



Maputo Second Learning Lab Report

Pequenos Libombos
15-16th May 2018

Compiled by
Genito Maure



ACRONYMS

AdeM	Water of the Region of Maputo
AIAS	Administration of Infrastructure for Water Supply and Sanitation
ARA Sul	Regional Administration of Waters in the South
CRA	Council for the Regulation of Water Supply
DNAAS	National Directorate of Water and Sanitation
DNGRH	National Directorate of Water Resources Management
EIA	Environmental Impact Assessment
FCFA	Future Climate For Africa
FIPAG	Water Supply Investment and Asset Fund
FRACTAL	Future Resilience for African CiTies And Lands
INAM	National Institute of Meteorology
IPCC	Intergovernmental Panel on Climate Change
LL	Learning Lab
SOG	FRACTAL Small Opportunity Grants

DAY 1: 15 May 2018

Agenda: See Appendix 1

Participants: See Appendix 2

1. WELCOME REMARKS

Raul Chilaúle, City Official, Maputo Municipality

The Learning Lab was opened and Mr Chilaúle highlighted some of the main problems facing the city of Maputo due to the impacts of climate change. He mentioned that the vulnerability of various communities and infrastructure along the Mozambican coast is high due to changes in the frequency and magnitude of floods, cyclones and droughts, rising sea level and floods that cause damage to infrastructure, such as roads bridges ditches drainage systems, water supply systems and others. The Government then has to take various corrective actions to minimize negative impacts on residents. He pointed out that Maputo City Council, aware that the environmental problems that plague our city have brought problems to the health of the inhabitants and food insecurity, is making efforts to implement policies, strategies and plans to reverse this scenario.

He said that in recent years the city and province of Maputo have witnessed serious problems of restrictions on the supply of drinking water. To respond to the increasing problems of lack of drinking water the Maputo Municipal Council has resorted to using groundwater in some areas of the city of Maputo and to studying the possibility of taking advantage of the waters that are running in the Maxaquene Neighborhood and Desportivo, and the barrier in the Avenue of the United Nations.

In addition to the solutions presented above, to reverse the scenario of drinking water shortages, the government has carried out, through social networks, awareness campaigns on the need for rational use of this precious liquid.

He concludes by saying that the Maputo City Council is hopeful that this event will give rise to concrete ideas and proposals on how the City should address the problems of water scarcity, environmental sanitation and other ills that devastate the City and province of Maputo.

Find the link to the speech here: [opening speech](#).

2. INTRODUCTIONS

Katinka Waagsaeker

Participants were asked to introduce themselves, their institution and what risks they experience daily (see Appendix 1 for a list of participants). The answers were as follows:

- The risk of accidents on the roads in Maputo. The following reasons were supplied: because of the 'driving style'; condition of the roads; high speed of the vehicles on the Ring Road. (Mentioned 15 times)
- Personal and family security due to criminality in Maputo. "Thank God for waking up unharmed". The expanded part of the city is not patrolled by police so more dangerous. (Mentioned 13 times)
- Restrictions of water due to: the drought; leaking water supply infrastructure; water contamination (must boil it). There are many days without water. (Mentioned 5 times)
- Drought in Cape Town – water shortage (Mentioned once)
- Sea level rise – look out of window and see stormy sea, I am watching and listening. (Mentioned once)
- Potholes in roads due to extreme rain events. (Mentioned once)
- Rain causes erosion in the city.(Mentioned once)

3. INTRODUCTION TO OBJECTIVES AND GOALS OF FRACTAL

Di Scott

The presentation highlighted the reality of climate change in cities as evidence. The climate is changing differently in different parts of the globe and Di Scott spoke of several initiatives carried out by different international organizations to deal with this problem. More attention was given to trends in intergovernmental developments in the attempt to address climate change through climate change protocols and assessments. This has been established by the research undertaken by a large international body of natural scientists forming part of the Intergovernmental Panel for Climate Change (IPCC) established in 1988.

To this end, most governments have signed and ratified the protocols related to climate change. IPCC assessments continue to be a vital aspect in generating knowledge about climate change. African countries, including Mozambique, have adopted these policies in order to factor climate change into their development policies. She also spoke about the debates between the countries of the North and the South on the subject of climate change, with the Southern countries suffering the most impacts. FRACTAL has many partners internationally and at an African level who are contributing to the research, and several key opportunities exist when collaborating with FRACTAL:

- Learning Labs - collaborative multi-stakeholder platform to address a complex social challenge
- Workshops and training - new skills and knowledge
- Embedded Researcher - intermediate bridge between research and practice
- Subsidies for Small Opportunities (SOG): see [presentation here](#)

4. INTRODUCTION TO FRACTAL IN MAPUTO REGION

Dr G Maure

Before the presentation of the theme, the participants were asked to consider the following questions: (i) whether they were in their first learning laboratory and in the City dialogue, (ii) if they had only been in LL1, (iii) if they had only been to the city dialogue and iv) if they had never participated in anything. Participants were then asked to form groups in which each group should include someone who participated in some of the events and share their experience and the newcomers were asked to share what they expected from the event, reflections and experiences.

After the exchange of experiences, Genito Maure introduced FRACTAL and the objectives and background of the project. He mentioned that climate change is a reality and that the climate is changing and occurring differently in different parts of the globe. He spoke about various initiatives undertaken by different international and national organizations to address the issue. He also spoke about the duration of the project, emphasizing that FRACTAL is one of five projects funded by the Future Climate For Africa Program (FCFA). It is the only one led by an African Institution that links Climate Change and Cities and is subdivided into three groups. He spoke about the composition, deliverables and opportunities of the FRACTAL project. To conclude he spoke about the burning issues resulting from the first learning laboratory held in March 2017. Presentation here: [FRACTAL in Maputo](#).

5. FARMING JUGGLE GAME

Katinka Waagsaether

The objectives of the game were to energize the group to reflect on decision making under stress and while handling unexpected tasks. To begin the game the participants were asked to form a large circle and the facilitator used 3 different sized balls.

The facilitator, standing within the circle, launched the first ball to a group member, announcing that the farming in the community is going well. Participants had to keep the ball in motion by continuously throwing it around the circle, not letting it touch the ground or stay in any one participant's hands for more than 2 seconds, allowing some time for the group to find their rhythm.

At any time throughout the game, the facilitator introduced new balls into the circle, either announcing their entrance in advance saying that there is a flash flood and that the participants must try to keep as many balls circulating and off the ground as possible. To finish the game the facilitator asked the group to reflect on the following questions: How did you experience the game? What does this mean for adaptation for farmers and organizations?

Group reflections:

- With one ball it feels as though the problem is being solved. An increased number of the balls shows that the problems increase

- When we do many activities, new tasks and changes of routine are needed
- With the increase of balls more stress
- When there is a single problem it is easy to manage, when there are many we lose control and it is difficult to give a correct solution to all problems
- That's what we live day to day with regards to sanitation, drainage is hard to solve all the problems that we have in the city
- There are always problems and we have to be prepared for new challenges
- Ability to solve one problem at a time and learn to prioritize
- Different sizes of balls different problems and different solutions
- We have to be prepared to give solutions to all problems
- Need organization and prioritization of different solutions to the problems
- Needs for institutional coordination

To finish the facilitator made a general reflection saying that is what happens in the real world in our areas of work daily and we need to know to plan our activities strategically because we all suffer various forms of pressure.

6. GIFT RECEIVED FROM THE LUSAKA LEARNING LAB TEAM

Dr J Daron

The Lusaka LL team sent the Maputo LL team a gift. Ms Laurinda Macie from UN Habitat volunteered to open it and found the following items:

- a) A picture depicting Fractal activities in Lusaka
- b) A set of paints for adding to the picture
- c) 500g of Zambian coffee
- d) A set of raffle tickets to raffle the coffee
- e) A video from the Lusaka team (lack of internet prevented the sharing of this)

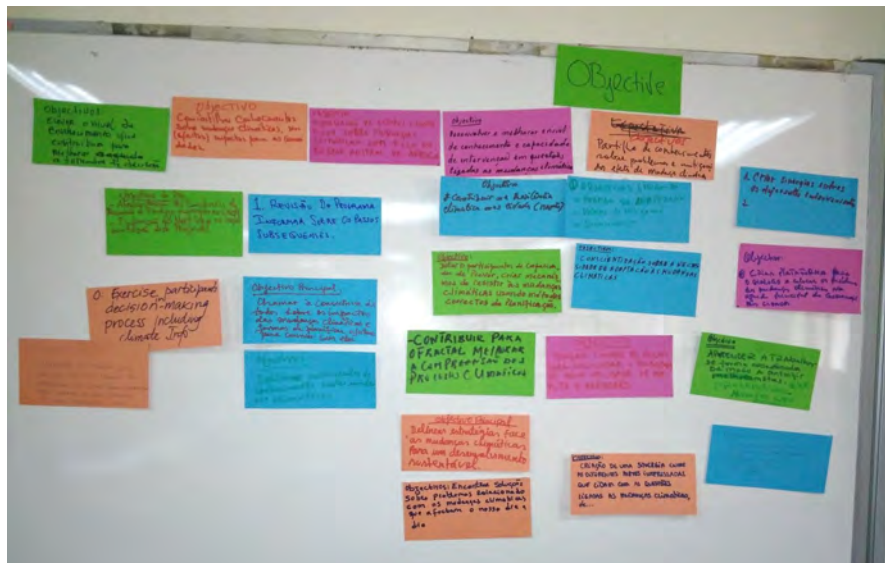
The coffee was raffled and Mr Angelo Ricardo from AdEM won the prize. The participants would have a later session in the LL to decide on what to send to Windhoek from Maputo.

7. OBJECTIVES OF THE MAPUTO LL2

Participants gathered in a group of four in which they had to reflect on 2 questions for five minutes and then write the following questions on cards:

- 1) what they see as the *objective* of the Learning Lab
- 2) what they *expect* from the Learning Lab (Picture 1 and Picture 2)

Then each participant was asked to read the answer and post it on a board. The responses were clustered and shared on a slide over the intended purpose. Participants discussed how they overlap in order to revisit them at the end of the Learning Lab .



Picture 1: Responses depicting the objections of the participants

Collation of Objectives:

- To raise the level of knowledge that contributes in the best way to aid decision-making
- Share knowledge about climate change and its impacts on the community
- Presentation of the conclusions of the city dialogue
- Definition of the next steps of the project implementation
- Review the program and report on subsequent steps
- Disseminate scientific studies on climate change in Southern Africa
- Develop and improve the level of knowledge and ability to intervene in climate change issues
- Share problem knowledge and mitigating effects on climate change
- Raise awareness of the need to adapt to climate change
- Equip participants to foresee and to create mechanisms to resist climate change using correct methods of planning
- Exercises in decision-making process including climate information
- Call everyone's conscience on the impacts of climate change and ways to plan for the future to live with these impacts
- Provide participants with knowledge on climate change
- Contribute to FRACTAL, improve understanding of climatic processes
- To draw lines of action to solve the water problem in the city of Maputo and its surroundings
- Outline climate change strategies for sustainable development
- Find solutions to problems related to climate change that affect our daily lives
- Create a synergy between different stakeholders dealing with issues related to climate change

Collation of Expectations:

- To better understand the problems and solutions elaborated in different contexts
- Better understand the work of partners and colleagues

- Be strengthened with tools to deal with climate change and disseminate to others
- Find a better methodology for solving water management problems
- Create an information dissemination platform linked to the impacts of climate change
- Provide participants with information on how to mitigate the effects of climate change
- Get more details on possible solutions to the problems that afflict in the water sector (lack of coordination)
- Additional knowledge about climate change and its impact on drinking water supply
- Learning, exchange of experiences, formation and interpretation of phenomena related to climate change
- Understand major current impacts in Mozambique and compare with other countries
- Recommend forms of mitigation and coexistence
- Strategies for involving various actors such as: rulers, legislators, planners, community
- Learn to solve climate problems in an interactive and participative way
- Define a clear strategy for mitigation of climate change in the city and province of Maputo
- Be able to positively influence climate change mitigation
- Understand methods for mitigating climate change
- Share past experiences
- Adopt new methodologies / approaches to adaptation to climate change
- Expect interactions will result in clear pathways towards inclusion of climate information in decision-making
- Exchange experience or ideas to solve problems
- Improve knowledge to contribute to solving Municipal problems



Picture 2: Responses depicting the expectations of the participants

8. WATER SECTOR GOVERNANCE AND COORDINATION

Professor D Scott

The purpose of this presentation was to present a model of governance in the water sector, which may be appropriate to the Maputo City / region, relating to climate change. There are several definitions and models of governance, each of them trying to explain urban governance. In the FRACTAL governance work the model chosen looks at discourses, actors, materialities, decision-making and legislation, as represented in the image in Figure 1. It is proposed that these elements, in relation to each other will produce an outcome, such as the water governance arrangements.

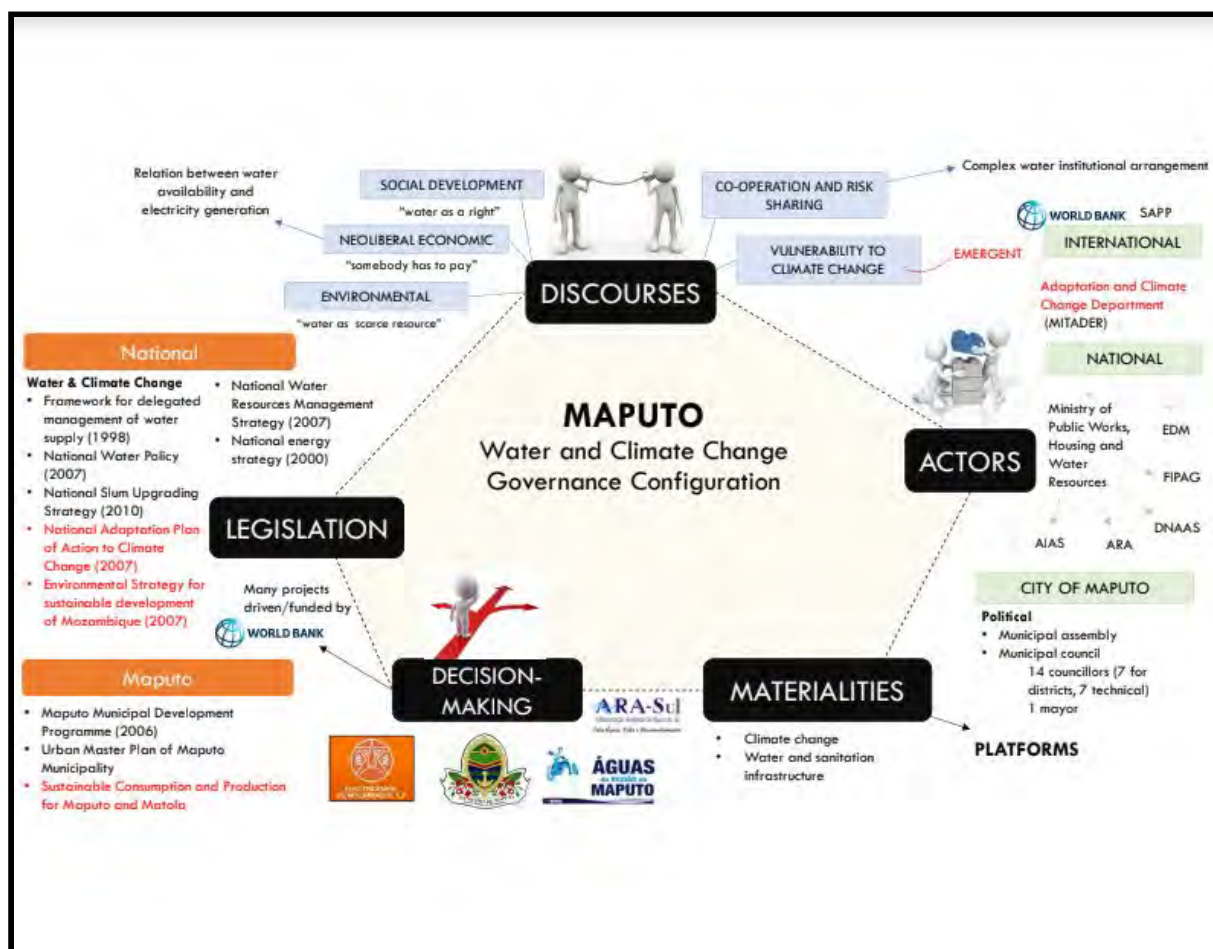
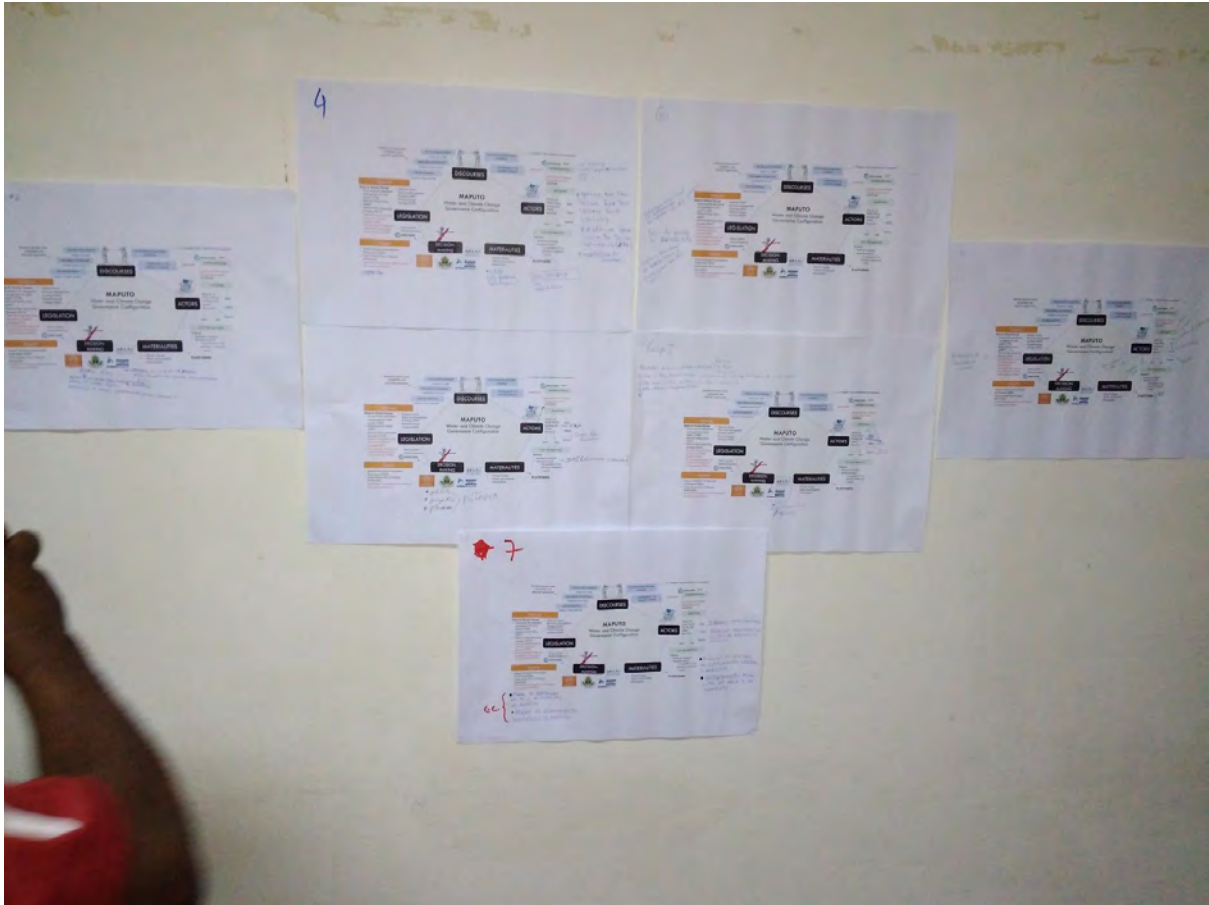


Figure 1: Elements of the governance configuration for Maputo

The governance interviews in the city of Maputo in October 2017 were undertaken in order to gain an understanding of the elements of the governance configuration (institutional arrangements). The focus of the interviews was on water and energy decision-making in the context of climate change in Maputo. It was noted that the governance configuration of Maputo (Fig 1) is based on a set of 25 interviews, and provides a particular perspective of governance in Maputo.

The participants were invited to work in groups with the aim of taking a closer look at the presented governance configuration diagram. They were asked to analyse the

diagram and check what elements were missing, to add what should be improved and to associate climate change with the elements in the diagram (Picture 3).



Picture 3: Contributions to the governance configuration by the seven teams (these have been subsequently added to the diagram)

Each group was then invited to share one main reflection on the diagram in plenary. Participants shared the following points that should be included:

G1: The Regional Water Administration (ARA-Sul) and the Maputo Region Water (AdEm) should not be considered as decision-makers but rather as operators and implementers. The National Directorate of Water Resources Management (DNGRH), and the Directorate of National Water and Sanitation (DNAAS) are the decision makers.

G2: It is necessary to include the Fund of Investment and Water Heritage (FIPAG) in the group of decision makers, since it is they who define the investments in a city. FIPAG authorizes the allocation of licenses to private operators.

G3: The Water Regulation Council (CRA) should be added within the actors.

G4: Highlight that all components of the diagram influence others, and that it is not possible for them to work separately. Also proposed to add WSGP, which is French Cooperation within civil society.

G5: Include the Disaster Management Law, and the climate change mitigation strategies.

G6: Review the National Water Policy of 2007.

G7: Add in the Municipal Plan for Adaptation to Climate Change and the Ecological Zoning Plan.

9. 'BUSINESS AS USUAL' DECISION MAKING DISCUSSION

Katinka Waagsaether

This session consisted of an interactive exercise in which participants were divided into 4 groups, each of which were given one of the following 'development projects:' 1. Dry toilet pilot project in existing informal settlement; 2. Water supply (pipelines) to a new formal settlement; 3. Build a dam to supply water to Maputo; 4. Refurbishing the urban drainage system in an existing formal settlement (alleviating flooding). Each group was asked to outline the different decision making steps or stages that have to be taken and the actors involved when moving their project from planning to implementation. The groups then presented their findings on the phases of decision-making in the infrastructure planning.

Group 1: Dry toilet pilot project in existing informal settlement

The following phases were identified:

Phase 1 entails conducting socioeconomic, environmental and urban diagnostics. Here the economic relates to aspects related to income and cultural, the environmental is referring to biophysical characteristics and urban planning has to do with architectural aspects. In order for this phase to take place it is necessary to involve the following actors: Health and Social Action, Urban Planning and Environment, and Infrastructure divisions.

Phase 2 consists of the design of the project to be carried out by the Department of Infrastructure and the Municipality of Maputo. This is followed by an environmental impact assessment (EIA) by the urban planning department. When the EIA has been approved an application for environmental licence can be submitted.

Phase 3 consists of the approval of the project and obtaining the environmental licensing.

Phase 4 involves obtaining a construction permit, by the Department of Infrastructures

Phase 5 is implementation

Phase 6 is monitoring and evaluation by the council of urban planning and environment and infrastructure management.



Picture 4: Group 1 showing their results for the project on dry toilets

Group 2: Water supply for informal settlement

Step 1: The budget is the starting point, enabling funding through central government, donors and partners.

Step 2: Three feasibility studies, namely socioeconomic; environmental and social impacts study; a project study to analyse the project horizon, including the size of the pipeline network and infrastructure.

Step 3: Execute the project, drafting and releasing the tender documents for construction.

The types of infrastructure necessary for the abstraction of water includes holes, regularization works and filter pits. To achieve this project, the financial availability or source of funding is also necessary and the possible relevant actors would be the central government, donors and partners. The group proposes to carry out feasibility and socioeconomic studies, a study on the design of scenarios seen behind, an environmental and social impact study, and an executive project. In the executive project to analyze the project horizon, affected population, demand and size of the network and infrastructure. Following is the drafting of charges and finally the launch of the works and consulting and management competition. The potential players in this process would be FIPAG, AIAS, communities and local authorities.



Picture 5: Group 2 show their results for the project of water supply (pipelines) to a new formal settlement

Group Three: Building a dam to supply water to Maputo

Step 1: The assessment of the existing legal framework. This implies consulting the legislation that allows for this kind of construction, including: the Water Act; Strategies and national policies that define what is required when developing a dam; in addition to the National Water Resource Management Development Plan.

Step 2: The identification of the site for construction by the Ministry of Public Housing and Water Resources.

Step 3: A pre-feasibility study, which incorporates the study of technical feasibility (hydrological, geological, geophysical, geotechnical, etc.).

Step 3: An economic and financial feasibility study.

Step 4: The socio-environmental study is then carried out by the Ministry of Public Works and Housing, which looks at possible resettlement and environmental safeguards.

Step 5: The executive design.

Step 6: The mobilization of funds by the Ministry of Economy and Finance.

Step 7: The construction phase.

For this group the surrounding actors would be ARA-Sul, FIPAG, Adem, farmers, Municipalities of Matola, Maputo and Boane, civil society and NGOs.



Picture 6: Group 3 showing their results. Left on stage is Agostinho Vilankulo, from the National Directorate of Water Resources Management (DNGRH) and right, holding the paper sheet, is Isaias Raiva, from the Meteorological Services (INAM)

Group 4: Refurbishing urban drainage project

Step 1: Project preparation and design, a process that will include actors such as the proponent, consultants and donors.

Step 2: Making contact with local authorities and entities in order to explain the intended plan.

Step 3: Public consultation, which is essential and needs to include local entities, and NGOs.

Step 4: Environmental impact assessment.

Step 5: Presentation of the project to stakeholders.

Step 6: Implementation of the project.

Step 7: Monitoring & evaluation.



Picture 7: Group 4 presenting their results for the project on refurbishing the urban drainage system in an existing formal settlement (alleviating flooding)

11. REFLECTIONS ON DAY 1 AND CLOSURE

Katinka Waagsaether

For this everyone stood in a circle and was asked to share something that they really liked about the day and then something that they thought did not go so well.

- Positive responses: e.g. really liked it/pleased/ pleased//liked it/great/feel good/ happy/tired and satisfied (12)
- Learning: I learned a lot/ very knowledgeable (2), interesting (2), accomplished/ a lot/progress (2)

Day 2: 16 May 2018

10. INTRODUCING A CLIMATE PERSPECTIVE

Dr Joe Daron

Note - Agenda Item 10 from Day 1 was moved to Day 2 owing to time constraints

A presentation was given on current data and knowledge on the past climate, future and projections of Maputo, followed by an exercise session on climate trends. The images below show excerpts from the presentation: [presentation by Dr Joseph Daron](#).

At the end of the presentation, Joseph Daron asked participants to reflect on the following questions about the perception of climate trends:

A. How have the following climate risks changed in Maputo over the past 50 years?

- Heatwaves
- Drought
- Flooding
- Damaging winds
- Coastal inundation

Participants said these risks have increased in recent years. According to the National Institute of Meteorology of Mozambique the heatwave events have been increasing since the year 2000.

B. How have the following climate variables changed in Maputo over the past 50 years?

- Temperature
- Rainfall
- Winds
- Sea level

Participants say they do not have enough information to answer this question, it would be important that they also have data on sea level variation, information or flood data tables.

C. How do you expect the following climate variables to change in Maputo over the next 50 years?

- Temperature
- Rainfall
- Winds
- Sea level

Studies conducted by some consultants indicate that climate change is already a reality in Mozambique. Data collected by institutions in France and the USA indicate the increase in the frequency and intensity of the events listed in the next 40 and 50 years. However, there is a tendency for temperature rise and precipitation reduction depending on the model and type of information being used.

D. How do you expect the following climate risks changed in Maputo over the next 50 years?

- Heatwaves
- Drought
- Flooding
- Damaging winds
- Coastal inundation

Floods and droughts are severe and may not be associated only with the climatic component. For example, in Maputo, the occupation of drainage ditches, poor urban planning and lack of infrastructure contributes to increased flood and flood risk. It is important to analyze not only the climatic variables but also other factors (stressors) that contribute to the occurrence of these phenomena.

12. A CLIMATE RESILIENCE LENS

Dr Joseph Daron

Following the exercise on climate trends and impacts was the exercise on the analysis of the climate risk narratives, highlighting the narrative 'Business as Usual' versus the narrative 'Positive Action'. The narratives presented two scenarios on the water sector and the information contained in them has been drawn by Dr Daron from the City Dialogue. Two versions were presented, one in Portuguese and one in English and a detailed diagram with four different scenarios for 2040. The aim is to analyze whether this information is crucial in the water sector and whether the format of using narratives is useful. Will these scenarios be realistic by 2040? Is there anything that is incorrect in the scenarios?

Comments by participants were:

- The Massingir dam is mentioned as an alternative way to supply water, which is not correct, the correct dam is that of Corumana.
- One narrative says that the city of Maputo in 2040 will have a population of 4000 million inhabitants and another one of 5000 million inhabitants. One of the participants from the National Institute of Statistics, contradicted this by saying that Maputo City will have a population of 1,700 million inhabitants by 2040, but if all the regions Maputo, Matola and Marracuene join together can be close to 4000 million inhabitants in 2040.
- One participant mentioned that Narrative 1 says that there is a municipal fund to support the water system and does not think it is true.
- Another finding by the AdEm technician referring to the last paragraph of narrative 1 says that the quality of water is not good this can create tension because it is not true because the quality of water is monitored to know if it is able to be consumed within the international standards and the Ministry of Health do quality tests.

Dr Daron thanked the participants for their comments and input, and apologised for the parts that were incorrect. He further noted how a key intention of the narratives is the discussions they raise, particularly discussions around different climate futures.

According to Agostinho Vilanculos, MOPHRH, climate information is important in the water sector, but for hydrology, it is interesting to know the type of dam, water quantity, temperature, historical precipitation. The use of narratives is a good starting point.

13. TRANSFORMATIVE DECISION-MAKING CLIMATE INFORMATION

Katinka Waagsaether

In this exercise we turn to the decision-making process based on the previous Business as Usual decision-making exercise. We now look to guide a process of a transformational approach to decision-making, which includes a climate lens into decision-making.

Participants are asked to regroup and return to the previous process to highlight: 1) in the decision-making process where they feel that climate information should be included or introduced; 2) How this information should be introduced or included 3) and what information is needed for this purpose.

Reaction of groups to inclusion of climate change information in their decision-making

Group 1: Dry toilet pilot project in existing informal settlement.

For this group in the Environmental Diagnosis phase, it is relevant to have climatic information regarding the precipitation regime, because it will give indications to estimate the soil stability and the level of groundwater contamination. The temperature is also important because it will help to measure the degree of organic matter decomposition. In the phase of urban planning and design of the project the information on precipitation and wind is important because it helps in the structure of the latrine - depth and foundation, as well as temperature - because it determines the type of material required for the construction of the latrine.

Group 2: Water supply (pipelines) to a new formal settlement

At the design stage, they need elements to form the executive project which are precipitation, surface runoff and groundwater. Precipitation helps feed aquifers.

Group 3: Build a dam to supply water to Maputo

In the feasibility study they need climatic information regarding historical and future precipitation, which will allow estimating and determining river / dam flow. Historical and future evaporation, in order to estimate the water balance; historical and future temperatures, in order to estimate the type of construction material, the type of concrete and the structure of the dam.

Group 4: Refurbishing the urban drainage system in an existing formal settlement

This group needs climate information regarding precipitation, in terms of distribution, frequency, variability and intensity for the study of the environmental impact, and has to do with the resettlement component and avoiding floods.

14. WAY FORWARD

It was said that the FRACTAL project will be completed within a year. Burning issues were identified during the first Learning Lab, which has been followed by a City Dialogue and second Learning Lab. It was further noted that the intention is to realize another lab and a city dialogue before the end of the project, hopefully with the collaboration of the participants. In order to inform the work taking place in this final year, participants were asked to form groups and answer the following questions:

1. Climate change information and its translations (forms) (Group 1 & 3)
 - What are existing projects / planning processes that have used future climate information?
 - What are existing projects / planning processes that could make use of / need climate information?
 - How can FRACTAL research capacity and remaining LLs and a dialogue contribute to these processes (in a collaborative way)?
2. Mechanisms for coordination in the water sector (Group 2 & 4)
 - What are mechanisms?
 - What are the gaps in terms of what exists?
 - How can the FRACTAL research capacity and two remaining LLs and a dialogue to contribute to fill these gaps (in a collaborative way)?

Reaction of groups:

Group 1

- There is a need for information on the climate to be applied in drainage works of rainwater, urban planning.
- Need for dialogue between actors and the implementation of specific projects.

Group 2

- The need to improve existing legislation, policies and strategies.
- FRACTAL needs to present short-term action strategies for technical and leadership training in the water sector associated with climate change.

Group 3

- They spoke of the existence of the Movene dam project.
- The scientific part of FRACTAL can help in the future in the availability of climate projection data.
- Need for technical training for institutions in the use of this data.
- Two critical pieces of information that FRACTAL could follow up on are a) The 2007 Sustainable Development Objectives strategy Plan guides the "Master Plan" for guiding water supply infrastructure project in the south of Mozambique (which serves Maputo). This includes future projections on population but not climate. This is a point which FRACTAL could follow up. b) The Water Act of 1991 plays a key guiding role in how the country/city considers overall water supply and investments in infrastructure. This is also due for review and FRACTAL could assist here. However, it was intimated that it would be difficult for FRACTAL to influence a review of these documents.

Group 4

- They identified as gaps the lack of institutional coordination, overlapping of activities, budget deficit and weak legislation length.
- They await the support of FRACTAL for strengthening coordination mechanisms among sectors, creating forums, resources and capacity building on climate change.

- FRACTAL to support the improvement of existing legislation.

15. REFLECTIONS

In order to close the activities of the Learning Lab day participants were asked to reflect on the event.

For this the participants stood in a circle, passing a ball around and, when holding the ball, had to say one thing that really liked about the event and something they thought could be done differently for future events:

- Enjoyed the activities related to decision making;
- Liked the form of message transmission of implementation of climate projects;
- Need for better coordination in the sanitation sector;
- In the exercise of water supply projects liked to know if the need to carry out impact studies will transmit to colleagues;
- He was pleased to know that for major works, the need for climate information is welcome;
- He liked the possibility of generating precipitation information in the future as a way of solving some problems;
- One participant said that he had been using historical weather data and was satisfied with the possibility of using future scenarios;
- Liked the event and will share what he learned with his colleagues;
- He liked to learn about the importance of climate information and exchange among participants;
- He liked the work team and counts on FRACTAL for future scenarios;
- Need for a repository of climate data and sharing across sectors;
- He liked the way the topics were discussed and the facilitators centralized the discussions to the participants;
- Welcomed FRACTAL in providing subsidies and training institutions in the water and climate change sector;
- He was pleased to learn that all come from different institutions and are linked to climate issues;
- He liked the methodology as it was used to conduct the lab, and for FRACTAL to achieve the objectives it should involve decision-makers and not just technicians in the next labs;
- Was two days of much learning and the need for FRACTAL to create strategies to disseminate information to communities (use of common language);
- I would like to have the data presented shared by email;
- Was good, cooperative engagement and involvement;
- Very interesting, everyone talks about the same theme and each one weaves his position and counts on FRACTAL in the contribution of resilience and climate change;
- Liked the interaction and that in the future it remains so and impressive with the methodology used;

- He has learned a great deal about climate change and it is up to each one to apply in his sector of work;
- First time in Mozambique and enjoyed the hospitality;
- Two fantastic days and lots of collaboration;
- Liked the interaction between various sectors.

VISIT TO DAM


For the closing of the second day and the event, a visit was made to the dam of the Pequenos Libombos, where participants learned about the history of the dam, the characteristics of the dam, the way of water supply, the history of hydrometric levels, the age and purpose of the dam, among others.


Field Trip for more information on the Pequenos Libombos Dam, see links below:

- a. [Small Libombos reservoir remains critically low - AIM report](#)
- b. [Visit Barragem dos Pequenos Libombos, Maputo](#)
- c. [Maputo faces possible water crisis](#)
- d. [Development of an Effective Operation of Small Libombos Dam in the Context of Climate Change in Mozambique](#)
- e. [Mozambique: Water Shortage Compromises Boane Agriculture](#)


APPENDIX 1: PARTICIPANTS

DAY 1.





FRACTAL
FUTURE RESILIENCE FOR AFRICAN CITIES AND LANDS



Segundo Laboratorio de Aprendizagem
15 e 16 de Maio de 2018

Lista de Presenças			
No	Name	Posicao/Instituicao	Telefone
1	José Henriques		
2	David Mucambe	Tecnico AHA-SU	820830014
3	Daudo Carimo	Tecnico	843040400
4	Abilio Murima	Tecnico - FIPAG	848865437
5	Hélder de Jesus Dous	Tecnico FIPAG	845815089
6	Aurelio Salomao	Tecnico/INEM-VTU	848107927
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9	Isais Raiva	Tecnico	846160607
10	Angelo Ricardo	Tecnico/Adem	844757184
11	Gustavo Abilio Zita	Verador CMVA/Adem	847402607/24473380
12	Gerson Elias Xerinda	Gerson Elias Xerinda	844056508
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14	Sergio Machava	Tecnico/IA-ARTEST	840123598
15	Arlindo Francisco	Tecnico	845244798
16	Teresa Chissequere		
17	Antonio Beleza	TINAC	827059560
18	Paulo Matusse	Tecnico DM	840486086
19	Marcia Guambe		
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34	ANTONIO			
35				
36				
37				



Segundo Laboratorio de Aprendizagem
15 e 16 de Maio de 2018

DAY. 2

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34				
35				
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APPENDIX 2: AGENDA

1	09:00-09:30	Welcome notes	Representative of Maputo Municipality
2	09:30-09:45	Introductions	Katinka
3	09:45-10:00	Objectives and Goals of FRACTAL	Di Scott + Translator
4	10:00-10:30	Introduction - FRACTAL in Maputo.	Genito Maure & Katinka
	10:30-11:00	Coffee Break and Group Photo	Hecrálito
5	11:00-11:15	Game	<i>Katinka</i>
6	11:15-11:30	Learning Lab Link (3L) from the Lusaka	Katinka or Joe
7	11:30-12:00	Objectives of this Maputo Learning Lab	Katinka with support from Genito
	12:00-13:00	Lunch	Hecralito
Day 01 Afternoon: Unpacking and prioritizing (new) relevant issues			
8	13:00-14:15	Water Sector Governance and Coordination	Di, with support of Katinka
9	14:15-15:00	'Business as Usual' decision making	Katinka, with support of Genito
	15:00-15:30	Coffee break	Hecralito
	15:30-16:00	'Business as Usual' decision making - feedback & discussion	Genito, with support of Katinka
10	16:00-16:30	Introducing a climate perspective	Joe with support of Genito
11	16:30-17:00	Reflections on the day & Closure	Genito, with support of Katinka (see on the day)
18:30: 20:30 Social evening			
Day 02: 16 May 2018			

	Day 02 Morning: Sessão sobre o Clima		
	08:00-09:00	Breakfast	
13	09:00-09:15	Opening game	Katinka
14	09:15-09:45	A climate resilience lens	Joe, with support of Genito
15	09:45-10:30	Transformative Decision Making	Katinka and Joe OR Genito and Joe?
	10:30-11:00	Coffee break	Hecralito
	11:00 - 11:45	Transformative Decision Making - feedback and discussion	Genito and Katinka
16	11:45-12:15	Way forward	Genito and Katinka
17	12:15-12:30	Learning Lab Link (3L)	
18	12:30-13:00	Reflections & way forward	Genito and Katinka
	13:00-14:00	Lunch	
	Day 02 Afternoon: to visit Pequenos Libombos Dam		