sessions per year) *(to be charged to BL1 – see Output 1.2)*.
6. Monitoring and maintenance of planting fields *(to be charged to BL1 – see Output 1.2)*.
7. On-site technical assistance for community mobilization, gender mainstreaming and planting techniques *(to be charged to BL2 – see Output 1.2)*.
8. Preparation of awareness raising and training materials and dissemination *(to be charged to BL – see Output 1.2)*.

9. Training and awareness raising activities on mangrove planting and conservation *(to be charged to BL4 – see Output 1.2)*.
10. Purchase of equipment for mangrove planting and maintenance (truck, tools, etc.) *(to be charged to BL5 – see Output 1.2)*.

Based on the lessons learned from previous experiences involving the city council and WWF (see Part II, Section G), the mangrove planting will be done mainly in rainy season, when the tide coefficient is higher. This will ensure that the young plants are submerged at each high tide, including during the hardest periods of the dry season. On this, the proposed methodology is to conduct the planting sessions of each month during the wet season i.e. from November to March.

Social, economic and environmental benefits

- Approximately 27,800 people (50% women) will benefit from the role the rehabilitated mangroves will play as buffer zones during floods and their capacity to absorb the excess of water;
- Nearly 1,300 households (the equivalent to 15.5% of the population) that depend on fishing and rely on mangrove fauna (especially women, fishermen and informal settlers) will benefit from the sustainable exploitation of the rehabilitated ecosystem, impacting their livelihoods and the local economy;
- The total population of the city (63,000 people) will indirectly benefit from the ecological value derived from the rehabilitated ecosystem.

Sustainability

Considering that overexploitation is the main reason for the degradation of the mangroves, the main concern of this intervention will be to ensure that the local population has a balanced and sustainable relationship with the rehabilitated ecosystem. Importantly, during the local consultations conducted in Morondava, community members explained that that the mind set of most of the fishermen and local population has been shifting and is increasingly concerned with the preservation of the existing mangrove. Therefore, the following activities will be conducted to support preservation and sustainable exploitation of the area:

- Conduct workshops and awareness-raising activities for mangrove preservation before each planting session (5-6 per year) with local population involved in the planting and their households;
- Produce and distribute communication material on how to rehabilitate the mangroves and maintain a sustainable relationship with the ecosystem;
- Promote and support use of alternative cooking methods to prevent woodcutting through workshops and trainings, especially with women;
- Support the creation of a community association focused on mangrove protection and sustainable exploitation in the target areas. Inspiration and partnership should be sought with association Ambohitsimirany, from the Betania neighbourhood, which has been successfully promoting mangrove protection in the city.
- Facilitate the signature of collective conventions between the municipality and communities about what areas are protected and what areas are not (and therefore allows cutting trees). A local structure for integrated mangrove management, protection and conservation will be established following the Inter-Ministerial Provision n°32-100/2014 from 24 October 2014.

SUB-PROJECT FICHE 5.1.2: Urban greening interventions in high risk areas

Overview

This intervention consists of implementing some urban greening interventions along one of the main avenues of the city particularly at risk of flooding and subsequent erosion. The targeted section of the avenue (110 m long) lies in between two flood plains; it is elevated and serves both as evacuation route and as a protective dyke against floods (see exact location in figure 2). The land status of this area is public along the main avenue. The idea of the sub-project is to plant vegetation (neems, acacias and coconuts trees) that can protect this vital infrastructure for the city from soil erosion, prevent further building construction in floodplains, and take advantage of it to develop some public spaces to improve the quality of life for its inhabitants (like benches, playground installation, sanitary units, trash cans).

Implementation strategy and planned activities

The following activities are planned for this sub-project *(for the budget references, please see **Annex 1**)*:

1. Elaboration of the design plans of the green public spaces, in a participatory manner and involving the main concerned groups (women, children, older persons) *(to be charged to Output 1.1 – see Budget Note A and to BL7)*.
2. Validation of the design plan by the municipality *(hiring of technical expertise to support this project to be charged to BL7)*.
3. Selection and contracting of a local NGO/sub-contractor to carry out the works, including community members as local labour *(administrative task to be charged to Output 1.3 – see Budget Note C)*.
4. Implementation of the greening interventions and construction of the public space *(to be charged to BL8)*.
5. On-site technical assistance (as needed during implementation), monitoring and supervision *(to be charged to BL7)*.

Social, economic and environmental benefits

- The entire western part of the city will beneficiate from this intervention, as it aims to protect one of the main evacuation routes of the city;

Figure 2: Location of the urban greening interventions

- Communities will be involved as paid labour in construction works and maintenance activities following ILO standards, hence receiving a temporary remuneration and creating awareness/local ownership on the importance to protect this intervention once realised;
- The intervention will prevent construction in this fragile area and thus serve a risk mitigation measure.

Sustainability

The municipality of Morondava will be in charge of the management and maintenance of the realised intervention, in coordination with the local communities. To ensure the sustainability of the intervention, the following will be conducted:

- Select trees and vegetation taking into account the local climate and able to protect the road infrastructure against erosion and damages due to flooding, as well as protecting the neighbouring communities against the wind;
- Development of a maintenance plan, involving communities, with the relevant municipal department;
- Facilitate the signature of collective conventions between the municipality and the communities targeted by the intervention to ensure the protection and the maintenance of the green public spaces. These collective conventions are legal arrangements already successfully used at the community level in the municipality.

<u>SUB-PROJECT FICHE 5.1.3</u>: Establishment of a city-wide early warning system for floods

Overview

Setting up an early warning system (EWS) in Morondava will be a city-wide intervention; it will provide information about potential upcoming floods, allowing the municipality to rapidly take actions. For the

purpose of real time monitoring of the Hellot Channel and the Kabatomena River, the following materials will be needed: equipment for one disaster risk surveillance centre, 14 sirens, one lifeboat, 20 life jackets, 2 sets for river gauge measurement. In order to obtain efficient results, technical, operational and institutional capacities need to be strengthened to implement efficient preparedness and response mechanisms. To this end, the EWS will be completed by the identification and marking of escape routes to hospitals and evacuation centres.

Implementation strategy and planned activities

The first step consists of carrying out a detailed study to set up the EWS, including installing the river gauging stations, the sirens and the necessary equipment in the surveillance centre. The study will have to be validated by the local stakeholders, including focal points of the National Bureau of Risk and Disaster Management BNGRC in the Menabe region, city technicians and officials as well as community leaders.

Based on available information and priorities, the second step will determine the preparedness and response measures to be implemented when a disaster occurs. Early warning system will be an efficient measure in Morondava, knowing that the time between the moment of the rainfall upstream and the critical rising water levels de downstream is about 48 to 72 hours.

The following activities are planned *(for the budget references, please see **Annex 1**)*:

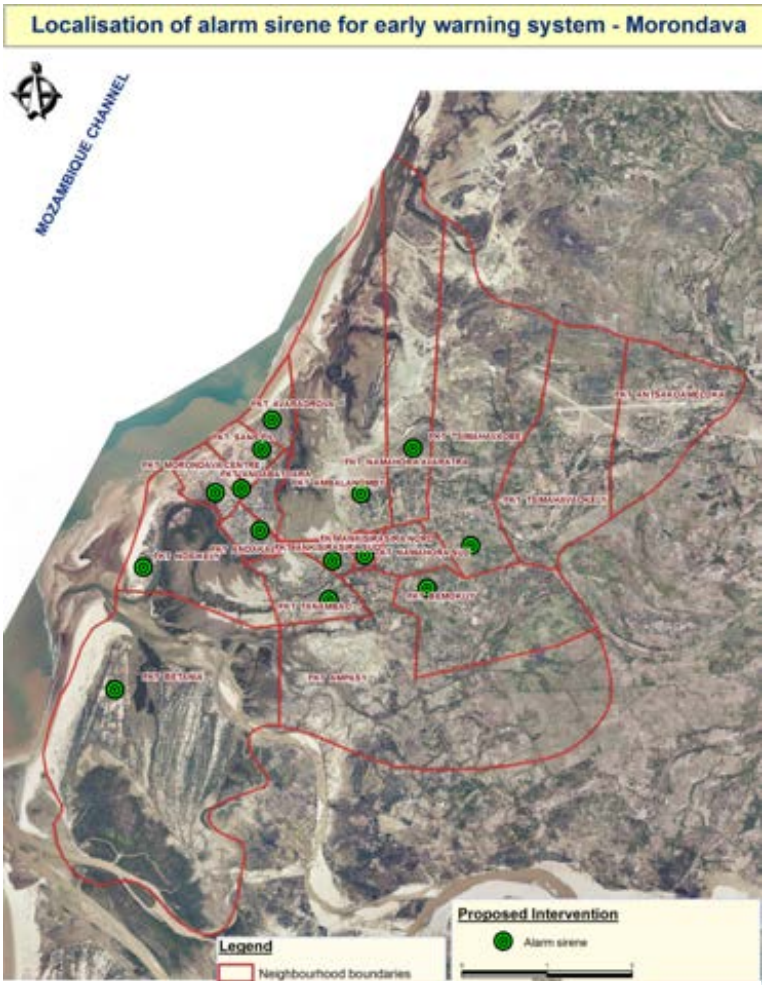


Figure 3: Location of the automated sirens

1. Selection and contracting of local staff *(to be charged to Output 1.3 – see Budget Note C)*.
2. Conduct the Morondava river's watershed study *(to be charged to BL9)*.
3. Set up river gauge measurement automatic stations including reception computer equipment for real time monitoring of the Hellot Channel and the Kabatoumena River, and install the automated sirens (see Figure 3) *(to be charged to BL10 and BL12)*.
4. Develop a communication strategy and deliver training on the alarm system and escape routes to be properly marked *(to be charged to BL11)*.

Social, economic and environmental benefits

- Ensure fully participatory planning taking into account the special needs of marginalized and vulnerable groups and gender-sensitive to design the EWS and identify escapes routes, to be compliant with the concerns raised during the consultation with women and persons with disabilities (see Part II, Section I).
- The total population of the city (63,000 people) will benefit from being informed and knowing how to react when a disaster strikes.

Sustainability

The success of the sub-project highly depends on public authorities' capacities to respond to the threatened disaster. This is why capacity building occupies an eminent place in the implementation of this intervention. The objective is to ensure the retention of knowledge at the local level by delivering training to city officials and technicians on the effective management of the EWS that was set up. The early warning will trigger an emergency response (e.g. evacuation) based on the level of risk. The

construction of the multi-purpose safe haven (see Sub-Project Fiche 5.1.4) will integrate a surveillance centre. Therefore, the following activities will be conducted to ensure the long-term efficiency and effectiveness of the EWS:

- Strengthen municipal staff capacities for effectively managed the established EWS for floods;
- Conduct awareness raising campaign on the operation of the warning system and escape routes, regular drillings, especially in cooperation with community committees;
- Improve coordination and communication mechanisms between the regional directorate of meteorology, municipal authorities and local disaster risk management committees.

SUB-PROJECT FICHE 5.1.4: Construction of a resilient and multi-purpose safe-haven

Overview

Since 2016, in Madagascar, schools are no longer allowed to be used as a shelter during extreme events, due to the sometimes prolonged disruption it often causes on children's school attendance. The construction of a multi-purpose safe-haven is considered to be a priority to ensure improved safety of the population in case of a natural hazard, typically floods or cyclones.

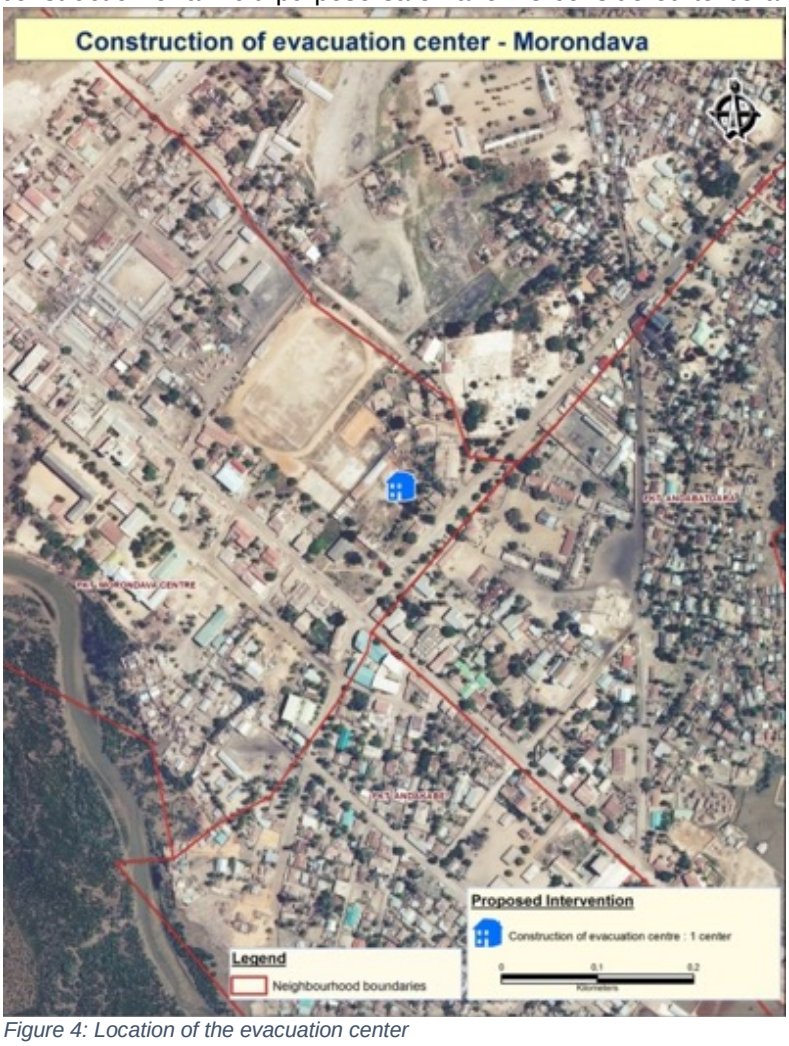


Figure 4: Location of the evacuation center

This reinforced concrete and masonry building, designed to withstand strong winds and high floods, will be able to harvest rain water and host different activities/groups at normal times. In particular, it will accommodate a surveillance centre (see Sub-Project Fiche 5.1.3 related to early warning system) as well as a community and vocational training centre. The location of the building in the city centre is strategic. The 415 m^2 structure will have two sanitary units and the capacity to host up to 200 people in case of an emergency. It will also be provided with facilities so that it can easily be accessible by older persons and persons with disabilities. Vocational training activities, in particular targeting women and persons with disabilities, will be delivered in the facility. Last but not least, the construction phase will be an occasion to mobilise high-level expertise in resilient construction so that the knowledge on how to build to better withstand natural hazards can be disseminated in Morondava.

Implementation strategy and planned activities

The planned activities for constructing and operationalizing the multi-purpose safe-haven are *(for the budget references, please see **Annex 1**)*:

1. Preparation of detailed architectural plans (NB: the proper design of a disaster-resistant building is of crucial importance – see below) and related bill of quantities, and validation by the concerned communities and municipality *(to be charged to Output 1.1 – see Budget Note A and to BL13)*.
2. Selection and contracting of a local contractor, including recruitment of local labour among community members, as much as possible *(to be charged to Output 1.3 – see Budget Note C)*.

3. Construction works through on-the-job training *(to be charged to BL14)*.
4. Operationalisation of the safe-haven, especially its different activities (surveillance centre; community and vocational training centre; etc.) and formal agreement between the different concerned parties on the management mechanisms of the building *(to be charged to Output 1.3 – see Budget Note C)*.
5. Technical assistance (as needed), monitoring and supervision *(to be charged to BL13)*.

Social, economic and environmental benefits

- The population of the neighbouring communities that are particularly at risk during flood or cyclone events will have access to a safe-haven, namely: Nosikely, Andakabe, Morondava Centre, Sans Fil, Andabatoara and Avaradrova neighbourhoods;
- The needs of vulnerable people and women will be taken into account in the design of the multi-purpose shelter; indeed, some marginalised and vulnerable groups such as persons with disabilities and older persons clearly expressed the need to address this concern during the local consultations;
- The safe-haven will serve as a community centre for women and persons with disabilities where they will receive training to engage in income-generating activities;
- The safe-haven will also host a surveillance centre to monitor in real time the Hellot Channel and the Kabatomena River, as part of the early warning system for floods to be set up with this project. Similar approaches of multi-purpose safe havens have been successfully implemented in two other Districts of the country providing relevant lessons learnt for the intervention.

Sustainability

One of the important aspects of this sub-project in terms of sustainability is to ensure the retention of knowledge at the local level regarding resilient building construction. Considering the extreme climatic vulnerability of the city and the lack of funding for large-scale interventions, it is recommended to promote a “living with floods/cyclones” culture, in which construction techniques play an important role. UN-Habitat has a long experience of that in Mozambique and knowledge/best experiences can be shared in Component 3 of the proposal related to regional exchange activities among the 4 participating countries. Therefore, the building will be constructed through on-the-job training activities including on-site training workshops to local master builders, so that some of the adopted construction solutions can be replicated elsewhere in the city.

Secondly, the fact that this is a multi-purpose building, with clear functions both during emergency times and normal times, surely confers a degree of sustainability to the sub-project. Finally, clear management mechanisms, with shared responsibilities among the different stakeholders who will be using the safe-haven, will also represent an important aspect to ensure sustainability.

Design details

Figure 5: Ground floor of the multi-purpose safe haven for Morondava

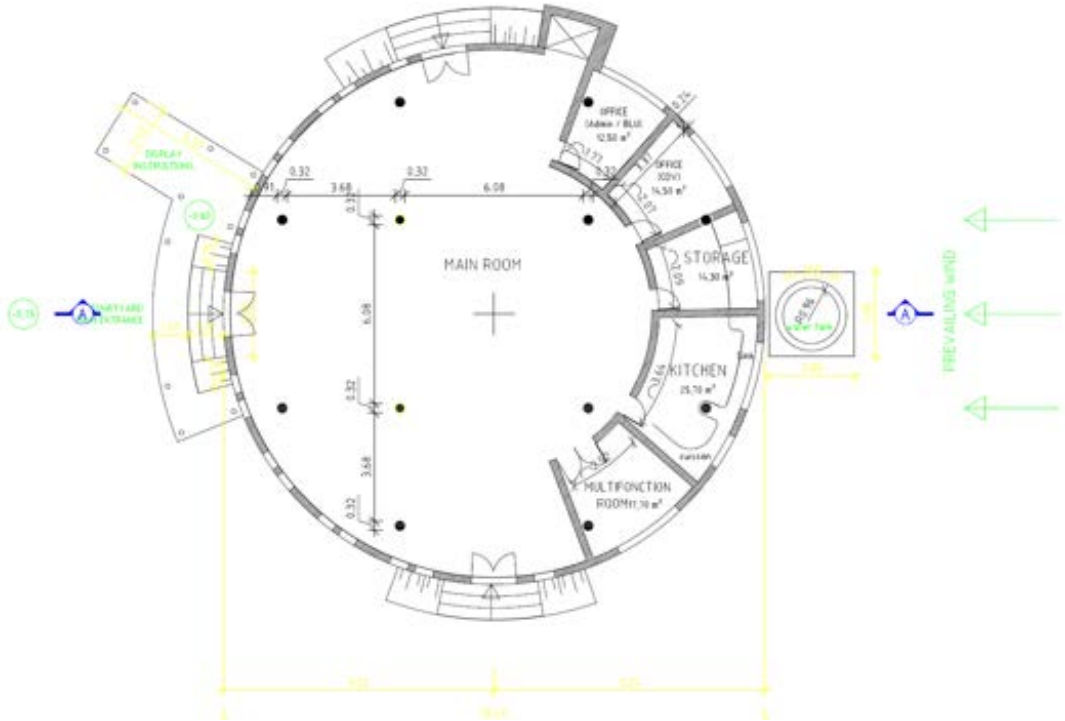
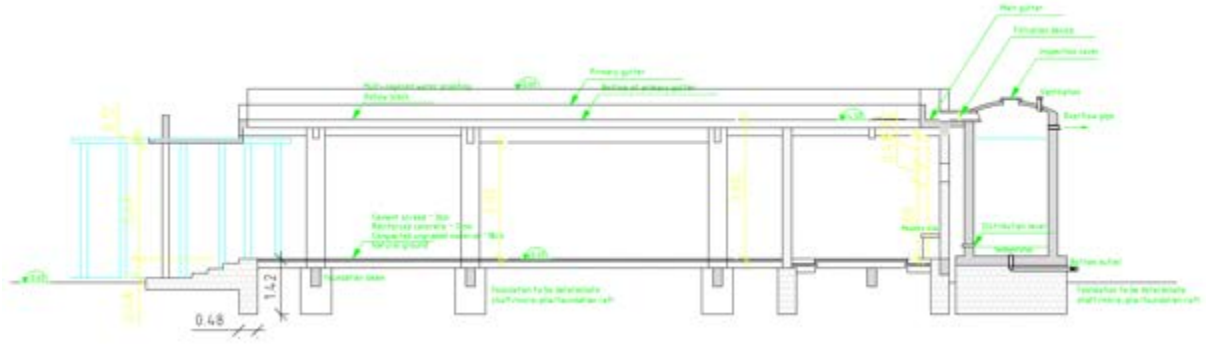


Figure 6: Section of the multi-purpose safe haven for Morondava



<u>SUB-PROJECT FICHE 5.1.5</u>: Construction of a flood-proof elevated road with improved drainage capacity

Overview

This intervention will elevate and pave an important road (see location in figure 7) that connects southern neighbourhoods to the main road and other crucial services. Lateral drainage ditches will also be built along the improved road, for a length of 920 m. The road will be elevated of 40 cm with clean soil to be watered and compacted layer by layer, and it will be provided with large pipes underneath to make sure that it will not create a barrier to flood waters. The elevated road will be resistant to flooding, especially during exceptionally high tides. The lateral drainage ditches will be in local masonry.

The link to the main road is precarious and currently unsafe for the population of Ankisirasira Sud, Ankisirasira Nord and Tanambao neighbourhoods, where high concentration of urban poor and marginalized and vulnerable groups are observed. The rehabilitation of the road stretch will improve connectivity and facilitate evacuation during flood events, proving better access to key infrastructure and services (e.g. hospital and the multi-purpose safe-haven to be built – see Sub-Project Fiche 5.1.4). The eastern neighbourhoods of Ampasy, Andakabe and Bemokijy will also improve from better access to the city centre and the other side of Morondava.

Figure 7: Location of the new road and 3 new bridges (see Sub-Project Fiche 5.1.6)

Additionally, the new drainage channels will contribute for improving the poor sanitation conditions in the area. In Ankisirasira Sud, for instance, there is water logging near the road and around a nearby school, which is causing health risks for the people, including women and children. Constructing the new drainage ditches alongside the new road stretch is less costly than starting new drainage infrastructure from scratch and is therefore recommended due to its proximity to the Hellot Channel.

Implementation strategy and planned activities

The planned activities for this sub-project are *(for the budget references, please see **Annex 1**)*:

1. Preparation of detailed studies, including technical specifications, bills of quantities and

detailed designs *(to be charged to Output 1.1 – see Budget Note A and to BL15)*.

2. Selection and contracting of local *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*.
3. Recruitment of local labour among the resident population *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*.
4. Implementation of the construction works *(to be charged to BL16)*.
5. Road works monitoring and supervision *(to be charged to BL15)*.
6. Setting up a mechanism for maintenance (see below on sustainability) *(technical expertise to support the process to be charged to Output 1.3 – see Budget Note C)*.

Social, economic and environmental benefits

- It is estimated that 18,929 people (over 50% women) will benefit from improved access to urban infrastructure and services, facilitated conditions for evacuation and reaching higher grounds during a flood emergency;
- Around 3,000 people will benefit from improved drainage conditions, including the children that attend the College Privé Lova School;
- This project will be particularly beneficial to persons with disabilities and older persons living in the targeted neighbourhoods. Approximately 1,000 older persons living in the eastern neighbourhoods in Morondava will benefit from improved access to the hospital, evacuation routes and the safe haven. Tanambao and Andakaba are among the areas with the highest number of older persons in the city.

Sustainability

Technical expertise will be hired to ensure that the road is designed and engineered for long-term use and in a resilient manner. Construction will be closely monitored to ensure a quality result. The Morondava City Council has accepted to commit annual funds for maintenance of all infrastructure built under the present project, while the project staff will ensure that city officials and technicians have acquired the capacity to do so through training delivery and monitoring.

Importantly, communities will be involved in the construction works as much as possible. Trainings will be delivered and information disseminated to the local population on basic maintenance practices and the importance on keeping the drainage ditches clean.

The following activities will be conducted to further support the maintenance and sustainability of the interventions:

- Raise awareness and deliver trainings about the relation between waste dumping, drainage capacity, flooding and diseases;
- Support the Morondava City Council in drafting and signing collective conventions between the municipality and communities on maintenance efforts.

Design details

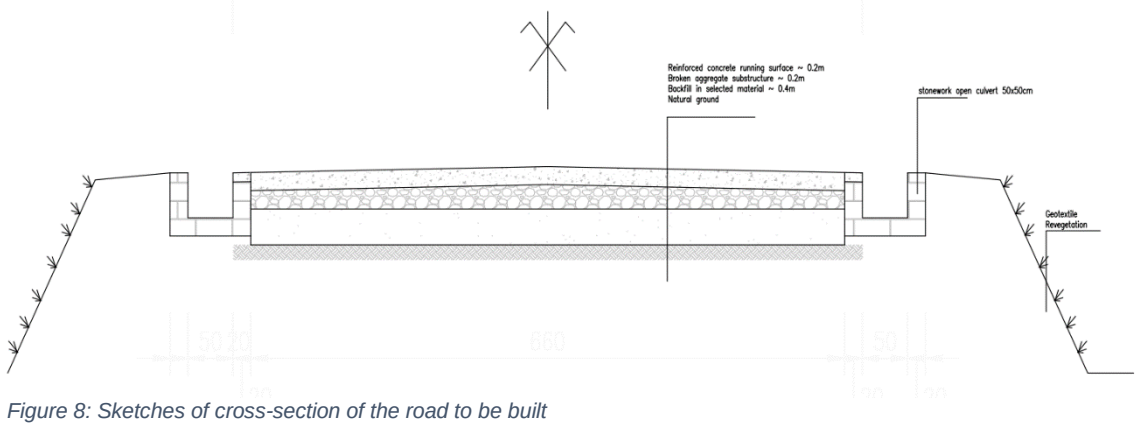


Figure 8: Sketches of cross-section of the road to be built

<u>SUB-PROJECT FICHE 5.1.6</u>: Reconstruction of 3 bridges connecting different neighbourhoods in a resilient manner

Overview

Three bridges crossing the Hellot Channel (see location in Figure 7) will be reconstructed with reinforced concrete in the neighbourhoods of Tanambao, Ankisirasira Sud and Bemokijy: Tanambao bridge (length 16 m; width 3.95 m; elevation 1.45 m), Rapiera bridge (length 30 m; width 4 m; elevation 2.65 m) and Bemokijy Bridge (length 13 m; width 4 m; elevation 1.60 m). The Hellot channel, a secondary arm of the Morondava River formally used as transport and irrigation channel, passes through the southern neighbourhoods creating challenges for the population to circulate.

These bridges are crucial for mobility and especially important in case of an evacuation; however, they are currently in poor conditions and cannot be used by ambulances or fire trucks. They currently present a threat to the safety of the population due to their precarious state.

This sub-project aims to rehabilitate these 3 bridges, thus increasing the level of preparedness and response (evacuation) capacity in case of floods and/or cyclones and improving the overall mobility within the city. The alternative option of constructing a new road to circumvent the channel would not be cost-effective, resulting in more transportation costs (attributed to a longer travel distance) for the population, more complex work and higher construction costs.

Implementation strategy and planned activities

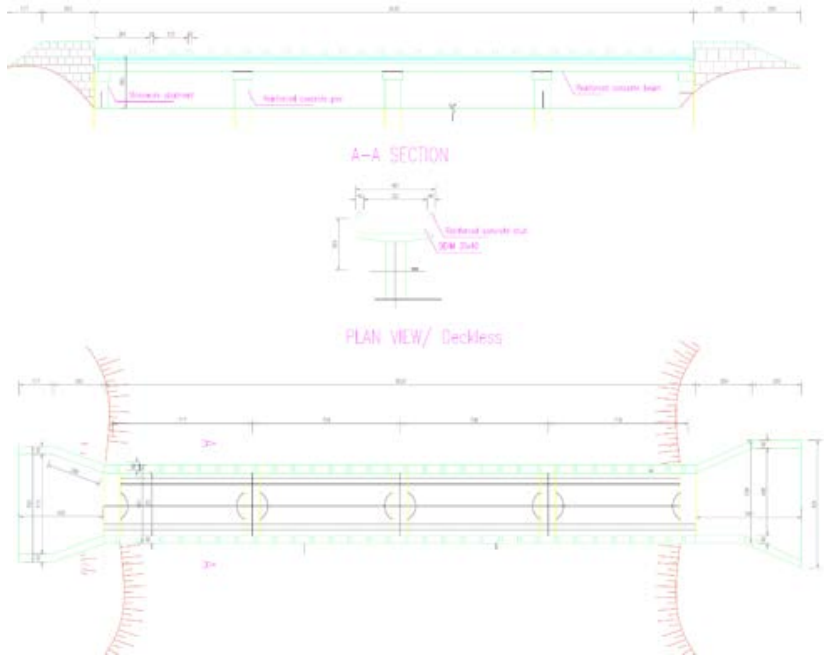


Figure 9: Preliminary sketches for rehabilitating the Rapiera bridge

Due to the precarious state of the 3 targeted bridges and the risk they currently present to the population, they will have to be demolished and re-built in a safer and more resistant manner. As much as possible, the unskilled workforce will be composed by members of the neighbouring communities using the labour-intensive approach successfully applied in Madagascar in other projects.

The planned activities for reconstructing the bridges are *(for the budget references, please see **Annex 1**)*:

1. Preparation of detailed studies, including technical specifications, bills of quantities and detailed designs *(to be charged to Output 1.1 – see Budget Note A and to BL17)*.
2. Selection and contracting of local contractor *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*.
3. Recruitment of local labour *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*.
4. Demolition of existing bridges and construction works *(to be charged to BL18)*.
5. Bridges construction works monitoring and supervision *(to be charged to BL17)*.
6. Setting up of maintenance mechanisms (see below on sustainability) *(technical expertise to support the process to be charged to Output 1.3 – see Budget Note C)*.

Social, economic and environmental benefits

- Almost 11,000 people will benefit from improved connectedness between the neighbourhoods of Tanambao, Ankisirasira Sud, Ampasy and Bemokijy, facilitating circulation, access to basic infrastructure and services and thus, improving livelihoods opportunities. The population of these neighbourhoods are among the poorest in Morondava, with Tanambao and Ampasy having the

two highest poverty rates in the city (85% and 88% respectively), and will greatly benefit economically and socially from being better connected to the city centre and its main services.

- An estimated population of 8,246 people will benefit from facilitated access to the city centre and increased response/evacuation capacity during floods and cyclones, improving mobility for older persons (approximately 500 people) and persons with disabilities living in these neighbourhoods.

Sustainability

Competent technical expertise will be hired to ensure that the bridges are designed and engineered for long-term use and enhanced resiliency to flooding impact. Construction will be closely monitored by the project staff to ensure a quality result. The Morondava City Council has accepted to commit annual funds for maintenance of all infrastructures built under this initiative, while the project staff will ensure that city officials/technicians acquire the needed capacity to do so through training delivery and monitoring. Maintenance efforts will also be promoted and incentivized by collective conventions signed between the municipality and local communities.

SUB-PROJECT FICHE 5.1.7: Enhancing the drainage capacity in the city centre

Overview

This sub-project aims to improve the drainage capacity of the central neighbourhood (Morondava Centre) and the adjacent areas (Sans Fil, Andakabe and Andabatoara neighbourhoods) by cleaning/rehabilitating most of the existing drainage network and constructing a new drainage channel connecting the city centre to Sans Fil neighbourhood. The latter is currently not provided with a drainage system.

Figure 10: Location of drainage interventions

The historic city centre is where most of the services and infrastructure are located, while the surrounding areas host busy markets and businesses that populate the streets with inhabitants from all parts of the city. The existing drainage network in the targeted area is mostly non-operational due to lack of maintenance and cleaning (see figures 12). It is also not properly connected to neighbouring areas. The poor sanitation conditions resulting from the deficient drainage system in such a busy area of the city has put lives (i.e. health) and physical assets at high risk, especially during flood events. The total length of the channels to be cleaned and rehabilitated is 4,389 m (of which 3,584 m are covered channels and 805 m are opened channels). For this intervention will be used concrete, steel and waterproof plaster as main materials.

Meanwhile, regarding Sans Fil neighbourhood located next to Morondava Centre, a new drainage channel (length 305 m; section 0.50 m x 0.60 m) can be built at a reasonable cost and connected to the existing drainage system, thus improving considerably the evacuation of rain/flood waters in such a poor/vulnerable neighbourhood.

Implementation strategy and planned activities

The drainage capacity of the area will be improved by cleaning/rehabilitating a total of 4,389 m channel

length and building a new channel of 305 m long (see location of these interventions in figure 10).

The planned activities for this sub-project are *(for the budget references, please see **Annex 1**)*:

1. Preparation of detailed studies, including technical specifications, bills of quantities and detailed designs *(to be charged to Output 1.1 – see Budget Note A and to BL19)*.
2. Selection and contracting of local contractor *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*.
3. Recruitment of unskilled labour among community members *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*.
4. Construction/rehabilitation/cleaning works *(to be charged to BL20 and BL21)*.
5. Drainage construction works monitoring and supervision *(to be charged to BL19)*.
6. Setting up a mechanism for maintenance (see below on sustainability) *(technical expertise to support the process to be charged to Output 1.3 – see Budget Note C)*.

Social, economic and environmental benefits

- Approximately 18,255 people (particularly children and women) will benefit from improved drainage conditions in the target neighbourhoods, enhancing sanitation and reducing risks of floods and related disease outbreaks;
- Existing economic activities in the targeted area (mainly the city centre and immediate surroundings) will benefit from the reduction of flood impact and health hazards resulting from stagnant water and poor drainage conditions;
- Communities will be involved as paid labour in construction works and related maintenance, rehabilitation and cleaning needs; they are also provided with the required equipment to carry out the works.

Sustainability

The required technical expertise will be hired to ensure the robustness of construction works and the efficiency of the cleaning/rehabilitation process for improving the drainage system of Morondava. Construction will be closely monitored and supervised by the local project team. The Morondava City Council has accepted to commit annual funds for maintenance of all infrastructures built under the present project in cooperation with the resident population, while the project will build the required capacities and support the establishment of appropriate mechanisms for this to happen.

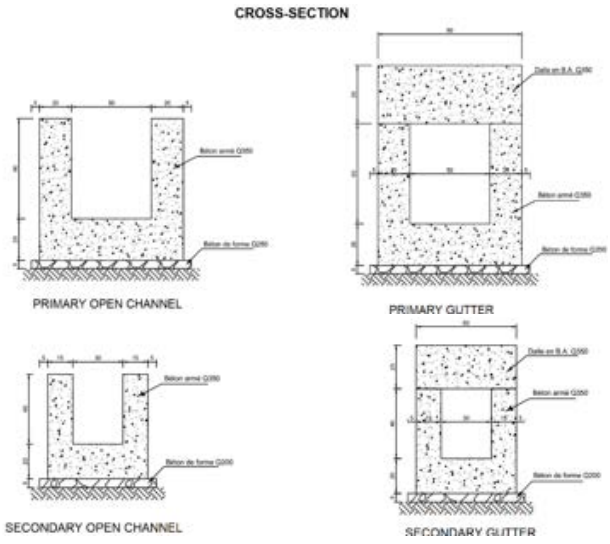


Figure 11: Design details of the drainage channel to be constructed

Importantly, communities will be involved in construction work when possible, particularly for the cleaning/rehabilitation activities. The sub-project will be carried out in parallel to awareness-raising campaigns to maintain basic services and infrastructure in the city, highlighting the importance of keeping the drainage ditches clean and the relation between waste dumping and clogging of ditches, flooding and diseases. Knowing that the drains regularly get clogged with waste, the related sub-project on solid waste management (see separate Sub-Project Fiche 5.1.8) is inherently linked to the sustainability of all drainage interventions.

The following activities will be conducted to further support the maintenance and sustainability of the interventions:

- Raise awareness and deliver local training sessions regarding solid waste management, drainage maintenance, flood risk reduction and prevention of disease outbreaks;
- Support the Morondava City Council in drafting and signing collective conventions between the municipality and communities regarding appropriate maintenance mechanisms.

SUB-PROJECT FICHE 5.1.8: Improving solid waste management in the city centre

Overview

The city of Morondava is currently facing a massive problem regarding the management of solid waste due to the overall lack of capacity of the city council and the weak awareness of the population on this issue. Less than 1% of the households dump their rubbish in waste containers, while more than 70% bury or throw it in uncontrolled dumpsites regardless of the waste origin, composition or toxicity.

Consequently 80% of the city's drainage system is clogged with waste, provoking the overflow of rain water and waste water. It is also important to note that the city has a dumpsite (Ampassy neighbourhood), but due to the lack of equipment, this site is not currently used. Therefore, it appears necessary to strengthen municipal capacity to tackle this issue by providing the necessary equipment and a sustainable strategy to properly manage solid waste, at least in proximity to the drainage channels which are going to be improved or built through the project (please see Sub-Project Fiche 5.1.7). The materials needed for this intervention are: waste collection tools (bins, wheelbarrow, etc.) and other equipment (gloves, broom, etc.), 1 waste truck, 4 main waste containers and 16 intermediary waste containers. This sub-project aims to set up sustainable solid waste management mechanisms in the city centre of Morondava by involving both municipal authorities and local communities (especially women), as well as providing the necessary equipment to ensure efficient and lasting implementation.

Implementation strategy and planned activities

A capable local NGO will be hired to coordinate implementation and recruit workers among the community (especially targeting women) in the four targeted neighbourhood (Morondava Centre, Sans Fil, Andakabe and Andabatoara), to be organised as an association. More specifically, sanitation and hygiene community-based committees called RF2 (referring to *"Rafitra Fikojanaranosy Fahadiovana"*) will be established. These RF2 committees will be in charge of collecting trash in intermediary and main waste containers at the community level, while the municipality will be responsibility to transport waste from the main containers to the dumpsite. The RF2 will also take care of cleaning the drainage channels in the different concerned neighbourhoods under the supervision of the municipality.

The following activities are planned *(for the budget references, please see **Annex 1**)*:

1. Selection and contracting of a local NGO for community mobilisation/engagement and delivery of waste management training *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*.
2. Diagnosis of sanitary conditions in each neighbourhood trough community involvement *(to be charged mainly to BL23 and to BL25 for operational costs as such as transport, fuel, communication, etc.).*
3. Identification and establishment of intermediary and main waste collection points through technical and specialised waste management assistance *(to be charged to BL22)*.
4. Establishment of the RF2 committees in the target neighbourhoods *(to be charged to BL23)*.
5. Development of a solid waste management work plan by the municipality in collaboration with the RF2 committees, including collection circuits, equipment management, maintenance and financial mechanisms trough on-site technical assistance and waste operations monitoring and supervision *(to be charged to BL22)*.
6. Purchase and distribution of waste equipment for the community including gloves, protective shoes/clothes, plastic bags, ranks, etc. *(to be charged to BL23)* and one waste truck for the municipality *(to be charged to BL24)*.
7. Training of RF2committees by the locally hired NGO *(to be charged to BL23)*.
8. Cleaning of the drainage system and waste collection sessions before and after the rainy season during the establishment and institutionalisation of RF2 committees *(to be charged to BL23)*.

The establishment of the RF2 will be progressive, to allow monitoring and evaluating the implementation process. This approach will give the opportunity to highlight lessons learnt and steer the sub-project implementation progress.

Social, economic and environmental benefits

- Approximately 120 persons (with a focus on women) will be recruited for cleaning regularly the rehabilitated/re-constructed drainage system; Employment and working conditions will follow ILO standards;
- Waste collection points will be selected in a participatory manner including community-based committees, ensuring the participation of marginalized and vulnerable groups and adopting a

gender sensitive approach. Particular attention will be given to the accessibility, safety and suitability of the locations;

- The city centre will be cleaner and the drainage system's efficiency preserved, hence with important benefits in terms of public health;
- The city centre will become more attractive for investments/small businesses.

Sustainability

For a successful solid waste management intervention, the city of Morondava has to tackle the population behaviour regarding this issue. This is why the intervention will focus on one important objective: obtain the maximum involvement of local communities to ensure a lasting and sustainable collection of waste. To do so, training and awareness raising activities will be conducted in each neighbourhood and community workforce will be mobilize to guarantee the appropriation and institutionalisation of good practices at the local level.

- Elaborate charters of responsibility between the municipality and the community committees in a participatory and collaborative process;
- Strengthen municipal department and community committees (RF2) for solid waste management;
- Carry out monitoring and evaluation of the results of each phase of RF2 implementation to improve the following phases;
- Train the city council to efficiently manage, budget and allocate the necessary resources to solid waste management;
- Carry out awareness raising campaigns and trainings of the population through community committees and local leaders for appropriate waste management practices.

5.2. CITY: ZOMBA, MALAWI

SUB-PROJECT FICHE 5.2.1: Establishment of a city-wide early warning system for floods

Overview

Currently, the city has two existing but out-dated weather stations. There is no early warning system (EWS) for flooding in Zomba. Early warning information is currently not being timely transmitted to the vulnerable communities, which are caught by surprise when flooding occurs.

To ensure that people are safe in times of floods, an integrated early warning system for floods needs to be set up, including upstream automated river gauges and sirens that can alert the entire population of Zomba. Marked escape routes will lead people safely to the evacuation centres which are going to be built through Sub-Project 5.2.2.

Implementation strategy and planned activities

The following activities are planned *(for the budget references, please see **Annex 1**)*:

1. Carry out a stakeholder analysis do understand who are the best placed people/institutions to operationalize in an efficient and effective manner the EWS in Zomba *(to be charged to BL26).*
2. Provide technical assistance for setting up the early warning system (EWS) in Zomba, including design, training and supervision *(to be charged to BL26).*
3. Rehabilitate and modernise two existing weather stations, including materials upgrade and automated measuring system *(to be charged to BL27).*
4. Install automated water gauges and sirens in appropriate locations along the Mponda, Naisi, Mulunguzi and Likangala Rivers which are crossing the city *(to be charged to BL28).*
5. Develop a communication strategy and train stakeholders on the use of the weather stations, water gauges and warning mechanism *(to be charged to BL29).*
6. Identify and mark escape routes (see Sub-Project 5.2.2)
7. Train and equip EWS operators *(to be charged to BL30 and BL31).*
8. Raise awareness and conduct trainings (regular drills) *(to be charged to Output 1.3 – see Budget Note C and to BL29).*

The project is based on the lessons learned and activities undertaken from previous projects. LEAD International reported an instance of community-supported river level monitoring on the Likangala River which demonstrated some success. It was discussed in the project formulation stage whether this may be replicated at various identified locations upstream, through formal community involvement, for an agreed monthly fee. It was found that this solution may be successful in monitoring river levels to indicate the propensity for a fluvial flood event. However, two limitations were found: (i) overnight flooding might not be monitored nor reported; and (ii) rapid events caused by flash flooding may not be detected timely. As a consequence, the use of automated water gauges is proposed, provided with tamper-proof protection to ensure continuity of utility.

The automated system will be coupled with meteorological measurements and monitoring. Two weather stations already exist in Zomba, which need to be rehabilitated and modernised: one at the premises of Chancellor College and one at LEAD International.

As a recommendation taken up from the DFID funded Enhancing Communities' Resilience Programme (ECRP) 2011-2017 project (see also Part II, section G), weather forecast information is crucial and partners are advised to link up with the Department of Climate Change and Meteorological Services (DCCM) in the Ministry of Natural Resources, Energy and Mining through the Malawi Weather Forum for updates. There is need to ensure information is shared in a manner that is timely and "actionable" and also to integrate people, processes and technologies to drive optimal benefits in weather forecast and use.

A chain of multi-layered communications will be set up to maximise the reach. The project will link the EWS to an existing community radio channel, namely Chanco Radio, which will help to disseminating the early warning messages. Part and parcel of the overall implementation strategy will hence be to make maximum use of youths in disseminating weather-related forecasts. This has been included as a lesson learnt from the above-mentioned ERCP funded by DFID. It was highlighted that youth interventions such as drama enhanced uptake of information and use in disaster preparedness. Therefore, a careful stakeholder analysis is needed at the start of this sub-project to discern the best way to secure youth participation for the long-term success of the initiative. The proposed project will involve youth groups in the communication strategy, trainings and drills for the EWS.

Some escape routes already exist but they need to be further identified and marked, so that people unfamiliar with the terrain will be safe in times of floods. Under sub-project 5.2.2 these will be improved.

Social, economic and environmental benefits

- The EWS will ensure that people, and especially the most vulnerable groups (see **Annex 2** for data and information on marginalized and vulnerable groups in Zomba), are safe in time of floods;
- People are warned of extreme weather events well in advance and can take measures to protect their livelihoods and lives;

Sustainability

- For a sustainable use and functioning mechanism of the EWS, overall responsibility for the EWS and related equipment will be given to Zomba City Council in partnership with the Chancellor College and LEAD International;
- Municipal technicians and all stakeholders will be trained on the use of the EWS related equipment (e.g. hydrometric and pluviometric material, weather stations and water gauges);
- A communication strategy, awareness raising and regular drills are also a crucial component to the sustainability of the mechanism; in particular, the automated river gauging station and sirens need to be maintained through the deployment of adequate technical expertise, and protected from eventual acts of vandalism; that is why it is crucial to involve surrounding communities in the process, so that everybody understands the need for these stations/sirens.

<u>SUB-PROJECT FICHE 5.2.2</u>: Construction of multi-purpose evacuation centres

Overview

The sub-project will focus on the construction of three (3) multi-purpose evacuation centres and the improvement of evacuation routes from flood prone areas to these centres. The latter will be built in Likangala, Chambo and Sadzi wards as shown in Figure 1.

When floods occur, houses are destroyed or rendered uninhabitable because they are poorly constructed and/or because of their location in flood prone areas, thereby displacing many people. There are no purpose-built safe havens (evacuation centres) established for hosting the displaced people, who generally converge in the nearest schools, causing disruption to learning by children. Additionally, these ad-hoc evacuation centres are beset by sanitation, security/safety and health issues considering the number of people they can host during a flood emergency.

Implementation strategy and planned activities

The city council in partnership with the concerned communities will oversee the development of the evacuation centres and their respective evacuation routes. The construction of these facilities will be done by a local contractor following a competitive bidding process. The city council's Engineering Department will be responsible for the technical supervision and communities will be involved in the project monitoring. Environmental-friendly building materials, such as stabilized soil blocks, will be utilised for construction as opposed to the commonly used burnt bricks. The contractor's labour force will be hired as much as possible among the local population, and will follow national labour laws which are based on ILO standards. The evacuation routes rehabilitation will be carried using labour intensive method involving local communities.

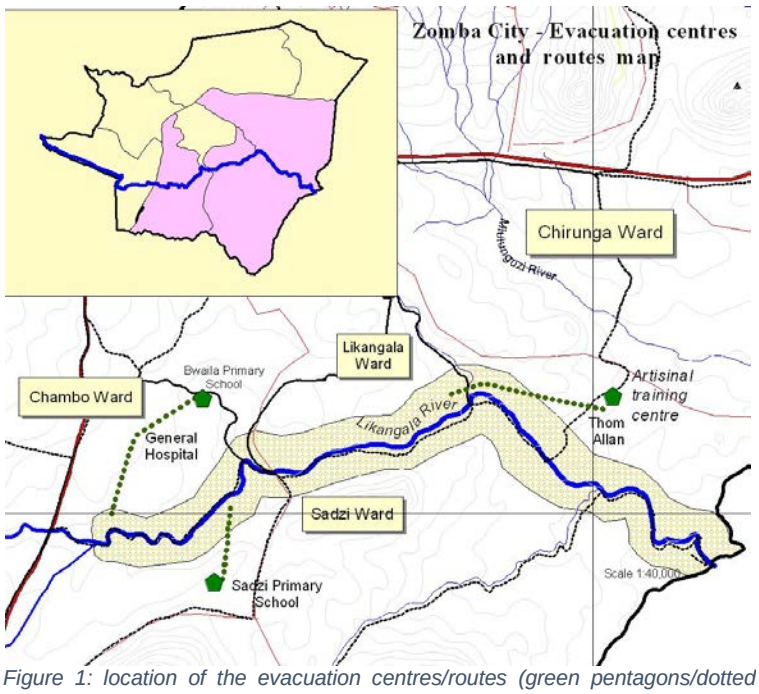


Figure 1: location of the evacuation centres/routes (green pentagons/dotted lines)

The evacuation centres, once completed, will be handed over to the respective communities through their

elected centre management committees for the day to day management of the facilities. The city council will be the legal owner of the centres but will work closely with and support the centre management committees.

The following activities will be undertaken *(for the budget references, please see **Annex 1**)*:

1. Preparation of detailed evacuation centre and routes designs through participatory approach with the concerned communities (NB: particular attention will be given to the concerns of women, older persons, children and the most vulnerable), including bill of quantities and all technical specifications *(to be charged to Output 1.1 – see Budget Note A and to BL32).*
2. Competitive tender process to identify local contractor *(to be charged to Output 1.3 – see Budget Note C)*
3. Construct evacuation centres *(to be charged BL33, BL34, BL35 and BL36).*
4. Improve evacuation routes from disaster prone areas to evacuation centres *(to be charged to BL37).*
5. Establish and train centre management committees *(to be charged to BL38).*
6. Set up and train a bicycle ambulance for use in times of floods *(to be charged to BL38 and BL39).*
7. Deliver additional training activities *(to be charged to BL38 and to Output 1.3 – see Budget Note C).*

During the community consultations (see Part II, Section I), community members expressed that the evacuation centres must have separate rooms for girls and adult women, for boys and adult men, male and female toilets, kitchen and a room which can be used for treating common ailments for displaced persons and for receiving ARVs for displaced persons with HIV/Aids. Many of these recommendations are in line with the lessons learnt from evacuation centres built in other districts in Malawi notably in Chikwawa and Salima districts.

Last but not least, during the local consultation with vulnerable people it was requested that bicycle ambulances are set up to ensure that persons with disabilities, old and sick people can be evacuated in times of disaster. Communities mentioned that vehicles often cannot access narrow and informal roads, hence bicycles were recommended for evacuation.

Social, economic and environmental benefits

- Purpose-built evacuation centres with functional and trained management structures will offer protection and safety to the most vulnerable of the displaced especially women, girls, older persons, people with physical disabilities and the chronically sick;
- A total of 30,871 people will benefit from the centres. This figure includes up to 900 displaced persons at any one time who would otherwise end up in schools with undignified living conditions or who would have ended up crowding with relatives and friends will now live in reasonable dignity in the transition period to recovery; it includes up to 8,000 learners in the three schools that are used as ad hoc evacuation centres will not have their education interrupted during disasters on account of their schools being occupied by displaced people; it also includes others who will benefit from various capacity building activities and community based activities.
- When there are no disasters the centres will be used for other purposes, such as training and capacity building, as well as other community activities thereby increasing the communities' social capital and assets;
- Displaced persons will have secure, safe and sanitary environment to live in during their period of displacement;
- The construction will use sustainable building materials and technologies to reduce dependence on burnt bricks;
- During the community consultations, members of the community and especially older persons and those with physical disabilities bemoaned access difficulties to safe havens due to rugged routes. The planned improvements to the evacuation routes will ease access to the evacuation centres for all including older persons and people with physical disabilities. In addition, bicycle ambulances will ensure that persons with disabilities and older persons can reach safe areas, as they recommended during the local consultations.

Sustainability

The community consultations discussed the question of what will be done with the evacuation centres when they are no displaced persons. It was unanimously agreed that the communities will put them to use to serve community interests such as the above-mentioned training activities, early childhood

development centres, mobile clinics and hiring out for religious activities and other social functions. The resources obtained from these activities will be used for the routine maintenance of the facilities. This was seen to be an important sustainability measure. Other sustainability measures that will be put in place include the following:

- A community management committee will be established for each evacuation centre to foster community ownership thereby ensuring good care of the facility;
- Climate proofing construction techniques will be utilised for the centres and the evacuation routes;

The city council will include in its maintenance budget funds for major periodic maintenance works of the centres and the evacuation routes.

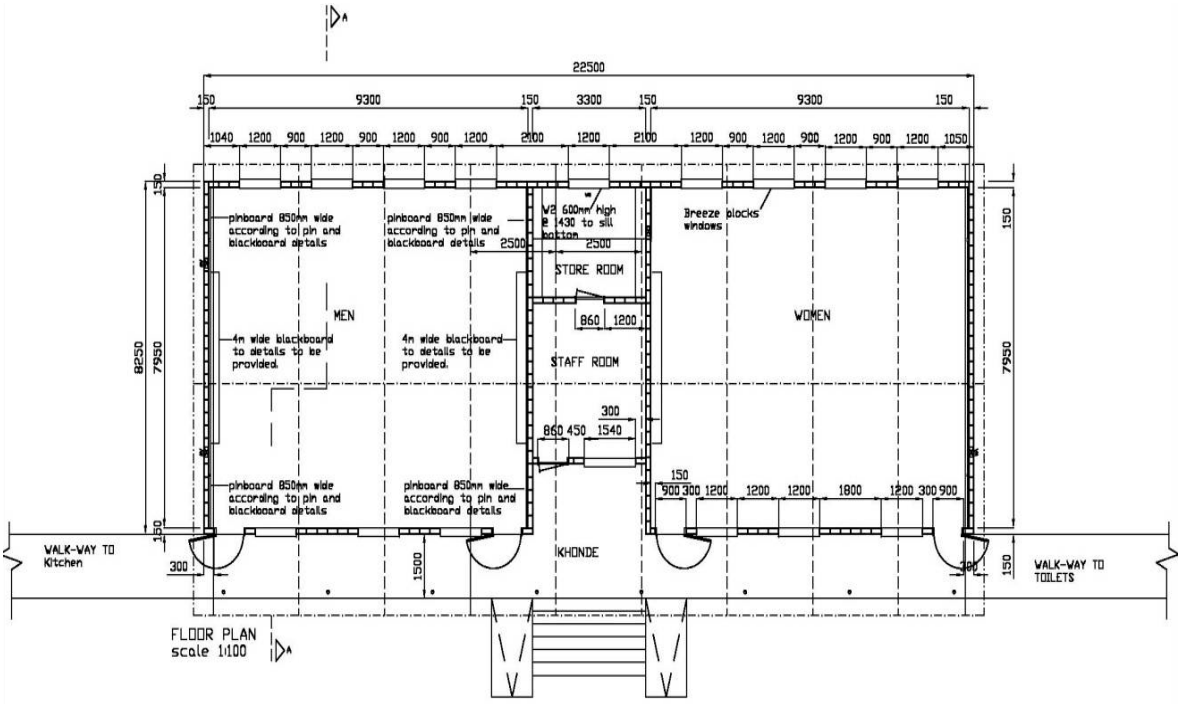


Figure 2: proposed architectural design for the evacuation centres to be built in Zomba.

<u>SUB-PROJECT FICHE 5.2.3</u>: Rehabilitation of existing drainage channels and construction of new drainage channels

Overview

Drainage solutions are proposed for four wards with a view to addressing the residual impact and control of pluvial and fluvial flooding, including improved drainage solutions and flood water alleviation via improved water flow management. Drainage will be introduced to enhance and/or redirect natural water flows to the Likangala River and the Mulunguzi River for a total length of 5,475 m (Mtiya ward: 450 m; Sadzi ward: 1,655 m; Chinamwali ward: 1,400 m; Masongola ward: 1,970 m). The most appropriate interventions differ per ward and are hence presented separately per ward below.

Implementation strategy and planned activities

The overall planned activities for the drainage interventions are *(for the budget references, please see **Annex 1**)*:

1. Preparation of detailed studies, including technical specifications, bills of quantities and detailed designs *(to be charged to Output 1.1 – see Budget Note A and to BL40).*
2. Selection and contracting of local contractor *(administrative tasks to be charged to Output 1.3 – see Budget Note C).*
3. Recruitment of local labour *(administrative tasks to be charged to Output 1.3 – see Budget Note C).*
4. Construction works *(to be charged BL41, BL42, BL43 and BL44).*
5. Drainage construction works monitoring and supervision *(to be charged BL40).*
6. Setting up a mechanism for maintenance (see below on sustainability) *(technical expertise to support the process to be charged to Output 1.3 – see Budget Note C).*

Social, economic and environmental benefits

Approximately 63,760 people will benefit from these drainage improvement interventions. Assets (housing, schools, etc.) and infrastructure will be protected from destruction/damage from flooding. Same for agricultural areas and urban gardens, which are important for livelihoods and well-being of the citizens. Urban flood risk will be reduced, overall. Communities will be involved as paid labour in construction works and related maintenance and cleaning needs

Sustainability

The drains will be designed and engineered to ensure that they are robust. The Zomba City Council (ZCC) is the roads and drainage authority within the city jurisdiction and will be responsible for maintenance of infrastructure from its regular budget once the project infrastructure is handed over to the city. Under its regular budget, ZCC has committed USD45,000 for the financial year 2017-18 for those kinds of maintenance activities.

Knowing that the drains regularly get clogged with waste, the related sub-project on solid waste management (see Sub-Project Fiche 5.2.4) is inherently linked to the sustainability of all drainage interventions.

The following activities will be conducted to further support the maintenance and sustainability of the interventions:

- Raise awareness and conduct trainings about the relation between waste dumping, flooding and diseases;
- Support Zomba City Council in drafting a city-wide sanitation policy and city-wide by-laws (which will guide community development committees on drafting community by-laws to ensure, inter alia, that drainage is protected from indiscriminate dumping).

Maps and design details

1) Mtiya ward

The project site at Mtiya ward is located directly under the Zomba plateau. Heavy downpours on the plateau slopes cause rainwater to aggregate into smaller streams, some of which leading directly to the Mitya community. As a result, local roads turn into water streams, flooding local dwellings. The affected community is located on a hill itself. Two natural waterways are located next to this hill. A school is located at the foot of the hill.

To control the water flow downwards a high capacity drainage interceptor ditch is proposed, preventing flood waters to enter the community and guiding it to the two water streams that run parallel to the hill and away from the local school. This solution maximises the number of beneficiaries and mitigates the risk of overflowing of a roadside drain with limited capacity. The course of the two parallel water streams has been assessed for negative downstream effects, which are null because of the sparse density downstream and the limited effect on water flows. Ultimately the water streams confluence with the Likangala River.

The location of the ditch was chosen based on spatial constraints related to the existence of local roads/street and houses. During the construction phase, the drainage channels location will have to be evaluated in the detail; however, according to this preliminary location proposition, there is no need for displacing households or reallocating plots from the current occupants.

From a technical perspective, the location of the proposed ditch is reserved to be placed in public land and aligned along the existing roads. Figure 2 indicates a potential location for the referred drainage. Culverts will have to be installed to overcome intersections with local roads. Based on a catchment area of 140,000 m^2, and a rainfall intensity of 150 mm/h, the calculated required capacity of the drainage

Figure 3: Conceptual design of Mtiya ward intervention

interceptor ditch (**in magenta in figure 3**) is 3,500 litre/s. The resulting section surface of the drain, based on a velocity of 1.5 m/s, is 2.33 m^2. The ditch will be constructed in reinforced concrete, local masonry and would require culverts.

Based on a catchment area of 25,000 m^2, and a rainfall intensity of 150 mm/h, the calculated required capacity of the roadside drain next to the school (**yellow line in figure 3**) is 833 litre/s. The resulting section surface of the drain, based on a velocity of 1.5 m/s, is 0.49 m^2. The ditch will be constructed in reinforced concrete, local masonry and would require crossover slabs for vehicles to pass the ditch.

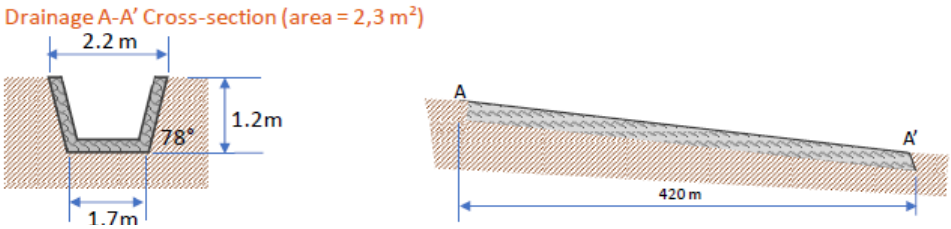


Figure 4: Drainage cross-section

The site at Sadzi ward is located under Sadzi Hill and includes Mkwezule, a tributary river to the Likangala. The Mkwezule River runs through a natural wetland, lined with sugarcane. Local inclination made the river to erode the river bed, leading to a cycle of river bank collapse and discharge obstruction.

Flooding occurs during and after heavy downpours when runoff from Sadzi hill reaches the lower parts of the Sadzi community.

Figure 5: Proposed drainage segments locations (yellow lines) at Sadzi site; natural drainage rehabilitation segment (purple); and schools adjacent (green)

The construction of local roadside drains is proposed to guide runoff to the Mkwezule River. Further, to prevent further collapse of the Mkwezule riverbank, the reconstruction of local river banks is proposed, including the installation of check dams to limit erosion in sections where local inclination exceeds 2 degrees. For the sections with steep slopes inclination and narrower channel width, the use of gabions or rocks masonry is suggested for channel stabilisation. During the implementation or pre-implementation phase a detailed assessment should be conducted to select the specific location where such measures can be adopted.

The higher parts of Sadzi community (**indicated in a red circle and white "?" in figure 5**) do not suffer from flooding because of its natural terrain elevation relative to the surrounding lands.

Based on a catchment area of 30,000 m^2, and a rainfall intensity of 150mm/h, the calculated required capacity of the roadside ditches (**in yellow solid line in figure 5**) is 625 litre/s. It is proposed to line both sides of the roads with a ditch of 312.5 litre/s each side. The resulting section surface of each drain, based on a desired velocity of 1.5 m/s, is 0.21 m^2. The drains would need flow control structures (check dams) to limit flow velocity and control gully erosion.

Based on a catchment area of 260,000 m^2, a rainfall intensity of 150 mm/h and an upstream discharge of 6,250 litres/s, the calculated required capacity of the Mkwezule River (**magenta line in figure 5**) is 12,750 litre/s. The resulting average section surface of the river, based on a desired velocity of 1.5 m/s, is 8.5 m^2. The river would need flow control structures (check dams) to limit flow velocity and control erosion.

3) Chinamwali ward

Chinamwali ward is the densest area in Zomba and experiences regular flash flooding originating from the Chinamwali Hill. A market and a school are within the flood extent area. The construction of a drainage system illustrated in figure 7 is proposed to alleviate flash flood risks**.**

Based on a catchment area of 50,000 m^2 and a rainfall intensity of 150 mm/h, the calculated required capacity of the down drains (**in yellow and blue vertical lines in figure 6**) is 1,250 litre/s. The resulting section surface of each drain, based on a desired velocity of 1 m/s, is 0.83 m^2. The drains would need flow control structures (check dams) to limit flow velocity and control erosion, and crossover slabs.

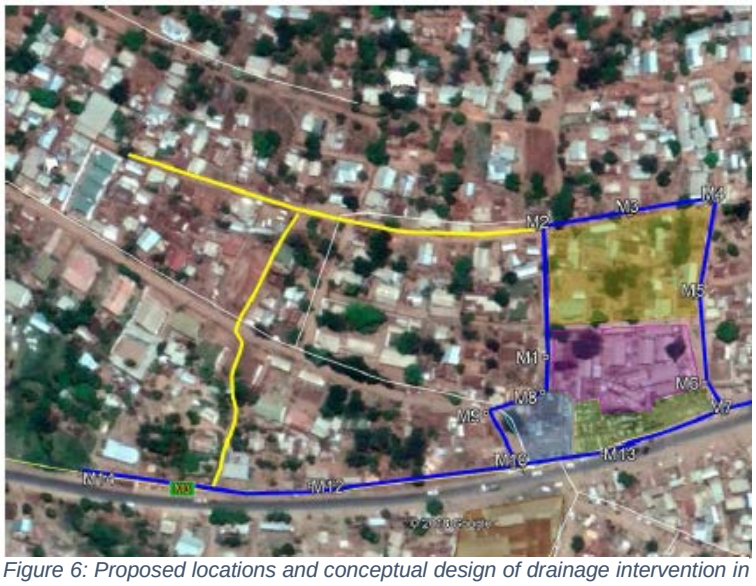


Figure 6: Proposed locations and conceptual design of drainage intervention in Chinamwali

Based on a catchment area of 20,000 m^2, a rainfall intensity of 150 mm/h, the calculated required capacity the roadside drains (**yellow and blue horizontal line in figure 6**) is 500 litre/s. The resulting section surface of each drain, based on a velocity of 1 m/s, is 0.5 m^2. The drains will have to be equipped with crossover slabs.

Based on a catchment area of 120,000 m^2, a rainfall intensity of 150mm/h, the calculated required capacity of the main drains (**yellow horizontal line in figure 6**) is 2,500 litre/s. The resulting section surface of each drain, based on a velocity of 1.5 m/s, is 1.7 m^2. The drains would need flow control structures (check dams) to limit flow velocity and control erosion, and crossover slabs.

Figure 7 presents more detail about the main features encountered at the site during the site visit as well as a conceptual design for the proposed interventions.

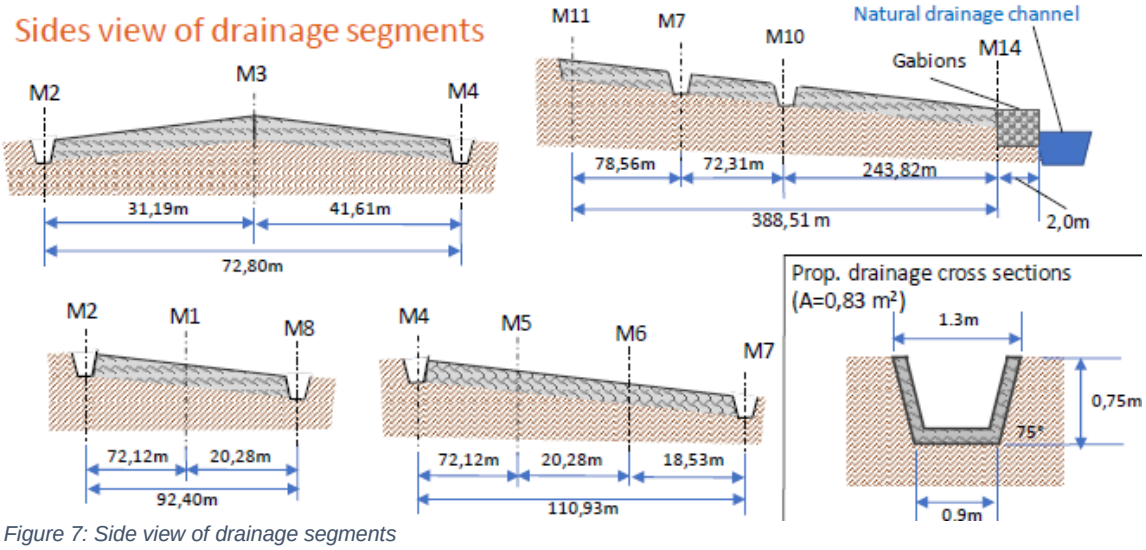


Figure 7: Side view of drainage segments

4) Masongola ward

Ndangopuma School is located on Ndangopuma Hill in Masongola ward, and experiences regular flash floods. Existing drains (**black line in figure 8**) are insufficient to intercept and drain accumulated storm water.

The local community south of the school also suffers from violent flash floods coming down the hill. To reduce flash flood risk, a drainage system is proposed to control water flows from Ndangopuma Hill, guiding it to the natural water stream to the east.

Based on a catchment area of 30,000 m^2, and a rainfall intensity of 150 mm/h, the calculated required capacity of the drainage interceptor ditch (**orange dotted vertical line in figure 8**); see example in figure 8) is 625 litre/s. The resulting section surface of each drain, based on a desired velocity of 1 m/s, is 0.63 m^2.

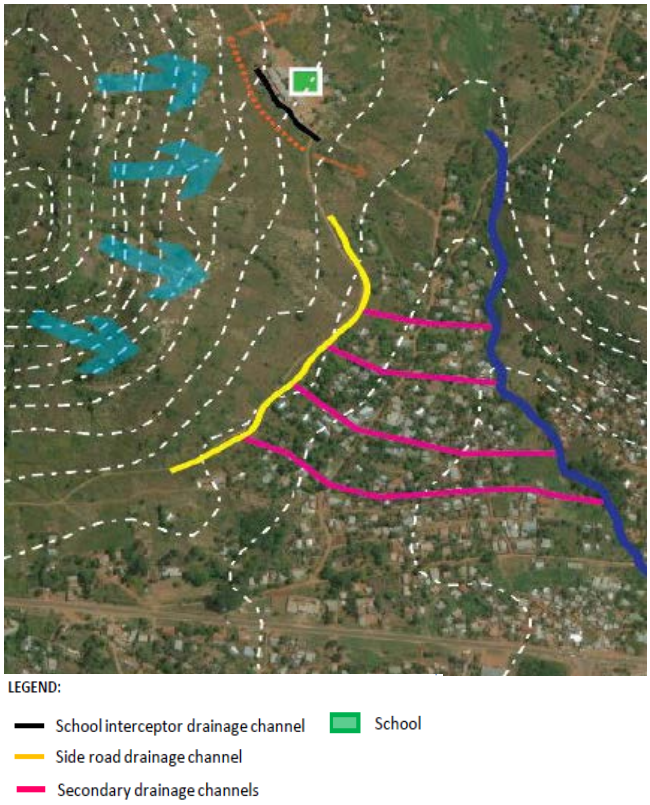


Figure 8: Proposed drainage segments locations (dark blue lines) at Ndangopuma school (1,585 pupils)

Based on a catchment area of 60,000 m2, a rainfall intensity of 150 mm/h, the calculated required capacity the roadside drain (**yellow vertical line in figure 8**) is 1,250 litre/s. The resulting section surface of each drain, based on a velocity of 1 m/s, is 01.25 m.

Based on a catchment area of 60,000 m^2, a rainfall intensity of 150 mm/h, the calculated required capacity of each the down drains (**magenta horizontal lines in figure 8**) is 1,250 litre/s. The resulting section surface of each drain, based on a velocity of 1.5 m/s, is 0.83 m^2. The drains would need flow control structures (check dams) to limit flow velocity and control erosion, culverts, and crossover slabs.

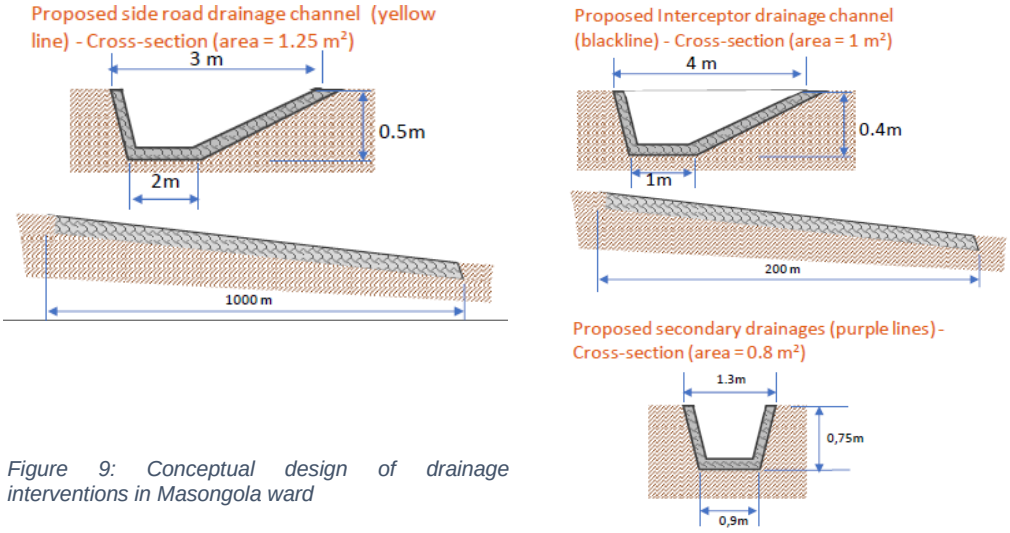


Figure 9: Conceptual design of drainage interventions in Masongola ward

<u>SUB-PROJECT FICHE 5.2.4</u>: Improving solid waste management

Overview

The city of Zomba has a projected 2017 population of 156,000 and growing at 3% per annum. The rate of waste generation is 0.44kg per capita per day translating to 68,640kg (68.64 tons) of waste generated per day for the whole city.

The traditional method of collecting waste in Zomba City is door to door collection using the city council refuse collection vehicles. This method is only able to reach 30% of the city's population residing mostly in low density, accessible, middle to high income areas. Currently the city council has only one

operational vehicle for waste collection purposes. Up to 70% of the population live in informal and less accessible settlements and do not benefit from any municipal waste management service.

Up to 80% of waste is organic in nature, whose putrefaction can produce a bad smell thereby creating public nuisance as well as being unsightly. This also encourages the multiplication of diseases through contamination of food and water sources. The rest of the waste generated is non-biodegradable mostly plastic bottles, plastics and glass. For people residing in Sadzi, Mtiya, Masongola and Chinamwali wards, which are located in hilly areas, the indiscriminate dumping of waste as well as naturally occurring siltation, blocks drainage and causes localised flooding. Some of the drainage is natural (gullies) but most of it is informal and not engineered, resulting in localised flooding and increased soil erosion and degradation in these wards. Flooding not only puts at risk private property but also public infrastructure including schools and roads. Improving drainage (see Sub-Project Fiche 5.2.3) and ensuring that the drains are functional and effective requires that they are kept clear from waste. To ensure that the drainage interventions proposed under a complementary sub-project in Zomba is effective, functional and sustainable, addressing waste management will be critical.

Implementation strategy and planned activities

The sub-project will adopt a community-based approach to waste management in partnership with the city council, which will have several advantages: (i) it will increase cost-effectiveness; (ii) it will allow reaching communities who could not be reached otherwise, due to (among other aspects) lack of vehicular access; (iii) it has the potential of empowering the poor and vulnerable through creation of wealth from waste.

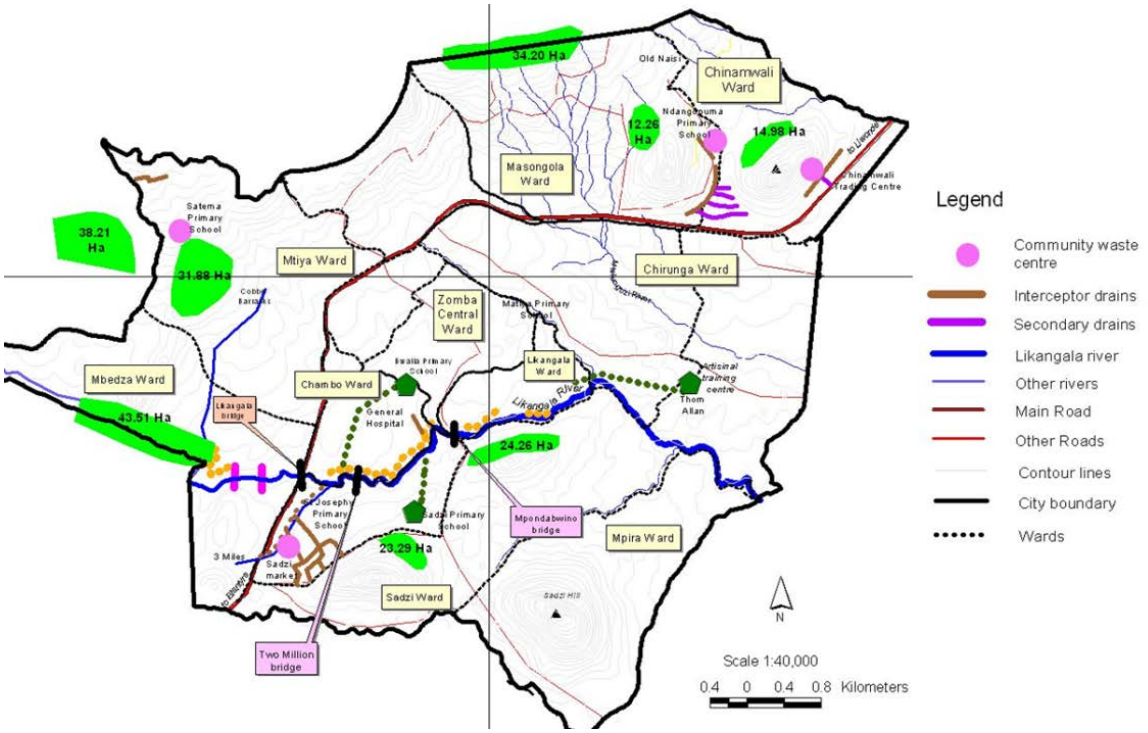


Figure 10: proposed location of the community waste centres in Zomba (magenta circles)

Integrated with the related drainage interventions, community action to keep drains clear by eliminating indiscriminate waste dumping will be important to the interventions' effectiveness and sustainability. This sub-project will be implemented through the establishment of community waste management centres in strategic positions in the city, namely in Sadzi, Mtiya, Masongola and Chinamwali wards (see map in figure 10), where drainage interventions are planned under this project proposal.

The community waste management centres will include: (a) perimeter fencing; (b) a composting/recycling shed; (c) a paved area for sorting and storage; (d) a small office; and (e) a toilet and shower room (see figure 2). The construction will use cement blocks as opposed to the commonly used burnt bricks in order not to contribute to deforestation. Each of them will serve maximum 1,000 direct beneficiaries. *The costs related to the construction activities have been determined per facility/centre (see BL45, BL46, BL47, BL48, BL49 and BL50 in Expected Output 1.2,* ***Annex 1****).*

Once built, the city council will retain the legal ownership of the facility but under a partnership agreement with the community waste entrepreneurs (CWE – which could be identified through existing saving groups, for example, often mainly composed of women) in each of the four target wards. Under this agreement the CWE groups will be responsible for the usage and maintenance of the centre and its equipment, including accountability, while the city council will provide bulk services (water, electricity) and security.

The partnership agreement will also recognise and authorise the CWE groups to carry out primary waste collection in the wards involving house to house collection using hand carts and/or wheel barrows. They will then bring the waste to the community waste management centre where it will be sorted and separated for composting, recycling and for onward transfer to the municipal landfill site. In these four wards the city council will only be involved in secondary waste management i.e. collecting waste that can neither be composted nor recycled from the community waste management centres to the municipal landfill site.

The activity entails the provision of technical assistance to the council and to communities. The costs entail hiring qualified consultant/facilitators for the definition of the waste management plan and operations, and the development of the legal partnership agreement between the city and the communities *(these costs will be charged to Output 1.1 – see Budget Note A in **Annex 1** and to BL45)*.

Since Zomba City Council has currently only one functional refuse collection vehicle, the idea is to procure a second vehicle through this sub-project for servicing the community waste management centres *(the costs related to the purchase of the vehicles are included in BL52, Expected Output 1.2, **Annex 1**)*.

Importantly, handling waste can be a hazardous activity with the ever present threat of infection and injury. All waste handlers will be trained in the safe handling of solid waste and provided with protective clothing to prevent waste/body contact. Washroom with shower will be built in each centre to enable waste handlers wash themselves before they leave the premises. The centres will have security fencing to prevent unauthorised entry. The costs of protective waste equipment as gloves, protective shoes/clothes and soft equipment have been determined per centre *(see BL51 in Expected Output 1.2, **Annex 1**)*.

Finally, several capacity building activities will be carried out, in particular *(for the budget references, please see **Annex 1**)*:

1. Technical training in waste management/handling and in business management for the CWE groups *(to be charged to BL45 and BL53)*.
2. Awareness-raising for promoting the understanding of the climate change/waste management/floods nexus, and explaining how indiscriminate dumping of waste blocks drains; graphic materials will also be developed for this purpose *(to be charged to BL45 and BL54).*
3. Support to the development of a municipal sanitation policy from which municipal by-law and community level by-laws will be subsequently developed; importantly, the policy will respond positively to women's interest to become local service providers *(to be charged to BL45)*.

Social, economic and environmental benefits

- Environmental: the city of Zomba will benefit from a reduction of garbage and subsequently of air and ground pollution, resulting in a cleaner city and increased awareness of the environmental impact caused by non-managed waste; the interventions carried out on the drainage system under Sub-Project 5.2.3 will become more sustainable as the overall drainage efficiency will be maintained;
- Social: the communities living in the 4 targeted wards will benefit from reduced exposure to environmental and health risks thanks to proper waste management and improved social cohesion resulting from the establishment of the CWE groups; the estimated number of direct beneficiaries is 4,000 (max. 1,000 beneficiaries per centre), and indirectly 36,060 (17,688 females and 18,392 males).
- Economic: (i) the CWE groups will benefit from increased economic opportunities as a result of the partnership with the city council concerning waste collection; (ii) increased safety for small-informal business (usually women managed) due to the reduction of local flooding.

Sustainability

- The establishment of a formal partnership between the city council and CWE groups will protect and guarantee the operators and ensure municipal support;

- Training of the beneficiaries on compost making, recycling, arts and crafts and other administrative and business skills will provide knowledge and skills which can be sustained beyond the project lifespan;
- Marketing and developing markets for products made from waste will ensure the sustainability of the initiative;
- Increased community understanding of the climate change/waste management/floods/disease nexus will build strong community support for the initiative;
- The possibility to link CWE groups to microfinance institutions/saving groups will help expansion and diversification of the initiative;
- The integrated nature of the interventions involving drainage, waste management, value addition and increased incomes from waste will reinforce each other and contribute to sustainability;
- The city council has both a waste management and a vehicle maintenance budget, which will support the sustainability of the activities and the equipment bought under the sub-project.

Lessons from similar projects

Community-based waste composting centres have been established in Lilongwe and Mzuzu cities in the past. The Lilongwe Waste for Wealth project funded by UNDP and implemented by UN-Habitat between 2009 and 2012 (see Part II, Section G) promoted a pro-poor public private partnership that supported women groups to establish a business that adds value to waste through composting and recycling and partnership with private sector buyers of the products. A similar initiative in Mzuzu was implemented under the EU funded Participatory Slum Upgrading Programme between 2015 and 2016.Two waste transfer stations have been established in Lilongwe with support from Water Aid and EU funding. These are the main lessons learned:

- Identifying markets for composting and recycling products is fundamental to the sustainability of this kind of initiatives. This must be done from the design/planning stage.
- Putting communities at the centre of the initiatives is cost-effective for the council and empowering for the poor and vulnerable who now have an income.
- Site selection for the centres is potentially problematic as no one wants to have a waste centre in their backyard. In Lilongwe and Mzuzu the sites already belonged to the respective city councils but community involvement in identifying the sites was important for reaching consensus and garnering community support for the project.
- There is a danger that if the secondary collection by the city council does not match the rate at which the waste is brought to the waste community centres, the latter can themselves start looking like landfill sites. It is therefore important to ensure that the council has adequate capacity for moving waste. That is why it is crucial to acquire a municipal waste truck through this sub-project.
- The inability of city councils to provide waste receptacles to households makes separation at source difficult for poor households who cannot afford receptacles for different types of waste.

SUB-PROJECT FICHE 5.2.5: River-focused interventions to prevent erosion and flooding

Overview

The focus area lies beneath a mountainous region, with elevated areas including the Zomba plateau. Consequently, intensive rainfall leads rapidly to runoff accumulation into the Likangala River. Deforestation aggravates the amount and speed of runoff. Velocity can be very high after excessive rainfall. The catchment area reacts rapidly to any onset of precipitation.

In the main Likangala River and related flood-prone areas (i.e. located in Mbedza, Chambo, Sadzi and Likangala wards), this sub-project will tackle river bank erosion (also favoured by informal sand mining), gully building and/or growth and soil degradation through river-focused interventions as the installation of gabion baskets at identified hotspot areas (see map in figure 11).

The shape of the river valley is relatively steep and surrounded by settlements, most of which are informal and built into the river bed. Therefore, reactivating old meanders is not expected to create an increased hydraulic capacity and nor lower the extreme water levels of the Likangala River. Alternative interventions have been assessed as well, and those that may serve to reduce the water levels are not considered to be suitable, such as creating a bypass or enhancing its retention capability through dredging.

Implementation strategy and planned activities

The overall planned activities for the drainage interventions are *(for the budget references, please see **Annex 1**)*:

1. Preparation of detailed engineering studies and designs, as well as bills of quantities. This will involve the installation of gabion baskets for a cumulative length of 300 m (approx. 1,780 gabion baskets), which will require: terrain measurement and inspection, including on site assessment to specifically determine the river sections in more detail, and calculating the exact grain size of the stones in the gabions vis-à-vis the velocity of the river *(to be charged to Output 1.1 – see Budget Note A and to BL55).*
2. Selection and contracting of local contractor *(to be charged to Output 1.3 – see Budget Note C).*
3. Recruitment of local labour among the communities living in the river banks *(to be charged to Output 1.3 – see Budget Note C, for administrative costs, and to BL57).*
4. Execution of construction works *(to be charged to BL56 and BL59).*
5. On-site technical assistance and supervision *(to be charged to BL55).*
6. Setting up a mechanism for maintenance (see below on sustainability) *(to be charged to Output 1.3 – see Budget Note C).*

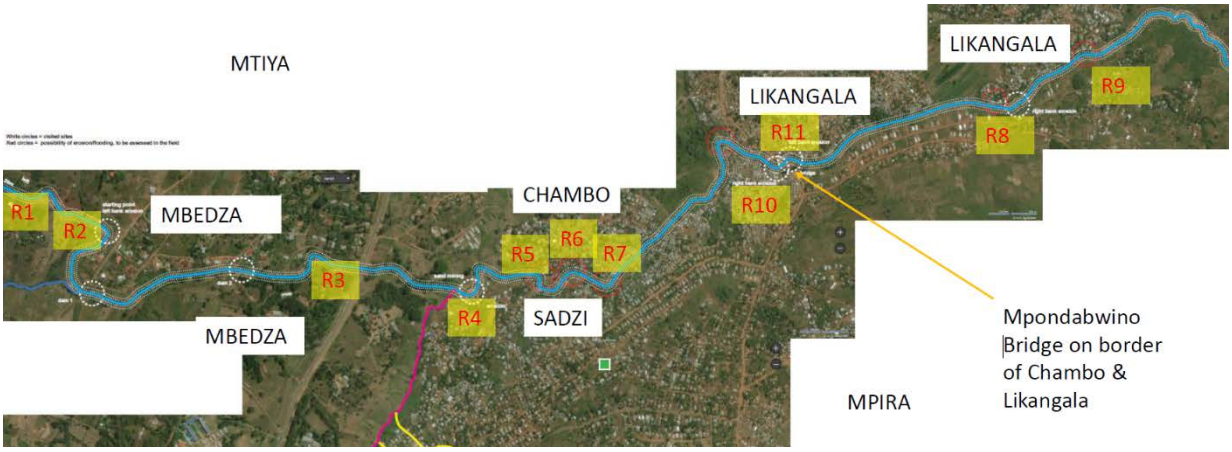


Figure 11: Proposed locations of gabion basket installation

Social, economic and environmental benefits

Approximately 20,000 people will benefit from the following aspects:

- River accessibility to local residents and visitors will be enhanced. Overall, critical areas of the river banks will be stabilised, which will improve safety. Related to this, the river will not encroach on urban land as well as farming land when river levels are high, hence damage to assets and housing is prevented and urban agriculture and livelihoods are protected.
- Gabion baskets at points R10 and 11 (see map in figure 3) will also protect a bridge (Mpondabwino Bridge - see Sub-Project fiche 5.2.6) as critical infrastructure.
- In terms of immediate economic benefits, communities will be involved as paid labour in construction works and related maintenance and cleaning needs.
- Reduced bank erosion and subsequent sedimentation, and reduced flood risk.

Sustainability

It has been observed that no organization at the local level is directly responsible for the river and its management (one would need to contact authorities at the national or sub-national levels). Hence an agreement will need to be put in place between the concerned riparian communities, the Zomba City Council and the responsible entity at national level to ensure maintenance of the intervention once the infrastructure is handed over.

Maintenance needs are as follows for gabion baskets:

- Gabion baskets may be susceptible to general wear and tear due to silt and debris contact via the river;
- The baskets need to be inspected for scour to ensure the structure is not undermined;

- The baskets may be liable to rust after lengthy exposure to the water; this can be mitigated by not using rust-prone material;
- Regular inspections are required to affirm the integrity and safety of the structure, and that flood protection is sustained; it is necessary to schedule these in to ensure maintenance costs remain low;
- Overall, yearly inspection and repair if needed is estimated at an approximate of 2 percent of the total investment.

A maintenance plan for dams depends on the detailed design of the refurbishment, which will include aspects of maintenance. Costs were estimated to be manageable by the city council.

Additional, by-laws to prevent informal sand mining in the targeted areas will have to be enforced in a stricter manner, including payment of penalties. This means that involving the riparian populations in this initiative will be crucial, through awareness-raising and surveillance/reporting mechanisms. Additionally, alternative livelihood options will have to be identified for the sand miners.

Design details

The sub-project aims to install slope protection features along identified areas of the banks of the Likangala River (see map in figure 11). The areas that are most at risk are proposed for installing the gabion baskets, as they offer a number of benefits:

- Provides robust, long-term protection;
- Requires minimal maintenance;
- Presents less technical risk than other options (concrete walls, sheet piling, anchored matting);
- More cost effective than other possible solutions (concrete walls, sheet piling);
- There is a known supply of materials and plant in the vicinity;
- There are known contractors in the areas that are able to install gabion baskets;
- The solution is relatively more environmentally friendly;
- The solution is relatively less intrusive to local residents;
- They can be installed in situ, meaning their installation can be best adapted to the terrain.

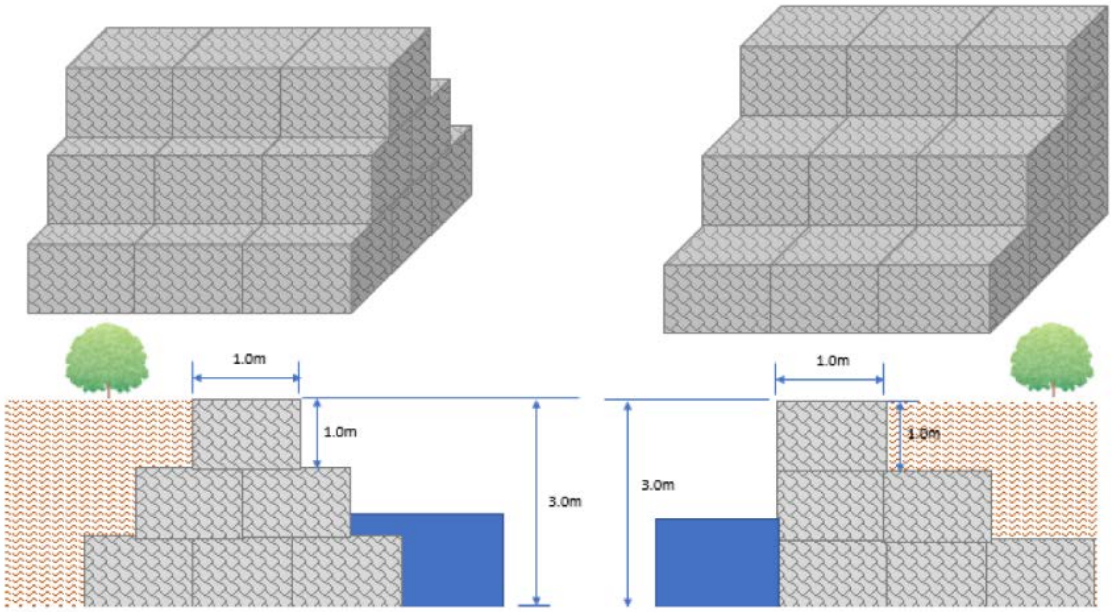


Figure 12: Conceptual design of gabion baskets to be applied in the Likangala River

<u>SUB-PROJECT FICHE 5.2.6</u>: Construction and rehabilitation of bridges and dams on Likangala River

Overview

The Likangala River is the main river running west to east across the City of Zomba dividing the city into two. Communication between the southern and northern parts of the city is through two main bridges: the Likangala Bridge on the main M3 Road which connects the city to other parts of the country, and the Mpondabwino Bridge. There are other informal bridges constructed by individuals or communities, notably the 'Two Million (Namalaka) Bridge'. These bridges are critical for ensuring proper circulation of

people and goods in the city, accessing social services and in times of disaster, to allow evacuation and provide access to the safe-havens to be built under Sub-Project 5.2.2.

In particular, the Two Million Bridge connects Sadzi and Chambo wards. It represents a very critical infrastructure for accessing the Zomba Central Hospital and the safe-havens planned in Sadzi and Chambo wards. The bridge is informal and non-engineered and poses a risk to the users. Among the proposed interventions under this sub-project it is proposed to demolish it and build a new one.

The Likangala Bridge is the main bridge of Zomba connecting the city to other parts of Malawi, and serves the whole city population. Meanwhile the Mpondabwino Bridge connects Likangala and Sadzi wards, which are the two most densely populated wards in the city. Both bridges have suffered from the scouring effects of the 2015 floods and are in need of rehabilitation to ensure that they are robust and safe to use.

The two dams on the Likangala in Mbedza were built in the 1950's and have acted as a flood control measure for a long time but the dam walls are now dilapidated and no longer functioning effectively.

Implementation strategy and planned activities

The bridges/dams construction and rehabilitation works will be carried out by local contractor(s) following a competitive bidding process. The city council's Engineering Department supported by Roads Authority engineers will be responsible for the technical supervision of the project.

The contractor's labour force will be hired as much as possible among the local population, and will follow national labour laws which are based on ILO standards.

The overall planned activities for the drainage interventions are *(for the budget references, please see **Annex 1**)*:

1. Preparation of detailed engineering studies and designs, as well as bills of quantities *(to be charged to Output 1.1 – see Budget Note A and to BL60).*
2. Selection and contracting of local contractor(s) *(administrative tasks to be charged to Output 1.3 – see Budget Note C).*
3. Recruitment of local labour among the population *(administrative tasks to be charged to Output 1.3 – see Budget Note C).*
4. Execution of the construction works *(to be charged to BL61, BL62, BL63 and BL64)*
5. Monitoring and supervision of construction works *(to be charged to BL60)*
6. Maintenance ensured by the city council *(technical expertise to support the process to be charged to Output 1.3 – see Budget Note C).*

Social, economic and environmental benefits

The community consultations in Sadzi ward revealed that at least one person has ever fallen into the river and died due to the unstable Two Million Bridge, which is dangerous to use especially during river flooding times. Currently school children using the bridge on a daily basis in both Sadzi and Chambo wards reported their fears when crossing it to reach either Bwaila School or Sadzi School. Women also expressed particular fears of the bridge to access the Central Hospital, especially in times of floods. The bridge therefore needs to be re-built in a safer and more robust manner so that it can better serve the purpose of protecting lives and accessing critical services during flood times, and improve the overall connectivity of the city, which is so critical for evacuation purposes.

Any impairment to the functionality of the Likangala Bridge would greatly hurt the city economy and in times of disasters make it harder for the city and its residents to recover.

The community consultations further revealed that sugarcane farming is important for the people of Sadzi and they rely on the Zomba Main Market, which is on the northern side of Likangala River to sell sugarcane and other products. The Mpondabwino Bridge is important not only for accessing the Main Market as well as the Mpondabwino Market, but also in times of flood emergency to evacuate and access the safe-haven to be built in Likangala ward, which will also serve the surrounding wards.

Finally, the two dams to be rehabilitated through this sub-project constitute important flood control measures.

Cost effectiveness

Although the Likangala Bridge is an old structure, it is still robust. The Mpondabwino Bridge is a fairly new bridge and is also generally robust. It is cost-effective to rehabilitate these two bridges rather than building new ones, since the rehabilitation works give proper protection to them, preventing their

collapse in the long-term. The Two Million Bridge cannot be rehabilitated because it is not robust and not engineered, hence it needs to be re-built.

Sustainability

The Zomba City Council is the roads and drainage authority within the city jurisdiction and will be responsible for maintaining the rehabilitated/re-built bridges using its regular budget, once they are handed over to the city. The budget required for maintaining the bridges is relatively low and can easily be covered by the annual maintenance budget of such structures by the city council. Further, local engineers will be involved in the rehabilitation and construction works and city council staff trained on maintenance issues.

The planned river-focused interventions in the Likangala River under Sub-Project Fiche 5.2.5 will also contribute to the sustainable protection of these bridges, as they will reduce river erosion through the installation of gabion baskets and reduce/eliminate activities related to informal/illegal sand mining.

Consultations with the city council showed that when rehabilitated the city council would like to use the rehabilitated dams for additional purposes, apart from their flood control function, including for recreational activities. This multi-functionality of the dams augurs well in terms of sustainability.

Maps and design details

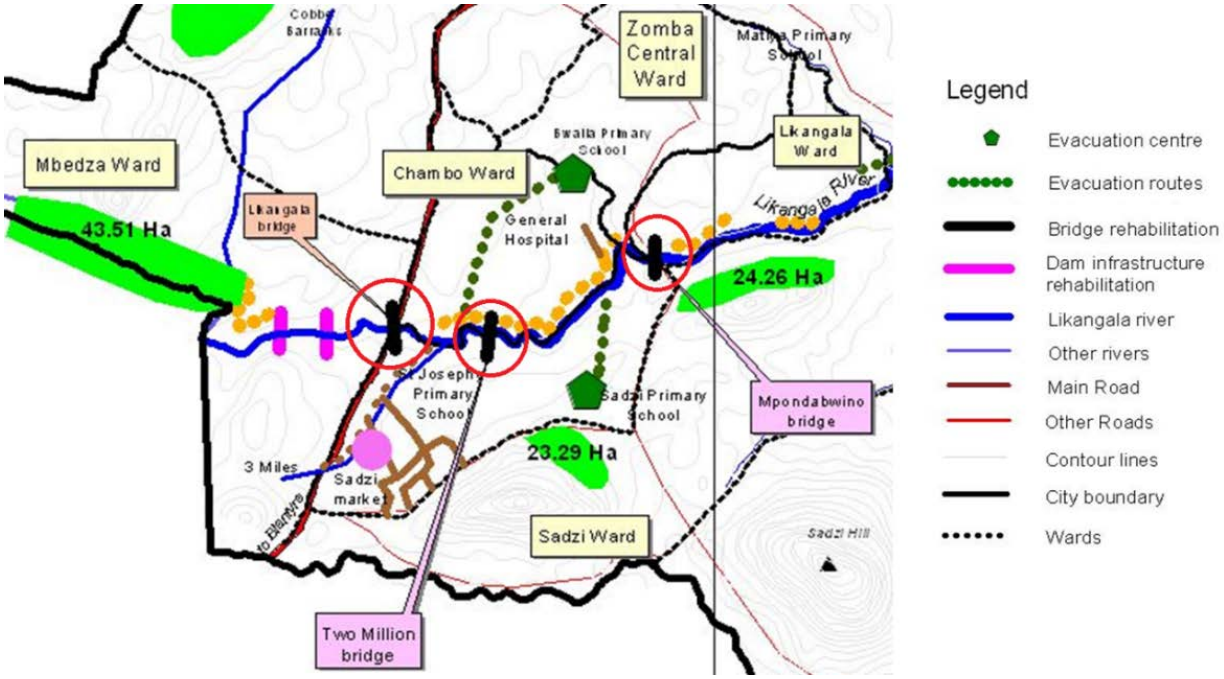


Figure 13: location of the three bridges (black lines) and the two dams (magenta lines) targeted by the sub-project

For the rehabilitation of the two bridges, Mpondabwino and Likangala, preparatory works will involve the detailed bills of quantities and, related to this, exact measurements of elevations around the bridge pillars to estimate the depth of erosion occurred. Firstly, in order to maintain the pillar construction of the bridge it is proposed to bring waste stone around the pillars. At least al layer of 0.5 m thick stones sorting 10-60 kg. Secondly, it is proposed to build a longitudinal groyne to better direct the water flow under the bridge. These longitudinal protection structures are hydraulic structures with their length parallel to the river flow. The purpose of these is to support the existing natural river bank, serve as erosion control, control of meandering, containment of the normal flow channel and last but not least flood protection. With a view to the strong meandering of the river at the bridge, a longitudinal dam or groyne or sheet piling is suggested.

Regarding the two existing dams to be rehabilitated upstream the Likangala River, they were originally instated to provide irrigation to surrounding areas. However, they are no longer functioning as initially intended and have been impacted by wear and weather events. The 2015 flood event and everyday river action has resulted in erosion and siltation at the dams and their surroundings. The rehabilitated dams will play an important role in terms of flood control, by reducing the speed of the water flow, and to facilitate irrigation during the dry season.

SUB-PROJECT FICHE 5.2.7: Sustainable urban forest management

Overview

Hillside areas play an important role in provoking flooding and undirected water flows affecting Zomba city. Further, tree cutting on hillside slopes and on the river banks at the valley bottom cause erosion through accelerated runoff of rainwater and floodwaters respectively. This sub-project involves tree planting on hillsides and river banks in seven wards of the city with a view to prevent soil degradation, erosion, gully progression/enlargement, landslides and rock avalanches, which can also reduce the overall flood intensity. At the same time, tree nurseries will be established in each ward to facilitate the afforestation measures.

Implementation strategy and planned activities

The implementation of this sub-project involves close cooperation with the Forest Research Institute of Malawi (FRIM) based in Zomba, as well as the Zomba District Forest Office responsible for urban forestry. Two main interventions are planned: setting up of tree nurseries and tree planting, as well as important support interventions to enhance the overall sustainability of the initiative. For managing the afforestation process and the tree nurseries, local committees at ward level will be established and mobilised, taking advantage of the existing natural resources management committees.

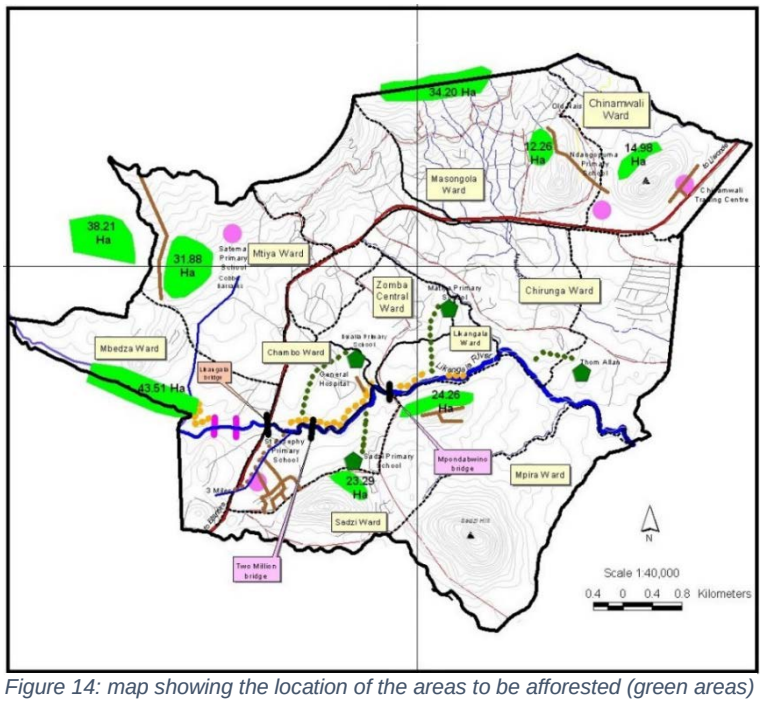


Figure 14: map showing the location of the areas to be afforested (green areas)

The tree nurseries will be set up in all target wards to ensure the provision of seedlings for carrying out the afforestation activities. The management and maintenance of the tree nurseries will be under the responsibility of the above-mentioned community committees, with the important guidance from both the FRIM and the District Forest Office. The latter will provide assistance for the design and set up of the tree nurseries, as well as the technical specifications for selecting the appropriate tree species to be planted. With regard to the latter, in addition to their function of retaining runoff/rain water, wind resistant trees species can provide protection against heavy rainstorms, whilst fruit and/or nut trees have socio-economic benefits.

According to calculations made by the FRIM, between 1,000 and 1,600 seedlings are required per hectare to ensure optimal afforestation standards. The seedlings will be made available through the FRIM. These need to be nursed for 1-2 years (depending on the species) before they can be planted. After planting, the trees need to be taking care of for the first years, e.g. spud out weeds.

The following main activities are planned *(for the budget references, please see **Annex 1**)*:

1. Selecting exact locations for establishing the community-based tree nurseries to plant and nurse seedlings; the sub-project expects to establish two (2) tree nurseries for each target ward, for a total of 14 tree nurseries *(to be charged to BL66).*
2. Design of tree nurseries, including selection of species as fruit trees (e.g. mango and tangerine) or nut trees (Cashew and Macadamia) where possible, Brastigia and Bamboo, and setting up of management and maintenance mechanisms with the community committees, through proper training and supervision *(to be charged to BL65 and BL68).*
3. Delimitation, assessment and preparation of land for afforestation, including the preparation of an environmental and social management plan. Between 1,000-1,600 seedlings per ha will be planted (in total 290,000 seedlings to cover an area of approximately 225 hectares) *(to be charged to Output 1.1 – see Budget Note A and to BL65 and BL67).*
4. Planting of trees through community involvement *(to be charged to BL67).*

5. Training of community groups to manage nurseries and planting
6. Monitoring and maintenance of planted trees, through the establishment of proper surveillance and penalty (through a fine) system, as a control measure against tree cutting) *(to be charged to Output 1.3 – see Budget Note C and to BL65).*

Social, economic and environmental benefits

- Approximately 77,789 people will directly benefit from the role the afforested areas will play in terms of avoiding soil erosion, land degradation, rock avalanches, flash floods and landslides;
- The entire population of the city (156,022 people) will indirectly benefit from the ecological value derived from the rehabilitated ecosystems;
- Communities, especially women, will be involved in tree nurseries and tree planting; they will learn new skills and earn an income; communities will benefit from new sources of livelihoods that are more sustainable than illegal deforestation; the planting of nuts and fruit trees will also generate further income to households;
- Women and men will be trained on building energy efficient cooking stoves as well as briquette burning; such small business opportunities can generate a regular income; improved cook stoves would also generate significant costs savings to the families;
- Energy efficient cooking stoves generate less smoke and are hence less detrimental to the health of women compared to cooking with firewood;
- Environmentally, tree planting will enhance absorption of carbon dioxide, stabilise the soils, minimise erosion and reduce land degradation.

Sustainability

Considering that the need for firewood is the main reason for the deforestation due to heavy dependence on biomass (80% firewood; 10% charcoal), the main concern of this intervention will be to ensure that the local population has access to alternative sources of livelihood (i.e. away from selling firewood as means of income) and uses less firewood overall. Alternative livelihood options will be fostered such as bee keeping and trainings for the construction of energy efficient cook stoves as well as briquette making. Women will be specifically targeted for training and support the adoption of more sustainable livelihood options at the household level.

At the same time, fruits and nuts will be produced by the tree nurseries and provide an alternative income. The sub-project will employ community members for tree planting in all the target areas. Once the trees start producing fruits and nuts, the community members will have an incentive to continue/sustain the tree planting where needed. Bee-keeping activities will also be promoted through this sub-project.

Based on lessons learnt from recent initiatives (best practice cases in Sadzi and Mpira ward where similar forest management approaches were successfully carried out), community by-laws will be introduced to protect the realised afforestation activities. This will include a control and penalty system, to prevent tree cutting activities.

In sum, the following activities will be conducted to support preservation of the afforested areas:

- Raise awareness regarding the relation between tree cutting, erosion and flooding;
- Promote alternative livelihoods and tree-based enterprises such as fruit and nut trees as well as bee-keeping;
- Promote energy efficient resource use for cooking (i.e. energy efficient cook stoves) and briquette burning to reduce the need for wood;
- Facilitate community level by-laws regarding forest management, including control/punishment mechanisms.

Design details

The main purpose of the support interventions is to reduce the use of charcoal and increase the awareness and uptake of alternative cooking fuels by introducing briquettes and energy efficient cook stoves.

i) Briquettes

Briquettes are made with a mix of tree leaves, sawdust, waste paper and charcoal dust in different proportions. The briquettes are made using a locally-made, manual low-cost press that does not depend on electricity and are then burned in locally-made and energy efficient briquette stoves.

LEAD International disposes of such a briquette making machine and will offer it to the project free of charge for training and piloting purposes.

ii) Energy efficient cook stoves

As lesson learnt from DFID's Enhancing Communities' Resilience Programme (2011-2017) (see Part II, section G), it was reported that fixed stoves are preferred to portable ones by communities as they are made from cheap and locally available materials. On the other hand, portable stoves were of advantage as one can use them anywhere.

Factors influencing uptake of cook stoves will be analysed so that proper strategies can be set up for promoting and disseminating more energy-efficient (and cheaper) cooking techniques. With the alarming deforestation rates currently prevailing in Zomba, cook stoves of any type should continuously be promoted. Consequently, the sub-project will carry out a market/consumer analysis prior to choosing the specific kind of cook stove that will be used.

5.3. CITY: CHOKWE, MOZAMBIQUE

<u>SUB-PROJECT FICHE 5.3.1</u>: Improving the overall drainage capacity of the city

Overview

This sub-project's intention is to undertake different drainage rehabilitation/construction interventions in specific locations, which after due analysis are considered critical to improve the overall efficiency of the drainage system of the city. These will be a kind of acupunctural interventions to ensure the continuity of the water flow in the drainage system, so that excess water (originated from rainfall or river flood) can be evacuated. The determination of these critically important locations results from several field surveys, cartographic analysis and consultations with municipal engineers and with local inhabitants.

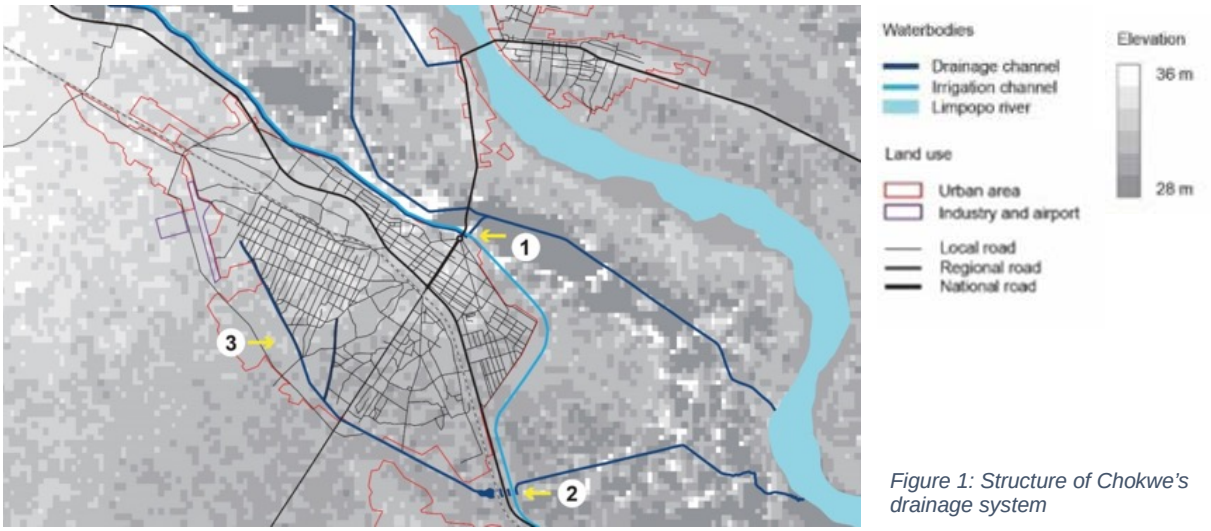


Figure 1: Structure of Chokwe's drainage system

Implementation strategy and planned activities

The overall planned activities for the drainage interventions are *(for the budget references, please see **Annex 1**)*:

1) Preparation of detailed studies, including technical specifications, bill of quantities and detailed designs *(to be charged to Output 1.1 – see Budget Note A and to BL69).*
2) Simplified Environmental Study (SES), including an Environmental Management Plan (EMP) according to the national legislation (see Part II, Section F, on national technical standards) *(to be charged to Output 1.1 – see Budget Note A).*
3) Tender for selecting and contracting the local sub-contractor *(administrative tasks to be charged to Output 1.3 – see Budget Note C).*
4) Community mobilisation and information process *(to be charged to Output 1.3 –see Budget Note C).*
5) Recruitment of labour among the local population *(administrative tasks to be charged to Output 1.3 – see Budget Note C).*
6) Execution of the construction works *(to be charged to BL70).*
7) Monitoring and establishment of sustainable drainage maintenance mechanisms *(to be charged to Output 1.3 – see Budget Note C)*.

Social, economic and environmental benefits

- Approximately 45,800 people (9,000 households) will benefit directly from the construction/rehabilitation of drainage channels in neighbourhoods 3B, 4 and 5 in terms of flood risk reduction and better sanitary and environmental conditions, and indirectly the whole city (68,000 people) since these interventions will improve the overall drainage efficiency;
- Reduction of water-borne diseases (e.g. malaria, diarrhoea, etc.) from stagnant waters;
- More investments will occur in the city as a result of better drainage and environmental conditions.

Sustainability

To ensure constant maintenance of the newly built or rehabilitated drainage channels, trained community groups will be involved from the beginning of the sub-project. These will be the same groups

that carry out solid waste management activities (see Sub-Project Fiche 5.3.3). A written agreement will be established between these groups, the city council and ARA-SUL[1] in support to the proper management and maintenance of the drainage channels. Necessary equipment will be purchased for this purpose, and appropriate rules and procedures will be established. The agreement will be based on the general principle that these community groups are paid for their services, while the authorities oversee the quality, effectiveness and regularity of the maintenance operations. The city council will start to budget drainage maintenance costs one year after the beginning of the sub-project.

Maps, photos and design details

i. Construction of three sets of drainage pipes and valves with high capacity

As a consequence of the 2013 floods, the pipes have collapsed and the inlets are silted up. There was no repair done since then. As a result, the main drainage channel to the south (indicated as number “3” in figure 1) cannot properly drain the collected storm water, leading to prolonged flooding events. Bringing back the discharge capacity to its former functioning will serve two main purposes. River floodwaters can be discharged through the southern drainage channel, potentially reducing flood duration in neighbourhoods 3A, 4 and 5 from more than 14 days to about 7 days, depending on the specific flooding scenario and flood progression. In addition, flash floods (caused by rainfall) will recede more quickly as the full discharge capacity of the southern drainage channel can be utilised.

Therefore, this intervention aims to re-build the drainage pipes on the underground crossing "2” (see figure 1) which is currently non-operational to reconnect the southern drainage channel to the channel leading to the Limpopo River. Moreover, other important interventions such as the extension (explained in section ii. below) and rehabilitation (explained in section iii. below) of the existing main drainage channel will only have an effect when this reconnection of channels will be done.

The construction and inlets will be designed to resist to flooding impact by using hard structures to limit erosion and siltation in and around the inlets and the inlet retention area. A conceptual design for the interventions needed near the inlet port is shown in figure 2.

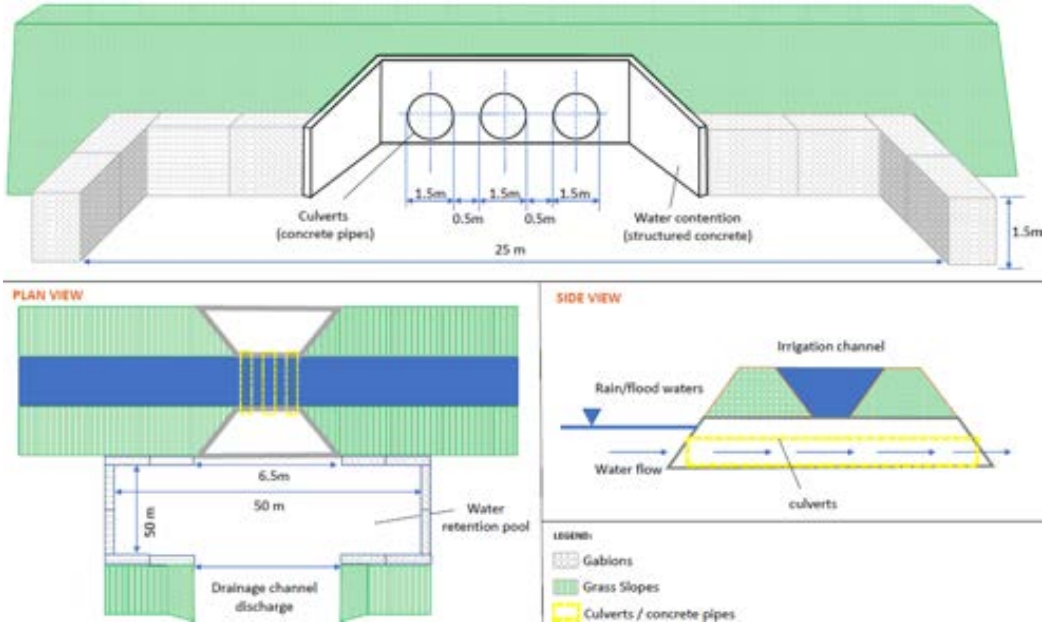


Figure 2: Conceptual design of set of drainage pipes and valves with high capacity

ii. Rehabilitation of the southern drainage channel

The southern main drainage channel has broken its banks near bottlenecks in its course. The situation is worst in the most southern section, where the obstruction and collapse of the discharge pipes led to drainage congestion. Additionally, a small bridge in neighbourhood 5 (see figure 5) is clearly obstructing the discharge of drainage waters and creates a bottleneck which leads to local flooding of the area, including a local road. The channel’s banks have eroded (Figure 6) over its complete length, leading to siltation and loss of discharge and retention capacity downstream.

[1] ARA-SUL is the agency responsible for managing the river basins in southern Mozambique, including the Limpopo River which flows near Chokwe. It is involved in the hydrological modelling including water availability, dam operation and flood forecasting.

Figure 3: Southern drainage channel (1: location of bridge obstructing the channel; 2: regional highway bridge, which is not an obstruction; 3: T-joint in the drainage channel.

Removing the bottlenecks, replacing obstructing structures, and rehabilitation of the channels banks and course way will improve the discharge and retention capacity and will limit flooding from both pluvial and fluvial sources. Moreover, the proposed extension of the drainage channel (intervention iii. described below) requires the main drainage channel to operate at its designed capacity.

iii. Construction of new drainage channels in neighbourhoods 4 and 5

Here it is proposed to build new drainage channels as an extension of the southern main drainage channel in neighbourhoods 4 and 5, which are the most vulnerable areas of the city and house the poorest population. Both drainage channels run through medium density neighbourhoods. To limit the risk of property rights issues, both drainage channels will be built along existing public roads (see figure 3).

iv. Maintenance of the northern drainage channel

Part of the northern drainage channel has collapsed after the 2013 foods and has been grown over with vegetation for a length of 1.3 km. Rehabilitation of the channel will drastically improve the drainage conditions of neighbourhood 3B. The maintenance will involve two steps:

- First, carry out a site cleaning, including the removal of vegetation and solid waste;
- Second, remove the top soil along the drainage channel for a depth of 0.30 metres.

Figure 4: Conceptual design of new drainage channel in neighbourhood 4 (right) and 5 (left)

<u>SUB-PROJECT FICHE 5.3.2</u>: Construction of safe-havens

Overview

The City of Chokwe has suffered cyclically from floods that are characterised by the destruction of infrastructure and sometimes loss of human lives. During these events, one of the most critical aspects is the existence of a safe place where communities can take refuge and save some assets that are fundamental for their post-disaster recovery. During the local consultations, community members, especially women and the most vulnerable (see **Annex 2** for data and information on marginalized and vulnerable group in Chokwe), expressed the need for evacuation centres (or safe-havens) in their neighbourhood that can be accessed during a flood emergency. Current evacuation centres are located too far from the city.

In this context, the construction of safe-havens in critical areas of the city will greatly contribute to vulnerability reduction of the most vulnerable community members. These elevated constructions will

have a double function: they will serve as shelter during flood emergency times, and as school classrooms and community centres (to organise social events, trainings, workshops and meetings) in normal times. These multi-purpose safe-havens will be built in already identified primary schools' plots and will be managed by the schools' officials. They will be designed as elevated platforms using construction techniques that make them resistant to floods and strong winds, with the possibility to harvest rainwater. UN-Habitat has a long experience of this type of constructions in disaster-prone areas in Mozambique, also influencing the school building codes at the national level. This UN Agency has successfully built an elevated school that serves as safe-haven in case of an emergency after the 2013 floods in neighbourhood n. 5 (see map in figure n. 1).

Implementation strategy and planned activities

For implementing this sub-project, first of all, detailed designs will be developed including all technical specifications and bill of quantities, according to the local and topographic/ environmental conditions of the construction sites. The climate proofing design of the safe-havens (from both an architectural and engineering perspective) is very important and adequate expertise will be mobilised for such a purpose *(to be charged to Output 1.1 – see Budget Note A and to BL71 in Expected Output 1.2 in **Annex 1**)*.

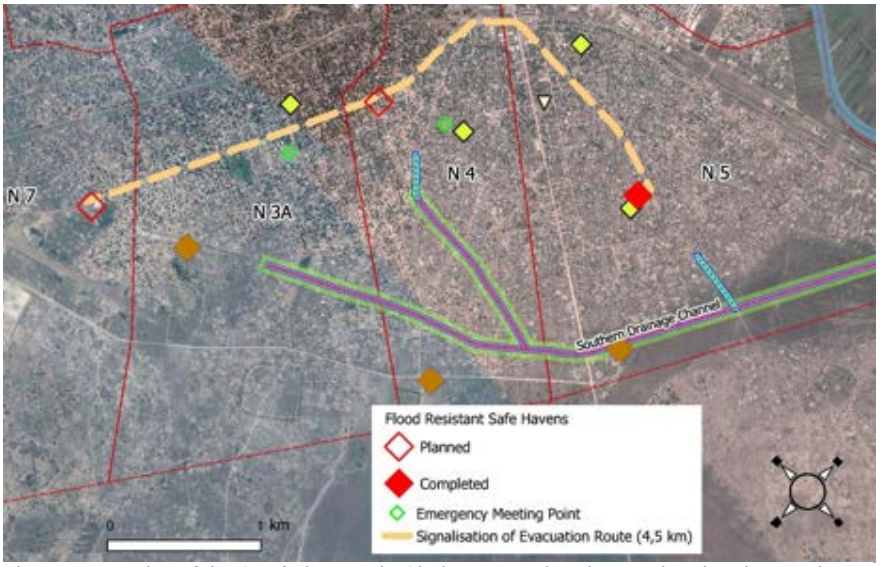


Figure 5: Location of the 3 safe-havens in Chokwe, one already completed and two to be built; an evacuation route links the 3 structures

A local contractor will be hired to build two (2) new safe-havens (see their location in figure 1 – they are marked as "planned") through a tendering process to be organised by the city project office, which will provide technical support and supervision during the construction phase *(to be charged to Output 1.3 – see Budget Note C in **Annex 1**)*. The local contractor will be required to hire man power as much as possible among the local communities, favouring women.

The involvement of the local community (especially women, older persons and persons with disabilities) during the design and implementation phases will be ensured, so that they can support the process. Local master builders will also learn about some of the construction techniques to be applied for climate-resilient construction, which they can then replicate when building/improving houses, for example. For this purpose, local trainings/workshops will be organised for presenting the architectural and engineering designs/solutions to be applied in the safe-haven, especially targeting local master builders *(to be charged to Output 1.3 – see Budget Note C in **Annex 1**. Construction costs for both safe haven will be charged to BL72 - see Expected Output 1.2*).

Social, economic and environmental benefits

- Approximately 8,300 families living in neighbourhoods 3A, 3B, 5 and 7 will benefit from the safe-havens in case of floods, especially women, marginalized and vulnerable groups;
- Around 24,900 school pupils from different neighbourhoods from the city (mostly from where will be located the safe havens) will benefit from new classrooms;
- The operation of safe-havens will prevent loss of properties and human lives during the flood season in the city and will contribute to reduction water-related diseases like malaria, etc.;
- The local communities will benefit from a well-equipped space where they can meet, socialise and be trained in normal times.

Sustainability

The safe-havens will be built in existing schools' plots. The management and maintenance of such infrastructure will be supported by the school's administration, under conditions to be agreed with the

municipal council and the concerned communities. Moreover, training and awareness raising sessions will be delivered to communities for the proper use of the safe-havens.

Design details

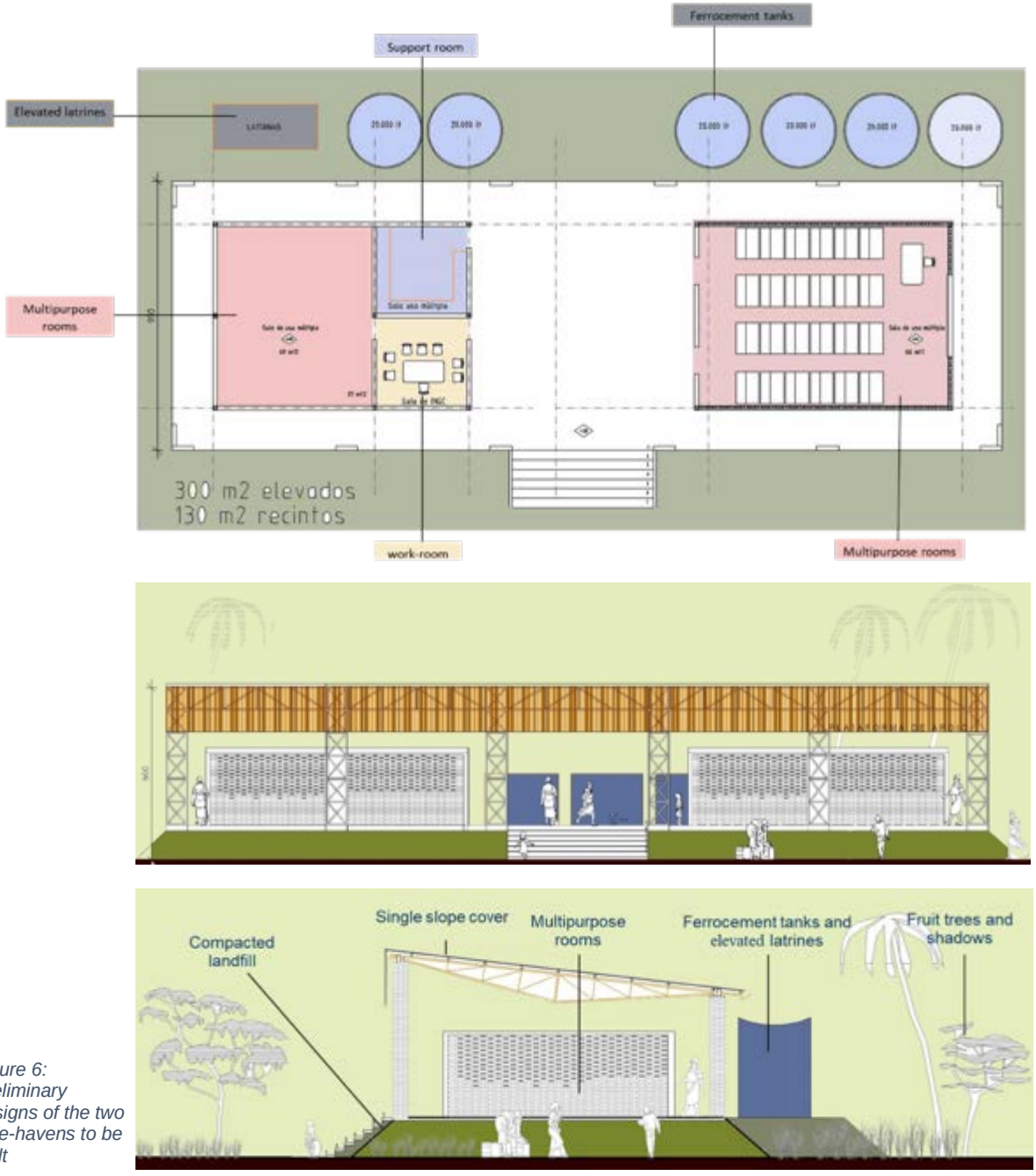


Figure 6: Preliminary designs of the two safe-havens to be built

<u>SUB-PROJECT FICHE 5.3.3</u>: Improving solid waste management

Overview

In Chokwe Municipality, no formal landfill site exists in Chokwe. At present solid waste is currently dumped in an informal site located in neighbourhood n. 4, which is 2 km from the city centre. The dumpsite is not fenced and there is no proper waste management taking place there. Both animals and humans have free access to the site, with subsequent challenges in terms of public health. A study carried out in 2009 recommended the construction of a sanitary landfill as a matter of urgency; however, since then it did not happen yet and the situation is deteriorating.

According to the above mentioned 2009 study carried out by WAPCOM (2009) only 27% of households benefit from formal waste collection services. The rest of the residents dig a rubbish pit (35%), burn

their waste (12%) or simply dump it informally (27%). In 2012, a solid waste management strategy for Chokwe (2010-2025) was developed. This this sub-project is aligning to the proposed priorities in this document, among others: (i) design and construction of a landfill site; (ii) purchase of equipment; and (iii) training of staff.

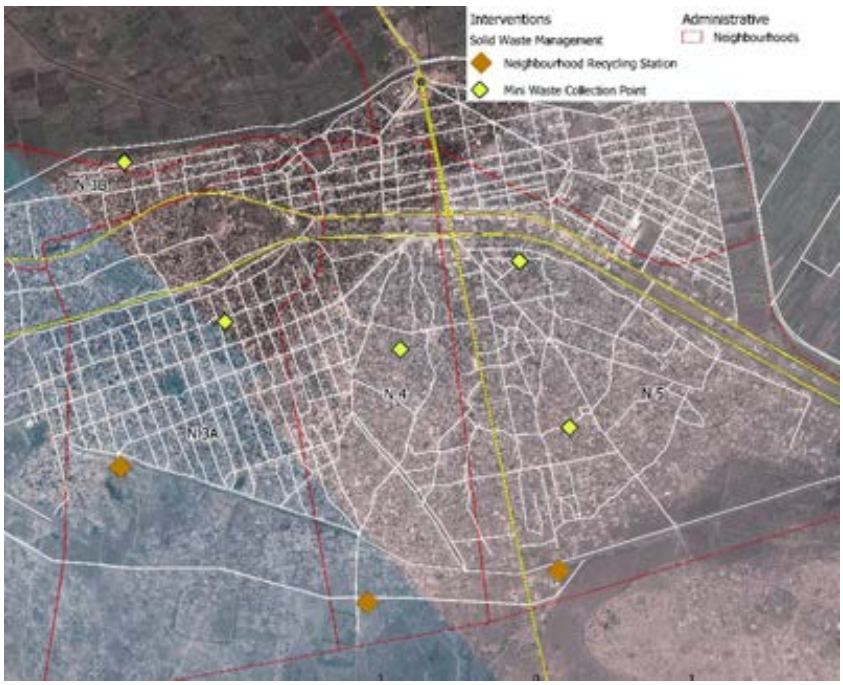


Figure 7: Map locating the proposed SWM interventions: Neighbourhood Recycling Stations (orange diamonds) and Mini Waste Collection Points (yellow diamonds)

Implementation strategy and planned activities

For this sub-project, the following activities are proposed *(for the budget references, see **Annex 1**)*:

1. *Establishment of a community-based integrated Solid Waste Management System (SWMS) in 3 neighbourhoods (3, 4 and 5):* the community-based integrated SWMS will be established and operationalised in these neighbourhoods where drainage interventions are planned to be carried out (see Sub-Project Fiche 5.3.1) to ensure that waste is removed, especially in areas poorly served by the municipality, and does not hamper the efficiency of the storm water drainage system. Importantly, recycling has not been yet introduced in Chokwe and communities are not familiar in sorting the waste. Meanwhile recycling is an effective measure for mitigating the effects of climate change as it helps reducing green-house gas emissions in the air, and can generate income at the community level, especially for women. The establishment of the SWMS will result from a formal partnership agreement between the municipality (through its Sanitation and Environmental Department) and the targeted communities, with clear roles and responsibilities, to enhance waste collection at the neighbourhood level and to monitor/maintain the drainage system so that it remains clean and functional, thus reducing the risk of local flooding in case of heavy rains. The community groups responsible for operationalizing the SWMS will be composed for at least 50% by women. Waste will be collected regularly from the households in the 4 neighbourhoods and transported to specific and accessible waste collection points, which will then be collected by the municipal truck. The community groups will be properly equipped and trained for both collecting/treating the waste and for raising awareness on appropriate waste management practices and on the relationship between stagnant water/dirty drainage and health implications. *(to be charged to Output 1.3 – see Budget Note C and to BL73 and BL76).*
2. *Construction of 3 waste collection and treatment centres, one per targeted neighbourhood:* through joint consultations between the municipality and the community representatives, suitable areas within the 3 targeted neighbourhoods were identified for the construction of the community-based waste collection and treatment centres. The sites were selected based on the following criteria: (i) accessibility to municipal trucks for waste collection; (ii) safety and security, to avoid worsening the sanitary and hygienic conditions of the neighbouring environment; (iii) space availability for future expansion. An in-depth impact assessment study will be necessary to ensure that the location of waste collection and treatment centres is suitable. basic layout of the centres is provided in figure 8; they will include at least: (a) fenced area; (b) closed building structure; (c) external paved area for storing the waste; and (d) toilet facilities *(to be charged to BL74)*.
3. *Purchasing of the waste management equipment:* the following equipment will be bought: waste bins, waste collection tools (trolleys, etc.) and other equipment (plastic bags, gloves etc.). The community groups will receive technical training on how to use and maintain the equipment *(to be charged to BL75)*.
4. *Provision of technical assistance to the city council on waste management and climate change mitigation:* this technical assistance will focus on awareness-raising (nexus between climate

change and waste management) and on developing methodological skills for waste management (collection and recycling) at city and community levels *(to be charged to BL74)*.

5. *Awareness-raising activities at community level:* positive behaviour of the communities in appropriate waste management practices is a key factor for the success of the sub-project. Awareness-raising will include door-to-door activities, training/debates/ drama sessions in schools, etc. *(to be charged to BL76).*

Social, economic and environmental benefits

- Environmental: the city of the Chokwe will benefit from: (i) a decrease of garbage that is left on the street or in vulnerable areas and a reduction in air and soil pollution as a consequence of improved waste collection; (ii) a cleaner city resulting from better understanding by the communities and the city council on the importance of adopting sustainable waste management practices; (iii) reduced risk of localised floods.
- Social: approximately 35,000 people (total population of the 3 targeted neighbourhoods) will benefit from: (i) reduced exposure to environmental and health risks, thanks to a cleaner city; (ii) improved social cohesion resulting from the establishment of community groups responsible for waste management.
- Economic: the population of the 4 targeted neighbourhoods will benefit from: (i) increased economic opportunities from waste collection/treatment activities; (ii) reduced flooding risks for small-informal business (usually managed by women); (iii) increased cost-effectiveness for the city regarding waste management thanks to the establishment of the community-based integrated SWMS.

Sustainability

- The inclusion of the costs related to the services delivered by the community groups operationalising the SWMS into the municipal budget will ensure sustainability of the sub-project; a waste collection tax (although symbolic) will have to be established for those households benefiting from the waste collection services.
- The formal partnership between the city council and the community groups helps building trust among these parties and will constitute the basis for the sustainability of the initiative beyond the project duration.
- Training and capacity building activities will empower people, especially women, and provide the necessary skills, knowledge and awareness to increase ownership by the communities and ensure the continuity of the SWM services.
- To ensure sustainability of this intervention, a multi-sectorial/institutional committee will be established comprised by the Municipality of Chokwe (responsible for managing this initiative), HICEP (responsible for maintaining the SWM equipment in proper conditions and to support the community groups), ARA-Sul (responsible for ensuring the efficiency of the drainage system) and the community groups themselves.
- SWM in Chokwe will constitute an integral part of the overall drainage maintenance plan. The referred community groups will be composed of 20-25 people (mainly women and young people) who will be responsible for both solid waste management and drainage maintenance.

Design details

The area is paved with self-blocking cement bricks to guarantee the permeability of the ground and the transit of trolleys or other wheeled tools. Plot size will be 20 x 30 m, including a building structure of 10 x 20 m with a steel supporting structure, pitched roof with sandwich panels in sheet metal and rock wool (max. height: 5 m), and wall plugging at least 3 m high. The same curtain wall could continue outside, acting as a fence. Entrance door in steel on tracks, at least 3.5 m in width and 3.00 m in height. Toilet inside the building with the masonry at the same height as the curtain wall.

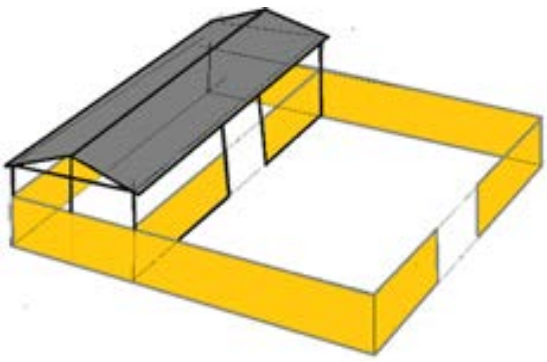


Figure 8: Typical architectural design of a community-based waste collection and treatment centre

SUB-PROJECT FICHE 5.3.4: Enhancing early warning for floods at community level

Overview

The establishment of an effective early warning system (EWS) for floods in the case of Chokwe is absolutely essential. This is connected to the proper signalling of evacuation routes that can provide access to the safe-havens (see Sub-Project Fiche 5.3.2).

An operational EWS for the Limpopo River basin exists, and Chokwe is part of it. ARA-Sul is the institution responsible for the managing the EWS in the Mozambican part of this international river basin. It is structured around a transboundary network of operators and river management authorities that are tasked to monitor and report on the rising levels of the river waters. Chokwe can receive an advance notice of approximately 48 hours prior the flood wave.

However, past experiences (2000 and 2013 floods) have shown that although alerted, the local populations have delayed evacuation. This is due to a mix of factors, among others:

- the lack of awareness of the size of the river basin system they are part of; the Limpopo is a large river basin and floods downstream can be provoked by heavy rains upstream, while the weather in Chokwe is relatively good (i.e. not much rain);
- the reluctance of the households (especially the poor) to leave their house and their belonging unprotected in case of an evacuation;
- the lack of trust or the poor understanding of the alert message delivered by the responsible institutions;
- the lack of alternatives (higher and safer grounds may be far away) or communication means; etc.

Therefore, there is an urgent need to create a better level of understanding regarding the river's behaviour and to involve the local population in a deeper manner to ensure a more effective EWS locally. UN-Habitat after the 2013 floods has supported the city council in building an elevated radio station, as assessments have shown that half of the population listen to the radio from which an early warning message can be sent. However, this is not sufficient and considering the growing size of the city more reliable communication means need to be established, such as the installation of an automated system with sirens signalling to the population the need to evacuate.

Figure 9: Evacuation route linking the 3 safe-havens to be built/used under Sub-Project 5.3.2

Overall, experience has demonstrated that preparedness measures and clear and rapid evacuation procedures are not yet in place in Chokwe. The poor and the most vulnerable are the ones suffering the most from this situation, which is aggravated by flash floods provoked by intense rain events during the raining season. These events often remain under-reported and are not yet adequately monitored.

This said, any communication system will remain ineffective if it is not properly understood by the intended audience. Therefore, the education of Chokwe citizens regarding EWS is paramount, so that they can quickly be aware of the type of natural phenomenon that is unfolding, its severity, and what needs to be done to ensure their safety. There is still a weak awareness of the link between early-action and avoidance of the worst consequences triggered by the floods. This is because communities are not consistently integrated into early warning mechanisms.

For a city as vulnerable as Chokwe there is a need to promote the culture of "living with floods", which involves better preparedness and response (e.g. EWS, emergency drills, etc.), improved coordination and communication among the different stakeholders, adequate contingency planning, and most

importantly working on prevention: more resistant and better adapted housing, safe-havens, flood-proof public infrastructure and social/basic services, etc.

Implementation strategy and planned activities

For this sub-project, the following activities are proposed *(for the budget references, see **Annex 1**)*:

1. *Mark identified evacuation routes to facilitate access to safe-havens:* evacuation routes have been identified and mapped out during the consultations with local communities. They now need to be properly marked and signalled so that they become visible and can be easily identified and used during a flood emergency. This activity needs to be led by the communities themselves in coordination with the responsible authorities, to increase the level of awareness and understanding *(to be charged to BL77 and BL78).*
2. *Establishing improved local communication mechanisms as part of the EWS in Chokwe:* community-based EWS need to be established to ensure that early warning messages are effectively communicated and understood by the local population, triggering a series of actions aiming at increasing the level of safety levels in case of floods. This means that enhanced communication mechanisms need to be established between the local communities and the responsible institutions at the different levels: municipal (city council), district and regional (ARA-Sul). The community radio already installed in neighbourhood 4 needs to be part of the EWS, and translate alert messages in local languages so that they can be better understood by the population. For this purpose, the radio station needs to be better equipped. Radio messages can be reinforced by a system of automated sirens, as well as through the use of megaphones by responsible/trained members of the local community. Importantly, marginalized and vulnerable groups need to be targeted so that early warning messages can reach them soon and they can be safely evacuated before the occurrence of an imminent flood *(to be charged to BL77 and BL79).*
3. *Awareness-raising and capacity building at the community level:* communities must be aware of the warning messages and know how to react to them. Training and awareness-raising activities will be delivered at the community level regarding disaster risk prevention, preparedness and response. They will include the use of different audio-visual materials, posters, booklets, games, cartoons, theatre representations, etc., as well as simulations or emergency drills to be coordinated with the responsible authorities *(to be charged to BL77, BL80 and BL81).*

Social, economic and environmental benefits

- The development and effectiveness of an EWS will enable communities to have timely access to risk information and being prepare to avoid or minimise the worst consequence of the floods. It will also promote community mutual support and assistance, and improve access to the established safe-havens and basic services.
- The functioning of the EWS and safe-havens will allow people to saving/protecting their goods/assets before the occurrence of the disaster, and facilitate a quicker recovery.

Sustainability

- Educational material on disaster risk reduction will be developed and distributed to the communities to promote a better understanding at the local level of preparedness and response mechanisms;
- Community members will be directly involved in EWS activities, including processes such as receiving flood information, analysing it and re-transmitting it to a larger public, to demystify the complex and technical language often used by formal media and authorities;
- Coordination will be established between Chokwe municipal council and concerned national and sub-national institutions in support to the implementation of this sub-project.

5.4. CITY: MORONI, UNION OF COMOROS

<u>SUB-PROJECT FICHE 5.4.1</u>: Reinforcing the drainage capacity in La Coulée neighbourhood

Overview

The objective of this sub-project is to reduce the impact of flash floods in La Coulée neighbourhood through the construction of a main drainage channel. The channel will direct the flow of water from upstream to channels at the surface or underground pipes towards the main road and from there follow a path into the sea for nearly 2 km (see figure 1).

Figure 1: proposed drainage channels for La Coulée neighbourhood

La Coulée is a mostly informal and unplanned neighbourhood that has developed on top of an ancient lava flow, showing high slope steepness. Water from a large catchment above Moroni (see figure 2) is released in this area, which is densely populated with new buildings constantly under construction and poor urban dwellers. During the rainy season and especially during cyclones, a large volume of water is generated provoking flash floods. Currently, since there is no drainage system in place, the runoff waters are scattered, provoking damage to both private property and public assets. In particular, a health clinic, a mosque and a Red Cross warehouse are at flood risk. Going down to the adjacent Phillips area, the flash floods heavily impact on the main hospital and a market. During extreme events, the water depth upstream is approximately 0.8 m and downstream 0.5 m. These depths occur normally from 2 to 4 times per year.

Apart from the absence of drainage systems in La Coulée area, the water runoff situation has been aggravated by the ash deposits from the Karthala 2005 eruption and the deforestation taking place upstream.

After receiving more daily rainfall data from the meteorological services on 9 May 2018 (i.e. from 1990 to 2000; NB: in previous calculations only rainfall data from 2010 to 2016 were used), and considering the need to build/dig a detention pond in the “Dog” location (see Figure 2) to reduce the speed of the water flow and convey it properly to the drainage system to be built in order to avoid overflow of water in case of heavy rainfall events, the overall cost of the intervention has increased. In fact, the detention pond will have a storage volume of 10,509 m^3 and the drainage channel section has increased.

The modelled scenario used the proposed pond and a conveyance system (routing runoff from the pond and adjacent overland areas to the ocean) which consist of a network of concrete ditches that would be placed in the road and a small segment of underground pipe required to connect an existing open ditch to the concrete ditches. Here are the results of the modelling for the two periods of rainfall data available:

Model Summary from 1990 to 2000:

- Peak inflow from DA 1 to Dog Pond (see locations in Figure 2): 292.58 m^3/s
- Total number of hours modelled (Jan 1, 1990 to June 30, 2000): 91,992 hours
- Total number of hours Dog Pond storage capacity is exceeded: 30,812 hours
- Percentage of time that Dog Pond will flood: ~ 34%
- Percentage of time that Dog Pond will not flood: ~ 66%

Model summary from 2010 to 2016:

- Peak inflow from DA 1 to Dog Pond: 67.05 m^3/s
- Total number of hours modelled (Jan 1, 2010 to December 31, 2016): 61,344 hours
- Total number of hours Dog Pond storage capacity is exceeded: 10,390 hours

- Percentage of time that the Dog Pond will flood: ~ 17%
- Percentage of time that the Dog Pond will not flood: ~ 83%

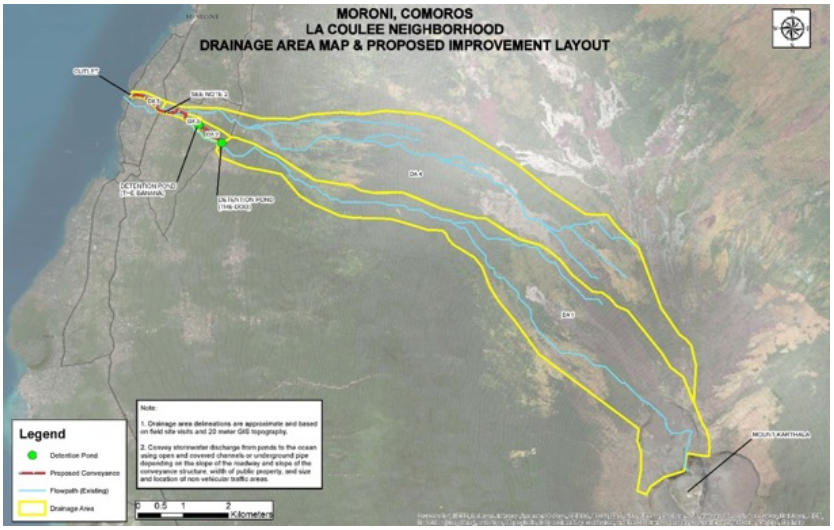


Figure 2: Catchment area ending in La coulee neighbourhood

As per Figure 2, there is a second large drainage area (DA 4) that bypasses the Dog Pond. The proposed conveyance system, has sufficient capacity approximately 98% of the time. The assumption was made that on average a thickness of 0.5 m topsoil covers the underlying rock. The conveyance system consists of 1,911 m of open/closed concrete lined ditches, 87 m of 450 mm HDPE pipe and one concrete outlet structure.

Implementation strategy and planned activities

The proposed drainage solution is a conveyance storm water network consisting of approximately 1,911 meters of 1 meter (width) by 1.6 meter (depth) concrete channel and 1.5 meter diameter, and of one detention pond with a storage volume of 10,509 m^3. It has been selected after many local consultations and field work assessments considering various flood reduction options for the area. A system of open and closed concrete lined channels is proposed along the trajectory presented in the map in figure 1, along existing roads. The majority of the drainage channel would be made of reinforced concrete and underground pipes would be required in some sections. The primary objective is to divert the flow of excess storm water away from communities. Particular attention will be paid during the design phase to the inflow structures so that they can appropriately channel the flow of water into the built drains.

The planned activities for this sub-project are *(for the budget references, see **Annex 1**)*:

1. Preparation of detailed documentation, including technical specifications, detailed topographic survey, bill of quantities and detailed design (e.g. complex connections such as corners, intersections with roads, etc.) *(to be charged to Output 1.1 – see Budget Note A and to BL82).*
2. Selection and contracting of a local contractor *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*
3. Recruitment of unskilled labour among community members *(administrative tasks to be charged to Output 1.3 – see Budget Note C)*
4. Works execution from downstream to upstream:
   i. Excavate trenches and dig the detention pond *(to be charged to BL83, BL84 and BL88).*
   ii. Construct the detention pond *(to be charged to BL88).*
   iii. Install drains *(to be charged to BL85).*
   iv. Install connections underneath roads *(to be charged to BL86).*
   v. Implement the connections from open/closed channel to closed/open channels *(to be charged to BL86).*
   vi. Provide on-site technical assistance, monitoring and supervision *(to be charged to BL82).*
5. Setting up a mechanism for maintenance (see below on sustainability) *(expertise to be hired to be charged to Output 1.3 – see Budget Note C).*

Social, economic and environmental benefits

- Approximately 18,000 people (of which 10,700 are female) will have their lives, assets and livelihoods better protected from the impacts of strong water flows coming from upstream in La Coulée neighbourhood;
- Communities will benefit from improved drainage overall sanitary situation, decreasing risks of water-borne diseases and related outbreaks;
- Extended population will benefit from safer conditions to use critical infrastructures and services located in the area such as hospitals, markets and mosques.

Sustainability

Ensuring proper maintenance mechanisms of such an infrastructure will be crucial. Importantly, communities will be involved in the construction works as much as possible through labour-intensive activities, to increase the level of ownership and awareness of the critical role played by this infrastructure investment. At the level of the targeted neighbourhoods, proper maintenance/cleaning mechanisms will have to be set up, under the main responsibility of the local population, in coordination with the city council, so that an efficient functioning of the installed drainage system can be secured, especially during the rainy season.

Parallel awareness-raising activities will be carried out, highlighting the importance of keeping the drainage ditches clean and the relation between waste dumping and clogging of ditches, flooding and diseases. Knowing that the drains regularly get clogged with waste, the related sub-project on solid waste management (see Sub-Project Fiche 5.4.3) is inherently linked to the sustainability of this drainage intervention.

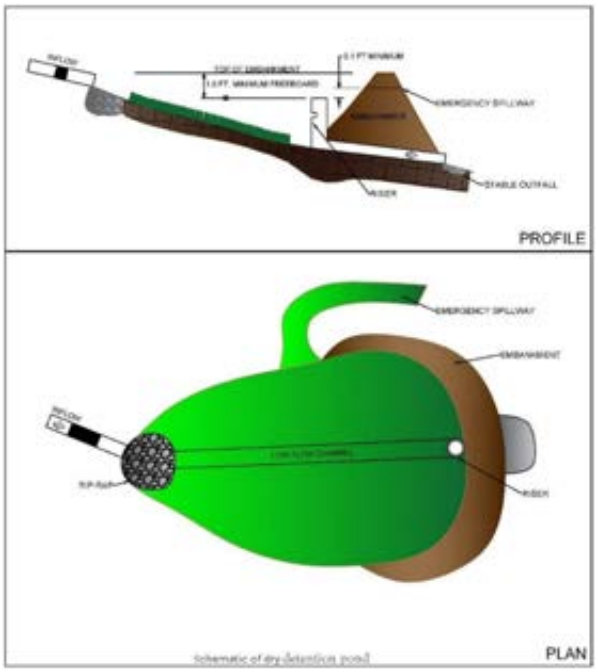


Figure 3: Schematic design of the detention pond

<u>SUB-PROJECT FICHE 5.4.2</u>: Establishment of community-managed rainwater harvesting systems in La Coulée neighbourhood

Overview

This sub-project aims to improve access to safe drinking water in La Coulée neighbourhood through the installation of community-based rainwater harvesting systems made of ferro-cement water storage tanks with adjacent iron roof structures.

Access to safe drinking water in Comoros has been identified as a national priority and one of the main obstacles for achieving adequate adaptation to climate change in Moroni city. At national level only 26% of the population has access to running water in their houses, while the most common mean for water provision is harvesting and storing rainwater (33.5% of the population).

In La Coulée neighbourhood in Moroni, mainly inhabited by poor people coming to the capital city and seeking for a job, the situation is particularly critical. Lack of access to safe drinking water causes the spread of water-borne diseases (in particular diarrhoea, cholera and typhoid) considering the existing deficient drainage and solid waste management systems (to be addressed through other two sub-projects under this project proposal), resulting in stagnant and polluted waters and poor sanitation conditions. Most of the neighbourhood's population survives with rainwater harvested through various methods, however only few households with enough means are able to build proper water storage tanks or buy and harvest sufficient water from other sources. During the different consultations held with community representatives of La Coulée (see **Annex 4** for detailed information about consultations in Moroni), the strong need to build a community-managed rainwater harvesting system was clearly expressed.

The proposed tanks in ferro-cement will allow communities to harvest rainwater using roofs and store it. Corrugated iron sheets will be used and a first flush system installed. This redirects the first part of the water coming out of the gutter away from the tank to prevent any debris do enter it. Additionally, a proper fine screen to stop debris from getting into the water will be integrated, and a cover to stop direct sunlight from entering.

Implementation strategy and planned activities

Ferro-cement elements are made by constructing a frame from thin steel rods (rebar) that is then covered with a metal mesh to create the required shape. Then thin layers of sand and cement are plastered over, resulting in a hard, strong finish, ideal for a water tank. Importantly, it is best to position the tank in a place that is shaded and easy to access. The tanks to be installed are the following: 4 community-managed tanks of 10 m3 each on public/municipal land with rainwater harvesting roof structures of 110 m2, 65 m2, 175 m2 and 105 m2; 50 tanks of 5 m3 each on private land to serve the

poorest/most vulnerable households for groups of 4 houses. The volume of each tank is based on the roof surface and rainfall characteristics.

Considering the above, the planned activities for this sub-project are *(for the budget references, see **Annex 1**)*:

1. Preparation of technical specifications, bills of quantities and detailed designs *(to be charged to Output 1.1 – see Budget Note A and to BL89).*
2. Recruitment of local master builders and aide-workers among community members *(to be charged to BL90 and BL92).*

Figure 4: Identified locations for installing the 4 community-based rainwater harvesting systems in La Coulée

3. Implementation of the construction works *(to be charged to BL90, BL91, BL92 and BL93).*
4. Setting up a mechanism for community management and maintenance (see below on sustainability) *(to be charged to Output 1.3 – see Budget Note C and to BL89).*

Social, economic and environmental benefits

Approximately 4,000 people among the poorest and most vulnerable living in La Coulée neighbourhood (see **Annex 2** for data and information on marginalized and vulnerable groups), especially women, older persons and persons with disabilities, will benefit from improved access to clean water, reducing outbreaks of water related diseases and health related risks.

Sustainability

Ferro-cement for making the water storage tanks is a construction technique that has the advantage of being applied anywhere, including remote areas or places where it is hard to get particular types of building materials (e.g. pre-cast concrete, metal or large plastic tanks), as it is done on the spot and is quite cost-effective. People can be trained and the technique can be replicated elsewhere.

A local community association will be responsible for management and maintenance of the rainwater collection system. They will be involved from the beginning of the sub-project, trained and equipped to ensure that water is kept clean and safe, and is fairly distributed among the population of La Coulée neighbourhood, targeting the poor and the most vulnerable. Workshops and awareness raising activities will be organised with the local population to ensure that the installed rainwater harvesting systems are used sustainably.


Figure 5: Ferro-cement tanks built on the spot in a remote area in southern Mozambique in 2011

<u>SUB-PROJECT FICHE 5.4.3</u>: Improving solid waste management in La Coulée and Médina neighbourhoods

Overview

In the Medina, a drainage system already exists. However, due to the amount of waste preventing the water to flow normally, the system is currently not functioning, which creates serious problem such as the spread of diseases and flooding. In fact, due to the location of the market uphill, whenever it rains the water flows down and floods the Medina with dirty water and waste. A proper cleaning and maintenance would be an efficient way to make the Medina cope with floods by intervening on solid

waste management. It will be also important to intervene on solid waste management in La Coulée neighbourhood to secure the long-term functioning of the drainage construction planned under this project proposal (please see Sub-Project Fiche 5.4.1).

The city of Moroni suffers from a crucial lack of capacity for solid waste collection and management as a result of financial, technical and organisational limitations. The failure of waste collection and treatment result from many factors such as the insufficiency of transport equipment, the lack of qualified service providers and the weak awareness of population continuously dumping waste in the nature or informal dumpsites.

This intervention will thus focus on improving the municipal capacities to deal with solid waste management and raise awareness among citizens in the Medina and La Coulée neighbourhoods with aim to turn these neighbourhoods more resilient to floods.

Implementation strategy and planned activities

Equipment will have to be adapted to the characteristics of the Medina and La Coulée neighbourhoods, characterised by narrow streets and steep slopes. The following activities are planned *(for the budget references, see **Annex 1**)*:

1. Diagnosis of sanitary conditions *(to be charged to Output 1.1 – see Budget Note A and to BL94).*
2. Development of a solid waste management work plan by the municipality in collaboration with community representatives, including collection circuits, recycling strategy (sorting, recycling, composting) equipment management, maintenance and financial mechanisms (including tax collection) *(to be charged to Output 1.1 – see Budget Note A and to BL94).*
3. Purchase and distribution of equipment (wheelbarrows, gloves, waste sorting bins, etc.) *(to be charged to BL95 and BL96).*
4. Introduce waste collection/separation points in the two neighbourhoods using adapted containers through awareness raising at the community level *(to be charged to BL97 and BL98).*
5. Involve communities in related maintenance and cleaning needs to increase ownership *(to be charged to BL97 and BL98).*
6. Establish public-private partnerships with micro-entrepreneurs for waste management and organise specific trainings *(to be charged to BL99)*.

Social, economic and environmental benefits

- Waste collection points will be selected in a participatory manner, including the Medina and La Coulée community representatives as well as marginalized and vulnerable groups and women. Particular attention will be given to the accessibility, safety and suitability of the locations.
- Selective sorting will able to reduce costs of waste treatment but will also allow creating jobs.
- The risk of disease outbreak will be considerably reduced by the improvement of sanitary conditions.

Sustainability

One of the most important aspect of waste management is capacity building, as it is really important that not only local authorities but also the population understands the urgency of this issue. Therefore, to ensure the long-term efficiency of the intervention, educating people is absolutely necessary. Also, the municipality will be responsible for collecting and allocating funds for maintaining the waste treatment centre through its annual in budget based on the subsidies received from the central government. Finally, some projects are currently being implemented at the city level and ready to joint efforts to improve solid waste management. This intervention will work in close collaboration with the local NGO *2mains* currently installing a waste sorting and recycling centre to be conclude by end of 2018 (see Part II, Section G).

1. Train the city council to efficiently manage, budget and allocate the necessary resources to solid waste management;
2. Develop a strategy for public education and awareness raising leveraging participation of schools' children and using user-friendly and popular communication tools (radio, Mosque, etc.);
3. Conduct awareness raising campaign about the relation between waste dumping and the consequences during heavy rain events such as the blocking of drainage system, flooding problem and spread of diseases;
4. Carry out awareness raising campaigns and trainings including local leaders for appropriate waste separation.

SUB-PROJECT FICHE 5.4.4: Setting up a flood early warning system in La Coulée neighbourhood

Overview

In order to improve community capacities to face floods in La Coulée neighbourhood, an early warning system will be set up with both automated river and weather stations.

The country already has an early warning system in place for cyclone and volcanic eruption for Ngazidja (Grande Comore) Island. However, even this system does not take into account flood-related events. It appears necessary to develop an early warning system for La Coulée to monitor, forecast and give the alert ahead of a flash flood caused by an extreme rainfall event, taking into account response strategy to prepare communities to react. In this process, specific attention will be given to coordination and communication mechanisms between national, municipal entities and communities, as this aspect has been identified to be a weak point in the lessons learnt from previous early warning system initiatives in Comoros.

Figure 6: Map locating the EWS interventions: automated weather stations (yellow triangles) and river water gauges (green triangles)

Implementation strategy and planned activities

The following activities are planned *(for the budget references, see **Annex 1**)*:

1. Set up two (2) automated river gauges and two (2) automated weather stations to be installed in La Coulée and upstream, including reception computer equipment for real time monitoring by the Meteorological Institute *(to be charged to BL101, BL102 and BL103).*
2. Develop an early warning system plan, including communication strategy and training on the alarm system and escapes routes in La Coulée neighbourhood *(to be charged to BL100 and BL104).*
3. Develop a communication and coordination strategy, counting with national and municipal authorities as well as community representatives, on the use/maintenance of river water gauges and warning, including automatic alarm and/or radio, phones and megaphones *(to be charged to Output 1.3 – see Budget Note C and to BL100).*

Social, economic and environmental benefits

- The total population of La Coulée (18,000 people, of which over 60% are women) will benefit from being informed and knowing how to react when a flash flood occurs;
- Ensure fully participatory planning taking into account the special needs of marginalized vulnerable groups and gender sensitive to design the EWS and identify escapes routes.

Sustainability

In the context of Moroni, it is particularly important to work in close collaboration with the relevant national institutions, especially the meteorological services and the General-Directorate for Civil Security (DGSC), to implement an efficient early warning system. Water gauges, weather stations and the flood early warning system will operate under the coordination and supervision of these two institutions in close collaboration with the city council and the concerned communities. Therefore, to ensure the full sustainability of the intervention, the following activities need to be carried out:

- Strengthen capacities of municipal staff and DGSC for management disaster risk management;
- Conduct awareness raising campaign on the operation of the warning system and evacuation routes as well as regular drillings;
- Improve coordination and communication mechanism between DGSC, the city council, community members and the meteorological services.