



MATI-Mozambique Field Report

MIT Department of Urban Studies and Planning

UEM Faculty of Architecture and Physical Planning

Fieldwork August-October 2013

Abstract

Activating Transformative Initiatives (MATI)-Mozambique is a Massachusetts Institute of Technology (MIT) and University of Eduardo Mondlane (UEM) practicum developed by MIT Assistant Professor Gabriella Carolini and UEM Professor Anselmo Cani Lourenço. The objective of the practicum (hereinafter “MATI”) is to introduce a selected team of MIT and UEM students to the concepts of reflective planning, heuristic learning through field practices, and advocacy planning with youth partners around water and sanitation systems.

MIT Student Researchers:

Tania Alam, Sarah Dimson, Sara Hess, Nene Igiyetseme, Laura Martin, Toral Patel, Chris Rhie, and Fizzah Sajjad¹

UEM Student Researchers:

Idélcia Mapure, Milousa António, Nurdino Manjate, and Priscila de Oliveira Ramgi²

KaTembe Neighborhood Partners:

Milton Botão, Pedro Emanuel, Jorge Américo Ramos, and Arsénio Nhanombe

MIT and UEM Faculty:

Anselmo Cani (UEM) and Gabriella Carolini (MIT)

Principle Research Locations:

- Maputo, Mozambique
- District of KaTembe, Maputo, Mozambique
- Cambridge, Massachusetts, USA

The MATI Field Report was mainly written by the team of MIT Student Researchers, along with Professor Carolini. UEM Student Researchers and KaTembe partners of course also influenced and inspired this written record and translation of our joint work.

1 MIT Student Researchers are Department of Urban Studies and Planning Master in City Planning and Master in Real Estate Development Candidates.

2 UEM = Universidade de Eduardo Mondlane (University of Eduardo Mondlane), which is the premier higher education institution in Mozambique and is based in the capital city of Maputo.

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Introduction

In Ronga, one of the Bantu languages spoken in Southern Africa, “mati” means water. Water is both *intrinsically* and *instrumentally* valuable, and the fluidity of water as both a life source and a transformative material provides the inspiration for the MIT-UEM Activating Transformative Initiatives (MATI)-Mozambique practicum.

A practicum is typically used in professional graduate training to provide students with hands-on experience, or simply practice, working in an area of their interest or future career path. The MATI-Mozambique practicum centered on practices in local community development and advocacy planning within an international development context, using the mechanism of water and sanitation services as an organizing linchpin.

Participating MIT graduate students from DUSP, architecture and physical planning students from UEM, and a partnering group of young residents in KaTembe, were to cooperatively work together during the course of the practicum.¹ As originally conceived, the project was to gather and visualize data on neighborhood-based needs and resources in basic services in order to write a ‘Needs and Assets Assessment’ and to develop a methodology for measuring and understanding ‘affordability’ at the neighborhood scale.

The goal was also to create an ‘Advocacy Strategy’ for the local activation of information gathered on water, sanitation, and health systems in KaTembe. This is a collaborative relationship building off of previous personal and professional relationships between Professor Gabriella Carolini (MIT), Professor Anselmo Cani (UEM), and Filipe Manguela, the youth leader of the association of KaTembe youth (or AJUK) over the past four and a half years.

Using water and sanitation as the avenue through which to explore community planning and advocacy further highlights water’s intrinsic and instrumental value. Professor Carolini first came to identify water investments as an important topic of discussion among KaTembe residents while attending public meetings on participatory budgeting. This experience influenced Professor Carolini and the research team to think about the accessibility, adequacy, and affordability of water. The contentious nature of the questions of accessibility, adequacy, and affordability in water and sanitation provision gave us grounds to explore advocacy for water as well.

The approach to the research work done in the MATI practicum is based on the ideas of reflective practice and advocacy planning from theorists and educators such as Paulo Freire and Donald Schon. In *Pedagogy of the Oppressed*, Freire writes about the nature of education and its role in perpetuating oppression. As it is, education can serve to socialize people – to foster a sense of acceptance of historical determinacy and with the status quo. Education, Freire argues however, should be liberating. It should invite questioning and demand critical thinking and allow people to understand their circumstances in the context of other people, systems, and history (Freire 1970).

Furthermore, in consciously considering our place in Mozambique, this practicum sought to teach us, particularly the MIT students how to reflect on our own “tacit theories of the phenomena of practice”

1 KaTembe is one of seven municipal districts in the capital city of Maputo.

(Schon 1987: 321). Through this reflection we could better understand our place as doing advocacy work in the realm of international development. Thus, a major part of this practicum was grounded in the MIT Student Research team living and working in Mozambique for an extended period of time (longer than a typical MIT practicum) such that we could begin to understand the local context and aspirations of the community.

Research Workplan

As mentioned previously, the work plan for MATI envisioned joining both student research teams, and youth group members from KaTembe to cooperatively gather and visualize data on neighborhood-based needs and resources in basic services in KaTembe in order to write a 'Needs and Assets Assessment' and to develop a methodology for measuring and understanding 'affordability' at the neighborhood scale. A third mandate focused on creating an 'Advocacy Strategy' for the local activation of information gathered on water, sanitation, and health systems in KaTembe.

As part of the advocacy strategy, we planned to connect the results from our survey work to a youth civil society group in KaTembe – AJUK. This was part of a proposed advocacy planning methodology – rather than collecting data that then sits on a shelf or with people in power, we planned to partner with local actors to use the data to support efforts they are already taking or wanted to take to improve water and sanitation in their neighborhood.

This report will detail the ways our methodology and goals shifted as we learned more and circumstances on the ground in Mozambique unfolded. For example, our plans to create an advocacy strategy changed as unfortunately, AJUK did not have the capacity to develop the partnership in the way that was originally imagined. Instead we worked with four local youths who were suggested as potential partners for our project by the administrative Secretary of the neighborhood of Guachene,¹ Doña Mia. These young men were younger and less organized around issues of advocacy and change in their neighborhood than the members of AJUK were. Therefore, as we developed an advocacy planning strategy, we took a step back and wondered, how can advocacy planning serve to mobilize the immobilized?

1 Guachene is one of the 5 bairros (sub-district neighborhoods) of KaTembe.

Geographic and Socio-Political Context

Geographic Context: KaTembe – Maputo, Mozambique

KaTembe is one of seven municipal districts in Maputo (see Map 1). It is the largest of the city's districts, representing roughly 40 percent of Maputo's land area. KaTembe is also remarkable for the lack of density in its settlements (with only 119 people per square kilometer, as compared with other districts nearing 20,000 people per square kilometer). KaTembe is also unique in its poverty incidence of over 70 percent, one of the highest figures in the city (CMM 2007). In other words, from a perspective of density and income, KaTembe is a capital city municipal district with a decidedly peri-urban feel. Within KaTembe one travels on dirt roads between free standing homes and businesses dispersed over large areas; but the Maputo skyline, defined by tall office and apartment buildings, is visible less than 2 miles away in the distance.



Map 1: Districts of Maputo

However, KaTembe is set to change over the course of the next decade.

The district is the center of an economic development strategy launched by Maputo Sul, a development enterprise owned in partnership by the Government of Mozambique and a private engineering company from Portugal (Betar Consultants). The economic development strategy involves the supply of new construction of trunk infrastructure (i.e. bridges, electricity, water and roads), commercial space, and residences. In addition, the strategy includes ways to aggregate demand for construction projects and related services.¹

Socio-Political Context: Mozambique

The future physical and economic development of KaTembe, and other similar peri-urban districts, in part depends on civil society's evolving relationship with government in Mozambique. After years of colonial rule under the Portuguese, the Mozambique Liberation Front (FRELIMO) spearheaded an emancipation movement that eventually helped FRELIMO become the current leading political party in Mozambique. FRELIMO only came to power, however, after a 10-year war of independence, which culminated with the end of Portuguese rule in June 1975; followed by a 15-year civil war characterized by a power struggle between FRELIMO and political opposition party, RENAMO.²

Although civil society, youth in particular, have made strides in asserting their voices in calls for basic services, security and beyond, serious challenges to organizing and advocacy still remain. The challenges are in large part due to Mozambique's history of economic uncertainty (i.e. move from a socialist economy to a capital market based system) and recent emergence from civil war. The threat of insecurity continues as RENAMO recently cancelled the peace pact signed with FRELIMO that brought the country's civil war to an end in 1992.³

1 Visioning document available at: http://www.promontorio.net/userfiles/projects_more/pdf/maputo-sul_city_plan.pdf

2 Rupiya, Martin. *The Mozambican peace process in perspective*. 1998.

3 <http://www.nytimes.com/2013/10/22/world/africa/mozambique-1992-peace-pact-collapses.html?ref=africa&r=0>

Field Research: Preparation & Knowledge Accumulation

Prior to arriving in KaTembe, our research team planned to map available water resources in the community and perform a needs and assets assessment focused on water and sanitation issues at the neighborhood level. Based on the data we would collect (from surveys and interviews with stakeholders), our research team was tasked to develop an advocacy strategy.

Recognizing the time required to both train for household survey and mapping work in a new environment for both MIT and UEM students, upon our arrival we focused on acclimating ourselves to living and working in KaTembe, and preparing for community-based survey and mapping work in the water and sanitation sector. This included a few work-streams: on-going Portuguese and some Ronga group study sessions, training seminars, and meetings both in KaTembe and in the center city of Maputo.

Portuguese and Ronga study included both student research teams from MIT and from UEM (as neither group was conversant in Ronga, which is widely spoken in KaTembe). The teams independently and jointly practiced pronunciation and found culturally sensitive ways to phrase survey questions. In addition, the MIT and UEM research teams had practice survey and group-forming meetings with KaTembe fieldwork partners.

Training seminars and meetings were organized with water and sanitation and community development specialists based in Maputo. All of the specialists have extensive experience working in marginalized communities within the city - but none of whom worked in KaTembe proper - where water and sanitation advocacy work is severely lacking. Scheduling, participating, and debriefing interviews with local leaders and agencies was crucial to developing our advocacy planning strategy. Fundamentally, advocacy planning is about connecting resources to marginal groups so they can take steps to address problems they have identified. Developing an understanding of the structure and priorities of the Secretaria de bairro, Doña Mia, and the Water and Sanitation Infrastructure Engineer of KaTembe, Manuel Nhone, as well as Aguas de Região de Maputo, the local water provider, and Maputo Sul, the development company charged with redeveloping KaTembe and building a bridge connecting the district to the rest of Maputo, provided the space for us to be creative about how to make connections and mobilize the data we collected. A central part of these interviews was learning how information flows, such that we could then use this information in strategizing how to mobilize our data.

Stakeholder Seminars and Meetings

1. Water & Sanitation Development Specialist: Valentina Zuin – Wednesday, August 7, 2013

A workshop was organized to familiarize students with water and sanitation challenges in Maputo at the Faculty of Architecture and Physical Planning of UEM. To kick start the workshop, the MIT and UEM Student research teams met with Valentina to discuss her extensive experience conducting water and sanitation related surveys in Maputo. Valentina provided the teams with practical advice on appropriate surveying techniques in the Maputo context. Important takeaways from this meeting

were as follows:

- Learning how to greet people in the local language is a great way to make survey participants feel at ease (as well as to make them laugh).
- Bringing a capulana (a cut of fabric that is traditionally used by women in Mozambique as a wrap skirt or blanket) to sit on can make survey participants feel at ease as they are not likely to have a chair for interviewers and may hesitate to invite you into their homes as a result.
- Sometimes you need to lose data in order to form relationships with survey participants and the community.
- Doing your homework is important—when doing a water and sanitation survey you need to know the different types of water sources, the cost of water, and the different types of jerry cans. This will inform your survey design and interactions with survey participants.
- Who you talk to matters—normally the lady of the household is responsible for procuring water for the home so she will likely be the best informed to participate in a water and sanitation survey.
- Informed consent is important. Surveyors need to tell potential participants what they are doing, how many people they are interviewing in the neighborhood, how interviewees are being selected, how long the interview will take, how the data collected will be used, etc.

2. Water and Sanitation Infrastructure Engineer, Maputo Administrative District Office of KaTembe: Manuel Nhone – Friday, August 9, 2013

Manuel met with the MIT Student Research team and discussed Guachene's water and sanitation system, Guachene's master plans by neighborhood, and current regional master plan. Manuel's major comments on these topics were as follows:

- As the first urban settlement in KaTembe, Guachene's water pump system is independent of the main KaTembe system.
- Most residents use traditional (unimproved) latrines.
- High income residents use septic tanks.
- The current master plan was created in partnership with the World Bank and includes area plans for each bairro, but does not include plans for infrastructure.
- Ministry of Public Works and Housing created a public company, called Maputo Sul, to develop and manage the implementation of the latest regional master plan.

The regional master plan was the primary point of conversation during our meeting. Manuel shared the key aspects of the plan, which are already under development. To illustrate his points, Manuel shared a video with the team prepared by Maputo Sul about the redevelopment plan for KaTembe. The key aspect of the plan is a toll bridge that connects Maputo city center and KaTembe (and its surrounding regions). Bridge-related construction was scheduled to start in 2013, and take 3 years to complete. The project is being financed by the Chinese Import-Export Bank, and is supposed to foster tourism, provide electricity, water, gas and telecommunication (i.e. fiber optic lines) services to KaTembe. Beyond the bridge there are other physical development plans that will be phased in over time (per commercial, residential, transport, and public services). The bridge is positioned, in the video, as the key piece of development that will spur economic growth in the region and attract greater foreign direct investment.

The project also calls for two phases of resettlement for about 500 families (in three different communities/bairros) that are currently situated in the redevelopment zone.

3. Senior Transportation Advisor, Maputo Sul: Larry Herman – Tuesday, August 13, 2013

Mr. Herman met with the MIT Student Research team and discussed urban planning in a Mozambican context, Maputo Sul's plans for development and his views about the structure of Maputo Sul. Mr. Herman's major comments on these topics were as follows:

- With respect to the urban planning practice from a Mozambican viewpoint, Herman indicated that in Mozambique the profession is seen as largely a function of architects and planners whereas in the U.S. the profession is viewed as a social science discipline. Herman elaborated on this idea by contextualizing planning in the context of Mozambique's history.
- Mr. Herman reported that development conversations to connect the north and south of the Maputo region (via a bridge) began in the 1960s. The conversations turned into actual feasibility analysis in 2000. The initial feasibility studies indicated that the plans for the bridge, in particular was not economically viable and showed limited economic benefits. The latest development plans for the bridge, other vehicular paths, and commercial, residential and public space development are being fueled by foreign direct investment from the Chinese Export/Import bank, a restructured parastatal in Maputo Sul and growing demand for public infrastructure and an overall increased focus on economic growth. While the bridge is slated to begin in 2013, the full plan will take some 40 years to develop.
- As a parastatal of the Government, Maputo Sul reports to a Ministerial arm of the Government. Therefore, there is a limited level of autonomy and flexibility. Mr. Herman also suggested that Maputo Sul might be more effective in the long-term if the entity had been established as a Regional Authority.

4. Water and Sanitation for the Urban Poor (WSUP): Susie Kinghan (Technical Advisor for Water Supply) and Dinis Namburete (Community Outreach Specialist) – Wednesday, August 7, 2013

This NGO works in Maputo, engaging with the city government and urban residents in poor neighborhoods to improve water and sanitation services at the community level.

- Understanding the role such an organization plays in Mozambique helped us to imagine the variety of roles that 'outside' planners or foreign-born development professionals can play in advocacy efforts.

5. Aguas de Regiao de Maputo (AdeM)¹ Technical Managers in the Studies, Projects, and Research as well as Patrimony and Cadastral teams: Gonçalves Elias, Armindo João, and Arvone Tivane – Thursday, August 15, 2013

AdeM met with the MIT Student Research Team to discuss water projects in Maputo and KaTembe. In this discussion, AdeM focused on the supply and demand side challenges, water prices in KaTembe and the relationship between AdeM and FIPAG, an asset holding water fund that operates in Maputo.

¹ AdeM also took an interest in the MATI team's work as the company had made important strides towards increasing access to water over the last couple of years (2010-2012). More specifically, AdeM ran connection campaigns, reducing up front connection fees in order to influence more homes to add a private connection to water infrastructure. The poorest households (based on physical characteristics of the home) were entitled to an additional reduction in connection fees.

- The primary point of conversation focused on the team's effort to understand water supply and demand dynamics in KaTembe. One of the principal learnings was that the water prices in KaTembe are so low, per affordability levels set by the CRA (the independent regulatory agency), that full cost recovery is not currently being achieved.

6. AVSI – Felisbela Materrula and Martins Navingo: Wednesday, August 7, 2013

AVSI is an Italian NGO which engages residents in Maputo, particularly Chamanculo C bairro, in a “participatory upgrading” process.

- According to AVSI, “The attention we are paying to this community can invite more disclosure about issues that are as important to residents as water/sanitation. However, our presence and the attention we bring also have the potential to galvanize and mobilize civil society groups who can use our efforts/projects to their ends. Our role in the social infrastructure is therefore really important.” Understanding how they as outsiders can provide an important connection between groups and support local communities helped us to see our position in KaTembe.

Flexibility, Adaptability and Ad-hoc Planning

Our initial plans to work on a map and needs/assets assessment of water and sanitation, as well as to develop an affordability measure based on neighborhood characteristics, shifted shortly after we arrived in KaTembe. After meetings at the local KaTembe District office with Engineer Manuel Nhone, we learned more details about planned developments for the urbanization of major parts of KaTembe and the scheduled resettlement of some communities, as well as their farmlands. Guachene was one of these affected areas, as the neighborhood is directly adjacent to the planned bridge connecting KaTembe to the central district of Maputo (See red outlined street in Map 2 below for trajectory of bridge and road into KaTembe).

Upon meeting with Guachene Secretary Doña Mia, we asked what type of work we could do that would be valuable for the community. Doña Mia informed us that the population of Guachene had grown significantly over the last several years. She indicated that the population reported in the 2007 census data (3759) is actually much lower than the present population. Legally in Maputo, every 50 households are considered a “quarter”, which is administered by a quarter Chief. Quarter Chiefs are generally elders whose primary responsibilities include sharing with the quarter’s residents any information that is communicated in public meetings at the District level and holding bairro-level meetings.

With recent population growth, Doña Mia suspected that many of Guachene’s eight original quarters were now home to far more than 50 families. In fact, this was the impetus behind a decision to divide Quarter 3 into two separate quarters—3A and 3B—bringing the total number of quarters in Guachene up to nine. However, the last official population survey of Guachene had occurred in 2007 so there was no way to confirm Doña Mia’s suspicions surrounding population growth. Having an accurate population count is crucial to being able to provide adequate public services, including water and sanitation services. As a result, Doña Mia asked us to perform the following tasks:

- Create a map of existing quarters;
- Conduct a population survey of Guachene; and
- Envision what new quarters might look like based on our population survey.



Map 2: Planned Redevelopment of KaTembe Bairros

Note: Guachene is located within the area to the right of the road outlined in red.

Source: Video prepared by Maputo Sul.

Doña Mia also informed us that water accessibility had improved in KaTembe as a result of a recent low-cost water connection campaign by AdeM, which led to the installation of household standpipe connections in many parts of Guachene. Nonetheless, Doña Mia told us that many of these new connections suffered from water shortages due to lacking pressure, and that two quarters in Guachene were still significantly lacking in water access/connectivity, despite AdeM's connection campaign. In light of this information, our team believed it important to continue with our original plan to conduct a household survey on water and sanitation. We therefore integrated the requested population survey within our original surveying plans. We also decided to revise our original intention to map all public resources in the neighborhood, and instead concentrate our mapping work on creating a Quarters map of Guachene, which did not previously exist.

We included at the end of our survey, questions about the "Futuro de Bairro." This section was meant to capture a sense for whether residents knew about the upcoming changes in their neighborhood, their reaction to such planned change, as well as to document where people typically got civic information from and if they were engaged in political meetings. We balanced the urgency we felt upon learning about this impending change with the patience required to follow through on community needs, which may or may not shift with the major changes planned.

The following sections of the field report will describe the strategies our research team used to fulfill the aforementioned deliverables.



Photo 1: MIT, UEM & Youth Field Partners canvassing to identify quarter boundaries

Mapping Extant Quarters

While Doña Mia and other Guachene residents acknowledged that their neighborhood was divided into nine quarters, no map of the quarters existed. Making such a map was the first step towards proposing a new division of quarters based on population growth.

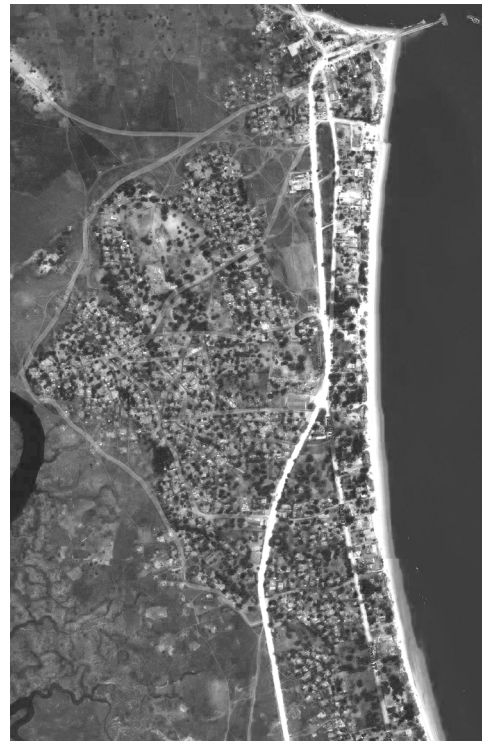
We took the following steps to map Guachene's extant quarters:

1. Partner with local youth to walk through Guachene and identify quarter boundaries.

Doña Mia introduced the research team to four young men from the community. Our expanded research team divided into four subgroups, each consisting of two MIT students, one UEM student, and one KaTembe youth. With the help of an aerial map, we assigned subgroups to distinct areas within Guachene.

2. Hand-record indicated quarter boundaries during walk through of neighborhood. (See Photo 1 above)

The KaTembe youth partners led the MIT and UEM subgroups along the boundaries of each quarter, with each subgroup covering 1-2 quarters. Along the way, the research team used landmarks and photos to record quarter boundaries by hand on aerial maps.



Map 3: Aerial of KaTembe



Map 4: Quarter boundary mapping exercise

3. Combine each subgroup’s mapped quarter boundaries onto a large aerial map of Guachene.

4. Verify the quarter boundaries.

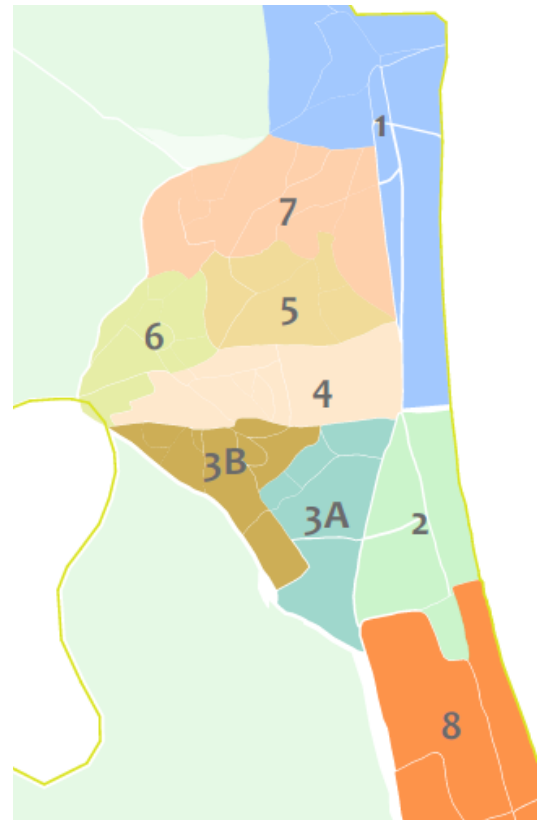
Once the larger aerial map of quarters had been drawn, our local youth partners and the MIT and UEM students came together to discuss the gathered information. This led to a lengthy debate, in which the local youth were especially active. In the end, the research team was able to reach a consensus regarding where the quarter boundaries lay.

5. Convert hand-drawn quarter map into a digital map.

The hand-drawn map of the quarters was then converted to digital format. (See Map 5 below)



Photo 2: MIT, UEM & Youth Field Partners discussing quarter boundaries



Map 5: Quarter boundaries in digital format

Surveying the Population

The research team set out to KaTembe to conduct field surveys on drinking water and sanitation. Prior to arriving in KaTembe, the research team received and studied a water and sanitation survey, as well as an informed consent script, both prepared by Professor Carolini (both instruments were written in Portuguese and were to be administered in Portuguese for live translation, when required, into Ronga by KaTembe partners working with the research teams). The survey was based on Prof. Carolini’s previous work in the region. Similar to the mapping operational strategy, each survey team included two MIT students, one UEM student and one Guachene youth partner.

Due to a host of scheduling challenges and per the aforementioned meeting with Doña Mia where she laid out her areas of need, the scope of the field survey work was modified from the practicum’s original survey plan. Two surveys were ultimately conducted: one streamlined water and sanitation survey and a brief population survey. Due to scheduling limitation and required on-site preparation for survey field work, the actual survey of Guachene residents commenced toward the end of the MIT research team’s stay in KaTembe. As such, the UEM research team and KaTembe partners continued and completed the survey work begun together with the MIT research team after the latter’s return to the U.S.

The surveying process can be broken down into three main steps:

- Determining areas to survey
- Designing the survey
- Administering the survey

Each of these steps is explained in greater detail below.

Determining areas to survey

Our research team understood that it would not be possible, given our limited resources and time constraints, to survey the entire population of Guachene. Instead, we decided to use a density analysis to approximate a complete stratified random survey by identifying smaller stratified (by density cluster) portions of the population to survey, and to then extrapolate this information to make a full population estimate.

We followed the process described below to analyze Guachene’s density and determine which sections of the map should be included in the population survey in order that a population estimate could be established:

1. Create a figure ground map.

Our first task was to place trace paper on top of an aerial map of Guachene. We used black marker to trace the



Map 6: Figure Ground Map

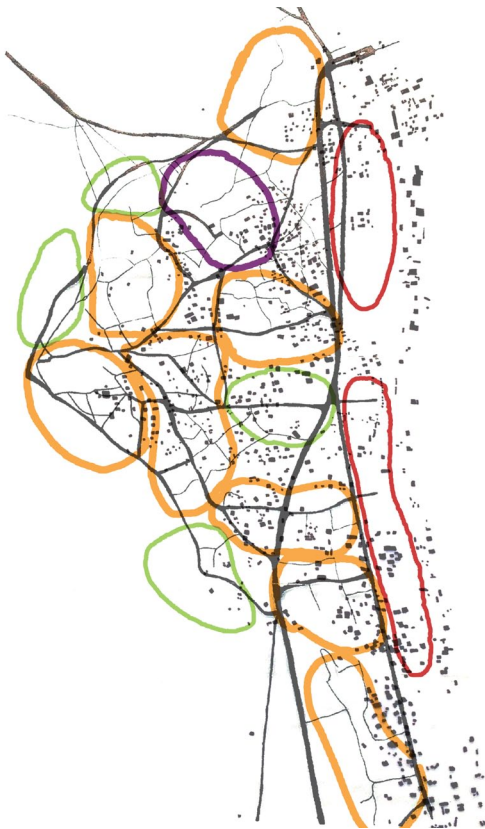
outlines of roads and to fill in the outlines of homes on the trace paper. This technique, which is known as “figure ground mapping,” allowed us to more clearly observe areas of high and low density on the map, and thereby target cluster types for household survey work.

2. Generate a rough draft of density typologies.

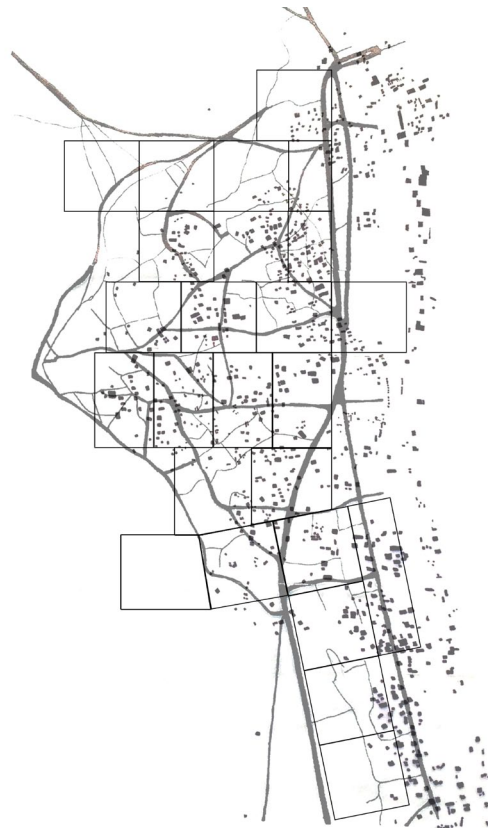
Using the ground map from Step (1), we used colored markers to circle areas with similar density typologies. For example, all high density areas were circled in red, medium density in orange, etc.

3. Formalize density types with a grid.

The shapes generated in Step (2) were amorphous, non-standard sizes and therefore insufficient in helping us decide what sections of the map to include in the population survey. To address this issue, we drew a grid on trace paper, overlaying the trace paper grids on the map of Guachene to see if we could determine areas of similar size with varying density types that we could focus on for the population survey. In the end, the grid we used was composed of squares that were of slightly varying dimensions, but were all approximately 200x200 centimeters squared.



Map 7: Figure Ground Map with Density Typologies



Map 8: Figure Ground Map with Grid Overlay

4. Select survey areas.

We used the grid map from Step (3) to select five grid areas that were similar in geographic area but represented the following density types:

- High density
- Medium density (2 grid areas)
- Low density
- Coastal (This area was also high density, but due to the socioeconomic differences that define the coast, which is generally higher income, we thought the population per household on the coast would differ from the population per household in low income low density areas. In light of this, we felt it appropriate to include “coastal” as its own density typology)

After surveying the grid areas identified in Step (4) (the door-to-door surveying process is discussed in greater detail in the following section of the report), we hoped to extrapolate the population found in one square of one density type and apply it to squares of similar density types. For example, instead of visiting all the homes on Guachene’s coast for the population survey, we only visited the homes inside of the coastal grid area defined in Step (3). Later, these population figures would be applied to all other coastal grid areas, which are assumed to have a similar density and therefore population per household.

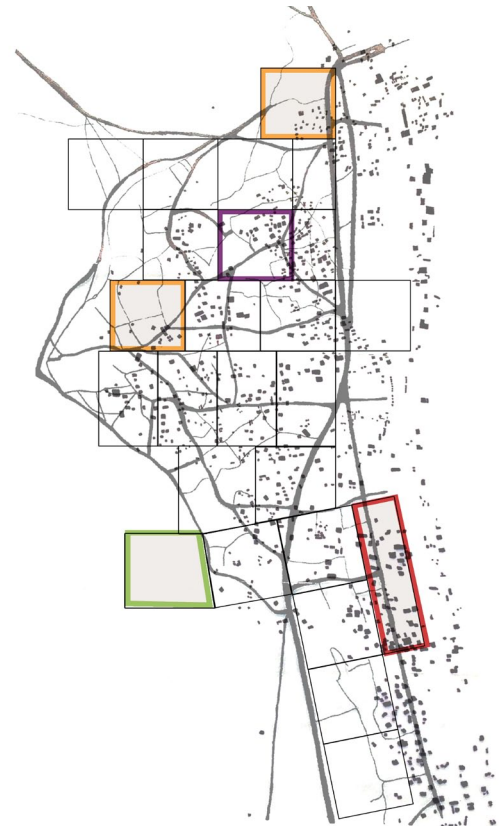
Survey Design

In light of the modifications to the scope of work and the limitations in our time and resources, the research team revised the water and sanitation survey so that it would both reflect the new needs of the community and be carried out in a timely manner while in the field (one hour or less).

The updated version of the survey included five sections: demographics, water access and quality, sanitation, solid waste, and future aspirations and civic engagement (See Appendix-Item 2).

The UEM research team and the KaTembe youth partners provided feedback on the updated survey.

The research team also created a short, 10-minuted population survey (See Appendix-Item 3).



Map 9: Figure Ground Map with Grid Overlay with Density Specifications

Administering the survey

The research teams decided that each field survey group would attempt to conduct a population survey with every house within the identified survey area. For the water and sanitation survey, a random, stratified (by density) survey approach was taken. A water and sanitation survey was conducted at every 3rd house in medium to high density areas and every 2nd house in low density areas. Before commencing each survey, each participant provided consent (see Appendix-Item 1). Given that the 2007 population figure of Guachene indicated a count of 3759, and that the average household in Maputo was 5-6 people, we estimated that there were between 626 to 752 households in Guachene. We thus targeted completing water and sanitation surveys with at least 10% of that household number range.

The survey was performed within the identified areas with field teams on August 23-24, 2013. The MIT, UEM, and KaTembe partner teams were unable to cover the entire area designated for survey in these two days. As such, the teams derived a continuation strategy targeting the remaining household clusters for the UEM student research team and KaTembe partners to continue surveying during the week of September 15-21, 2013, after the MIT team returned to the US.

Complete data collected from the population and household surveys was transferred to a digital database and checked for errors during the UEM team trip to Cambridge in October 2014. In total, population surveys were conducted with 261 households and water and sanitation surveys were conducted with 82 households in Guachene.

Presenting Our Findings: KaTembe and Cambridge

In Mozambique, after transferring the early survey data into a digital database, the research teams worked together to analyze the initial data and pull out important emerging trends to discuss at a presentation of the team's work in KaTembe.

These early observations were organized into a PowerPoint presentation, which the research teams shared with Doña Mia on August 28th, 2013. In addition to presenting these findings from the survey, the research teams also showed Doña Mia the map of the extant quarters which was developed prior to beginning the surveying process.

In October 2013, when the UEM research team traveled to Cambridge, MA, the UEM and MIT research teams compiled the completed population (short) and water and sanitation (long) surveys. The joint research team also shared the presentation that had been given to Doña Mia in August, and discussed wider issues surrounding development work in KaTembe with the MIT student body as part of an event sponsored by Urban Africa, a student group devoted to exploring urban issues on the continent.

Water and Sanitation in KaTembe

Of the 82 Guachene households surveyed, 66% lived in homes constructed at least in part with cement blocks (with 63% entirely of cement blocks) and 18% were homes constructed with reeds or adobe. Most residents owned the homes in which they were living, as only 10% of surveyed households reported that they were renters. Survey respondents mostly had limited formal education and only a third reported holding fixed employment, as indicated in the table below.

Table 1: Employment Status of Respondents

Status	Frequency	Percentage
TEF	26	32%
E	8	10%
VDB	18	22%
ST	21	26%
TEF + E	2	2%
No reply	7	9%
Total	82	100%

Note: TEF = Tem emprego fixo, E=Estuda, VDB=Vive de biscates, ST=Sem Trabalho

Table 2: Educational Attainment of Respondents

Response	Frequency	Percentage
SE	8	10%
PRNC	31	38%
PRC	5	6%
SCN	19	23%
SC	6	7%
ET	3	4%
ES	3	4%
No reply	7	8%
Total	82	100%

Note: SE = Sem educação, PRNC = Primario não completo, PRC = Primario completo, SCNC = secundario não completo, SC = secundario completo, ET = Ensino Tecnico, ES = Ensino Superior

Given the changing dynamic of demographics and developments planned for KaTembe, our team was also interested in understanding how residents perceived the relative costs of a basic basket of goods, including water. When asked about which items in the goods/services basket were most expensive, respondents most often listed water and food as their top costs (see Table 3 on the next page).

Indeed, through our survey we discovered that participating households were spending in KaTembe twice the going rate of a jerry can of water (2-3 Mozambican meticaís, or MZN, for a 20 or 25 liter jerry can) that is typically charged in other central (though still poor) and peri-urban neighborhoods of Maputo (where the going price is 1 MZN per jerry can).

Table 3: Most Costly Basic Goods or Services Reported

<i>Response</i>	<i>Frequency</i>	<i>Percentage</i>
Agua	28	32%
Alimentos	26	30%
Energia	12	14%
Transporte	6	7%
Alguel/Casa	3	3%
Saude	3	3%
Educação	2	2%
Roupas	1	1%
No reply	7	8%
Total	88*	100%

Note: Alguel/Casa = Rent/Home Maintenance, Alimentos = Food, Agua = Water, Transporte = Transportation services, Services de saude = Health services, Educação = Education fees, Energia = Electricity, Roupas = Clothing, 9 = Outros

** The total here is reported as 88, as when respondents listed more than one good or service as of equal and high expense, those goods or services were both counted as most costly.*

This finding on price differentials between KaTembe and the rest of Maputo is important in considering the cost of life in this district and particularly for considering strategies for the extension of more require much greater attention and improvement. The majority of respondent households reported that they used pit latrines (74% of the 82 households surveyed). Of those households with pit latrines, only 24% or 20 households had what are generally acknowledged as improved (or “melhorada”) latrines – importantly those with covers and built with cement blocks (as opposed to reeds or dirt). Most striking was the frequency of households reporting that open defecation happened in their neighborhood. 71% of the 82 households reported noticing open defecation in Guachene, with 28% relating that this was a frequent occurrence and another 34% noting that open defecation happened “sometimes”, but more than just rarely. However, roughly one-third (35%) of the residents interviewed reported that their sanitation system had improved over the past three years, a figure also fairly consistent with the figure reporting improvements in water services (39%).

In addition to water and sanitation systems in Guachene, residents were also surveyed about their perceptions of trash in the neighborhood and removal services. Participants largely reported that there was no trash removal service for their household (72%), and a sizable figure (40%) also noted that the quantity of trash in the neighborhood had grown in relation to the past three years. Some residents attributed this growth to Guachene’s proximity to the port-of-call entryway to KaTembe (or vice versa, to get to Maputo city center), while others noted the correlation with population growth in the area.

Counting the Population

One of the deliverables Doña Mia requested from our research team was an updated population count. An estimated population count was derived based on the fieldwork conducted in KaTembe after all of the survey data had been entered into the MATI database.

After totaling up the population count from the determined survey areas in Map 9, we reassessed the density type of the respective grid areas and decided not to include the population count from the rural grid area (highlighted in green in Map 9) as this fell partly outside of the Guachene boundaries. Map 10 to the right shows the reassessed density types by grid area where red is coastal, purple is high density, orange is medium density, and green is low density.

We conducted the short population survey of 261 Guachene households as follows: 121 households in the high density grid area, 56 households in the medium density grid area, 47 households in the low density grid area, and 37 households on the coast. Total population count in these areas equaled 856.



Map 10: Density Typology of Surveyed Areas

Table 4: Grid Areas Surveyed for Demographic Data

Density Typology	Households Surveyed	Population
High	121	410
Medium	56	225
Low	47	99
Coastal	37	122
Total	261	856

We proceeded to classify all the remaining grid areas by density type (high, medium, low, coastal). In total we had 2 high density grid areas, 11 medium density, 8 low density, and 2 coastal density (see Map 11 below). We multiplied all of the high density grid areas by the population count for the high density grid area surveyed (410) and proceeded to perform the same operation for all the remaining grid areas.

Using this technique, we estimate Guachene’s population to be approximately 4,331. This marks a 15% increase over the official population census of Guachene in 2007 (population 3,759), also confirming Doña Mia’s insight on untracked population growth in the area.

To calculate the margin of error, we counted the number of homes in the survey area where either no one was home or where residents did not wish to participate in the survey. In total, there were 80 homes that fell into this category. The average number of people per household in the 261 surveyed homes was

4.5. With 80 homes left out of the population survey and an average of 4.5 individuals per household, we estimate that 360 individuals live in the households left out of the survey. Guachene’s population may be closer to 4691 individuals. This represents a margin of error of approximately +/-8%.

Reflective Planning

Throughout the practicum, the MIT and UEM student research teams were challenged in using reflective practice to consider our positionality and place in promoting advocacy planning in a foreign place. While the UEM students were Mozambican nationals, none of them were from KaTembe and in this sense they were as much outsiders as the MIT students.

The practicum included structured reflective practice with bi-daily individual journaling, weekly group reflections and journal sharing times, and pair reflection on our strengths and areas for improvement with group work. Reflexive conversations within the group continually also occurred in informal spaces as we lived and worked together. The reflections, as well as the additional information we received in our discussions and meetings in Maputo and KaTembe, encouraged us to find the balance between urgency and patience as planners, think about ways to effectively work in a foreign environment, and develop our own individual approaches to planning.



Map 11: Figure Ground Map with Grid Overlay with Density Specifications

Developing an Advocacy Strategy

Youth Organizing and Data Mobilization

As mentioned earlier, the political climate in Mozambique makes civil society organizing and advocacy particularly challenging. For example, the planned work partnership with AJUK in KaTembe disintegrated with the group's own disintegration. Losing their partnership while in Mozambique, however, ultimately forced us to be creative and thoughtful about the question of who can and should "mobilize" or "activate" data. As MIT students, we began looking to our UEM partners and our new youth partners from KaTembe to try to get a sense for how they might use the data to advocate for better water and sanitation services in KaTembe.

To undertake the task of determining how we, as students at MIT, could influence the student and youth organizing and advocacy culture in Maputo, is ultimately an ongoing question requiring deeper discussions of oppression and organization, and how education might help better the balance. Is it possible for us to provide educational experiences that foster the revolutionary act of questioning the status quo and think critically about roles in society? Is such an experience possible in the context of uneven power relations, and given our own struggles with the same questions? The answer has to be yes, or else we would never do anything. It is just important to acknowledge and attempt to address these challenges as we build the advocacy strategy.

In further developing an advocacy strategy, two major substantive discussions emerged:

1. For the university students (MIT & UEM students): How do we develop a culture of reflective practice; learn to question power, privilege and the status quo; and use our power, privilege, and skills to amplify the voices and actions of marginalized people advocating for themselves? How do we begin to engage with a community where there is not a strong modern-day culture of community-based advocacy? Also, how do we mobilize university resources to address local needs?
2. For the Mozambican youth and research partners (UEM students & KaTembe youth): How do we develop a culture of questioning, organizing, and advocacy, particularly among youth, in Maputo and specifically KaTembe, in order to mobilize data effectively?

In October of 2013, the UEM research team traveled to MIT to participate in a series of meetings, discussions, and presentations about our project, so that we might together further explore strategies to address the aforementioned questions and mobilize the fieldwork data collected.

One of the more poignant points to emerge in our discussions was that the UEM students were just as surprised by the level of poverty they saw during the fieldwork in KaTembe, and were adamant that our project be used to make some change. As the MIT students learned, this buy-in from our partners is key to advocacy planning. The MIT team does not live in Mozambique and would not, beyond compiling this report and Professor Carolini's commitment to KaTembe, be able to contribute to long-term advocacy efforts around water and sanitation in KaTembe. Mozambican students, along with students from KaTembe, however, might be better able to. As such, the role of the UEM research team was deemed central to

efforts at facilitating advocacy strategies and planning for improved water and sanitation services.

In addition to reflective practice discussions, meetings, and presentations during UEM’s visit to MIT, the MIT and UEM research teams participated in an organized tour of Roxbury - a majority black and Latino neighborhood of Boston that is marked by passionate resistance by residents - particular young people - to environmental harms, a lack of capital, and disinvestment. The visit with a Roxbury-based youth environmental advocacy organization – REEP – (see REEP photo collage below) and its leaders sparked a conversation about similarities and differences in advocacy work in the US and in Mozambique. In particular, the group discussed resource flows in Mozambique for community organizing and economic development and the UEM research team immediately saw the value in self-organizing.

Further to the field visit with REEP in Roxbury, our research group had two conversations with different types of organizers at MIT, which led to discussions about student organizing at UEM and thinking about promoting advocacy planning at the university. Two MIT student leaders of the student organization, Urban Africa, joined us in a reflection workshop at MIT to focus on lessons learned from experiences with organizing within a university setting. In addition, our team met with planners and organizers from two different settings where advocacy work is important. Karilyn Crockett, a community organizer who runs a youth storytelling and employment organization in Boston’s South End neighborhood, provided inspiration for and ideas regarding engaging youth in advocacy when such a culture does not strongly exist. Fátima Cristina Câmara, a MIT SPURS (mid-career urban planning program) Fellow from Angola, also spoke with the team about the challenges and opportunities of organizing within marginalized urban communities in politically challenging environments within African cities.



REEP Photo Collage - Select Photos from MIT-UEM visit

University Student Organizing

Promoting organizing within a university provides important practice for youth organizing in a country. A university can provide a comparatively safe place with the possibility of resources that can be harder to find outside of a university, such as an established captive audience already united as part of an institution.

UEM has one student association called IEU, a university students' association. This association has a political linkage with the Mozambican ruling party, FRELIMO. IEU currently works with organizing activities/events such as sports championships between faculties. The students from UEM suggested this organization could be used to organize events and convene students to address issues they all face. Topics the UEM students felt interested to organize around included recycling, student-faculty interaction, rising food prices on campus, and broader community problems, such as those we identified during fieldwork in KaTembe.

The UEM research team also thought that holding events at UEM to discuss the data collected and inviting their peers to learn about the water and sanitation data would be important. Other students at UEM can support the students currently at UEM in preparing to present our final report to Doña Mia, as well as become involved with this project in the future. Other stakeholder groups could also be invited to such meetings. Furthermore, the UEM Faculty of Architecture has ongoing/frequent projects in KaTembe. The data collected in this project can be used to further inform and build upon the university's ongoing work.

KaTembe Youth and UEM Student Partnership

UEM students may be able to play an important role in exposing and engaging KaTembe youth to issues and concerns revealed /affirmed by the data this project collected. Some of the best connections that were made in the field were between the local Guachene youth and the UEM students. These relationships have a mentor-mentee quality and could be harnessed to further mobilize data because youth have traditionally been at the forefront of change in communities all over the world.

UEM students can also identify other youth and youth organizations, such as those possibly at the high school local to KaTembe, to further engage in advocacy work. For example, the Guachene youth currently have a youth group, Encontro de Escuteiros, which similar to "boy scouts" or "girl scouts" in the US, that helps communities in Mozambique. While the UEM students noted that many of these organizations are not necessarily active and effective in making change, they were excited about the potential to engage the active youth involved who are genuinely interested in community improvement. Working with the Guachene/KaTembe Encontro de Escuteiros may or may not be effective as they do not have much power and their general level of interest in engaging in community improvement is unknown; however, the UEM students remained confident that they could develop a strategy upon determining how engaged such youth are. Overall, a partnership with UEM can serve to strengthen the capacity of civil society groups in KaTembe and elsewhere in Mozambique to organize around issues of community improvement.

Connecting Community to Agencies

Data collected can be used to inform and mobilize a variety of actors. The UEM students thought that the general strategy should be to start in the community, and then for the community leaders to themselves go

to other institutions or higher levels of government. The MATI practicum work is poised to help form the connection between Guachene and other institutions and associations by providing data that could help spur conversations around how to improve water and sanitation services in KaTembe.

The UEM students suggested holding further future community meetings in KaTembe and initiating a conversation about how Guachene can use the data collected. Because the residents of KaTembe include a vast socio-economic range, those in a higher socio-economic position may have resources valuable for mobilization. For example, a resident's association was formed by residents along Guachene's beachfront, a higher-income bracket of households in KaTembe. The key here is working with people who have the power and the urgency to convene residents - for example Doña Mia and the Chiefs of different quarters within bairros like Guachene. We believe youth can also potentially play a role in convening adult residents so this strategy is connected to the prior two as well.

Furthermore, sharing our data with AdeM and NGOs such as WSUP is a key step in advocacy, as these organizations have existing political connections and experience, which can be leveraged to provide valuable assistance in encouraging the government, especially at more of the district or city level, to address water and sanitation in KaTembe.

Promoting Alternatives: Channeling Expertise in Advocating for Alternatives

Models of Evaluation

Water, sanitation and hygiene (WASH) systems are essential for human health, dignity, empowerment and prosperity. In the developing country context in particular, they underpin advances in health, gender, education, the economy and environmental sustainability. The public responsibilities for WASH systems are highly place-based, and as such, fall under the jurisdiction of the most local levels of government. The accessibility, adequacy, and affordability of WASH systems are therefore interwoven with the exercise of citizenship. This framing emphasizes the social and political dimensions of basic service provision: it not only implies the right of all citizens to WASH infrastructure, but also the corresponding duty of governing systems to provide for this right. However, the dignity of accessible, adequate and affordable WASH services is still denied to a large share of the human population due to social, economic and political inequalities.

This underinvestment in water and sanitation systems is in part rooted in inadequate evaluation systems that do not fully capture the value of investments in these areas. Cost-benefit analysis remains the dominant form of economic evaluation in resource allocation decisions, including water and sanitation services. Cost estimates for extending access to water supply and sanitation, however, tend to be aggregated at the national or international level. In a 2004 report, the World Health Organization groups costs-per-capita by three major world regions: Africa, Asia, Central and Latin America. This is problematic, as it masks significant national disparities, but also importantly sub-national disparities (e.g. between and within rural, peri-urban and urban areas) (Carolini 2012). While the estimates themselves may not be relevant to the Maputo context, the incremental approach to cost analysis is useful for structuring strategic interventions in improving WASH services. It separates initial investment costs (i.e., planning and supervision, hardware, construction, and education) from recurrent costs (i.e., operational costs for maintenance and replacement of hardware, protection and monitoring, regulation and control, water treatment and distribution, and

ongoing education) (Hutton and Haller 2004). The estimates for the Africa region are reported in Table 5 below.

Table 5: Initial Investment and Recurrent Costs per capita for Africa (in 2000 US\$)

	<i>Improvement</i>	<i>Initial investment</i>	<i>Recurrent costs</i>
Water supply	Household connection	102	12.75
	Standpost	31	2.40
	Borehole	23	1.70
	Dug well	21	1.55
Sanitation facilities	Sewer connection	120	10.03
	Small bore sewer	52	--
	Septic tank	115	9.75
	Pour-flush toilet	91	--

Despite the utility of the incremental approach, the estimates do not identify costs to whom. It is unclear what share of the investment and recurring costs of WASH improvements will be borne by households and local governments. The distinction is critical, as the low-income households which are in greatest need of the improvements may be the least able to pay.

In addition to the above caveats, it is important to note that the data is outdated. In 2010, the Government of Mozambique established a standard household connection fee of 2000 meticaais, or about US\$67, with the goal of improving access to affordable and reliable water supply services and increasing the number of households with a private connection. According to a 2012 study of six peri-urban areas in the Greater Maputo Metropolitan Area, there is a wide range in the actual costs of connection (Zuin et al. 2013). Customers of the main regional water provider, Aguas da Regiao de Maputo (AdeM) on average paid 1973 meticaais, where as those served by small-scale providers paid twice as much, or 3852 meticaais.

Building a “Benefits Framework”

In light of these shortcomings in current practice, examining and proposing an alternative approach to evaluating the costs and benefits of extending and improving water and sanitation networks can be important avenue for planners (and students thereof) to promote improvements. A starting point in the discussion of alternative evaluations that follows is the understanding that resources spent on improving WASH services in low-income areas are not sunk costs, but investments that yield long-term economic and social returns. In the urbanizing areas, this means increased social equity and productivity as a result of an educated workforce living in healthier surroundings and with access to basic services (Garau et al. 2005). Reducing the issue of water and sanitation service provision to its economic dimensions, conversely, may result in shortsighted decision-making with inequitable distribution of costs and benefits.

Using known extant data to facilitate utility and implementation of an alternative evaluation model, what follows below is a “Benefits Framework” or roadmap for how to begin measuring benefits from water and sanitation investments. Table 2 below highlights four broad (and related) impact areas emerging from water and sanitation investments. For each impact area, a few key proxy measures (again, using already gathered

and known data) of progress therein are proposed. This is followed by explanatory discussions of water-sanitation investment benefits that correlate with the synopsis presented in Table 6.

Table 6: Wat-San Investment Impact Area and Proxy Measures

	Impact			
	<i>Education</i>	<i>Productivity</i>	<i>Health</i>	<i>Environment</i>
School enrollment	X	X		
Attendance rates	X	X		
Average years of schooling	X	X		
Adult literacy rates	X	X		
Average monthly hours worked		X		
Average household income		X		
Employment rates		X		
Reduced health-related absenteeism		X	X	
Reduced pollution of local streams and water sources		X	X	X
Improved water quality		X	X	X
Averted water-related diseases		X	X	
Healthcare savings		X	X	
Hospitalization rates			X	
Leisure time				
Gender impacts	X	X	X	
Privacy and security				

[1] The Human Development Index, the United Nations, the World Health Organization, and local sources could provide data for the proxy measures.

Education

One of the major benefits of water and sanitation improvements is the time saving associated with better access. Time savings can accrue from the relocation of a well or borehole to a site closer to user communities, the installation of piped water supply to households, closer access to latrines and shorter waiting times at public latrines. These time savings can lead to improved education levels, which can be measured by data on school enrolment, attendance rates, average years of schooling, completion rates, and adult literacy rates. The right to education is critical for human dignity: it enables productivity, nurtures political participation, and provides a mobility mechanism. Moreover, education impacts may have a corresponding impact on gender issues. Given that women have the primary responsibility for water, sanitation and hygiene at the household level across most cultures, the accessibility, adequacy and affordability of WASH systems may allow more female children to attend school. The lack of these basic services affects women and girls disproportionately by impacting on their health and dignity, contributing to their vulnerability to rape and violence.

Productivity

WASH systems are central to the ability of citizens to lead healthy and economically productive lives. They enable individuals to participate in the exchange of services, goods and assets, providing a source of livelihood. The concept of economic citizenship represents not only the contributions of individuals to the local economy, but also the extent to which their economic standing influences their rights as citizens. The inability to participate in the economy is a major contributing factor in social, economic, and political inequalities across and within geographic regions. Without the burden of inaccessible, inadequate and unaffordable WASH services, individuals and households are better able to participate, and moreover, to pursue social and individual interests. Employment is another important indicator of economic participation. Outcomes commonly associated with employment include increased income, better health and improved education at the household and community levels.

Health

Infrastructure for safe water supply and sanitation is critical to human health. Mental and physical health are impacted by the accessibility, adequacy, and affordability of WASH services, which in turn affect the capacity for productivity and the quality of life. Inadequacies in these services and facilities can lead to the accumulation of uncollected, discharge of untreated sewage into water bodies, and clogged drains, among other outcomes that create an impoverished living environment. This may result in high levels of stress for individuals, impose cost burdens on households, and create prime conditions for disease vectors. The tremendous impacts of WASH systems on public health can be measured by the incidence of water-related diseases, such as cholera, typhoid, trachoma, malaria, and dengue, as well as other infectious diseases. Historical incidences of diseases would be helpful in establishing a baseline for comparison over time. Figures on healthcare savings by both health providers and individuals, averted deaths, and overall hospitalization rates could help measure the impact. The indirect benefits of improved public health on productivity and education can be weighed using the proxies outlined above.

Environment

WASH systems impact the health of the natural and built environments. The current lack of water management runs the risk of over pumping groundwater, which in turn may cause subsidence of land and salinization of aquifers. Moreover, infiltration of wastewater into aquifers increases nitrate concentrations in groundwater beyond permissible value. Discharge of sewage and accumulated trash into streams and water bodies creates blockages, contaminates groundwater, and creates significant stress on the local ecosystem. Improvements in WASH infrastructure can minimize if not avert these negative impacts and work toward creating livable environments. Changes in water quality and pollution loads would be helpful measures. There are also a number of indirect co-benefits – such as less household time spent on treating drinking water and maintaining rainwater collection systems – that lead to increased education, productivity, and quality of life.

Concluding Thoughts

We see great promise in developing youth organizing capacity through tripartite partnerships like those fostered in the MATI practicum. This is a large part of advocacy planning. Advocacy planning requires the active participation of planners on the one hand who can provide, gather, access, and importantly, analyze information in ways that local people or residents may not be able to, as well as the active participation of different local actors and stakeholders who have an embedded interest in improving their own livelihoods and communities. The partnership between these types of actors makes advocacy planning possible. UEM students are particularly interesting as an intersection between advocacy planners and youth organizers. Their positions as university students studying architecture and planning gives them an expertise that can be leveraged as they develop organizing and advocacy capabilities to convene people, mobilize data, and galvanize institutions towards change.

Below we outline a youth organizing approach to furthering the work began in this practicum. Quoting Paulo Freire, Gaventa writes in *Power and Powerlessness*: “The starting point for organizing the program or content of education or political action must be the present, existential, concrete situation, reflecting the aspirations of the people. The aspirations define certain ‘limit’ situations’ upon which action is thought possible. The ‘limit situations’ may not be, at first, the major issues of oppression but they provide initial grievances around which self-determined action may occur” (Gaventa 1980: 209). Our approach will reflect this sentiment of starting with existential, concrete situations, for example the recycling program championed by some of the UEM team members during workshop discussions.

General approach: youth organizing can be thought of as a combination of two different areas of expertise: youth development and community organizing. To develop advocacy planning through youth organizing, a combination of elements from the following two areas is desirable:

- Creating the space and/or impetus for exercising skills and competences necessary for organizing (youth development approach):
 - Encouraging the convening of people
 - Encouraging collective problem solving
 - Fostering collective action
 - Building trust and shared responsibility
- Teaching about and encouraging community organizing in general (organizing approach):
 - Encouraging addressing specific issues
 - Exposure to events on campus/in city
 - Understanding the role organizing has played in the current conditions of the world
 - Reflections about our role in society
 - Understanding the mechanics and techniques of organizing – i.e., creating a guide/how-to of some sort

Use of these tactics can help fulfill short, medium, and long-term goals of advocacy:

Long-term goals

- Connecting social mobility and economic mobility (concepts expressed by UEM and KaTembe youth as being exceedingly important to attain) to urban development and community improvement.
- For youth, social activism within and outside of organizations. Young people feeling like they have power and voice; young people knowing issues that exist. Youth being able to mobilize resources to take collective action.

Medium term goals (10 years)

- For the university students, knowing about social and political issues related to planning, and taking action regarding these issues.
- For the KaTembe youth, knowing concrete ways resources can be used to improve existing conditions.
- A strong connection and sustained relationship between university students and KaTembe youth, especially because they can mobilize resources with communication.

Short term goals (2-3 years)

- Formally established groups at UEM and in KaTembe, either around more social or formal topics. Such groups provide practice for convening, group discussing, and setting agendas. The groups would ideally focus around community development, but it is important to note that people can start with “organizing” from anywhere.
- A formalized connection between UEM and KaTembe, through for example, connected student groups or a mentoring program.

Working towards such goals will not be easy. Working towards the change that occurs with these goals is not easily quantifiable. A report cannot really capture such “deliverables” in the nascent stages of such work. We take hope from conversations held between UEM and MIT research teams as well as with KaTembe youth partners. For example, in these conversations, UEM research team members in particular noted that, “we need to try to make something” from this work, and that “we need to do something with the data, to share it with AdeM, and the community... we don’t want the information to go to waste.”

While such quotes may not seem like much to an outsider, they reflect the great level of UEM students’ engagement with the project and their initiative and commitment to this type of advocacy work. We are excited to see how the data collected from this project can be used to advocate for improved water and sanitation services in Guachene.

References

Carolini, Gabriella. 2012. "Framing water, sanitation, and hygiene needs among female-headed households in periurban Maputo, Mozambique," *American Journal of Public Health*, Feb 2012, Vol 102 (2), 256-261.

Freire, Paulo. 1970. *Pedagogy of the Oppressed*. New York: Herder and Herder.

Gaventa, John. 1980. *Power and Powerlessness: Quiescence & Rebellion in an Appalachian Valley*. Urbana: University of Illinois Press.

Schon, Donald. 1987. *Educating the Reflective Practitioner*. San Francisco: Jossey-Bass Inc.

Zuin, V., Nicholson, M., and Davis J. 2013. Water Access, Poverty, and Policy Changes in Peri-Urban Maputo, Mozambique. Water Regulatory Council of the Government of Mozambique, Water and Sanitation for the Urban Poor, and The World Bank.

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Appendix I: Informed Consent for Field Surveys

MATI

INTRODUCTION SCRIPT and CONSENT

População por Quarterão

Meu nome é XXXXXX. Meu(s) colega(s) (allow others to introduce themselves too). Somos estudantes das universidades de Maputo e dos Estados Unidos. Ficamos aqui na KaTembe com a permissão da Administração e a Secretária de Bairro Doña Mia. Estamos falando com todos as casas neste área para contar a população e criar um mapa por quarterões para a Administração do Bairro. Voce tem 5 minutos para falar conosco?

Se sim - Kanimambo/obrigada/O!

Se não – Entendo. Talvez outro dia. Obrigada/O/Kanimambo!

Inquerito sobre Agua, Saneamento, Saude e Bairro

Meu nome é XXXXXX. Meu(s) colega(s) (allow others to introduce themselves too). Somos estudantes das universidades de Maputo e dos Estados Unidos. Ficamos aqui na KaTembe com a permissão da Administração e a Secretária de Bairro Doña Mia. Estamos falando com todos as casas neste área para contar a população por quarterão. Também estamos escolhendo casas ao acaso – como a sua casa - no quarterão para um inquérito sobre a realidade da água, saneamento, e saúde. É só um estudo. Vamos levar os dados ao Bairro, a Administração, e Aguas de Região de Maputo (AdM). Mas, é importante que você sabe que nos somos só estudantes, e não temos capacidades para trazer, por exemplo, mais água aqui. Os dados do bairro que colhemos podem ser útil(s) no bairro, e esperamos que seja útil para você. Gostaríamos falar com você, se seja possível agora, sobre água e saneamento. Não vamos escrever o seu nome. É anónimo. Você teria tempo para falar agora sobre serviços básicos no seu bairro – seja para uma hora?

Se sim - Kanimambo/obrigada/O!

Se não – Entendo. Talvez outro dia. Obrigada/O/Kanimambo!

Appendix II: Water and Sanitation Field Survey

Investigadores:
Nome de Guachene parceiro:
Data:
Casa numero:

INQUÉRITO DOMICILIÁRIO de GUACHENE

Abastecimento de Água, Saneamento, Gestão de Resíduos Sólidos, e Educação Higiênica

Quarteirão: _____

Em: Português Ronga Outro _____

Materiais de construção da casa: Caniço Blocos de cimento Outro (adobe/zinco) _____

I. DADOS SOBRE O INQUIRIDO / A SUA FAMÍLIA

1. Você é: Chefe de Família Outro adulto
2. Em qual quarteirão você é? _____
3. Conhece o quem é o Chefe de quarteirão? Sim / Não (nome) _____
4. Conhece o quem é o Secretário de bairro? Sim / Não
5. (observar) Sexo do inquirido: M F
6. Quantos anos você tem? [Mais ou menos?] _____
7. Você é casado(a)?
 casado(a) união divorciado(a) separado(a) viúvo(a) solteiro(a) outro
8. Por quantos anos você mora nesta casa? _____
a. É alugada ou é casa própria? _____
9. Quantas pessoas dormem nesta casa? _____
10. Quantas pessoas que dormem nesta casa tem a seguinte idade:
0-5 _____ 6-12 _____ 13-17 _____ 18-30 _____
31-40 _____ 41-50 _____ 51-60 _____ Mais que 60 _____
11. Durante as duas semanas passadas, o que é que tem feito?
 Tem emprego fixo Estuda Vive de biscates Sem trabalho
a. Se trabalho, onde?
 KaTembe Maputo Cidade Moçambique Outro _____
b. Que tipo de trabalho?
 Dona de casa Machamba Comerciante
 Artesão Funcionário Militar Outros _____
12. Outros membros dormindo na casa tem emprego fixo? Sim / Não
13. Que classe é que terminou (de estudar)? _____
 sem educação/analfabeto primário não completo primário completo
 secundário não completo secundário completo ensino técnico
 ensino superior outro _____

Water and Sanitation Field Survey (cont.)

14. O que e mais caro por pagar? [Indicar primeiro, segundo, terceiro]

- Aluguel/casa____ Serviços de saúde____
 Alimentos____ Educação____
 Água____ Energia____
 Transporte____ Roupas ____
 Outro custo _____

II. ÁGUA

1. Você conhece quem faz parte do comitê de água no quarteirão? Ou quem cuida da água?
Sim / Não
2. Em total, quantos bidões de água consomem por dia nesta casa? _____
 - a. Os bidões são de 20 litros ou 25 litros? 20 litros 25 litros
3. Quanto a água para beber:
 - a. Que tipo de fonte de água usa?
 - Fontanário Poço Furo
 - Tem água canalizada dentro de casa Tem água canalizada no quintal
 - Operador privado Outro _____
 - b. De quanto em quanto tempo é que vai buscar água?
 - Uma vez por dia Mais vezes por dia _____ vezes por semana
 - c. Sai sempre a água da fonte de água onde você costuma ir a buscar? Sim / Não
 - i. Na semana passada, quantos dias houve água neste fonte? _____
 - ii. Quantas vezes este tipo de fonte não funcionou bem no mês passado?

 - d. Você sente que o acesso a água é suficiente? Sim / Não
 - i. Quão frequentemente você sente que você precisa de mais água?
 - Uma vez por semana Mais de uma vez por semana Cada dia
 - ii. Se sim, quantos bidões precisa ou acha seja suficiente *por dia* nesta casa? ____
 - e. Você paga para a água? Sim / Não
 - i. Se sim, quanto paga (por bidão)? _____
 - f. Quanto a qualidade da água que *bebe*:
 - i. Tem cheiro? Bom Não bom Não tem ou neutro
 - ii. Tem cor? Sim Não As vezes
 - iii. Tem sabor? Bom Não bom Não tem ou neutro

Water and Sanitation Field Survey (cont.)

4. Você usa a mesma fonte de água para beber que para outras atividades? Sim / Não
- Que outras atividades? Cozinhar Lavar Outra _____
 - Que tipo de fonte de água usa?
 - Fontanário Poço Furo
 - Tem água canalizada dentro de casa Tem água canalizada no quintal
 - Operador privado Outro _____
 - De quanto em quanto tempo é que vai buscar água?
 - Uma vez por dia Mais vezes por dia _____ vezes por semana
 - Sai sempre a água do fonte de água onde você costuma ir a buscar água? Sim / Não
 - Na semana passada, quantos dias há água neste fonte? _____
 - Quantas vezes a este tipo de fonte não funcionava bem no mês passado?

 - Você sente que o acesso a água é suficiente? Sim / Não
 - Quão frequentemente você sente que você precisa de mais água?
 - Uma vez por semana Mais de uma vez por semana Cada dia
 - Se sim, quantos bidões precisa ou acha seja suficiente *por dia* nesta casa? ____
 - Você paga para a água? Sim / Não
 - Se sim, quanto paga (por bidão)? _____
 - Quanto a qualidade da água com que você *cozinhar/lavar*:
 - Tem cheiro? Bom Não bom Não tem ou neutro
 - Tem cor? Sim Não As vezes
 - Tem sabor? Bom Não bom Não tem ou neutro

[Se há algum tipo de água fora da casa...]

- Como é que avalia a distância até ao sítio onde vai buscar a água?
 - Muito longe Longe Razoável Perto Muito perto Não sei
- Quanto tempo passa para chegar – *só da ida* – à fonte de água a pé?
 - 5-10 minutos ou menos 15-30 minutos ou menos Mais que 30 minutos
- Quanto tempo passa *aguardar* para ter acesso a água?
 - Menos de 30 minutos 30 minutos-1 hora Mais que 1 hora
- Como e que avalia o tempo que você aguarda ao sítio onde vai buscar a água?
 - Muito longe Longe Razoável Perto Muito perto Não sei
- Quantos bidões leva de cada vez? _____

Water and Sanitation Field Survey (cont.)

[Para todas as fontes de água]

10. Você sempre foi buscar água no mesmo local durante os três anos passados? Sim / Não

a. Se não, o que você usou antes? _____

b. Quando é que você mudou? _____

c. Porquê?

Custo Acesso Outro _____

11. Comparando com os três anos atrás, hoje em dia os serviços de água são:

Melhores Piores O mesmo que a 3 anos atrás

a. Porquê?

Custo Qualidade Acesso Quantidade Outro _____

12. Tem alguém que vem a sua casa para vender água? Sim / Não

a. *Se sim,*

i. Algumas vezes / regularmente ?

ii. Quanto é que você paga por a entrega de água? _____

b. *Se não,* quanto pagaria por bidão entregada na casa? _____

13. Costuma tapar a água na casa? Sim / Não

14. Onde costuma deixar a caneca para água quando não esta usando a caneca?

No bidão Em cima do bidão Ligada a parede No chão perto do bidão

Outro _____

15. Costumam lavar os tanques ou os tambores de água? Sim / Não

a. Se sim, quantas vezes você lava os tanques ou os tambores? _____

b. Com que lava?

Com água só Água e OMO Desinfectante

Pedras e água Outro _____

16. Costumam lavar os bidões? Sim / Não

a. Se sim, quantas vezes você lava os bidões? _____

Com água só Água e OMO Desinfectante

Pedras e água Outro _____

17. Na sua opinião, a água é algo que pertence a todos na comunidade - como o ar - ou é algo que pertence ao indivíduo - como o terreno?

Individual Pertence a comunidade Ambas / as duas

18. Na sua opinião, a água devia ser algo que pertence a todos na comunidade - como o ar - ou devia é algo que pertence ao indivíduo – como o terreno?

Individual Pertence a comunidade Ambas / as duas

Water and Sanitation Field Survey (cont.)

III. SANAMENTO DE MEIO

1. Tem uma latrina? Sim / Não
 - a. Se sim, que tipo de latrina é?
 - Tradicional / simples Melhorada Outro _____
 - b. Com qual material é feita a latrina?
 - Blocos de cimento Terra Palho Outro _____
 - c. Quando foi construída a latrina? _____
 - d. Quem construiu?
 - Eu mesmo Outra pessoa _____
 - i. Se foi outra pessoa, quanto custou para construir a latrina? _____
 - e. Quantas vezes tiveram que construir uma nova latrina dentro de um ano? _____
 - i. Porquê? [Inundada, cheia] _____
 - f. Quantas pessoas usam a sua latrina? _____
2. Se não tem latrina, que sistema usam?
 - Latrina de vizinho Latrina comunitária
 - Casa de banho Outra _____
3. Às vezes você notou que as pessoas, fazem necessidades em qualquer lugar? [como as crianças o pessoas voltando noite a casa? E uma problema no bairro? Não falando de xixi]
 - a. Sim / Não
 - b. Se sim, com que frequência você viu?
 - Frequentemente vez em quanto Raramente
 - c. Se sim, porque você acha que eles fazem isto em qualquer lado? _____
4. Qual é o sistema que usa quando fica *fora* de casa?
 - Vá ao mato Latrina (tradicional / melhorada)
 - Casa de banho Outro _____
5. Como é que você conserva ou cuida da latrina? _____
 [Respostas possíveis: sal, cinzas, terra, etc.]
6. Comparado com três anos atrás, hoje em dia, a latrina que você usa mais é:
 - Melhor Pior A mesma que há 3 anos atrás
 - a. Porquê? _____

Water and Sanitation Field Survey (cont.)

IV. GESTÃO de LIXO / RESÍDUOS SÓLIDOS

1. O que faz com o lixo?
 - Queima-o Lançam na rua Enterram num buraco Têm remoção
 - Outro _____
 - a. Se queima o lixo, onde fica o lugar onde você queima-o?
 - No quintal Ao lado da rua Outro _____
 - b. Quantas vezes queima o lixo? _____
2. Onde acumulam o lixo?
 - Na casa No quintal Ambos Outro _____
3. Comparado com três anos atrás, tem mais, menos, o mesmo volume de lixo...
 - a. Na casa? Mais Menos Mesmo volume
 - b. No bairro? Mais Menos Mesmo volume
4. Tem serviços de remoção do lixo? Sim / Não
 - a. Se sim, quantas vezes passam para a remoção do lixo?
 - Cada dia
 - Uma vez por semana
 - Mais de uma vez por semana
 - Uma vez por mês
 - b. Comparado com três anos atrás, os serviços da remoção hoje em dia são:
 - Melhores Piores Mesmo que há 3 anos atrás
 - i. Porquê? _____
5. Onde você vê mais lixo no seu bairro?
 - a. Onde fica a parte mais suja do bairro? _____
 - b. Há um lugar que você evita ficar porque é sujo? _____
6. Qual é a distância da zona onde você busca água até à zona onde deixam lixo para a recolha?
 - Muito perto Perto Não perto
7. Conhece algumas doenças relacionadas com a água, saneamento, ou lixo? Sim / Não
 - a. Quais são? _____
 - b. Como podemos evitá-las? _____
8. Alguém da família teve alguma dessas doenças no mês passado?
 - a. Sim / Não
 - b. Outras doenças? _____

Water and Sanitation Field Survey (cont.)

V. O FUTURO DO BAIRRO

1. Quais são as mudanças que você viu no bairro? [os três anos atrás]

2. Quais são as mudanças que você gostaria ver no bairro?

3. Entendemos que há algum plano para construir uma ponte. Como é que você soube sobre esse plano? [Por ex: as reuniões populares, conversas com os vizinhos, o jornal, o seu chefe do quarterão, outros?]

4. Costuma ir as reuniões (encontros) populares? Sim / Não

a. Se sim, quais tipos de reuniões?

Do quarteirão Do bairro Associações Outro _____

b. Você vai frequentemente?

Se sim, quantas vezes por mês você vai? _____

Se não, porquê? [Respostas possíveis: crianças, trabalho, não tenho o tempo]

c. Quantas vezes essas reuniões ocorrem? _____

d. Qual foi o assunto mais discutido na reunião? [Respostas possíveis: água, saneamento, terreno, tráfico humano, ponte, chuvas, eleições, gripe, machamba] _____

VI. VIZINHOS

1. Conhece se seus vizinhos ficam na casa? Sim / Não

2. Se seus vizinhos não ficam na casa, quanto pessoas dormem lá? _____

a. São crianças, jovens, adultos? Quantos?

Crianças _____ Jovens _____ Adultos _____

Appendix III: Population Field Survey

Investigadores:
Nome de Guachene parceiro:
Data:
Casa numero:

População de Guachene por Bairro

1. Você e: Chefe de Família Outro adulto
2. Em qual quarteirão você é? _____
3. Conhece o quem é o Chefe de quarteirão? Sim / Não (nome) _____
4. (observar) Sexo do inquirido: M F
5. Quantas pessoas dormem nesta casa? _____
6. Quantas pessoas que dormem nesta casa tem a seguinte idade:
0-5 _____ 6-12 _____ 13-17 _____ 18-30 _____
31-40 _____ 41-50 _____ 51-60 _____ Mais que 60 _____
7. Conhece se seus vizinhos ficam na casa? Se seus vizinhos não ficam na casa, quanto pessoas moram lá? _____
 - a. São crianças, jovens, adultos? Quantos?
Crianças _____ Jovens _____ Adultos _____

Appendix IV: Group Reflective Exercises

Note: The reflections are described close to how were they were executed – notes at the bottom explain challenges in conducting these exercises that should be kept in mind.

Reflective practice: Establishing group agreements

Goal: To bring intentionality and set expectations about how to share feedback, be good teammate, and contribute effectively in discussions and group processes.

Reflective practice: Self-reflection & Individual feedback

Goal: To provide the opportunity for participants to give and receive feedback for personal/professional growth.

1. Set group agreements and describe parameters of giving and receiving feedback. (10 min)
 - Assume best intentions: We already agreed to do this, but it is important to remind participants that the point of this exercise is growth, that we are a team, and we know that everyone here is good intentioned and doesn't wish ill upon anyone else.
 - Feedback is a gift: This metaphor extends in both directions. For giving feedback, it means that you give feedback as you would a gift – not for your own benefit, but for the other person's. You give feedback that you think will be useful and appreciated – not just to make yourself feel better. In the receipt of feedback, it means that you accept it with grace. You acknowledge the effort, but after consideration, you can decide what to do with the feedback, as you would a gift.
 - Meant, sent, heard: Often there are difference between what you meant, what you sent (either verbally or with body language), and what the other person heard. When giving, receiving, or clarifying feedback, it's important to keep in mind. This also means being mindful of your body language.
 - Use "I" statements: When giving feedback, it is important to speak to your individual experience. This helps people not feel defensive or ganged up upon. The format can generally follow: "I feel".... when you describe a specific behavior.
 - Describe behaviors, not character/personality: It can be easy to essentialize people's character by behaviors you observe in them, but it is important not to do that when giving feedback. People's characters are in constant revision and it is up to them to evaluate the behaviors described to them against the character they want to have.
2. Describe the Activity. (2 min)
3. Give people silent reflection time to evaluate their own performance (in the context of the group) over the past two or three weeks and jot down notes on the following questions. (7 min)
 - What is one thing you feel you have really contributed to the group?
 - What is one thing you feel you could or better, or what is an area of growth for you?

Group Reflexive Exercises (cont.)

4. Give people the chance to write down feedback on the same questions for each of the other persons in the group. (8 min)
5. Pair people up and give each person will be given the opportunity to share their self-reflections with their partner. After one person has shared, the other person should share their perceptions of their partners as well. Then switch.
7. People should rotate after 10-12 minutes in each pairing.
8. After everyone has spoken to each person, bring the group back together. *If there is time, you can give about 10 minutes for people to share any of the feedback that they heard – common themes in strengths or areas of growth, or how the feedback they heard related (or not) to their self-evaluations.*
9. Wrap up by encouraging written/individual reflection on what they heard. Remind people that feedback is a gift and that they can and should follow up with people individually if they would like.

Note: We ended up doing this activity over two days. Most of the group processing afterward emphasized how important doing an activity like this closer to the middle of an intensive work experience can be to keeping a group working well together.

Reflective practice: Group evaluation

Goal: To provide the opportunity for participants to give and receive feedback on team work so far and improve our ability to work together.

1. In pairs, discuss and answer the follow three questions:
 - What are some things we have done well together?
 - What are some things that we could improve in our work together?
 - What would we need in order to move forward together?
2. In the full group, ask pairs to share the things they felt were needed in order for the group to move forward together.

Note: Unfortunately, without asking the right questions, or framing the conversation properly, this activity can quickly turn into a complaining session. Also, a general question like “What would we need in order to move forward together?” can invite blaming someone or something for difficulties in a group, without naming it specifically, or without introspection and reflection on what one can personally do to help. To modify the activity, ask participants to share both what the group is doing well together, something they can do to help the group move forward, and something the group can do to help move forward.

Reflective practice: Toxic Tour debrief questions

The MATI practicum participated in a youth led “Toxic Tour” given by the Roxbury Environmental Empowerment Project (REEP), which is the youth program in ACE (Alternatives for Community and

Group Reflexive Exercises (cont.)

Environment). The “Toxic Tour” is a walking tour about struggles to make the Roxbury/Dudley area more environmentally safe for the community and residents living there. The tour focuses on six specific sites that exemplify contentious issues and highlights the ways that young people from Roxbury as part of REEP organized to change the situation.

1. How are the struggles that the Roxbury community fought against similar or different from things faced in Mozambican cities, villages, and peri-urban areas?
2. How is the response to certain struggles in Mozambican cities, villages, and peri-urban areas similar or different from the ways the Roxbury community has responded to challenges?
3. What are your major take-aways from this experience?

Reflective practice: Group reflection on social transformation

1. Each participant should pick two of the words given and construct two sentences that explain what they want to do about the problems/difficulties in the world, and what the world would be like if they succeed. (can be done individually, or in pairs/small groups as dinner is starting)

Ask participants to share how or why they came to their understanding of the problems in the world and what experiences and people shaped how they see the solutions.

Justice, equality, equity, liberation, stability, flourish, love, solidarity, creativity, hope, efficacy, self-determination, community, change, organizing, advocacy, deliberation, democracy, social, economic, political, resources, family, education, revolution, movement, culture, inclusion, service, happiness, collective, voice, system, land, living, action, building, joy, freedom, trust, healing, control, understanding, peace, comfort, improvement, transformation, fight, reform, grace, beauty, health, care, foundation, survival, thrive, environment, ecosystem, conditions, play, sleep, work, unity, development

Justiça, a igualdade, a equidade, a libertação, a estabilidade, florescer, o amor, a solidariedade, a criatividade, a esperança, a eficácia, a auto-determinação/autonomia, a comunidade, mudança, organização, defesa, deliberação, a democracia, social, econômica, política, recursos, família, educação, revolução, movimento, cultura, inclusão, serviço, felicidade, coletivo, de voz, sistema, terra, vida, ação, construção, alegria, liberdade, confiança, cura, controle, compreensão, paz, conforto, melhoria, transformação, luta, reforma, graça, beleza, saúde, cuidados, fundação, sobrevivência, prosperar, ambiente, ecossistema, condições, brincar, dormir, trabalhar, harmonia, desenvolver/progredir

Discussion: University/Community connections

After hearing from student leaders who had started their own student groups in light of gaps they saw in their education or resources for study, we engaged in a discussion about student organizing on campuses.

Group Reflexive Exercises (cont.)

Discussion questions:

1. What youth/student associations are you part of?
2. What youth/student associations exist at UEM currently? How much do people participate in them? Are some more popular than others? Why? What is their relationship to the University administration? What is their relationship to the city or nation in general? Where do they get funding from?
3. How is information usually spread among students? Is it different between social and political information?
4. How do students communicate with each other?
5. Are there usually opportunities for workshops and trainings? If so, what kinds?
6. What kind of spaces exist for learning outside of classrooms? Physical spaces? Social spaces? Discussion spaces?
7. Who typically has the power to get students together? How are grievances aired?

Fishbowl activity/discussion: Mobilizing data

In the culminating conversation, we used a fishbowl technique to encourage and facilitate dialogue and debate about the topic of mobilizing data in Mozambique and KaTembe.

1. Participants form a circle or semicircle around two chairs in the middle. The people sitting in the circle on the outside are outside of the fishbowl. Two volunteer start in the chairs in the middle and are presented with a question to discuss. These people are inside the fishbowl.
2. When someone inside the fishbowl says something that someone outside of the fishbowl wants to respond to, the person outside of the fishbowl must get up and tap the shoulder of a person inside of the circle - sit down, and continue the conversation inside of the fishbowl.
3. No one outside of the fishbowl should talk until they are inside of the fishbowl. People inside of the fishbowl should only respond to each other's questions and to the initial prompt (and/or other prompts from the facilitator).

Discussion Questions:

1. Who do you think should know about the data we've collected?
2. What are the different types of people and institutions? Why might it be important to them?
3. How might we get this information get to different types of people?