
ZUIA MAFURIKO & RAMANI HURIA:

A Partnership with Communities for
Flood Resilience in Dar es Salaam

2017



INTRODUCTION

Dar es Salaam is the largest city of the Republic of Tanzania and the country's economic center. With a population of more than 4.3 million inhabitants, the city is known for its tourist attraction. Of the city's inhabitants, 70% live in informal settlements. The city is prone to regular flooding, having experienced four major floods in the past ten years.¹

The main causes of flooding in Dar es Salaam are inadequate and blocked drainage systems. Flood effects are then amplified by unplanned and crowded settlements, weak municipal capacity to issue flood warnings and evacuate communities in high-risk areas, and poor sanitation infrastructure. Most recently, in April 2014, three days of heavy rain led to extensive flooding throughout the city leaving 19 people dead and 20,000 people displaced from their homes. Major service delivery systems such as roads, water and sewage systems were also impacted.² Many of the impacts from the April 2014 floods could have been avoided.

In 2011 there was a request from the Tanzanian government, specifically from the Commission of Science and Technology (COSTECH) to support with better understanding on addressing the floods. In response, the World Bank supported a community-based flood mapping innovation referred to as Ramani Huria (meaning 'open mapping' in Swahili), in Dar es Salaam, Tanzania. This began by training university students and

local community members to create highly accurate maps of the most flood-prone areas of the city. From July 2015 to July 2016, the Red Cross, through the project, Zuia Mafuriko (meaning 'prevent flooding' in Swahili) partnered with the World Bank; and both brought on board a consortium of partners, all with a common vision to reduce the adverse impacts of floods in Dar es Salaam and make the city more flood resilient. The consortium comprised of:

Implementing partners



Tanzanian Red Cross
American Red Cross
World Bank

Dar es Salaam City Council and Municipalities of Dar es Salaam

Humanitarian OpenStreetMap Team (HOT)
Ardhi University

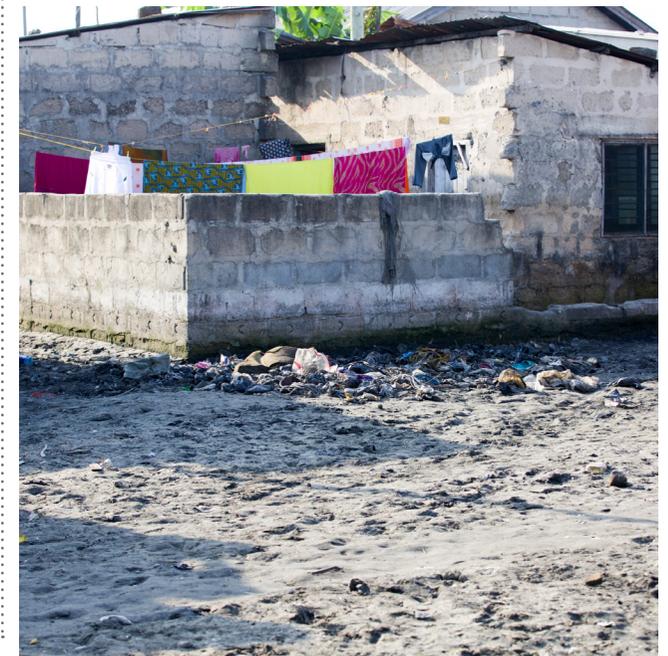
University of Dar es Salaam
Danish Red Cross

Red Cross Red Crescent Climate Centre
Tanzania Meteorological Agency

Tanzania Commission for Science and Technology
Buni Innovation Hub

Global Facility for Disaster Reduction and Recovery
Deltares
Digital Globe

“The municipality mandate is to minimize the risks of disasters to occur, by ensuring the communities and the municipality is equipped with right tools and mechanisms. Floods have been a major disaster in the Municipality, with recent floods occurring between April – May 2016, and it was the duty of the Municipalities to ensure that the communities were well prepared and victims of the floods assisted.”
Adelaida Joyce Kangaruki, Disaster Management Coordinator (Kinondoni Municipality)



¹National Bureau of Statistics (2013) Tanzania in Figures 2012 Dar es Salaam, Tanzania

²Reliefweb (2014 May 27) Retrieved 15 August 2014 from <http://reliefweb.int/disaster/rl-2014-000053-tza>

PARTNERSHIP BACKGROUND

Goal and objectives of the partnership

Goal: To reduce the impacts of floods in the most at risk locations of Dar es Salaam through informed risk analysis and evidence-based planning for institutional and community action by 2016. This goal would be realized through the following objectives:

Objective 1: Develop data-driven disaster preparedness and response plans with Tanzania Red Cross Society and Dar es Salaam municipal authorities to enhance their capacity to deliver, coordinate, and advocate for more effective flood risk management in Dar es Salaam.

Objective 2: Reduce the impacts of floods in the most at risk locations of Dar es Salaam through informed risk analysis and evidence-based planning for institutional and community action.

Objective 3: Support skills building and knowledge transfer within students for the next generation of urban planners.

The Partnership, Roles, Activities and Results

The partnership was a blend of two projects brought into one - Ramani Huria led and funded by the World Bank and Zuia Mafuriko led by the Tanzania Red Cross Society, with funding and technical support from American Red Cross and Danish Red Cross. It focused on the municipalities of Ilala, Kinondoni and Temeke. The project activities drew the partners and communities at each stage, with leadership based on agreed roles.

The first stage entailed flood risk mapping and community mapping of flood prone areas. The World Bank contracted the Humanitarian OpenStreetMap Team (HOT) to facilitate the mapping. At the same time, the Tanzania Red Cross formed and trained the Community Disaster Preparedness and Response teams (CDRTs), of 200 volunteers, who would help in mapping at this stage. HOT worked with Ardhi University and University of Dar-es-Salaam, who provided 165 students to undertake the actual mapping through an industrial placement. The students were paired with Red Cross volunteers in the 10 most flood prone wards. The World Bank also worked with Ardhi University, COSTECH, Red Cross and University of Dar-es-Salaam to tailor their flood modeling to the needs of at risk communities in Dar es Salaam.

In parallel, the Tanzania Meteorological Agency led on forecasting, working with the Red Cross Red Crescent Climate Centre in identifying rainfall forecasts for use in the forecast based financing mechanism.

The next stage led by the Tanzania Red Cross Society involved the development of disaster preparedness and response plans for the three municipalities, as well as the ten most flood prone wards of Dar es Salaam, working with trained Community Disaster Preparedness and Response Teams (CDRTs). The plans utilized the information compiled in the first stage (mapping and analysis of historical rainfall forecasts). This was done with technical support provided by the American Red Cross and the Red Cross Red Crescent Climate Centre, in collaboration with the World Bank and Municipalities of Kinondoni, Ilala and Temeke, local authorities at ward level and communities.

These plans outlined the early actions, preparedness, coordination and response based on imminent or actual disaster. The preparedness part was tied to the forecast and response to a realized disaster.

Relevant trainings were done to ensure CDRT's are equipped to implement the flood preparedness and response plans, in the future.

Another key activity was the establishment of the Dar es Salaam Urban Forum which met quarterly.

This Forum aimed at enhancing coordination between all actors working on resilience building in Dar es Salaam. It was not specific to this project, but aimed to contribute to longer-term development and planning goals. The municipal authority remained a co-chair of this forum and community representatives were identified to participate, with an emphasis on gender equity.

While the World Bank led and funded the flood risk mapping, community mapping and flood modelling; the American Red Cross and Danish Red Cross provided funding for all community organizing, flood preparedness and response planning, as well as activities with Tanzania Meteorological Agency (TMA). The World Bank and Red Cross teams collaborated in all activities. Extensive community involvement through equitable allocation of resources and decision-making to both males and females was critical to the success of all three of these phases in order to ensure the needs of people living in the most at risk areas of Dar es Salaam were addressed.

The consortium of partners reached out to additional partners and stakeholders based on need for further technical expertise and collaboration, as the need was identified throughout the project implementation. These included the disaster management department of the Prime Minister's office, Dar es Salaam Multi Agency Emergency Response Team (DarMAERT) and a local affiliate of Slum Dwellers International (Centre for Community Initiative).

Results:

Through this partnership Dar es Salaam was extensively mapped, capturing approximately 750,000 buildings and over 2,000 kms of roads through collaboration between 165 local university students and 200 newly recruited Red Cross volunteers (the project community groups). An atlas of flood maps was also developed with community input to facilitate development planning by local government. Tanzania Red Cross volunteers were recruited from existing community groups to increase sustainability and develop a coordination mechanism for local civil society to liaise with local government at the ward level.

Using these mechanism and extensive collaboration with municipal representatives, flood preparedness and response plans were drafted for ten wards and three municipalities – including forecast based financing mechanisms within the plans. In addition to this work an Urban Forum was created which is co-hosted by Tanzania Red Cross Society and the local municipal government.

Two master's thesis at the Ardhi University were also sponsored by the project. The thesis and research, focused on increasing understanding of urban flood preparedness in Dar es Salaam. Volunteers were trained in first aid as well as basic

preparedness and response skills. The TMA studied and identified a potential new forecast with longer lead time to better enable preparedness actions that will be explored and tested in future phases.



449
Direct beneficiaries

+



530,834
People covered

Community mapping and flood plans



750,000
Buildings



2,000 kms
of Roads



1.3M
Estimated number of people
living in mapped areas

Covered by community mapping

PARTNERSHIP OUTCOMES AND SUCCESSSES

- Recognition of the value of data: Community maps covering a large area were developed and the community felt a sense of ownership for these maps. These provide valuable data that is up to date, practical and actionable. For instance, ward officers get maps that are representative and statistical. They know how many houses and how many people are in a flood prone area in their ward.
- Skills building to impact future town planning: Through Ramani Huria, 165 masters level university students were provided on the job training in data collection in hard to reach areas. This in essence training the next generation of urban planners, some likely to go in to work in the Tanzanian government system and impact urban planning.
- There is a better understanding of risk of flooding in communities and preparedness action: The community continues to use the skills and training they have received. A secondary outcome is communities knowing about water safety and risk of water borne diseases.
- Partnerships built to strengthen community flood resilience: This has not just been the World Bank and Red Cross together; but municipalities, local government, ward officers with community leaders, community activists and vulnerable groups to dialogue around evidence - the map that people have created together: "Why does the risk profile look the way that it does; who is creating this, who is solving this, what can we do." The project has created networks and long-term working relationships between the stakeholders.
- The community now has a sense that the government understands their challenges: For instance the move to deconstruct some houses to create a passage out for water in some areas.
- Community ownership of the project: The volunteer network of Community Disaster Preparedness and Response Teams (CDRT) continues to participate in the monthly clean up days; and inform the community members of the importance of this in reducing flood risk. This is a nice example of CDRTs linking into wider government priorities.
- Project model and outcomes have been shared in global platforms and informed partner programming beyond Tanzania.

Forming community groups in large cities (a different approach)

Formation of community groups is an underpinning of DRR work in the Red Cross Red Crescent system. In large urban areas traditional approaches to group formation (such as wide recruitment, community voting, etc) are less effective. This is due to higher densities/numbers of people in targeted areas, time limitations of targeted populations and general time 'competition' with other priorities. Based on these challenges articulated from Red Cross community experience, a new approach to community group formation was tested. This involved recruitment of representatives from existing formal and informal civil society entities formed at the ward level by residents of the targeted communities. Individuals recruited from these groups were then brought together for training in flood preparedness and response activities. The idea behind this approach was that 1) each representative would have a network of committed individuals to draw on for larger project activities, 2) individuals already involved in other groups would be more committed to volunteering, and 3) that as these groups were brought together they could better liaise with local government and support each other regarding their requests and needs from government. Overall this approach seems to have worked. These groups continue to take an active role in community awareness and clean ups, as well as collaborating on other self-help initiatives outside of the Red Cross work.

ACKNOWLEDGING CHALLENGES

- Lack of a clear communication system in place to ensure all partners and stakeholders were consistently aware of what contributions each was making and how they should engage. A partnership meeting was conducted towards the end of Zuia Mafuriko, but this could have been held even earlier.
- There was a lack of joint branding by consortium, which led to confusion externally about how the projects were connected.
- Given that ARC and World Bank were each separately contracting a set of partners, communicating across those contracts took a while to get into place. However this could not have been done differently because the alternative would have been to develop formal MOUs or joint contracting, which would have taken an even much longer time. So it is an element to take into consideration ahead of time and consider setting up a communication structure ahead of time.
- Lack of clarity on roles and responsibilities led to difficulty in managing expectations of partners. Some partners had different perceptions on what they wanted from the project and what the deliverables should be.
- The biggest disappointment was that the Zuia Mafuriko project lasted only a year; and sustaining gains was likely to be a challenge.
- Weakness in monitoring and evaluation: There was no external partner involved in evaluating the entire picture of the process – monitoring progress along the way, monitoring quality of data and outcomes; but also monitoring how the process and partnership was working.
- The CDRTs team were formed during a political transition and in some instances leaders drawn from opposing parties perceived the teams as being part of the previous governance therefore slowing down the work of the teams. Some community members felt there should have been a wider engagement in the selection of their representatives; while others were not willing to take part in clean ups, instead demanding payment. There were fewer young people volunteering to be part of the CDRT.



SUSTAINING LIVES IN THE TIME OF NEED THROUGH EARLY WARNING INFORMATION

by Nancy Okwengu

'Mbiu ya mgambo ikilia kuna jambo' is an ancient Swahili saying which loosely implies “an announcement from the alarmist can not be ignored”. Such is the announcement from the Tanzania Metrological Agency. It is weather forecast information that is sent to various recipients one to two days before heavy down pour in Dar es Salaam. Typical weather forecast news can be categorized, as “Business as usual” or “Likely to occur” or “Impact will be severe”.

“Impact will be severe” is that call of the alarmist that can't be ignored.

In the past, disasters in the wards were enhanced by external hazards such as littering that clogs the city's drainages, house constructions on water pathways, trees branches and leaves that get entangled on electric poles.

Weather forecasting in Kinondoni and Ilala wards of Dar Es Salaam City is part of a now well-knit process of disaster risk preparedness and response. Disastrous floods that hit the Wards have in the past caught the communities often and unprepared. But when floods hit Dar es Salaam in April 2017, early warning early action systems that were already in place, likely reduced possible loss of lives and economic losses.

These are fruits of the Zuia Mafuriko/Ramani Huria project, a venture which centered on the community support and ensured the community understood threats and are aware of how to avoid them.

FACTORS INFLUENCING PARTNERSHIP SUCCESS AND CHALLENGES

Factors influencing partnership success

- Clarity in understanding of the pressure and scale of the flooding problem by the Government of Tanzania and sense of urgency in addressing the problem; and acknowledging what skills and resources partners could bring on board in a collaborative process to help address the problem.
- Partners transparency, a desire to work together and a desire to get the job done; and with this a recognition of what expertise and resources each could bring to the fore; further providing clarity on roles and responsibilities for an effective collaboration. For example, partners having a common technical vision and philosophy of what is appropriate ICT innovation in this context with a focus on low technology and low

cost solutions. It helped that some partners had worked together before, in other regions on aspects related to this work, thus providing further networks in the partnership.

- Community engagement ensured inclusion of community members, local authorities, ward executive officers and community development officers. Representatives of community groups were in all planning meetings and a big conference was held at the end of the project with key community representatives providing valuable perspectives.
- Capacity within the partnership on navigating through the different levels of government, from national, city, municipal levels as well as strength in community organization. Along with this was the sharing of capacity and learning.
- Red Cross movement's strong volunteer network throughout Dar es Salaam, credibility and good reputation in the community.

“It was really about finding a simpler way to get a traditional thing done - to make a map, to do a survey and get feedback; and finding a way that is more empowering, more sustainable but has enough novelty and excitement that will bring in new players.” Edward Anderson, Senior Disaster Risk Management Specialist World Bank

- Bringing passion to life through the youths. A lot of the success in mapping was due to the many great and really enthusiastic young people from the Universities.
- Clear process, transparency and communication between stakeholders.

“One of the priorities in this project was to increase connections between community residents and decision makers who affect the future direction of the community. A first step toward facilitating this was to make sure they were in the same room and planning together.” Julie Arrighi, Climate Adaptation Advisor, American Red Cross

Factors influencing partnership challenges

- Most of the partners had never worked together in the past and the networking and partnership-learning curve was necessary at the beginning.
- Community buy-in and response was sometimes slow, given perception that past weather forecasts may not be predictive of likely flooding.
- The short project time frame was a huge shortcoming.

OPPORTUNITIES FOR LEARNING

These recommendations draw from lessons based on what the partnership did well and some that could have been done better.

- Be very clear about what your goal is and make it very specific: here the Red Cross goal was to reduce flooding in Dar-es-salaam and on the World Bank side to map the city of Dar es salaam – those were very specific goals.
- Have a strong mission to ensure that when you are recruiting complimentary partners it is very clear why they are being recruited and what their role will be. Partnership recruitment is also an ongoing process. Project managers should be constantly assessing how the project is progressing, where there are gaps and which partners can be recruited to fill those gaps.
- Consider different partnership models – partnerships do not always have to be financially contracted: people can bring in in-kind resources, lending their branding, and so on. Be very opportunistic if you see something that looks like it could be an interesting fit, or take your partnership to a new place.
- For better coordination, ensure that all the partners are involved in the initial planning

process and have a clear understanding of their roles and responsibilities and make sure those things are well documented and agreed to before the projects starts.

- Be very clear about branding and communication – that is external communication as well as internal communication. Decide how partners will be kept informed of decisions; how decisions will be made and who needs to be involved in the processes. State that out from the beginning so it is clear and helps make coordination a bit easier.
- Provide resources for M&E of project process, outcomes and partnership process and outcomes for similar projects. Along with this continuously capture experiences throughout the project while being intentional on how to improve the partnership dynamics and deliver the expectations of the project.
- Be very flexible – partnerships are a lot about working with people and people have different styles of working and different styles of communicating. Focus on looking for the best in every partner that you have, helping skills align and supporting each other.
- Know your added value. Being successful is not about doing everything, it is about doing a few, targeted things really well.
- Students and volunteers can have a meaningful role in their communities - leading



“Yes, I would recommend a similar collaborative approach because I think you are much stronger as a collective when you are bringing in institutions from a variety of different specialties; you are much stronger in terms of the advocacy and policy dimensions that you are trying to take forward; and also much stronger because people are focusing on their specialties and supporting each other rather than trying to spread themselves over specialties that they may not be good at.” Julie Arrighi, Climate Adaptation Advisor, American Red Cross

implementation of processes that inform longer term planning. Future projects can therefore strive to involve students and academic institutions.

- The need to build stronger relationships with the government is a continuing challenge because of staff and leadership changes. There is therefore a need to make sure that the government is involved as much as possible and that a diverse group of people are involved as early as possible.
- In urban contexts, consider formation of local coalitions through tapping into existing community groups and networks.
- Institutional support for such collaborations to be more sustainable is key. It is also important to find innovative ways of engaging the elected officials in a collaborative effort.
- Ensure that community residents are not just represented in processes but included in processes. In addition, projects must strengthen the capacity of community structures at the lowest levels.

The American Red Cross mapping team, based at its headquarters in Washington DC, worked closely with HOT to give them transfer capacity from our team around mapping skills and technologies; and coordinated on their behalf to get them satellite imagery so that they could do better mapping.” Dale Kunce, Global Lead ICT & Analytics, American Red Cross

VALUE OF COLLABORATIVE APPROACHES

First, the partnerships brought in new perspectives in addressing flood preparedness and response to the different partners. For example, TMA for the first time, piloted innovative ways of ensuring that weather information reached the communities. The engagement of communities in the flood preparedness and response planning was also novel.

Second, communities have knowledge that is very difficult to get hold of from other sources - very up-to-date and very local things. If a drain is blocked, they know, if there is a big pothole, if there is no drain at all because someone built over it. These kinds of details are very difficult for a city GIS team or a consultancy to get of the whole city and keep up-to-date. So a big piece of the value was getting hold of data that projects wouldn't otherwise have - important, valuable information.

The third is the value of cost. If you want to do it at scale every year, it is not affordable to have engineering firms map every single detail of the city every year. But the city is changing every year so there is need to update it somehow. So using community members or using students participating together is a more affordable way of going to scale. Therefore, the project got better data in a cheaper way.

The final big value is the participation itself means that people are more engaged in a conversation afterwards. Once they gathered the evidence they talk about what to do with a situation - how to reduce the flooding. If community members were actively involved in making the map and flood preparedness plans, then they're more likely to engage in the conversation about how to reduce risk to flooding. Therefore, this is also the beginning of a beneficiary feedback loop that is quite difficult to establish in other areas.



A PARTNERSHIP PROJECT PROVIDES ALL YEAR ROUND DISASTER RISK PREVENTION IN DAR ES SALAAM

by Nancy Okwengu

Fatuma Ramadhan, 41, plans to work hard and is determined to make it in the city life in Dar Es Salaam. She wants to become a rich businesswoman in Tanzania. Life has been difficult for Fatuma, whom 24 years ago moved from Morogoro to Dar es Salaam to seek better opportunities. Access to basic amenities such as clean food and education even became harder when floods hit Dar es Salaam. “It is like life stands still and one is unable to move freely or safely without the risk of drowning.” she says. But a new day has dawned for children living in Kinondoni and Ilala wards of Dar Es Salaam.

The Zuia Mafuriko/Ramani Huria project has supported her community by putting in place disaster risk preparedness and response actions.

“When it floods the children can’t go to school. I can’t go to my business. Our lives stop.” she adds.

To ensure that her children don’t miss school or risk not finishing the curriculum and failing the final exams, Fatima has to seek for private tuition, which obviously costs money.

Fatima who sells home made juice by the roadside for income is rendered dependent on others when it floods. Another common result of the floods is cholera outbreak in the city. Not only are her customers rendered immobile, the cholera outbreak also means that road side food vendors like her, can’t run the business for fear of spreading cholera.

Without a steady income Fatima also has to tackle how she will pay a loan which she got to kick-start her business, and that requires monthly payment.

“Controlling the floods has offered me a more stable and predictable life. My children can go to school and achieve their dreams. I can run my business and also pay my loan in good time,” she says.

From building a volunteerism spirit, to cultivating a productive partnership, to nurturing a community owned project, hope has sprung up in Ilala and Kinondoni wards. There is still so much to do, like lobbying for more involvement of local influencers and increasing the number of volunteers, but these communities seem to be willing to do things one step at a time to build a better future. More importantly, they are willing to work hard for it.



American Red Cross



DANISH RED CROSS



Climate Centre



GFDRL
Global Facility for Disaster Reduction and Recovery



Humanitarian OpenStreetMap Team

Deltares
Enabling Delta Life

Credits

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