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Building Urban Climate Resilience in South-Eastern Africa

~ Union of the Comoros ~



Baseline Review Report

Oxfam in the Union of the Comoros

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Contents

List of figures	2.
List of tables	2.
Acronyms	2.
Introduction	3.
Environmental context	3.
Socio-economic context	3.
Socio-economic context of Moroni	4.
Geographic context and exposure to natural risks	4.
Baseline review	5.
Baseline review objectives	5.
Methodology	6.
Results for each initiative	8.
Sub-project sheet 5.4.1 Strengthening drainage capacity	8.
Sub-project sheet 5.4.2 Establishment of community-managed rainwater harvesting systems	13.
Sub-project sheet 5.4.3 Improving solid waste management	14.
Sub-project sheet 5.4.4 Establishment of a flood early warning system	18.
Data collected based on the 12 principles of the Adaptation Fund	19.
Project indicators	25.
27. Conclusion	27.

List of figures

- Figure 1: Project area 1.
- Figure 2: Project area 2.
- Figure 3: Project area 3.
- Figure 4: Front view of house built on stormwater flood path.
- Figure 5: Rear view of house built on storm water flood path.
- Figure 6: Surface view of the road in Tsidjé.
- Figure 7: Side view of the road in Tsidjé.
- Figure 8: Rainwater drainage channel in Medina blocked by solid waste from the market.
- Figure 9: Outflow site for rainwater in Medina.
- Figure 10: Solid waste dumped by a service provider in Itsoundzou landfill.
- Figure 11: Solid waste on the road south of Moroni.
- Figure 12: Pilot site for intermediate solid waste storage.
- Figure 13: 2Main's centre for recyclable waste management.

List of tables

- Table 1: Ongoing initiatives in Moroni.

Acronyms

AF	Adaptation Fund
ANGD	National Waste Management Agency
FGD	Focus group discussions
PROVADE	The Society of Scientists and Engineers of the Comoros

Introduction

The Building Urban Climate Resilience in South-Eastern Africa project is a four-year project which started in June 2020 and will run up to June 2024 funded by the Adaptation fund (AF). In alignment with the AF Results Framework, the project has two objectives: 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 the Comoros; and to promote inter-country experience sharing and cross-fertilization regarding the adaptation to transboundary climate-related natural hazards and disseminate lessons learned for progressively building urban climate resilience in south-eastern Africa (SEA).

Environmental context

The Union of the Comoros is a volcanic archipelago, with Mount Karthala dominating Grand Comoros – or Ngazidja – the main island. An eruption in 2005 affected 245,000 people. Cyclones occur regularly and can have serious consequences, especially from floods.

Climate risks listed in the country's National Adaptation Programme of Action include: seasonal and acute droughts; increased incidence of heavy rains and cyclones; and a rise in sea level. The latter, an obvious consequence of climate change, represents one of the greatest threats. According to projections, sea level rise in the country could increase by 0.13 m to 0.56 m by the 2090s. This potential hazard could be very destructive as major settlements are located along the coast and are generally not protected by dykes.

The Comoros's initial national communication to the United Nations Framework Convention on Climate Change addresses the potential impacts of climate change in key sectors of the country including: an expected increase in the incidence of malaria; a decline in crop yields, agricultural production and fishing; and flooding and internal displacement.

The overall situation of vulnerability is aggravated by salinization and poor water management; waterlogging (by volcanic ash); deforestation; soil erosion; and landslides. Land degradation and the disappearance of about 400 hectares of forest per year have also had a negative effect on the socio-economic development of the country.

Socio-economic context

The Comoros has a dense population of around 390 people per square km. More than half of the population (53 per cent) is under 20 years old. The Human Development Index rank for the Comoros was 156 out of 189 countries in 2019, which places the country in the low human development category. Progress has

been made on several of the Millennium Development Goals, however, one of the biggest challenges will be to halve the proportion of people who suffer from hunger.

According to the World Bank (citing the household budget survey for 2019), 42.4 per cent of the population (about 320,000 people) is poor, with real monthly consumption per capita below the national poverty line. About 18 per cent of the population live below the international poverty line of USD 1.90 per capita per day at the purchasing power parity exchange rate. World Bank projections pointed to slow progress in reducing poverty until 2022, due to stagnating economic growth.

Although the economy had slightly recovered in 2021 growing by 2.4 per cent, the COVID-19 pandemic is still weighing heavily on the economy through the impact of national restrictive measures on consumption. The country is projected to reach 2.8 per cent in 2022 on the back of an expansionary fiscal policy. The slow recovery reflects difficulties in the service sector as well as economic consequences of the COVID-19 pandemic.

Socio-economic context of Moroni

The city of Moroni is located on the island of Grand Comoros, one of the four islands of the Comoros archipelago. It is the country's largest urban centre and has been the capital since 1958. Moroni's population is growing rapidly from 37,800 in 1991 to over 55,000 in 2016 with an annual growth rate of 2.1 per cent. Young people make up 53 per cent of the population, 42 per cent of whom are under 15 years old.

The poverty rate is high in the Comoros (45.6 per cent of the total population), particularly in urban areas and the informal sector is omnipresent. Unemployment is a concern especially among young people (25 per cent are between 15 and 29 years old) and women (18.5 per cent). This socio-economic profile severely limits the ability of poor communities to anticipate and respond to the adverse effects of climate change due to limited financial and human resources. The majority of the population is Sunni Muslim with a small minority (two per cent), Roman Catholic.

Geographic context and exposure to natural risks

Located at the foot of Mount Karthala, a 2361 m volcano whose last four eruptions took place between 2005 and 2007, Moroni is built of lava stone (the 2005 eruption reached 245,000 people). Some relatively new neighbourhoods, such as Coulee-Sahara, are built on lava flows from the 1985 eruption. Although the city is threatened by future eruptions, it is unlikely that the lava flows will follow the same paths as before.

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

Heavy rains also cause flash floods in the city. The combination of the long and steep slope of Mount Karthala combined with a large catchment area (above Moroni) and heavy rains (up to 500 mm per day) result in large amounts of water flowing, even during short rainfalls. A lack of infrastructure to drain or channel the water flow aggravates the situation.

Baseline review

This review focuses on the establishment of a baseline for the initiatives envisaged under the SEA Building Urban Climate Resilience in South-Eastern Africa project. It is financed by AF and executed jointly by UN-Habitat and Oxfam in Comoros in partnership with the municipality of Moroni.

Oxfam is responsible for implementing component one of the project at the municipal level in the four beneficiary countries: Madagascar, Malawi, Mozambique and the Union of the Comoros. In the Comoros, Moroni will benefit from four priority sub-projects in order to strengthen urban climate resilience.

The priority sub-projects include the establishment of:

1. Rainwater drainage;
2. Early flood warning systems;
3. Rainwater collection; and
4. Support for solid waste management.

These initiatives will be implemented in the northern part of Moroni – in the Medina and La Coulée districts.

Baseline review objectives

The baseline review aims to define a reference situation in relation to the initiatives outlined by the project in order to guide implementation and evaluate the impact of project activities on beneficiary communities.

To this end, the specific objectives of the baseline for each initiative are to:

1. Verify that the initiative described in the project document is still relevant and meets the needs and priorities of the community and the municipality of Moroni;
2. To identify and justify (with evidence) any adjustment or changes that may be necessary in the approach and/or in the activity plan;
3. Map all existing initiatives (beyond this initiative) that could be complementary; and identify other stakeholders and actors who may be relevant to establish synergy, collaboration and coordination while avoiding duplication;
4. Clearly define the initial conditions so that it is easy to track progress, compliance with the principles of AF, the gender strategy and a human rights approach, and to evaluate the final impact.

The information gathered will also be useful for a. developing a community mobilization, engagement and communication strategy/plan; and b. developing a municipal engagement strategy and sustainability plan.

Methodology

In order to achieve the objectives and establish a baseline for the implementation of project activities, the review was carried out through meetings and focus group discussions (FGD).

Meetings with stakeholders

Meetings with stakeholders benefiting from the project – the municipality of Moroni and the community – were organized on the basis of a questionnaire responding to the principles of AF. The municipality of Moroni and community representatives of La Coulée and the Medina were brought together in FGD.

The purpose of FGD was to collect information in order:

1. To evaluate the relevance and benefit of the initiatives planned in the project towards the community and the municipality of Moroni;
2. To determine and prove any adjustment or changes that may be necessary in the approach and/or in the activity plan of the initiatives;
3. To clearly define the initial conditions so that it is easy to track progress, compliance with the principles of AF, the gender strategy and a human rights based approach, and to evaluate the final impact.

Meetings with other actors

Meetings were held with various actors such as: the General Directorate for Regional Planning; the Directorate of Meteorology; the National Directorate of Civil Security; the National Agency for Waste Management; the Waste Reduction Project Risks and Disasters; the Water Climate Resilience Project (Green Water Climate Fund); and non-governmental organizations – 2main, and the Red Cross and Red Crescent. The outcomes of the meetings were to identify existing initiatives (beyond this initiative) that could be complementary and to identify other stakeholders and actors who may be relevant to establish synergy, collaboration and coordination while avoiding duplication. See table 1.

Table 1: Ongoing initiatives in Moroni.

	Project title, aim and duration	Agency	Implementation
1	Risk and Disaster Management This project aims to strengthen the resilience of populations and the preparedness capacities of actors in disaster risk management in a context of climate change in the Union of the Comoros. Three years.	European Union	French Red Cross/Comorian Red Crescent
2	Water Resilience on Climate Change. Seven years.	Green Climate Fund	Department of Environment and Forests/United Nations Development Programme
3	Digital technological support and development of the capacities of rural populations for the resilience of natural resources and the most vulnerable groups: water resources and the adoption of smart agriculture in the face of climate change.	European Union	Davima Comores/Araf Comores
4	Metal and Polyethylene Terephthalate Cleaning Project.	G3S Technologies	The municipality of Moroni and G3S Comoros Sarlu
5	Pilot project: PROVADE This project consists of equipping the island of Grand Comoros with its first BioBeeBox®. The objectives are to: 1. Process up to 300 tons of organic waste per year; 2. Develop economic activities around agroforestry, market gardening, bakery/pastry, aquaponics; 3. Respond to health and environmental issues: biodiversity, deforestation and water; 4. To initiate change through education, replicable throughout the territory.	Fund for Study and Assistance to the Private Sector	The governorate of Ngazidja in collaboration with the town halls of Oichili Yadjou and Moroni

Difficulties encountered

The difficulties encountered during this review lie in:

- The absence of disaggregated statistical data at the local level (lack of statistics in the municipality of Moroni);
- The difficulty of obtaining disaggregated statistical data from the technical services concerned (National Statistics Department); and

- Constraints in carrying out FGDs with communities during the critical period of COVID-19 because gatherings of people were banned.

Results for each initiative

Sub-project sheet 5.4.1 Strengthening drainage capacity

The drainage system in most of Moroni is almost non-existent which increases the risk to marginalized and vulnerable groups especially in the event of cyclones and heavy rains: even moderate rain causes flooding.

Main project area

The main lava flow zone at the starting point of the Tsidjé mini-fall, the site intended for the project, has three different aspects depending on the density of dwellings. 1. An area predominately covered in vegetation. See figure 1; 2. A second area which is characterized by an intermediate form of vegetation and expanding housing. See figure 2; and 3. A third area with much denser housing but without any urban planning provision. See figure 3.

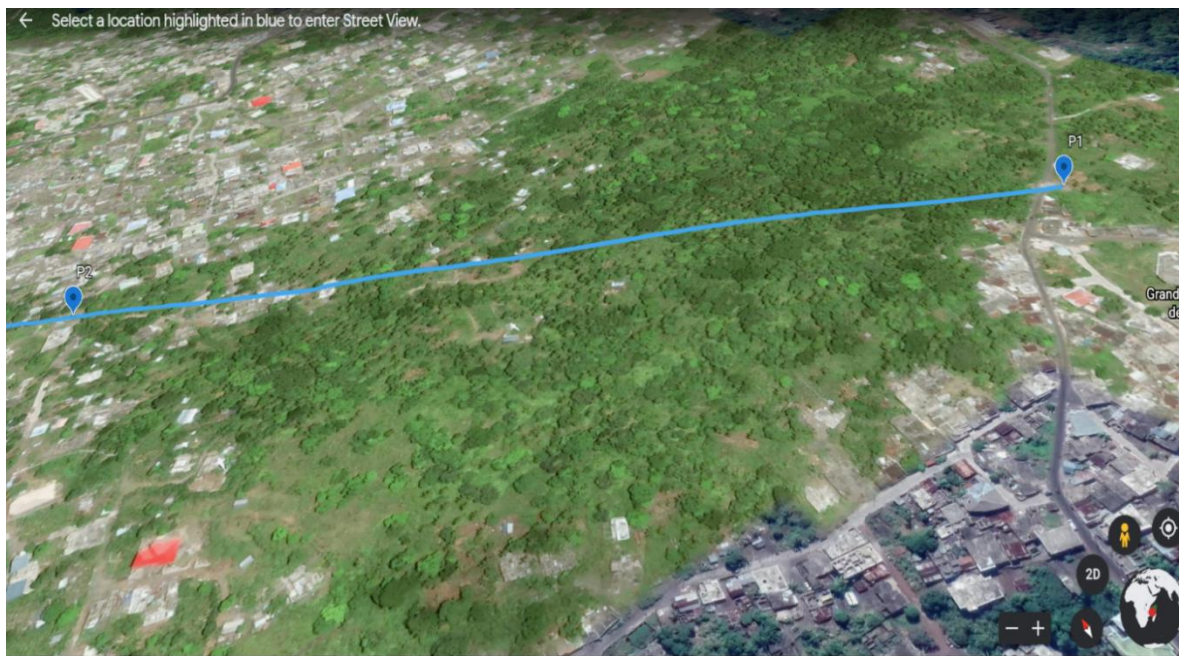


Figure 1: Project area 1.



Figure 2: Project area 2.



Figure 3: Project area 3.

The floods in La Coulée are caused by a water torrent from the town of Tsidjé located upstream. During heavy rain, this torrent causes impressive flooding endangering the lives and property of residents.

No rainwater drainage system has been set up in La Coulée and the urbanization is quite anarchic. In the area where floods are significant, the paths are to be concreted without constructing evacuation channels. There is a large development of housing upstream in the flood area and in most of the areas earmarked for the development

of drainage channels. Some housing has been built on the path of the storm water floods. See figures 4 and 5.



Figure 4: Front view of house built on stormwater flood path.



Figure 5: Rear view of house built on storm water flood path.

In Tsidjé, the road is ideally prone to flooding because the water coming from the torrent runs off towards the area of the flow. This paralyses the town because during heavy rain access to the town is impossible. This problem needs to be addressed so that the water runoff does not sit on the road but below it. See figures 6 and 7.



Figure 6: Surface view of the road in Tsidjé.



Figure 7: Side view of road in Tsidjé.

Informal housing on the area where the drainage system is being installed is a problem. One approach concentrates more on the attenuation and slowing down of floodwaters in the direction of the community in order to avoid the need for relocation. The idea is to create upstream infiltration devices to sufficiently retain runoff.

The floodwaters related to runoff at La Coulée have decreased considerably due to the progressive erosion of ash deposits upstream, favouring infiltration which had considerably decreased following the last eruptions of Mount Karthala.

In Medina, however, the rainwater drainage network is very limited. Only a few roads in the port areas or along the primary roads have open side gutters, which are often silted up and blocked by solid waste.

The topography of the site is conducive to flooding. Indeed, some low areas are flooded even during a small amount of rainfall. For example, the path along the market is often impassable because of rainwater, and needs to be drained in order to direct the water towards unblocked evacuation channels. See figures 8 and 9.



Figure 8: Rainwater drainage channel in Medina blocked by solid waste from the market.



Figure 9: Outflow site for rainwater in Medina.

There are very few channels at the level of the flow sites, which leads to frequent flooding.

To stop the buildup of rainwater on urban roads, a system other than conventional drainage is needed. As the main aim is for drainage works to evacuate runoff water to the right of the roads (and therefore avoid degradation of the paving), an alternative method at this point would be too expensive but by increasing the capacity of infiltration upstream and setting up appropriate works to mitigate these floods, the same principle can be achieved.

1. Installation of rainwater channels in Medina, ensuring they are functioning;
2. Special development of the crossings of these channels in the lower parts (underpasses, scuppers) in the flow areas; and
3. Development of a means of infiltration between Tsidjé and La Coulée.

Sub-project sheet 5.4.2 Establishment of community-managed rainwater harvesting systems

Establishing a rainwater collection system is very important for the residents of La Coulée who are connected to the water network but for the majority it is not actually supplied. The very old installations, probably dating from the 1970s, did not take into account any expansion of the city and some households no longer receive piped water – the public fountains have also stopped.

Access to drinking water is a major issue: the current practice is to collect water in containers from other areas of the city. The community has approved the construction of small cisterns to collect rainwater and five potential sites have been identified to help local residents with their water needs.

The community has proposed using traditional practices, for example to change the shape of the cisterns from circular to rectangular and replace the building materials used for the walls from reinforced concrete to rubble masonry (the traditional system used in the Comoros).

A water supply project, Water Resilience to Climate Change financed by the Green Climate Fund, is planning to carry out a geophysical prospecting campaign for the identification of potentially exploitable underground water sources as well as designing water supply systems that are resilient to climate change. Collaboration with this project within the framework of the establishment of the rainwater harvesting systems is prudent in order to coordinate implementation of activities.

The idea will be to see if it is possible to link into the network they will be installing to distribute water from the new rainwater tanks to households. However, it will be necessary to think about treatment of the water collected.

Sub-project sheet 5.4.3 Improving solid waste management

The solid waste sector is still in its infancy and until now has been limited to collection, which is quite irregular, and deposited in open landfills where the waste is burned. The municipality of Moroni has two uncontrolled landfill sites. One of the sites, Piste, is located south of the city on a coastal area where the old airport was built. See figure 10.



Figure 10: Solid waste on the road south of Moroni.

The second site, Itsoundzou, is to the west outside the city up in the villages. Itsoundzou consists of a large area of 7.60 ha with no infrastructure. The access road is degraded by water runoff on the surface with no hard shoulder.

Solid waste collection is carried out, irregularly, by the cleaning section of the town hall through service providers. See figure 11.



Figure 11: Solid waste deposited by a service provider in Itsoundzou landfill.

It is estimated that the annual production of household waste in Moroni is 12,000 tonnes per year (according to the regional Department of the Environment). Most of this waste is deposited on vacant lots forming unauthorized deposits, often by the sides of primary and secondary roads of the city, creating obstacles for the

evacuation of rainwater. Waste is also deposited near coastal areas, and a significant amount is burned out in the open air.

The consequences of the absence of a sustainable solid waste management system, combined with the absence of a structure for the regular maintenance of roads and public places are multiple, causing:

1. The spread of water-borne diseases such as typhoid, frequent episodes of which have occurred in Moroni for some time;
2. A decrease in the quality of life and an increase in poverty in urban and peri-urban areas;
3. Accelerated degradation of the environment in general, and more particularly increasing pollution of the maritime coasts;
4. A negative impact on coastal and marine ecosystems and the associated biodiversity with all the implications for existing tourist activity; and
5. A negative impact on transport and roads in general, due to the accumulation of stagnant rainwater at low points in neighbourhoods in the absence of adequate drainage.

At the legislative level, a law prohibiting the import of single-use plastic bags has been drawn up but no alternative measures have been put in place and the use of these plastic bags continues.

At the municipal level, action is currently only carried out with regards to solid waste collection (all waste mixed together). Part of the collection service is provided by 33 agents using 4 motorcycles – these MoltoBene allow access to neighbourhoods that have narrow roads.

Waste collection is also made by service providers and the role of the municipality is to ensure that these service providers have collected the waste in their allocated areas of the main axes around Moroni.

One service provider is in charge of collecting waste from the main axes in north Moroni at the rate of four trips per day using three lorries. A second service provider collects waste from south Moroni at the rate of two trips per day using two lorries. The volume of waste to collect is approximately 10 m³ per trip. The waste must be deposited at the unmanaged landfill located 8 km from Moroni on roads in poor condition.

Despite a considerable increase in the quantities of solid waste handled daily, the problem remains partially unresolved. The Mayor of Moroni suggests the issues can be tackled by placing bins every 150 m along the main roads of the city, with different coloured bins for the various materials (undifferentiated, plastic, organic). A sufficient number of vehicles would then be responsible for emptying them regularly and transporting the materials to the various sorting and processing centres.

In view of all the circumstances, it is necessary to define an effective strategy for solid waste management with good planning of Oxfam's interventions in order to establish leadership on current and future actions by the various actors.

The mission of the National Waste Management Agency (ANGD) has been set up recently to ensure coordination of action related to solid waste management. Currently ANGD in partnership with the municipality of Moroni is carrying out pilot



Figure 12: Pilot site for intermediate solid waste storage.

actions for the development of intermediate sites. See figure 12. The type and form of the facilities at these intermediate storage points depends on proper coordination between the collection and transport of the waste, and acceptance by the inhabitants of the agglomerations concerned.

The municipality has at its disposal three vehicles provided by Contarina (an Italian company) as part of the DECOR project (support for waste management and recovery) as well as bins for collection, but they are waiting for Contarina technicians to give them training: the project was halted because of the COVID-19 health crisis.

2Mains, a non-governmental organization, set up a waste recycling centre and collected about eight tons of plastic materials – mainly PET – during its operational phase (approx. 1 year). Despite the availability of industrial processing equipment (for compaction and crushing of materials), waste collection was clearly a limitation for the project. See figure 13.

A new project (funded by the French Embassy) proposes the production of paving bricks which would be carried out in partnership with ANGD and the municipality of Moroni.

The Society of Scientists and Engineers of the Comoros – PROVADE – have an upcoming project on the recovery of organic waste from Moroni to respond to recurring problems in the Comoros, namely:



Figure 13: 2Main's centre for recyclable waste management.

1. Preservation of biodiversity;
2. Water conservation and management;
3. Waste management (sorting, collection, awareness, etc.);
4. Limiting chemical inputs to supporting crop production;
5. Off-season farming and/or aquaponics for food security; and
6. Energy production (biogas).

The project will be implemented in seven communities on Grand Comoros including the municipality of Moroni where organic waste from the two markets will be collected and sorted.

An innovative micro-methanization technology called BioBeeBox will be used. It is a machine dedicated to the treatment of urban food waste. Three products come from the BioBeeBox: biogas; liquid to supply aquaponics ponds; and compost.

When the project is implemented it will provide the municipality with support for waste management and also facilitate the maintenance and operation of the drainage system of the old city because one of the markets is located upstream of it. Currently, every time it rains the water runs down and floods the old city with dirty water and waste.

G3S (a company from South Africa that has just set up in the Comoros) wants to increase the value of recyclable materials, including plastic, to allow various waste management initiatives to be economically viable.

Sub-project sheet 5.4.4 Establishment of a flood early warning system

Over the last two decades, the Comoros has been repeatedly affected by climatic hazards which have caused serious damage to the social and professional life of the inhabitants, in particular in the peri-urban area north of Moroni. The consequences linked to climate change for an island state like this are significant and their impact very sensitive for the development of the country in general.

In the specific case of Greater Comoros, the hydrographic network is almost non-existent because no river is permanent despite heavy rainfall. With climate change, however, a new landscape of the hydrographic network is emerging and this particularly concerns the northern part of Moroni. Targeted within the framework of this project the area is still confronted with floods linked to a water torrent which takes on worrying proportions during the rainy season and especially from cyclones where a large volume of water is generated causing flash floods. At present, as there is no drainage system in place and runoff water is dispersed causing damage to private and public property. A health clinic, a mosque and a Red Cross warehouse are all threatened by flooding. Moving down to the adjacent Phillips area, flash flooding has a significant impact on the main hospital and a market.

To deal with the permanent threats from these hazards, the government has set up a national platform for disaster risk reduction – a national strategy for disaster reduction and an action plan have been developed. To date, the national platform for disaster risk reduction has not yet been operationalized due to a lack of capacity, however, the information centres on natural hazards such as the Vulcanological Observatory of Kartalah and the National Agency of Aviation and Meteorology are operational. The National Agency has a meteorological observation network and collaboration within the framework of the project as a technical partner for the establishment of a flood warning system is envisaged, however capacity building is necessary. As a result, it must be equipped with the necessary framework and a capacity building plan focused on early warning of floods. The Green Climate Fund's Water Resilience to Climate Change project provides capacity building support to the agency. Collaboration with the project as part of the establishment of a warning system for floods, in relation to the capacity building of the management of the agency is required. Synergy should be created at intervention level between the Urban Climate Resilience of Moroni, Adaptation Fund and Water Resilience to Climate Change, Green Climate Funds projects.

Furthermore, the capacity of the population to cope with floods is weak. It is therefore essential to reduce the vulnerability of the community to flooding and ensure that adequate measures are taken before the arrival of the event by increasing resilience to respond as effectively as possible to disasters when they occur and to ensure sustainable development of the city. Therefore, awareness raising and capacity building of communities at risk and disaster management is essential.

To this end, the French Red Cross and the Comorian Red Crescent, organizations that intervene in emergency situations in the event of natural disasters, work with communities in order to see synergies and possible collaboration. They already have experience in community-based pre-cause alerts, in particular with regards to Mount Karthala and risks associated with volcanic eruptions.

The French Red Cross and the Comorian Red Crescent are developing a risk and disaster management project that will work on resilience at the rural level of villages at risk of flooding. Villages have been identified and a Capacity Vulnerability Assessment has been completed. Communities identified priorities for developing disaster risk management micro-projects and implementation will be a community-based approach that aims to move communities towards resilience at both the rural and urban levels to develop warning systems.

The second community approach of the French Red Cross and the Comorian Red Crescent is risk communication and community engagement. There is potential to develop a community alert system with follow-up to identify problems and direct the programme according to the needs of the community. This project is being developed with the European Union in the three major cities of the Comoros which includes Moroni.

These organizations work a lot with communities and have established village resilience committees. This initiative can also be developed in the city by creating resilience committees at neighbourhood level.

Data collected based on the 12 principles of the Adaptation Fund

Baseline Data Collection Questionnaire

Principle 1: Compliance with law	
Is the municipality aware of the legislation/governance process that should be applied for each initiative?	<ul style="list-style-type: none"> ▪ The municipality is aware and has a very good knowledge of the law on decentralization (LAW N°11-005 / AU of 07 April 2011 relating to decentralization within the Union of the Comoros) governing the competences, methods of organization and functioning of the decentralized territorial communities, as well as those of the management of their own affairs. ▪ Urban planning code. ▪ Water code.
Is this legislation sufficiently clear in its provisions?	<ul style="list-style-type: none"> ▪ No, because the implementing texts that must accompany the law on decentralization are missing. ▪ The urban planning code must be revised.
Is the community aware of the need to comply with national/provincial and municipal standards?	No, because there has never been any sensitization of the laws to the community.
Have communities ever been involved/consulted about the project's	Yes, particularly within the framework of the Urban Resilience project of Moroni – the community was

implementation (i.e. environmental assessment before a construction)?	consulted during the participatory process of CityRap in the definition of their needs and that this project meets their expectations.
Principle 2: Access and equity, and gender/women's empowerment indicators	
Level of participation and engagement especially for women and youth in activities/ projects/municipal service delivery/decision making/disaster risk reduction campaigns, etc. If yes, on what?	<p>At the municipal level, gender mainstreaming is taken into account but the participation of women remains very low – only elected women participate in the municipal council and decision-making processes. Women generally work in different departments of the municipality (human resources, stock manager, roads, etc.).</p> <p>At the community level, gender is well integrated because women are pioneers of community development, they organize themselves to create activities and raise funds to implement community projects. These associations are organized in a traditional way and are informal. According to the field survey, there are three women's associations in the two neighbourhoods benefiting from the project.</p> <p>The participation of young people in activities, projects, municipal projects, or disaster risk reduction campaigns is very student focused but spontaneous.</p>
How is the engagement structured?	According to the municipality, annexes in the neighbourhoods are being set up through the most active neighbourhood associations to decentralize the town hall and to structure commitment of the whole community.
Are there established accountability mechanisms between the municipality and the communities?	No, there are no operational accountability mechanisms between the municipality and communities.
Level of community cohesion: number of community committees/groups, etc. and how they are organized and represent themselves?	<p>The community has formed an association for community development which acts at the socio-cultural level.</p> <p>There is one association in Moroni and two associations in Medina.</p>
Do community groups/committees interact with the municipality or are they involved in covering the gaps/dysfunctions/challenges of the municipality?	Yes, the municipality collaborates with communities through community leaders and neighbourhood associations such as community health (or distribution of health equipment).
Is there a platform where people can express their concerns?	No, there is no dedicated platform where people can air their views, although at community meetings anyone can give their opinion on the problems or projects in the community. In the event of an issue, complaints should be filed with the head of the district or with the municipality under the service concerned.
Principle 3: Marginalized and vulnerable groups, and indicators of gender/women's empowerment (vulnerable and marginalized groups identified by AF are children, women and girls, the elderly, indigenous peoples, tribal groups, displaced people, refugees, people with disabilities	

and people living with HIV/AIDS)	
Are vulnerable and marginalized groups involved in community life?	<p>Yes, vulnerable groups are involved in community life except for the elderly and disabled because no arrangements are made for their easy access to roads or community services.</p> <p>No community buildings have a wheelchair access ramp.</p>
How many vulnerable/marginalized groups/people are there in the community (disaggregated data)?	<p>Disaggregated data at the level of the project beneficiary community is not available. In the whole of the municipality of Moroni there are 46,186 people vulnerable people according to data available of which 22,887 are women and 5,393 are children 5,393.</p> <p>There is no data on the exact number of elderly people but according to the community the number is low.</p> <p>Elderly people live with their families (sometimes the extended family) and the majority have physical problems due to aging. The layout of both neighbourhoods is not age-friendly: Medina is narrow and crowded, and La Coulée is located on a steep slope. Few of the elderly can read or speak French.</p>
<p>Where do they live? Do the children go to school?</p> <p>What does (did) the municipality do to hear their views, to make known their needs of vulnerable groups and to integrate them?</p>	<p>Children live with their families in the two neighbourhoods targeted by the project; the majority go to school and can read and speak French. However, school dropout and discontinuity are quite common, mainly due to poverty. It was reported that child labour is low although children generally contribute to household management.</p> <p>The municipality has set up a fund to help single women but does not have a well-defined programme.</p>
Are community building and services easily accessible to vulnerable groups?	None of the community buildings and services are easily accessible to vulnerable groups.
Are their needs taken into account by the community? If not why? If yes, how?	No, their needs are not taken into account due to a lack of awareness and means.
Are community platforms/groups in place where marginalized and vulnerable groups can speak out?	No dedicated platforms are in place for vulnerable groups to express their concerns due to a lack of means.
Do they have vulnerable access to employment and/or skills development opportunities? If not why? If so, are special protection measures provided?	<p>They do not have access to employment and/or skills development opportunities as municipal services do not cover this.</p> <p>Due to limited resources, people with disabilities find it difficult to access basic services and/or opportunities. The majority of them are dependent on other family members (not usually the head of household).</p>
Are they victims of stigma or other beliefs?	Persons with disabilities are generally fairly well accepted by their families and communities even if they are not actively engaged or integrated into the community. They

	<p>generally stay at home and help run the household. They are not stigmatized.</p> <p>HIV/AIDS is increasing due to gender-based violence. There are few interventions at the community level and insufficient awareness, especially regarding mother-to-child transmission. Significant stigma has been reported towards people with HIV/AIDS.</p>
Have marginalized and vulnerable groups adopted coping mechanisms to (independently) address the challenges they face?	Women develop livelihoods through small shops selling basic necessities near their homes.
Principle 4: Human rights	
What are the main human rights that communities perceive as not being respected or not taken into consideration? Why?	Sanitation, waste disposal, access to health and to roads are the main human rights that communities perceive as not respected or taken into consideration. This is due to the municipality's lack of structuring and distribution of powers.
Are people taking action to promote these rights?	No, people generally do not take action to promote these rights because the municipality does not yet have the mandate.
According to the communities, is the municipality 'sensitive' to progress in human rights?	No, according to the communities, the municipality is not sensitive to the progress of human rights because their situation is not improving.
Principle 5: Gender equality and empowerment of women	
<i>Data on women (disaggregated data)</i> Are there women's organizations/associations?	Yes, there are women's organizations but they are informal, according to the community. There are five active in the neighbourhoods benefiting from the project which are active.
If not, do they participate in community and municipal activities?	The groups promote community development by organizing socio-cultural activities.
Communities – are municipal activities implemented with a gender lens/approach? (i.e. gender lens/approach in community campaigns; community meetings, etc.)	Yes, according to the municipality, activities are implemented according to gender because the municipality works with community associations when raising awareness, for example, on the fight against malaria or the distribution of equipment where women members of associations are involved.
In general, are people gender sensitive? How is the role of women perceived in the community?	In general, women are well integrated into the community and are the origin of several community development initiatives; they often play the role of precursor.
Do women have easy access to employment and skills development opportunities?	In the capital women are better educated and have easy access to job opportunities.
Are they involved/employed only on	Women can access any type of job and access all areas

certain types of work/jobs or can they access all types of activities?	of activity.
Are there platforms where women can express their views?	No, there are no platforms for women to express their views.
Principle 6: Fundamental labour rights	
Is there a culture of 'labour rights' in the municipal, community and private sector?	Yes, there is a labour inspection service.
Does the municipality monitor compliance with labour rights? If not why? (lack of resources, lack of awareness/knowledge, not interested etc.	No, due to a lack of resources.
Are there any social protection schemes/mechanisms (formal, semi-formal or informal) at community and municipal level? If yes, which ones?	There are no social protection mechanisms <i>per se</i> but there is a centre for maternal and child protection managed by the municipality. There is also a humanitarian assistance organization called CARITAS.
Are informal jobs (informal employment) common in the reference communities?	Yes, informal employment is very common in the reference communities. In La Coulée women sell products next to their homes or in a small space near the road where a makeshift market has been set up. Work in Medina is informal – in the markets. Informal work is usual in the sales sector or manual work/labour.
Does informal work benefit from any sort of social protection scheme (emergency savings groups, etc.)?	Informal work does not benefit from any social protection schemes.
What is the percentage of people employed in formal employment (i.e. in a private company)? Do they benefit from social protection measures?	According to the community, the percentage of people employed in formal employment is very low at 5–6 per cent.
Principle 9: Protection of natural habitats / Principle 10: Conservation of biodiversity Principle 12: Pollution and resource efficiency / Principle 15: Land and soil erosion	
Are people sensitive to the conservation and protection of the natural habitat in their day-to-day life (i.e. avoid/reduce pollution, soil and land erosion, and biodiversity)? If not, why?	According to the community, people are not sensitive to preservation conservation and protection of the natural habitat in their day-to-day life, through a lack of awareness.
Are they aware of the effects of climate change on their natural habitat?	Yes people are aware of the effects of climate change on their natural habitat but this is perceived only on the recent changes in climate compared to previous years.
Do they organize community activities or are they employed in voluntary or paid jobs for the conservation and protection of the environment? If so,	The activity that mobilizes the entire community on a voluntary basis is essentially a clean-up day.

what types of activities?	
Are they aware of the types of things/habits/activities that can negatively impact the environment?	No, the community is not aware of the types of things/activities that can have a negative impact on their environment because they are not aware.
Are local indigenous knowledge and practices applied for the protection of the environment and biodiversity?	No, local indigenous knowledge and practices are no longer applied for the protection of the environment and biodiversity because of modernization. Previously people used baskets with coconut leaves to go to the market and today they use plastic bags.
Are environmental community groups in place?	No, there are no environmental community groups.
Has the municipality implemented (or is implementing) projects/activities and campaigns to ensure and/or promote protection and conservation of the environment and biodiversity?	Yes, awareness-raising actions on solid waste management are being carried out but are not yet effective.
Does the municipality take a green and sustainable approach to municipal construction (i.e. drainage systems) or community development infrastructure or activities such as solid waste management or waste management in water/rivers?	No, the municipality does not adopt an ecological approach because solid waste management is only collection and disposal without sorting or recycling waste.
Does municipal legislation have clear provisions for the protection/conservation of the natural environment and biodiversity? Are these provisions applied?	Municipal legislation is not clear because there are no implementing texts on the law of decentralization and environmental management.
Principle 13: Public health	
Does the municipality assess public health risks when designing municipal interventions and activities?	No, the municipality does not assess public health risks when designing interventions for municipal activities due to a lack of resources.
Does it have procedures for monitoring public health risks? If so, are they enforced?	No, it does not have procedures for monitoring public health risks, emergency cells are set up to ensure the management of health crises such as COVID-19.
Are the reference communities (or have they been) at risk or victims of a public health emergency? How are they organized?	<p>Yes, the reference communities have been at risk or victims of a public health emergency such as during the COVID-19 health crisis. Community management committees have been set up in order to sensitize people on prevention measures and barrier methods to fight against COVID-19 and raise funds to buy equipment (water pump, masks) and make them available to the community.</p> <p>Through awareness campaigns, the municipality has also mobilized equipment, and cleaning of large markets and homes has been carried out in collaboration with community associations and organizations, and the Public Health Department.</p>

Project Indicators			
Results	Indicators	Data collection methods	Comments
Expected results Council staff, communities and local stakeholders have successfully planned and implemented priority sub-projects to increase their city's climate resilience and have acquired the required capacity to manage and sustain the investments made.	Number of people consulted in the design of the drainage system plans.	0 at the start of the implementation of sub-projects. The follow-up of this data will be collected from the participation register during presentation of the plans.	If no data is available, propose substitution data.
	Number of people satisfied with the way the drainage systems have been rehabilitated.	0 at the start of the implementation of sub-projects. The follow-up of this data will be collected from the participation register of the survey.	If no data is available, propose substitution data.
	Number of municipal departments and employees with increased capacity to minimize exploitation to risks related to climate variability (in line with Adaptation Fund indicator 2.1).	Survey and interview with municipal employees of Moroni.	0 because there is no environmental service within the municipality of Moroni – the service is under construction.
	Capacity building of staff of targeted institutions to respond to climate-related events and mitigate their effects.		
	Percentage of women in Moroni who actively participated in the implementation of sub-projects.	Zero per cent at the start of the implementation of sub-projects. Monitoring of this data will be collected from the training participation register and project implementation reports	
	Increase in the percentage of women who are actively engaged in the socio-economic development of Moroni.	Survey and interview with the two districts of Moroni.	The number of women's associations identified in Moroni is five but most of them are informal. Overall, women do participate in the social-economic development of the city.
Expected products 1: Implementation plans for sub-projects developed with the community and the municipality including detailed technical studies. Gender perceptions, capacities and skills are considered and gender needs are addressed in the sub-project implementation plan.	Number of sub-project implementation plans developed.	0 at the start of the implementation of sub-projects. Monitoring will be done from the project implementation report.	
	Number of sub-project implementation plans with a gender approach that clearly defines the role of women	0 at the start of the implementation of sub-projects. Women's review and feedback on sub-project implementation plans.	
	Percentage of women satisfied with the implementation plan of the sub-projects as meeting their needs and strengthening their role.	0 at the start of the implementation of sub-projects. Women's review and feedback on sub-project implementation plans.	
	Number of detailed technical studies prepared to assess environmental and social risks in accordance with national and	0 at the start of the implementation of sub-projects. Evaluation of environmental and social review reports.	

	Adaptation Fund requirements.		
Expected products 2: The priority sub-projects are implemented in Moroni mainly thanks to the participation of the community in works under High Intensity of Labour (HIMO). Women are actively involved and engaged in the implementation of sub-projects and ensure that gender needs and perspective are concretely taken into account.	Number of municipal employees and community members mobilized/trained to ensure the proper management of the priority sub-projects carried out (in accordance with indicators 2.1.1 and 3.1.1 of the Adaptation Fund) 2.1.1 Number of people trained to respond to climate-related events and mitigate their effects (gender) 3.1.1 Number of press outlets and local media that covered the subject	0 at the start of the implementation of sub-projects. Training report, attendance list and photos of activities.	
	Number of women in leadership positions in the implementation of the sub-projects plan.	0 at the start of the implementation of sub-projects. Survey on the contribution of women in the implementation of sub-projects.	
	Percentage of women who agree that women's needs are taken into account.	0 at the start of the implementation of sub-projects. Project implementation report. Feedback from women on the implementation of a gender approach in the sub-projects.	
Expected products 3: Municipal staff and community members are mobilized, trained and equipped to ensure the sustainable management/maintenance of implemented priority sub-projects. The role, capacities and skills of women are strengthened and are included in the city's priority sub-project sustainability plan.	Number of municipal employees and community members mobilized/trained to ensure the proper management of the priority sub-projects carried out (in accordance with indicators 2.1.1 and 3.1.1 of the Adaptation Fund). 2.1.1 Number of people trained to respond to climate-related events and mitigate their effects (gender). 3.1.1 Number of press outlets and local media that covered the subject.	0 at the start of the implementation of sub-projects. Training report and photos of the activities	
	No women have been trained.	0 at the start of the implementation of sub-projects. Training report, attendance list and photos of activities.	
	Percentage of women whose capacities have been recognized and are taken into account in the sustainability plan.	0 at the start of the implementation of sub-projects. Training report and photos of the activities.	
	Percentage of women who have been trained to play an active role in priority sub-projects.	0 at the start of the implementation of sub-projects. Training report and photos of the activities.	

Conclusion

Carrying out this baseline review before implementation of the project activities has made it possible to take stock of the situation for each of the initiatives planned to strengthen the urban resilience of Moroni. The review revealed:

1. The interventions described in the project document are still relevant and respond to the needs and priorities of communities and decentralized local authorities;
2. Certain aspects of the initiatives, in particular the establishment of the drainage network, did not take into account the source of the problem in particular the water torrent located in Tsidjé where the water heads towards the lava flows and cause flooding;
3. The flood zones defined during the development of the project for the establishment of the drainage system are currently urbanized;
4. Partners have been identified for collaboration and synergy in the implementation of sub-projects; and
5. That the baseline for each initiative is well-defined.