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- *One of the community groups of Icídua, Quelimane, participating in the mangrove restoration activity.*

ACRONYMS

ACCRA	Africa Climate Change Resilience Alliance
ATAMOZ	Association of Motorcycle Taxi Drivers of Zambezia (*Associação dos Taxistas de Motociclos da Zambézia*)
CCA	Climate change adaptation
CCAP	Coastal City Adaptation Project
CENACARTA	National Cartography and Remote Sensing Centre (*Centro Nacional de Cartografia e Teledetecção*)
CENOE	National Emergency Operation Center (*Centro Nacional Operativo de Emergência*)
CVM	Red Cross of Mozambique (*Cruz Vermelha de Moçambique*)
DRR	Disaster risk reduction
EWS	Early warning system
FY	Fiscal year
GIS	Geographic information system
GOM	Government of Mozambique
HNI	Human Network International
IEE	Initial Environmental Examination
INAM	National Weather Institute (*Instituto Nacional de Meteorologia*)
INGC	National Disasters Management Institute (*Instituto Nacional de Gestão de Calamidades*)
INSS	National Social Security Institute (*Instituto Nacional de Segurança Social*)
LGSAT	United Nations Office for Disaster Risk Reduction's Local Government Self-Assessment Tool
MCA	Millennium Challenge Account
MITADER	Ministry of Land, Environment, and Rural Development (*Ministério da Terra, Ambiente e Desenvolvimento Rural*)
NGOs	Non-governmental organizations
PLA	Local Adaptation Plans (Planos Locais de Adaptação)
SBCC	Social Behavior Change Communication Strategy
SIGIC	Integrated Disaster Information Management System (*Sistema Integrado de Gestão de informação sobre Calamidades*)
SIGIU	Integrated Urban Information Management System (*Sistema Integrado de Gestão de informação Urbana*)
SMS	Short message service
UEM	Eduardo Mondlane University (*Universidade Eduardo Mondlane*)
UN-Habitat	United Nations Human Settlements Programme
UniLúrio	Lúrio University (*Universidade Lúrio*)
USAID	United States Agency for International Development

1 Executive Summary

Fiscal Year 2014, the first year of implementation of USAID's Coastal City Adaptation Project (CCAP) focused on identifying partners, establishing relationships and determining shared priorities. During that year, CCAP designed most of the initial interventions and defined the technical approaches. The second year, the current reporting period, CCAP started-up activities focused on three principal areas:

(1) ***Tools for climate change adaptation and resilience.*** Building on existing experiences in Mozambique and elsewhere CCAP, working closely with the municipalities and other private and public organizations, developed a number of tools that provide the cities the capacity to better plan, in an open and participatory way, use their existing expertise and equipment, and build on previous successes. The ultimate goal of these tools is to help the municipalities to adopt climate change adaptation and resilience as management priorities. Among these tools are (a) the local adaptation plans, which are currently under development; (b) the vulnerability maps, which are being integrated with the cadaster, to help the city managers and their clients understand the vulnerability of lots before they issue building permits; (c) the Integrated Urban Information Management System (SIGIU), that provides cities with unprecedented capabilities for collecting and processing data to inform decisions; and (d) the application of the Local Government Self-Assessment Tool (LGSAT), a UNISDR-developed tool to help cities measure their progress toward climate adaptation and resiliency.

(2) ***Engaging communities in the field.*** From the moment that CCAP started, the community leaders questioned if this project would be like the rest that come and go and never work at the field-level with them. CCAP designed the green infrastructure activity in Quelimane, consisting of the restoration of mangroves along the Bons Sinais River, to show the impact of climate change and what communities can do about it. Through this activity, CCAP builds trust with local community members by working shoulder to shoulder in the field. This activity has progressed beyond our expectations with the municipality setting aside over 22 hectares as municipal conservation areas; two communities engaged in the production of 55,000 mangrove seedlings this year and committed to produce 120,000 next year; at least half a dozen other organizations involved in different aspects of the activity, including the US Forest Service that will be leading the training of UEM faculty and students on mangrove monitoring.

(3) ***Scaling up.*** This year we started to scale up with tools or solutions that can be more broadly adopted or applied to benefit other coastal cities in Mozambique. The city of Nacala, where another USAID-funded project—Climate Resilient Infrastructure Services (CRIS)—had worked on resilient infrastructure planning, requested CCAP support to help them continue their efforts to build a more climate resilient city. We conducted an assessment and will be implementing a range of activities that have proven successful in Pemba and Quelimane, among them: LGSAT, SIGIU, local adaptation plans and the development of vulnerability maps for integration with their cadaster. The most ambitious scaling up of CCAP activities, however, is the evolution of the early warning system initially designed for the cities of Pemba and Quelimane, into the national-level Integrated Disaster Information Management System (SIGIC), led and managed by Mozambique's National Disasters Management Institute (INGC). INGC will officially launch SIGIC at a public event in early October 2015 and will test the system during their annual national simulation exercises, which is scheduled for the middle of October.

While this has been a successful year in terms of accomplishment, some of the activities planned for this year experienced delays. Among them is the implementation of the Social Behavior Change Communication Strategy (SBCC) and the completion of grants to UN-Habitat to develop climate-smart household infrastructure and to the Mozambican Red Cross to strengthen their network of volunteers and provide first aid training to first responders. Other activities, namely those included in Objective 3 of the project, are scheduled to start FY2016, as per the work plan.

2 Project Overview

The United States Agency for International Development (USAID) Coastal City Adaptation Project (CCAP) is a five-year program, working to improve climate change resilience in coastal cities in Mozambique. CCAP seeks to promote climate change awareness, support the development of the technical expertise of future urban planners and municipal authorities, to facilitate the adoption of adaptive measures at the local level, and to more broadly increase the climate resilience of selected coastal cities.

During the first two years of implementation, CCAP worked with the municipalities of Pemba and Quelimane to lay the groundwork for climate-smart initiatives and disaster response preparedness. Through partnerships with local and international technical experts, as well as leveraging regional counterparts, CCAP has created frameworks for localized interventions that can be taken to scale in the final years of the project and beyond.

CCAP works with municipal governments to increase their understanding of climate change adaptation and promote the use of management tools; with communities to increase their awareness of climate risks and promote for the adoption of climate-smart solutions; with national government agencies to enhance their disaster risk management capacity; and with universities and civil society organizations to foster their effective engagement in the development and adoption of climate-smart approaches. With this broad set of stakeholders, CCAP seeks to increase climate awareness and the technical expertise of future urban planners and municipal authorities, to increase the resilience of the target coastal cities, and to facilitate the adoption of adaptive measures at the local level. These interventions aim to accomplish three objectives: (1) to improve the provision of climate-resilient urban services by municipalities; (2) to increase the adoption of climate resilience measures by communities, civic and community organizations, including civil society, non-governmental organizations (NGOs), and faith-based organizations; and (3) to increase the capacity to potentially implement economic risk-management tools for at-risk urban infrastructure and livelihoods.

From a geographic perspective, CCAP focuses its intervention on the most vulnerable coastal cities that are not currently receiving significant support from other donors. In the first phase, the priority cities are Pemba and Quelimane. In subsequent phases the project will work in additional cities implementing activities that have proven to be successful and that are readily scalable. In some cases, the impact of the intervention may go beyond the city limits, when it is cost effective to do so, when other agencies are committed to support those interventions at a larger scale, and/or because the mandate of the partner organization involved in its implementation, requires it. This is particularly the case of the Integrated Disaster Information Management System (SIGIC, for its name in Portuguese), originally known as the Early Warning System (EWS).

Objective 1: Improve the provision of climate-resilient urban services by municipalities

Pemba and Quelimane have unique challenges that require a flexible, stepwise, and tailored approach to assessing, preparing for, prioritizing, and implementing climate-resilient improvements to urban services. Pemba is in the early stages of vast economic expansion driven by the extraction of natural gas by international companies. Quelimane has less immediate promise of foreign investment, and will require significant community buy-in and engagement to improve adoption of climate resilient urban solutions.

The activities under Objective 1 focus on upgrading the capacity and technical skills of municipal authorities to plan, manage, and lead the execution of climate change adaptation (CCA) and disaster risk reduction (DRR) strategies. In close partnership with the municipal government we have introduced participatory mechanisms for identifying and prioritizing adaptation options that combine technically sound analysis with the engagement of vulnerable groups and communities in identifying problems and appropriate interventions. We have helped the municipalities put in place data collection and analysis system to improve decision-making (the Integrated Urban Information Management System, SIGIU for the acronym in Portuguese). Using the same cloud-based platform, we have helped INGC put in place the Integrated Disaster Information Management System (SIGIC for the acronym in Portuguese) to significantly enhance their capacity to respond to natural disasters at a national scale.

Objective 2: Increase adoption of climate resilience measures by communities, civic and community organizations, including civil society, NGOs, and faith-based organizations

Because the connection between climate change and natural disasters may not be obvious to coastal communities significant investment in social and behavior change communications is critical for prompting responsive action at the local level. Often overshadowing long-term planning needs are the immediate and acute challenges of providing adequate health, shelter, and food security. Overcoming this obstacle, therefore, requires both top-down technical expertise and bottom-up understanding of vulnerabilities, gender dynamics, and coping mechanisms that focus on “no-regret” measures, as well as mainstream climate change into broader development programs.

The activities under Objective 2 aim to increase the resilience of coastal cities to climate change by developing practical and cost-effective adaptation and DRR options in cooperation with local communities; and delivering training that equips youth, male- and female-led households, and civil society with the skills to become champions for resiliency. At the community level, our activities focus on four types of demonstration intervention: (a) improved house construction to enable more effective shelter to the most vulnerable communities; (b) improved sanitation to reduce open air defecation by constructing latrines where appropriate; (c) cost-effective potable water solutions, primarily focusing on rainwater harvesting; and, (d) green infrastructure initiatives, such as mangrove restoration, in close collaboration with local and national government agencies.

Objective 3: Increase the capacity to potentially implement economic risk-management tools, such as insurance plans and contingency funds, for at-risk urban infrastructure and livelihoods

Disaster risk financing and insurance are components of the Hyogo Framework for Action, a 10-year plan to make the world safer from natural hazards, to which Mozambique is a signatory. Although they are valuable tools for disaster risk management, they can only be economically viable in supporting risk reduction in an environment where the population is

simultaneously working to reduce risk through the adaptation options identified under Objectives 1 and 2.

The activities under Objective 3 were postponed to allow the other activities under Objectives 1 and 2 to get off the ground. When these activities start, they will focus on engaging the private sector in many fronts, including that of seeking to increase awareness of and building capacity to implement risk management mechanisms. To this end, we will provide targeted short-term expertise from leading risk and finance specialists to engage the private sector and insurance industry in a dialogue to assess barriers to product development, and to empower national and municipal officials to make budgeting decisions that support improved disaster planning, response, and recovery.

To achieve these objectives, CCAP takes a stepwise approach that responds closely to the capacity and resources of our partners. This approach allows the project to pursue our objectives one intervention at the time, with each intervention building on the next.

3 Summary of Activities of FY 2014

During the first year of the project, CCAP focused on building local partnerships, developing baselines, and laying the groundwork for scale-up in years two and three. By doing so, CCAP and its partners developed a better understanding the adaptation priorities capabilities of local and national government agencies, communities, academic institutions and civil society organizations to address the CCA and DRR challenges facing coastal cities.

In consultation with the municipal governments and the communities in Pemba and Quelimane, one neighborhood in each city was selected for demonstration interventions: Icídua in Quelimane, and Paquitequete in Pemba. As a result, four priorities were identified: (1) climate-smart housing; (2) improved sanitation; (3) potable water; and (4) green infrastructure.

Taking these priorities into account, CCAP sought partners that could help address these needs. To address the challenges of climate-smart household infrastructure (housing, latrines and potable water) CCAP approached the United Nations Human Settlements Programme (UN-Habitat) to build on their experience with climate resilient housing in Mozambique and across the world. CCAP partnered with Lúrio University (Universidade Lúrio – UniLúrio) to review green infrastructure opportunities in Icídua and Paquitequete. By tapping into local expertise, and in collaboration with the US Forest Service, the project determined that the green infrastructure options for Pemba and Quelimane were quite different. The decision was made to start with a rapid assessment of Icídua, which was conducted by UniLúrio professor and a student.

The design and launch of the mobile phone-based EWS was started in FY2014 focused on the municipal level in Pemba and Quelimane. The system, designed by CCAP subcontractor Human Network International (HNI), not only provides short message service (SMS) warnings regarding climatic events but also serves to collect information for disaster and post-disaster response.

4 Priority Activities in this Reporting Period

4.1 Assessing local government capacity

During FY 2015, CCAP using the United Nations Office for Disaster Risk Reduction's (UNISDR) Local Government Self-Assessment Tool (LGSAT) and companion Disaster Resilience Scorecard conducted baseline assessments in Pemba and Quelimane to

understand the cities' level of preparedness to weather-related impacts. The LGSAT is designed to provide a platform for local government personnel to take a critical look at their own institutional strengths and weaknesses related to disaster response. This tool assists local governments in proactively developing responsive actions to become more climate resilient, measure progress, and inform further improvements. Preliminary findings revealed that while the municipalities face deficiencies across all ten dimensions of resiliency measured by the scorecard, there are specific areas where targeted CCAP support could quickly enhance their preparedness and resilience.

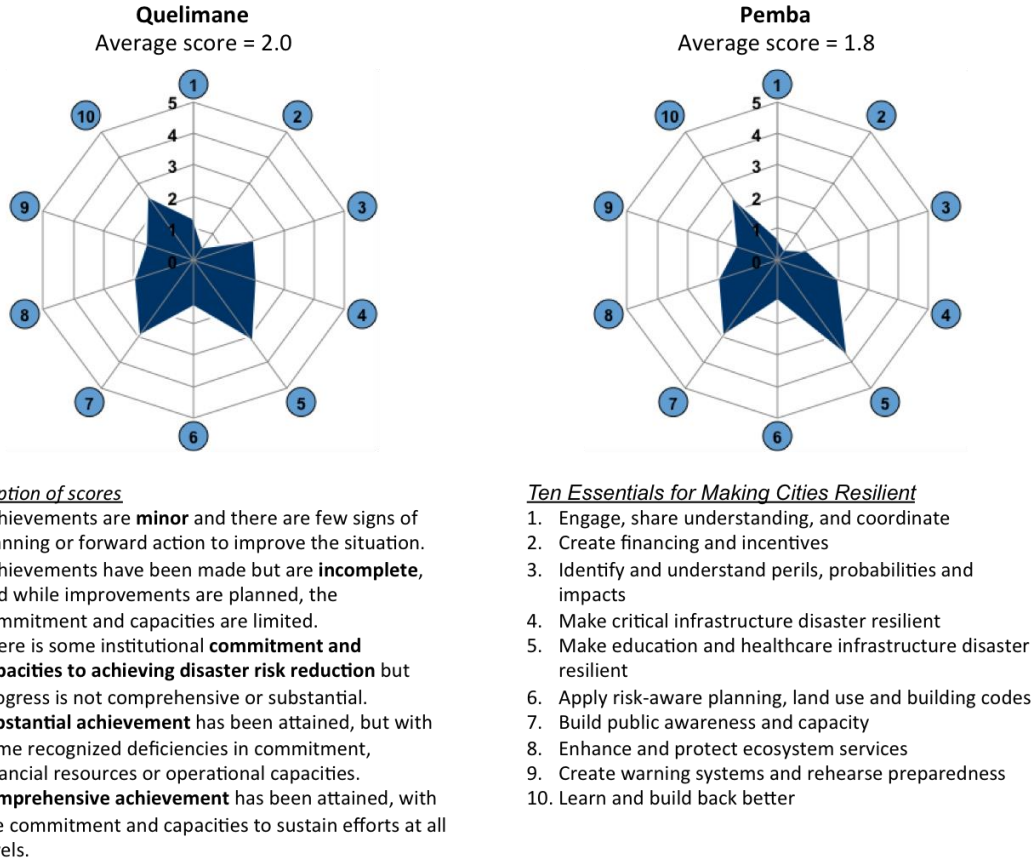

Figure 1. Results of the LGSAT assessment for Quelimane and Pemba.

In October of 2014, CCAP consulted with local governmental and civil society stakeholders, and assessed municipality preparedness and resiliency status in Pemba and Quelimane, looking directly at the "Ten Essentials for Making Cities Resilient"[1].

While the LGSAT helps the municipalities prioritize actions geared toward building resiliency, repeating the assessment regularly will allow for each municipality to quantitatively measure how its actions have increased resiliency. CCAP will support the municipalities repeat the assessment in 2016 and again in 2018, allowing for sufficient time to assess successes, struggles, and lessons learned, while providing sufficient time for CCAP to help the municipalities refine future adaptation planning beyond life of project. In an effort to help the municipalities develop their capacity to perform these self-assessments on their own, CCAP and the municipalities will jointly conduct less formal assessments in 2015 and 2017.

[1] Developed by UNISDR as part of "Making Cities Resilient" campaign; the ten essentials align with the Hyogo Framework for Action 2005-2015; see http://www.unisdr.org/campaign/resilientcities/toolkit/essentials

As part of the strategy to extend the support to other coastal cities, CCAP conducted an initial assessment of Nacala, as some of the CCAP expands limited support to other municipalities. Should project activities be expanded to Nacala, having a baseline assessment results will allow the municipality – with the assistance of CCAP – to outline initial CCA activities as it works toward resilience. Like Pemba and Quelimane, Nacala would also be reassessed in 2018.

4.2 Local adaptation plans

In early 2015 CCAP and the Africa Climate Change Resilience Alliance (ACCRA) formalized a partnership to assist the municipalities of Pemba and Quelimane in developing their respective local adaptation plans (planos locais de adaptação - PLAs) following the methodology developed by MITADER for the development of local adaptation plans at the district level. While the purpose of the LGSAT is to conduct periodic assessments and to measure progress towards specific objectives, the goal of the PLAs to help the municipalities determine their priorities for addressing the anticipated impacts from climate change and identify the actions needed to achieve them. To implement this activity, CCAP subcontracted UEM's School of Agriculture and Forestry, an ACCRA member organization, because of their significant experience developing district-level adaptation plans in Mozambique under MITADER's framework and methodology.

By mid April CCAP, ACCRA and the UEM team concluded the preparatory sessions with the municipal technical staff from the urban planning, infrastructure, communication and climate change departments for each city to discuss the methodology and to identify the steps to move this initiative forward. Also May 18-22 the mayors of both cities with two of their senior advisors each, and representatives of the GOM's Center for Sustainable Development – Urban Zones, accompanied by the support team from CCAP and ACCRA, went on a study tour to the South African municipality of eThekwini in Durban. This municipality is considered one of the most successful at implementing CCA measures and is recognized as a leader among African cities in the implementation of the Durban Adaptation Charter (DAC)[2].

The Durban study tour focused on showing representatives from Pemba and Quelimane how PLAs can play a central role in strengthening local-level adaptation efforts and response mechanisms, and, more importantly, how to integrate these efforts into broader planning and management processes. Participants were exposed to Durban's approach to CCA, from the process of creating a common vision for the city in the context of the changing climate; to community based ecosystem and wetland management; city reforestation with native species; solid waste management; coastline protection; planning and implementing climate resilient infrastructure; and, the role of public-private-partnerships defined broadly. The participants were able to see first-hand how all of these elements are incorporated into the city's strategy and adaptation plan. They also met with James Nxumalo, the mayor of Durban, and exchanged ideas to address climate change challenges in their respective cities. During the visit, both Mayor Tagir Carimo and Mayor Manuel de Araújo reaffirmed their commitment to improve their respective cities' preparedness to deal with climate change impacts through the development of their respective PLAs. We have seen evidence of their commitment and the PLA process has proceeded in, both Pemba and Quelimane.

In mid September 2015 CCAP and its partners facilitated a range of participatory working sessions with community members, civic organizations, local government entities and private sector stakeholders in Quelimane, to gain input, discuss climate change, share sustainable development ideas, and evaluate the city's vulnerabilities and capacity limitations to inform the PLA. The information collected through these workshops will help the municipality to articulate the key adaptation challenges, identify potential initiatives to

[2] http://www.durbanadaptationcharter.org

improve the city's resilience, and then use a prioritization process to guide recommendations for interventions to help the city better address climate change. The finalized PLA will serve as a practical tool that will help guiding planning in a participatory manner aimed at providing more sustainable services to better meet current and future needs. A similar process will be followed in Pemba starting in October.

Mayor Manuel de Araújo led the consultation process and used this opportunity to share his vision of a green and resilient city that is able to cope with and adapt to climate change impacts. He challenged the participants to participate in the PLA process as a means to evaluate potential climate change impacts, share sustainable development ideas, and evaluate the city's vulnerabilities and capacity limitations with the ultimate goal of identifying real solutions to prepare the city and respective residents to deal with weather related impacts. The Mayor also prompted the participants including the government entities, the civic organizations and community members to unite to prepare the city in face of the changing climate. One of the main important objectives of the workshop was to establish a technical advisory committee to oversee and guide the overall development of the PLA. A similar PLA launch workshop took place in Pemba in early August. Mayor Tagir Carimo chaired the event and, like the Quelimane workshop, it included the participation of municipal staff, civil society organizations, local community representatives, and provincial authorities.

Using information collected through these initial PLA events, CCAP and its partners, ACCRA and UEM, are helping the municipality to articulate the key adaptation challenges, and then will work with both experts and local community members to identify potential initiatives to improve resilience, and then use a prioritization process to guide recommendations for interventions to better address the identified climate change impacts. The PLAs are scheduled to be completed by December 2015. They will then be submitted for approval to Municipal Assembly, before they are shared widely in Quelimane and Pemba, respectively.

4.3 The evolution of the early warning system

During the first year of the project, CCAP focused on bringing practical tools to the municipalities. One of these tools was a mobile-phone-based EWS developed by partner Human Network International to be specifically used by the municipalities of Pemba and Quelimane. Although successfully implemented, CCAP and the National Disasters Management Institute (Instituto Nacional de Gestão de Calamidades – INGC) quickly realized that an early warning system built for just two municipalities was not practical for two reasons. First, the scale would be too limited for INGC to manage it. INGC works at a national level and responds to natural disasters where they occur in Mozambique. If they were going to adopt the system, it would need to be deployable nationally. Second, the municipalities do not have the capabilities, or the mandate, to put in place a comprehensive disaster response operation on their own, so an EWS would be of limited use, and the cost of maintaining it at the optimal level of readiness could be beyond their capacity. At the same time, the EWS platform, with some adjustments in its purpose and application could provide the municipalities with a valuable tool to improve their capacity to collect relevant data and use it to make informed management decisions. These conclusions lead to an adjustment in the CCAP approach that lead the EWS to evolve along two separate streams. One, it became the Integrated Disaster Information Management System (Sistema Integrado de Gestão de informação sobre Calamidades - SIGIC) with INGC as the primary partner, for the purpose of providing timely and reliable information for emergency response at the national level. And two, it became the foundation of the Integrated Urban Information Management System (Sistema Integrado de Gestão de informação Urbana - SIGIU) with the municipalities—initially Pemba and Quelimane—as primary partners for the purpose of meeting data collection and primary analysis to improve decision-making at the local level.

The EWS goes national

While most early warning systems are one-way information delivery platforms, the SIGIC is a two-way, mobile network solution that performs four critical emergency response and preparedness functions: (1) it provides status updates of the proximity of storms and instructions to those responsible for providing status information to INGC; (2) it collects critical information during the most severe period of the storm; (3) it engages the community in post-disaster response activities by extending their involvement in data collection; and (4) through the 3-2-1 Service it provides free and easy access to information about adaptation and resilience measures, disaster preparedness, and eventually on a wide variety of topics ranging from health to agriculture throughout the year.

Figure 2. . Arafat Zainadine, from INGC's Operations Center leads a discussion during the SIGIC training session in Vilanculos.

Although much had been done before the decision to scale up the system was made, the actual process of transforming the original EWS into the SIGIC began in May 2015 at a workshop in Beira hosted by the INGC. At that workshop the INGC National Coordination Director and National Director for Prevention and Mitigation, as well as CCAP's Deputy Chief of Party for Programs and technical experts, facilitated the discussions to define the process that would take the SIGIC nationally. The head of the National Emergency Operation Center (Centro Nacional Operativo de Emergência - CENOE) for central Mozambique, said expanding "this system is timely as the recent disaster in Zambézia Province has shown that our preparedness level was not enough." With the SIGIC platform in place, disaster managers at the central and local levels will have more timely access to disaster related data, which will help inform decisions to better allocate INGC resources during and after extreme weather events.

To support the effective operation of SIGIC in its early stages, CCAP donated computers to the INGC provincial delegation of Cabo Delgado and Zambézia and the three regional CENOEs (South based in Vilanculos, Central based in Caia, and North based in Nacala) and conducted training sessions with INGC emergency officers in Vilanculos, Caia and Nacala to provide them with a solid command of managing and using the SIGIC system and to prepare

the initial cohort of trainers who will be responsible to train other INGC staff in the provinces and districts on the SIGIC system.

A complementary component of the SIGIC is the 3-2-1 On-demand Information Service. This platform will allow INGC and other entities to deliver information about CCA, DRR and other related subjects through voice, SMS, and unstructured supplementary service data at no cost to the mobile subscriber via existing mobile phone networks. The 3-2-1 Service is another way that CCAP is contributing to the implementation of MITADER's National Climate Change Adaptation and Mitigation Strategy that has as one of its pillars the provision of access to relevant information and knowledge to enable more effective adaptation to climate change. The design and implementation of the 3-2-1 Service started in April 2015 with the signing of a partnership with VODACOM, which included an agreement to make this service available for free to all subscribers and to promote its use nationally.

In August 2015, INGC's National Director for Disaster Prevention and Mitigation, with support from CCAP, formally presented the SIGIC and the 3-2-1 Service to the newly appointed INGC general director and executive officers. At that meeting, INGC's senior management reaffirmed the institutional commitment to continue rolling out both systems to cover the entire country and scheduled the launch of the SIGIC for early October. The launch of the 3-2-1 Service will be scheduled at a later date in coordination with VODACOM.

Improving municipal management and decision-making

While the partnership with INGC took the EWS from a very local disaster response too to a national, comprehensive information management platform, the partnership of CCAP with the municipalities of Pemba and Quelimane transformed the original EWS into an effective data collection and primary analysis instrument for improved decision-making. Both Pemba and Quelimane have developed several data collection questionnaires that they are testing. Quelimane, for instance has put in place one keep record of the illnesses most commonly treated in the health posts and to manage the use of the ambulances. Pemba is putting in place another focused on land use that will be used in conjunction with the combined tool of vulnerability maps and cadaster that CCAP is helping the municipality develop and implement. All these data collection questionnaires function the same way. A questionnaire is designed to respond to specific data collection needs, staff are trained to respond to the questionnaire using their mobile phones to send SMS, which are then received and processed by HNI's cloud-based data management tool, DataWinner. The information collected is available online to all those authorized by the municipality. What is most important is that those data are available for review and analysis to meet the needs of the municipality.

One specific example of a more complex data collection application designed by the municipality of Quelimane is the one that addresses the solid waste collection service and it is outlined in Figure 3. This particular example has four components. (1) The head of a particular neighborhood sends a text to the system administrator at the municipality to inform him/her that there is an accumulation of waste in one of the collection silos. (2) The system administrator relies, by SMS, this information to the drivers who schedule their routes to pick up the waste. (3) The drivers in turn reply, also by SMS, about the status of the solid waste disposal silo after they have cleared it. (4) With all that information collected, the system administrator informs senior officials at the municipality so they can make tactical decisions about the operations of the waste collection system, as well as strategic decisions regarding the proper use of city resources to provide this service. Although this particular application of the SIGIU is still in the testing stage, it illustrates its potential to increase the efficiency and effectiveness of municipal services.

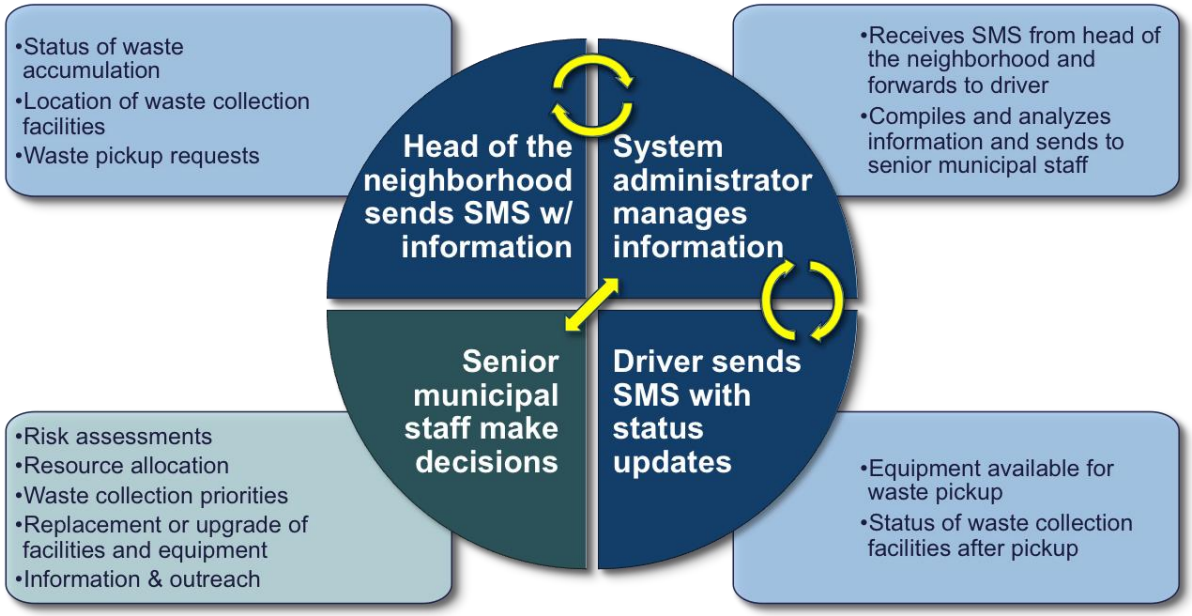

Figure 3. Schematic description of one of the applications of the SIGIU to track and manage solid waste collection operations in Quelimane.

The SIGIU was also used to conduct a rapid assessment of the socio-economic conditions of households in Icídua (Quelimane) and Paquitequete (Pemba) with the assistance from municipal staff and student volunteers from UniLúrio in Pemba and the UEM's School of Marine and Coastal Science (SMCS) in Quelimane. Data was gathered on 16 variables aimed at better understanding the type of houses in those communities and their access to basic sanitation and water services. This assessment sought to interview every household in each neighborhood. The success was high, with approximately 97% of the households interviewed. CCAP is using the data to: (1) inform decisions of the climate-smart household infrastructure activity that the project will undertake with UN-Habitat in the coming weeks; (2) inform the design of the Social Behavior Change Communication Strategy (SBCC) as part of the formative research findings; and, (3) assess the project's progress towards enhancing local adaptation and resilience in these neighborhoods as part of the project's baseline. Additionally, with CCAP support, both municipalities are using the assessment findings to inform and prioritize adaptation interventions as part of the PLA preparation process. Based on this experience, the project has designed the next version of this assessment that will be conducted in November 2015. It now includes 44 variables and will follow the same survey methodology used for the initial questionnaire.

Extensive training on the use of the SIGIU has been provided by CCAP to over 100 people in Pemba and 82 people in Quelimane, including municipal council members, directors and technical staff, neighborhoods chiefs, local community representatives, and students. This core group of first line data collectors serves to help strengthen the municipality's capacity to collect and analyze local-level information on the municipalities' services. Because the systematic collection and analysis of data to make decision remains novel for many municipal staff, CCAP will continue to provide support to city managers and the local authorities to help consolidate the SIGIU as a tool for informed decision-making.

4.4 Vulnerability mapping and its application in urban planning

In late 2014, CCAP supported the municipalities of Pemba and Quelimane with the development of their vulnerability maps. This process was conducted along two streams.

(1) The technical stream constructed the vulnerability map as a composite of three source maps that addressed (i) exposure, (ii) sensitivity, and (iii) adaptation capacity as defined by the Intergovernmental Panel on Climate Change (IPCC)[3]. To develop these source maps, the joint technical team of the municipalities and CCAP assessed the cities' vulnerability to climate change and other environmental hazards, focused on natural disasters and extreme weather events. They used topographic maps from the National Cartography and Remote Sensing Centre, CENACARTA, (topographic maps at scale 1:5,000) and the Millennium Challenge Account (MCA). Data from Shuttle Radar Topographic Mission (SRTM) was used to fill the gaps of the topographic data from CENACARTA. The Normalized Difference Vegetation Index (NDVI) was calculated from Spot image and Landsat image for Quelimane and Pemba respectively.

(2) The consultation stream consisted of engagement with the communities to bring into the process, both their experience and their priorities. The municipalities and CCAP organized meetings in each municipality, bringing together local leaders, NGO representatives, religious leaders, local experts, and other influential stakeholders to gather the necessary community input. In the meetings, the participants shared their experiences dealing with natural disasters in order to contribute to the creation of vulnerability concepts to guide the mapping process. Through this discussion, the team was able to break down the vulnerability concepts into 30 parameters, applying participant experiences and perspectives to rank them according to their perceived relevance.

Following the production of these vulnerability maps, in February 2015, CCAP conducted an introductory vulnerability mapping training course for municipal and other local technical experts. The course addresses: (1) how these maps are prepared, from consultation to final production; (2) what each of the layers mean and how they are interpreted for effective decision-making; and (3) how they can use them to contribute to developing local adaptation, infrastructure and the other plans that cities need to operate effectively.

The vulnerability maps produced reflect present conditions, and they will be updated regularly to track change in key variables that may affect the vulnerability profile over time, such as population settlements and density, and social infrastructure (e.g., schools, hospitals, roads). The maps will serve as a tool for the municipalities to develop strategies to increase resilience in the current landscape as well as to identify areas that become increasingly prone to natural disasters. They are currently being used in the preparation of the PLA, and the shape files generated have been shared with MITADER to assist in the preparation of the master plan for the city of Quelimane.

These maps are also being used to support municipal land use planning. With assistance from CCAP, the vulnerability maps have been integrated to the municipal cadaster to inform the building permit applicants of the vulnerability profile of their lots. As other activities supported by CCAP are implemented, such as the climate-smart household infrastructure activity and the partnership with local universities are consolidated, the municipal team managing the cadaster can move beyond just providing information about the vulnerability profile of the properties, but by providing building advice and guidance to applicants with lots in marginal areas. Our goal is that this will lead to the development of building codes that will promote climate-smart urban growth. With these building codes in hand, the municipalities will be able to enforce, both zoning regulations and building codes.

The vulnerability maps created with support from CCAP for both Pemba and Quelimane are proving useful to municipal staff on several fronts. As noted by Marques Naba, the council

[3] http://www.ipcc.ch/

member for infrastructure and urban planning for the Municipality of Pemba, the municipality now has a resource to help make more effective decisions on where to build future homes, medical centers, schools, and other buildings and structures. “The vulnerability map is a very important tool for making better decisions, because it helps both municipal officials and citizens understand the risks associated with where they live or want to build.” Given the tool’s relevancy to Mozambique’s urban planning challenges, CCAP is working to raise broad stakeholder awareness on its usefulness and functionality and will continue to support municipalities to ensure the maps reflect the most up-to-date data on human populations, weather patterns, and urban infrastructure. As dynamic tools that may be adjusted to reflect changing realities, vulnerability maps will provide ample opportunity for CCAP to reinforce municipal resiliency planning skills. This resource creates a strong foundation for the Mozambican government to proactively address urban adaptation challenges with the most relevant solutions.

Figure 4. Participants and products of the vulnerability mapping training held in Pemba. CCAP conducted a similar training in Quelimane.

4.5 Mangrove restoration in Quelimane

In October 2014, CCAP conducted a rapid assessment for mangrove restoration in Icídua, Quelimane. Initial findings from the assessment highlighted that harvesting and the expansion of settlements threatened the health of the mangroves in that area. The findings also indicated that immediate intervention was required to protect the low-lying areas in that neighborhood, and that the most cost-effective way to do it was by restoring the mangrove stands along the Bons Sinais River. Following the assessment analysis, in December, CCAP brought together relevant stakeholders in Quelimane with representatives from the Provincial Directorate of the Ministry of Land, Environment and Rural Development (Ministério da

Terra, Ambiente e Desenvolvimento Rural – MITADER)[4]; Center for Sustainable Development - Coastal Zones; Eduardo Mondlane University's (Universidade Eduardo Mondlane - UEM's) School of Marine and Coastal Sciences in Quelimane and College of Natural Sciences in Maputo; College of Natural Sciences of the Pedagogic University in Quelimane; College of Natural Sciences of UniLúrio in Pemba; and, the municipal government of Quelimane to discuss the design of a mangrove restoration and protection activity to increase the climate resilience of Icídua. As an outcome of this meeting, the neighborhood of Mirazane was identified as being of strategic importance for this activity due to its location between the Bons Sinais River and Icídua.

Figure 5. Mangrove seedlings being delivered by a community member of Icídua, while the site being reforested is posted as a municipal environmental protection area.

Following the meeting with stakeholders, the municipal government of Quelimane and CCAP began to work to ensure the land rights and community level buy-in were secured to begin implementing the activity. In February 2015, CCAP technical staff held a consultation session with the communities of Icídua and Mirazane to present the mangrove restoration plan and gauge their interest in participating in this effort. During this session, CCAP worked to build community commitment for the activity by educating the community members about the benefits of mangrove restoration, such as better protection from storms and potential diversification of income sources. The community confirmed its interest and agreed to jointly manage, with the municipal government, a mangrove nursery. Simultaneously, the municipality worked to secure rights to access land for the restoration activities. Officials reviewed the land tenure situation of the target areas for reforestation and consulted with the salt producers, who currently hold land use rights on some of the targeted tracks of land. After extensive consultation, the municipality successfully secured land access to approximately 22 ha in the targeted areas for the activity, and declared them municipal conservation areas.

With the community, the municipality, and other key actors invested in the activity, CCAP supported the establishment of two mangrove nurseries. The Association of the Inhabitants and Friends of Madal (Associação dos Naturais e Amigos da Madal), which has previously produced mangrove seedlings for use by government agencies, manage one of the

[4] MITADER was formerly known as the Ministry for the Coordination of Environmental Affairs (Ministério para a Coordenação da Acção Ambiental - MICOA)

nurseries in Madal, east of Icídua, outside the municipality of Quelimane. The UEM/ECMC worked with community of Mirazane to set up and manage the second nursery. The Mirazane nursery will have two objectives: produce seedlings for the mangrove restoration activities, and, perhaps more importantly, engage the community members in the protection of the mangrove. Both nurseries will produce about 120,000 seedlings per year, with an initial target of producing 55,000 in 2015. This level of production is sufficient to reforest between 5 and 6 hectares the first year and up to 22 hectares once they are operating at full capacity. If the level of natural regeneration is as high as we expect, the production from nurseries will allow the restoration activities to cover much greater areas in addition to providing replacement seedling. To date, the target of 55,000 seedlings has been reached, and approximately eight hectares of mangroves along the Bons Sinais River has been restored.

In late August, CCAP and its partners brought together more than 50 representatives from different provincial government institutions, municipal officials, academics, civil society organizations and community members to review the approaches and the progress in the mangrove restoration activities. The event included field site visits and the discussion remained focused on the role of mangroves in reducing the vulnerability of Quelimane's communities along the Bons Sinais River. The sustainability of the mangrove restoration activities was the other priority of the meeting, specifically the need to identify non-extractive economic alternative for the mangrove stands. A community-based honey production association from Mopeia district was identified in consultation with the Provincial Directorate of Land, Environment and Rural Development (DPTADR) and invited to present their experience to the meeting participants and the communities. Honey production from mangroves has been successfully tried in other places and it holds promise in Quelimane. If this is a viable activity that can generate economic benefits from standing mangroves, the likelihood that the community will protect mangroves in the long-term increases significantly. CCAP working closely with the municipality will develop a business plan to better understand the potential of this economic activity. At the same time, CCAP will continue to explore other non-extractive, revenue-generating options based on mangroves.

A similar a green infrastructure activity aimed at increasing the climate resilience of selected areas in Pemba will be initiated the next fiscal year. The process will also be similar. We will start with a rapid assessment followed by a technical meeting and stakeholders consultation session. We expect that the type of green infrastructure activity in Pemba will be different, but the approach and objectives will be the same.

4.6 Technical exchanges and international events

Study Tour to Durban

The Durban study tour, which took place May 18-22, focused on showing representatives from Pemba and Quelimane how PLAs can play a central role in strengthening local-level adaptation efforts and response mechanisms, and, more importantly, how to integrate these efforts into broader planning and management processes. The participants of the study tour included representatives from Quelimane (Mayor Manuel de Araújo; João de Brito, Director of the Environment and Climate Change Department; and, Nicole Dinis, representative of the Planning and Urban Development) and from Pemba (Mayor Tagir Carimo; Marques Naba, Head of the Infrastructure and Urban Planning Department; and, Derek Carlos, Officer of the Planning and Finance Department). Other participants in the study tour included Melq Gomes, ACCRA coordinator for Mozambique; Luis Artur, Faculty at UEM's Department of Agronomy and Forest Engineering; Izidine Opressa, representative of the Government of Mozambique's Center for Sustainable Development – Urban Zones (CDS-ZU), and Casimiro Antonio, CCAP's Deputy Chief of Party for Programs.

Participants were exposed to the way Durban is approaching climate change adaptation, from the process of creating a common vision for the city in the context of the changing climate; to community based ecosystem and wetland management; city reforestation with native species; solid waste management; coastline protection; planning and implementing climate resilient infrastructure; and the role of public-private-partnerships defined broadly. The participants were able to see first-hand how all of these elements are incorporated into the city's strategy and adaptation plan.

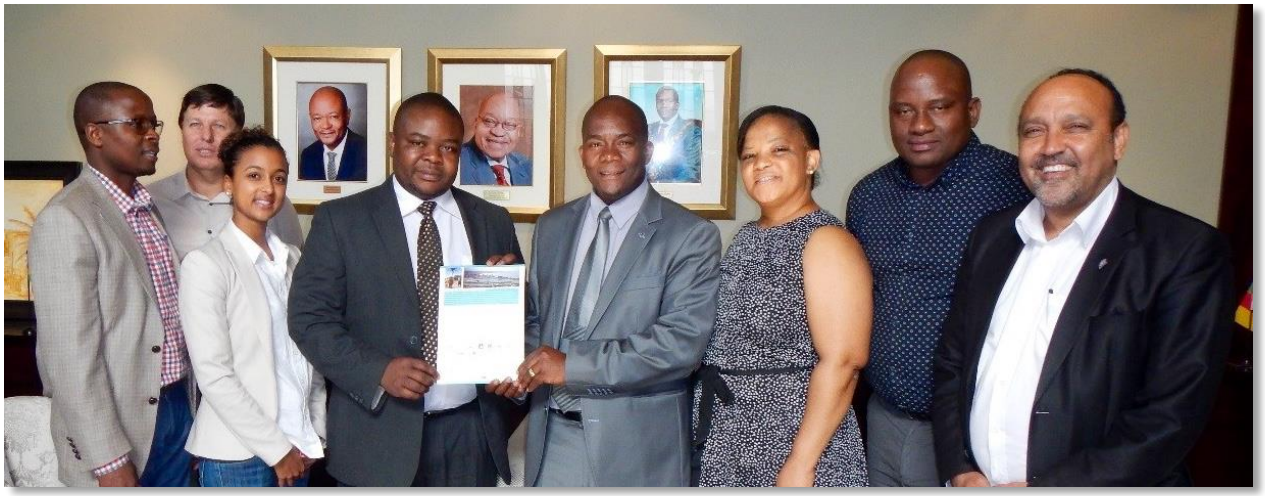

Figure 6. Mayors Tagir Carimo of Pemba (center left) and James Nxumalo of Durban (center right) with representatives of the delegation of Mozambique and staff of the municipality of Durban during the study tour to this South Africa city.

The participants met with James Nxumalo, the Durban Municipality Mayor, and exchanged ideas for the future of their respective cities to address climate change challenges (Figure 6). During the visit, both Mayor Carimo and Mayor Araújo reaffirmed their commitment to improve their respective cities' preparedness to deal with climate change impacts through the development of their respective PLAs. Their leadership and support will strengthen CCAP's efforts to mainstream CCA planning issues in all relevant municipal sectors.

National Adaptation Forum

Carlos E. Quintela, CCAP COP, attended the National Adaptation Forum (NAF) held in St. Louis, MO, May 11-14, 2015, and participated in the symposium panel "A Conversation: Climate Change Adaptation and International Development." During the symposium the audience and the panelist engaged in a lively and informative discussion about climate change adaptation in developing countries. It was a learning experience for panelist and audience alike, and it was a great opportunity to introduce the concept of the stepwise approach being implemented by CCAP in Pemba and Quelimane. The members of the panel were Joyce Coffee (Notre Dame Global Adaptation Index), Jennifer Howard (Conservation International), Britt Parker (National Oceanic and Atmospheric Administration), Carlos E. Quintela (Chemonics International) and Joel Smith (Abt Associates). Colin Quinn, USAID's CCAP COR designed, organized and coordinated the symposium.

ICLEI's 6th Global Forum on Urban Resiliency & Adaptation

At ICLEI's 6th Global Forum on Urban Resiliency & Adaptation held in Bonn last June 8-10, the CCAP team organized and lead the workshop "Reality Check: A stepwise approach to adaptation planning and implementation in two coastal cities in Mozambique." The workshop

consisted of four presentations that outlined the work that CCAP is supporting in Pemba and Quelimane with their respective municipalities, and at a national level with INGC. Following a brief introduction by CCAP COP, Carlos E. Quintela, Quelimane's Mayor Manuel de Araújo in his presentation "Local Adaptation Planning, Vulnerability Mapping and Other Climate Change Adaptation Tools" discussed the tools and approached that are being gradually adopted by both municipalities. Armando John, Senior Advisor to Mayor of Pemba, followed with the presentation "The Power of Results on the Ground: Demonstration Activities," which illustrated the demonstration projects under implementation and planned to promote climate-smart household infrastructure and green infrastructure. The final presentation of the workshop was "Use of Mobile Phone Technology in Disaster Preparedness and Response" by INGC's Director of Prevention and Mitigation, Ana Cristina João Manuel. She presented INGC, its structure and priorities, and described in detail INGC's implementation of the Integrated Disaster Information Management System, which is being designed in cooperation with CCAP. Following the presentations there were discussion groups and a wrap-up session lead by CCAP's home office manager, Lee Gerston. Beyond the workshop, the forum provided CCAP's partners the opportunity to discuss the challenges, successes, and opportunities in building more resilient cities with local government leaders, practitioners, and academics, and to tap into a wide-ranging network of organizations and experts working around the world (Figure 7).

Figure 7. During the ICLEI Resilient Cities Congress in Germany, Quelimane Mayor Araújo leads a discussion on the different climate change adaptation planning tools that Pemba and Quelimane are using to inform municipal decisions.

4.7 Other activities

- ***Supporting flood response in Zambezia.*** In early 2015, the Zambezia province was struck with significant flooding, causing significant infrastructure damage and disaster response need. With USAID concurrence, CCAP provided immediate assistance to INGC in their efforts to assist in affected areas in Zambezia. The CCAP municipal advisor in Quelimane worked with agencies under INGC's coordination to prepare maps to help guide emergency response activities. Our EWS specialist spent 10 days providing direct support to INGC operations during the most intense part of the floods in Zambezia.

- ***Assessment of opportunities in Nacala.*** In an effort to take the lessons learned in Pemba and Quelimane to other cities, CCAP conducted an assessment of

opportunities in Nacala. Several CCAP activities were identified as having potential for increasing its climate resilience, among them: the LGSAT to build the cities capacity for self-assessment, the SIGIU to promote more efficient data collection for informed decision-making, vulnerability mapping and its integration with municipal cadasters, and the preparation of a local adaptation plan for the city. All of these activities will be incorporated into CCAP's work plan for the following year.

- ***Partnership with Earth Networks.*** During initial discussions of scaling up the SIGIC, HNI and CCAP looked at options for ensuring the availability of reliable real-time weather information in low infrastructure areas of the country. This happened at the same time that Earth Networks, a US-based company that developed the Weatherbug application, was working with Mozambique's National Weather Institute (INAM) to expand a network of weather stations. Based on the shared interest and common objectives, CCAP, HNI and Earth Networks entered into a partnership to make weather information available through the On Demand 3-2-1 Service, which CCAP and HNI are developing as part of the SIGIC.

4.8 Preparatory work for activities to be launched in FY 2016

- ***Advancing the CCAP Social Behavior Change Communication Strategy (SBCC).*** Building on the exchange visit to Durban in May, Pemba Mayor Tagir Carimo requested CCAP's support to help the city's residents adjust behaviors to better deal with the impacts of climate change. Coincidentally, that request came as CCAP was developing a comprehensive social behavior change communications (SBCC) strategy. The strategy focuses on enhancing the perception of the value of green infrastructure, more resilient housing, and appropriate sanitation practices to motivate changes in behavior. Although some activities under the SBCC are already being carried out, its systematic implementation will start next year.

- ***Developing a training program on CCA and DRR.*** The institutional assessment carried out by CCAP in Pemba and Quelimane during project startup identified considerable gaps in knowledge and practices among the municipality officials and other key stakeholders that hinder their ability to deliver more climate resilient services to residents. CCAP is supporting UEM through a grant to develop and carry out a training program on CCA and DRR that is specifically designed to improve the municipal technicians' and other key stakeholders' understanding of climate change impacts. The training program will help ensure that the municipalities and their communities properly address CCA and DRR issues. UEM started this activity in September and the course will be completed and offered in early 2016. This course will also offer the opportunity to collaborate with other universities in Mozambique, Africa and elsewhere. This course will also have an online version that will be produced by CCAP partner Tech Change.

- ***Climate smart household infrastructure assessments.*** In preparation for the climate-smart household infrastructure activity that CCAP will implement in partnership with UN-Habitat, preliminary assessments of household infrastructure in the neighborhoods of Icídua (Quelimane) and Paquitequete (Pemba). These assessments included surveys of types of houses, latrines and water provision systems being built and how well they are performing under the current conditions. We expect this activity to start in late 2015.

5 Measuring Performance

The entire CCAP team participates in the collection of M&E data. Gilberto Muai, CCAP's M&E specialist, provides formal training as part of orientation activities for all new staff members. He conducts additional refresher sessions when he travels to the cities to provide support to other activities under his responsibility. To ensure that the data collected meets the requirements of the approved M&E plan, CCAP internally conducted a Data Quality Assessment (DQA) on all the M&E indicators. Additionally, USAID performed a DQA on two of the four project-level indicators.

To date, CCAP has made significant progress in areas measured by indicators 4, 5, 7, 9, 12 and 13, largely because we emphasized the development of tools, training, and activities that involve community engagement during this year. The delay in the launch of our social behavior change and communication strategy is evident by the performance measured by indicator 11. We expect that the launch of the SBCC will result in improved performance measured by indicator 13 as well, in both the proportion and the diversity of the youth engaged. Once we start working through the grants to CVM on strengthening of their volunteer network, and to UN-Habitat on climate-smart household infrastructure, we expect to see progress along indicators 2 and 6. Likewise, indicators under Objective 3 (14, 15 and 16) will register progress when those activities start in calendar year 2016, as planned.

Indicators	Baseline	TOTAL FY14	TOTAL FY15	FY15 Target	LOP Target	% LOP	Indicator Activities
PROJECT GOAL: CLIMATE RESILIENCE IN SELECTED MOZAMBICAN COASTAL CITIES INCREASED							
1. Numerical score on UNISDR's Local Government Self-Assessment Tool (LGSAT) (Impact)							In FY2015 we conducted the first LGSAT assessment to establish the baseline for Pemba and Quelimane. Future assessments are planned for FY2016 and FY2018 to measure progress against those variables.
Pemba	1.83				TBD	0%	
Quelimane	1.97				TBD	0%	
2. Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance (Outcome, GCC required indicator 4.8.2-26) [GCC EG11.1-1 and GCC EG11.3-1]	0	1	176	1,000	5,050	3.5%	Of the 176 stakeholders that are being reported here, 142 individuals participated in the mangrove restoration activities in Icídua and Mirazane; seven (7) participated in the vulnerability mapping activity; 38 participated in preparation of the local adaptation plan in Quelimane; and nine (9) are participating in the establishment and operations of the SIGIU. The shortfall in relation to our target has to do primarily with delays in the implementation of three activities: the CCA/DRR course being developed by UEM; the UN-Habitat climate-smart household infrastructure activity; and the first-aid training with CVM. These activities are scheduled to start in the early part of FY2016.

Indicators	Baseline	TOTAL FY14	TOTAL FY15	FY15 Target	LOP Target	% LOP	Indicator Activities
3. Number of laws, policies, strategies, plans, agreements, or regulations addressing climate change officially proposed, adopted, or implemented as a result of USG assistance (Outcome, F Indicator 4.8.2-28) [GCC EG11.2-1 and GCC EG11.2-2]	0	0	15	40	100	15.0%	During this reporting period, CCAP has supported the municipalities and other agencies propose, adopt or implement a 15 initiatives that are contemplated by this indicator. They included among others, the signing of the Durban Adaptation Chart (DAC) on Climate Change Adaptation; establishing climate change departments in both municipalities; launching of the preparation of the local adaptation plans; adoption of a strategy to incorporate vulnerability information in their building permitting process; development and implementation of data collection strategies in several sectors; officially declaring municipal conservation areas for mangrove restoration.
4. Number of institutions with improved capacity to assess/address climate change risks issues as result of USG assistance (Outcome, F Indicator 4.8.2-14) [GCC EG11-3]	0	8	11	6	20	95.0%	Several activities carried out by CCAP during this reporting period have contributed to this indicator by involving many partner institutions, among them the household infrastructure survey for the climate-smart household infrastructure activity; the development of the methodology for preparing local adaptations plans for municipalities; public awareness activities related to carnival celebrations; and training of local disasters response committees.
Objective 1: Improve the provision of climate-resilient urban services by municipalities							
5. Number of CCA or DRR tools, technologies and methodologies developed, tested and/or adopted (Outcome) [GCC EG11.1-3]	0	6	16	4	10	220.0%	This reporting period has seen the development of many tools that are being used to improve the capacity of municipalities and other agencies to address their CCA and DRR priorities. The SIGIU has been the source of several data collections tools developed by the municipalities in a variety of sectors. All of them addressing different needs and target populations. The SIGIC is already fully operational, as are the vulnerability maps and its integration with the municipal cadasters.
6. Amount of investment mobilized (in USD) for CCA or DRR as supported by USG assistance (Outcome, F Indicator 4.8.2-10)* [GCC EG11-4]	0	0	0	$2.0M	$4.8M	0%	This activity has been delayed, but will be accelerated in FY2016 with the start up of the UN-Habitat climate-smart household infrastructure activity, which comes with matching funds from that UN agency, and the developing of financing options to take that activity to scale.
IR 1.1 Municipal capacity to apply urban adaptation measures through science and analysis increased							
7. Number of person hours of training completed in climate change as a result of USG assistance (Output, F Indicator 4.8.2-29)	0	1,251	4,938	2,800	9,000	68.8%	There have been many training activities during this reporting period, which explains the fact that the targets were significantly exceeded. These trainings were conducted in the context of the following activities: implementation and expansion of the SIGIC; establishment of the SIGIU; development of vulnerability maps and their subsequent integration to municipal cadasters; and the preparation of the local adaptations plans, among others.

Indicators	Baseline	TOTAL FY14	TOTAL FY15	FY15 Target	LOP Target	% LOP	Indicator Activities
8. Number of proposals submitted for CCA or DRR projects (Output)	0	1	2	4	10	30.0%	Two proposals were submitted by Quelimane and Pemba to the ICMA-managed, USAID-funded CityLink Program.
IR 1.2 Application of management, soft engineering, and hard engineering climate adaptation measures by municipal authorities through effective citizen engagement increased							
9. Area (hectares) impacted by at least one CCA or DRR intervention implemented with citizen input per year (Outcome)	0	0	1,101	600	1,400	78.7%	Three activities are responsible for this results. The cleaning of the drainage ditches during the carnival celebrations the second quarter of year had a large footprint and it helped protected large portions of the city center. The vulnerability mapping has a much wider coverage because it covered the entire municipal area, as does its use in combination with the cadaster. Finally, the mangrove restoration has made a limited contribution as of yet, with about seven hectares, but that will change once the mangroves grow and start providing the ecosystem services for which they are being restored.
Objective 2: Increase adoption of climate resilience measures by communities, civic and community organizations including civil society, NGOs and faith-based organizations							
10. Number of people with increased knowledge of climate change impacts and adaptation strategies as result of USG assistance (Outcome) [GCC EG11.3-2]	0	0	55*	200	500	11.0%	During this reporting period, 55 people have shown increased knowledge of climate change when tested before and after their participation in the different training activities of CCAP in the context of the SIGIU, SIGIC and the development of the local adaptation plans. These number are likely to change because the data on the last trainings has not yet been analyzed.
IR 2.1 Citizen knowledge of local climate change vulnerabilities and adaptive options increased							
11. Number of person-contact hours of information disseminated about climate change vulnerabilities and adaptive options (Output)	0	278,110	60,570*	1,000,000*	3,000,000	11.3%	These results come primarily from the communications activities carried out by CCAP during the carnival of Pemba and Quelimane; the workshops on green infrastructure associated with the mangrove restoration activity; a scientific fair held in Maputo and the Earth Day celebrations held in Quelimane. The shortfall is largely due to delays in the implementation of the SBCC; the UN-Habitat climate-smart household infrastructure activity; and the training and outreach activities that are part of the grant that is being developed with CVM. Once these three initiatives get under way, we will be able to move significantly toward the target number.
IR 2.2 Community organizations' ability to implement a local set of risk mitigating measures improved							
12. Proportion of CCA or DRR interventions implemented with community contributions (Outcome)	0%	0%	100%	10%	20%	100%	Every activity implemented by CCAP during the reporting period involved local communities.

Indicators	Baseline	TOTAL FY14	TOTAL FY15	FY15 Target	LOP Target	% LOP	Indicator Activities
IR 2.4 Contributions of women, men, boys, and girls to climate change adaptation more equitable							
13. Proportion of individuals engaged in CCAP activities who are youth (Output)		16%	29%	15%	20%	24%	Our work with universities students is proven to be one of the most important ways to engage youth. (16-29 years). The pool of youth that will be involved in CCAP activities will increase when the SBCC is implemented.
Objective 3: Capacity to potentially implement economic risk-management tools, such as insurance plans and contingency funds, for at-risk urban infrastructures and livelihoods increased							
14. Number of people with increased understanding of how to develop economic risk-management tools (Outcome)	0	0	0	0	8	0%	The activities for this indicator will start in the FY16 as per the current work plan.
IR 3.1 Awareness of innovative risk-management measures improved							
15. Number of people who receive information about economic risk-management tools (Output)	0	0	0	0	100	0%	The activities for this indicator will start in the FY16 as per the current work plan.
IR 3.2 Financial management capacity of relevant municipal authorities and structures increased							
16. Number of people who demonstrate increased capacity in financial management (Outcome)	0	0	0	4	8	0%	The capacity building strategy, which was the means to achieve these targets, has been delayed a few months. Its implementation has shifted to FY2016. However, even with this delay, it will be possible to get back on track and achieving these targets.
* Preliminary result. This number is under revision.							

6 Communication and Outreach

The first year, FY 2014, the focus of the project was on building the relationships, seeking the engagement of the principal actors and identifying the priority interventions with partners. This reporting period, greater emphasis was placed on raising awareness and understanding of the impacts of climate change on coastal cities and the role of the project. Already reported are the international events and activities in which CCAP and its partners participate (study tour to Durban, NAF event in St. Louis, ICLEI event in Bonn); national interventions (the multiple training activities with INGC to expand the SIGIC); and many local events aimed at training, informing, and engaging the local actors. All of these activities sought to achieve communications and outreach objectives at the different levels. In this section of the report, we would like to highlight a few others not mentioned previously.

Increasing visibility. During FY 2015, CCAP renewed its efforts to increase awareness of project activities and successes through media and communications opportunities. Through these efforts, the project prepared a successful Frontlines article[5] and worked on a photo essay that will be posted in USAID's website[6] in the coming weeks. Both of these communications pieces present CCAP's stepwise approach and the successes of the green

[5] https://www.usaid.gov/news-information/frontlines/climate-change-2015/mozambique-cities-adapt-climate-change-one-tree-and

[6] https://stories.usaid.gov/#priorities

infrastructure development, and the effects of climate change in Pemba and Quelimane. In addition, the project has developed and published Facebook posts on the mission's home page, including the successes at CCAP's presentation, *Mozambican coastal cities challenges and opportunities in climate change adaptation*, at the ICLEI event in Bonn, Germany. The project has also increased its communications with the municipalities by translating key stories and reports into Portuguese for dissemination and using local newspapers to publish stories on events, such as Carnival and mangrove restoration efforts.

Signing the Durban Adaptation Charter. Building on the study tour to Durban in June, Pemba Mayor Tagir Carimo and Quelimane Mayor Manuel de Araújo formally signed the Durban Adaptation Charter in July 2015. As signatories to the Charter, which was launched at the 17th COP meeting of the UNFCCC in 2011 (http://unfccc.int/2860.php), the cities of Quelimane and Pemba commit their administrations to take climate adaptation action to help their residents better respond to and cope with climate change risks, thereby reducing vulnerability. Pemba and Quelimane joined Maputo as the only Mozambican cities to sign the Durban Adaptation Charter. CCAP leveraged this public commitment by launching the participatory process to develop formal PLAs with the ACCRA consortium in July.

Figure 8. Carnival celebrations in Quelimane (left) and Pemba (right). CCAP and the Municipalities used the opportunity to promote climate change adaptation and highlight the work that is being done to increase the resiliency of their communities.

Raising awareness during Carnival. CCAP leveraged the Carnival celebrations held in the middle of February 2015 in Quelimane and Pemba to raise awareness about the cities' climate adaptation challenges. In Quelimane, CCAP worked with the local motorcycle taxi association, Association of Motorcycle Taxi Drivers of Zambezia (Associação dos Taxistas de Motociclos da Zambézia - ATAMOZ) to participate in the parade, produced a folkloric dance, and helped coordinate a community event to clean key sections of the city's drainage canals. The youth organization, Association of Young Friends of the city of Quelimane (Associação dos Jovens Amigos da Cidade de Quelimane) joined ATAMOZ and spent two weekends helping to clean drainage canals. CCAP donated tools and equipment for this cleanup effort to the Municipal Sanitation Services with the agreement that this equipment would be used for future drainage maintenance activities. In Pemba we supported a group of participants to disseminate key messages about CCA in the parade and engaged a group of young musicians to compose and perform a song about the city and climate change. The song's catchy rhythm is likely to make it a favorite in future carnivals.

Vulnerability maps a management and communication tool. In June 2014, CCAP sponsored Elidio Massuanganhe, a Mozambican doctoral student at UEM, to attend a workshop on spatial vulnerable assessment design hosted by Columbia University's Earth Institute. Spatial vulnerability assessment involves using geo-referenced socio-economic and biophysical data to determine areas that are most vulnerable to extreme weather events, thereby informing where adaptation measures are most critical. The maps, which

illustrate exposure to sea level rise and extreme weather phenomena, provide a visual representation of areas requiring adaptation interventions. Following the five-day workshop, Elidio returned to Mozambique with new knowledge to create vulnerability maps for Pemba and Quelimane, which are acutely affected by weather-related challenges such as storm surges, cyclones, and erosion. After the initial drafts of the maps were created, Elidio was able to successfully lead the trainings for municipal officials and other local technical experts on how the maps are prepared and what the meaning of the various map layers, as well as how to best use them for policy development. We have used these vulnerability maps to promote awareness at national and local events, targeting youth with outreach activities.

Figure 9. CCAP's Casimiro Antonio explains to World Environment Day event participants how the Municipality of Quelimane is using vulnerability maps to improve city planning and urban development to adapt to climate change.

Delivering solutions and raising awareness about climate resilience and disaster response. In a ceremony held in the Pemba's Paquitequete neighborhood, CCAP, INGC, and the Governor of Cabo Delgado, Celmira Silva, formally transferred three emergency management kits, procured by CCAP as part of an in-kind grant, to three local disaster management committees for pre-positioning in Pemba. INGC established these committees in coordination with the Municipality of Pemba and local communities. Each committee consists of 18 volunteers that serve as first line responders at the local level during emergencies. CCAP and INGC assisted in the training of members of all three committees. The emergency management kits contain, among other things, bicycles, lifejackets, tools, stretchers, crank and solar-powered radios, flashlights, and tools. The kits and related training serve to improve the community's operational capacity to respond to emergencies. Event served to raise the awareness of these three communities, and the city of Pemba in general, about the risks of climate change, the need to adapt to its effects, and the imperative to be ready when disaster strikes. The national media, including national television, covered this event.

Figure 10. CCAP transferred comprehensive emergency management kits to three local disaster response committees for prepositioning in at-risk neighborhoods in Pemba. Cabo Delgado Governor Celmira Silva (right) led the ceremony to mark the handover of the emergency management kits that will help the local community to respond to extreme weather events in the city.

7 Implementation Challenges

7.1 Technical

Effective communication with any project partners is always a priority and a challenge. To overcome this challenge, we have sought from the beginning to be open and transparent with both municipalities, sharing as much information as possible and including them in the definition of priorities for the project. As the project has evolved, CCAP has maintained open lines of communication regarding activity planning, execution, and reporting with all our partners, particularly the municipalities of Pemba and Quelimane. Every activity that we carry out is done in close coordination with the designated municipal focal point. At the mayors' request, we produce monthly activity and travel plans and send them detailed activity reports in Portuguese twice a year. Despite these efforts, at one point our municipal counterparts have expressed concerns that CCAP is not communicating effectively. We did a quick assessment of the situation and came to the following conclusions and took the following corrective actions.

(1) We relied on the focal point for internal distributions of the documents produced by CCAP, but found that access to Internet, equipment and time made it difficult for this to happen. Since then, to ensure that the documents get to the right people, we added more technical and management staff to the distribution list. We now also send all the documents to the Mayors' office, their principal advisors and directly to the Mayors' personal emails.

(2) Emailing the documents and reports was not sufficient to ensure that our partners found the time in their overloaded agendas to review them. We found that it was most effective if we, every time we met, made a point of reviewing these documents, along with a review of the activities under implementation and how the fit with the shared goals.

(3) Language barriers seem to be another obstacle to communication. We are now translating our monthly, quarterly and annual reports, which we are required to produce in English. These reports will be shared with our partners after USAID has approved them. We will complete the distribution of the previous reports, translated to Portuguese, by the end of November 2015.

(4) Finally, we are aware that effective communications is an elusive and shifting target. We have made a commitment to our partners that we will sustain our efforts to keep the communications channels open and to continually look for new and better ways to ensure that the information gets to them quickly and in a format that is useful to them.

7.2 Administrative

During this reporting period, CCAP faced two main administrative challenges: staffing, and delays in negotiating grants and subcontracts with local partners.

In the beginning of the year, two CCAP staff members unexpectedly separated from the project due to personal issues. In addition to these two positions, at the end of FY 2014 CCAP and the project's COR established an ambitious scaling up plan that involved that addition of a community advisor for each municipality as well as additional operations and support staff. Due to the understaffing and local labor laws that require candidates to provide lengthy notice periods before resigning, the CCAP team experienced significant delays in filling all of these positions in a timely manner. As of September 2015, however, CCAP is now fully staffed.

The CCAP Operations Team has not processed grants and subcontracts to local partners in a timely manner, particularly during the period when CCAP was recruiting to fill the vacancies noted above. Potential partners that have not performed USAID-funded work require significant investment in time and effort from CCAP staff to ensure that partners fully recognize the performance and compliance requirements, which applies to local and international organizations alike. Additionally, CCAP experienced lengthy delays in obtaining information from potential partners that is necessary for compliance purposes, such as the pre award self-assessment, which is required for CCAP to conduct the formal pre-award risk assessment.

UEM Faculty of Science negotiations for the grant for tailored training on CCA/DRM was delayed due to lengthy travel of key staff and the time required for the faculty's finance and administration department to provide required documentation in support of the grant budget. USAID approved the grant award in August and the agreement was executed and work commenced in September.

UN-Habitat negotiations were prolonged in part due to complex administrative and compliance issues, such as construction and applicable environmental regulations under a fixed amount award to a public international organization. Also, we experienced slow response times because of travel and turnover of designated technical or administrative staff involved. As of the end of the reporting period, USAID was reviewing CCAP's approval request to issue this award.

In June, CCAP was in the process of preparing the approval package for a proposed grant to the Red Cross of Mozambique (Cruz Vermelha de Moçambique – CVM) for first aid training preparedness, which includes in-kind procurement of first aid kits requiring restricted goods approval. CCAP expected to submit the respective approval requests in August, however, CCAP and CVM decided to further refine the scope and budget, which required more time than anticipated. CCAP plans to submit the approval request for USAID consideration in November.

Taking into considering the staffing limitations and the capacity required with the plans to scale up technical interventions, the CCAP Operations team expanded in early September to include an Operations Director to provide direct day-to-day management of grants and

subcontracts, and a Logistics Assistant, to administer procurements and purchases. With this revised staffing structure, CCAP is much better equipped to compete and award grants and subcontracts in a timely manner for FY16.