Windhoek Third Learning Lab Report

14th -15th August 2018

Roof of Africa Hotel, Windhoek

Compiled by

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Future Resilience for African Cities and Lands Project

SUMMARY

Future Resilience for African CiTies and Lands (FRACTAL) is a four-year project that is funded by the Department for International development (DFID) and the Natural Environmental Research Council (NERC), within the multi-consortia programme: Future Climate For Africa (FCFA). FRACTALs main overarching aim is to advance scientific knowledge about regional climate responses to anthropogenic forcings, enhance the integration of this knowledge into decision making at the codependent city-region scale, and thus enable responsible development pathways.

The FRACTAL Project uses the "learning labs" process, which is transdisciplinary in nature. This process entails co-producing research questions that are relevant for all actors, including academics and practitioners, and knowledge that contributes to answering these questions. The Third Windhoek Learning Lab on 14th -15th August 2018 brought together stakeholders from a variety of organisations with the objective of: (a) update on Windhoek – FRACTAL project; (b) framing the action plans for the proposed City of Windhoek's Integrated Climate Change Strategy and Action Plans; (c) Climate information training; (d) Water and energy dialogue and (e) FRACTAL legacy and learning lab link.

ACRONYMS AND ABBREVIATIONS

CaDD	Climate Capacity Diagnosis & Development
CoW	City of Windhoek
CSAG	Climate System Analysis Group
DFID	Department for International Development
FCFA	Future Climate For Africa
FRACTAL	Future Resilience for African Cities and Lands
ICCSAP	Integrated Climate Change Strategy and Action Plan
ICLEI	International Council for Local Environmental Initiatives
IPCC	Intergovernmental Panel on Climate Change
MAWF	Ministry of Agriculture, Water and Forestry
MET	Ministry of Environment and Tourism
MoU	Memorandum of Understanding
NamWater	Namibia Water Corporation
NERC	Natural Environment Research Council
NHAG	Namibia Housing Action Group
SDFN	Shack Dwellers Federation of Namibia
SOG	Small Opportunities Grant
START	Global Change System for Analysis, Research and Training
UCT	University of Cape Town
UNAM	University of Namibia
UNDP	United Nations Development Programme

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DAY ONE: 14 AUGUST 2018

Session 1: Official Welcome and opening

Prof. Mfune introduced the Third Learning Lab by requesting a prayer by a participant, which was offered in Otjiherero a local language. Thereafter, Ms. Mary-Anne Kahitu, Manager of Health and Environmental Services Division in City of Windhoek (CoW) officially introduced Lab. Within the opening speech, the vision to continue Future Resilience for African Cities and Lands (FRACTAL) Project-like engagements after the project was expressed.

Figure 1: Ms. Mary-Anne Kahitu giving the welcoming remarks

Session 2A: Plenary session: Objectives of Third Windhoek Learning Lab and Reporting back on FRACTAL-Windhoek activities

Prof. Mfune then used the number game to relax the crowd; how many numbers do you see? (See Figure 2 below).

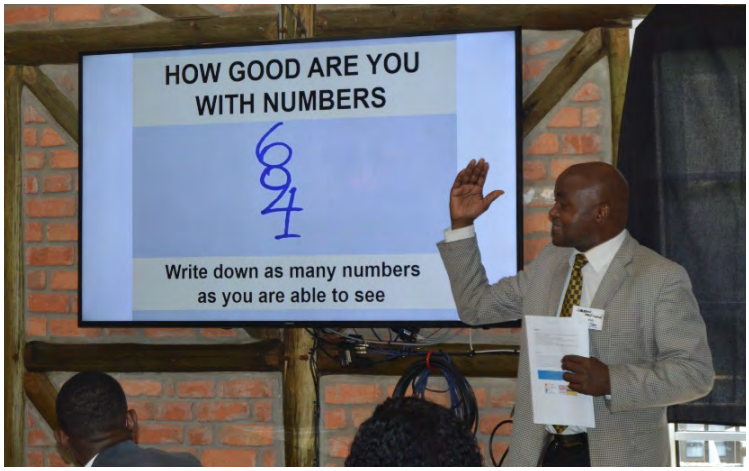

Figure 2: Prof. Mfune giving an ice-breaker

Prof. John Mfune introduced the FRACTAL project and mentioned that climate change affects Windhoek, which is a dynamic city and, with development and water-related

problems, water services are undermined and flooding occurs. Prof. Mfune also posed the question "what is this beast called FRACTAL?" It is the only project that is African led and aims to support the integration of climate change information into the development of African cities. Prof. Mfune alluded to the complexity of African cities, and the fact that we need to collaborate and work together to build climate resilient cities. Prof. Mfune described the Learning Lab and how this is a different process of sitting together, dialoguing etc. In the Windhoek First Learning Lab, burning issues were identified (water/resources and access to services in informal settlements/energy in informal settlements).

Prof. Mfune also described the narratives and how these have introduced relatively easy ways to discuss issues of climate change. Prof. Mfune mentioned the governance research that has been undertaken to better understand the governance arrangements. Prof. Mfune also mentioned the development of the City of Windhoek Integrated Climate Change Strategy and Action Plan (ICCSAP), as well as the Transformational Leadership on Climate Change (TLCC) training. Prof. Mfune emphasised that we have undertaken many activities to understand if the team can contribute to making decisions for a resilient city. Prof. Mfune finished off by saying that that FRACTAL project ends next year, and posed the question; "can we address the issues uncovered?" Prof. Mfune also explained that photographs and notes will be taken, if the participants were okay with this.

Session 2B: Tupopyeni oClimate

The Tupopyeni oClimate talk show was hosted by Prof. Gina Ziervogel from the University of Cape Town (UCT). The guest were Dr. Lapogang Mogale, the Gaborone-FRACTAL Principal Investigator based at the University of Botswana and Mr. Molebogi David Ramatuhare a City of Gaborone Principal Physical Planner. Below are the discussions.

Figure 3: Tupopyeni oClimate with FRACTAL- Gaborone Team

Prof. Ziervogel: Please tell us a little bit about yourselves

Dr. Mogale: Head of the Faculty of Engineering, University of Botswana. We have a partnership with UCT but are latecomers to the FRACTAL process.

Mr. Ramatuhare: Head Physical Planner of Gaborone City Council. He has seen the need for research teams and implementation teams to work together.

Prof. Ziervogel: can you tell us a bit more about how you are working together collaboratively?

Dr. Mogale: FRACTAL has supported an appraisal of institutional capacity for climate change, it enabled us to bring together multiple stakeholders to develop the city narratives, alongside Blantyre and Harare.

Prof. Ziervogel: what would you like to get out of the next two days?

Dr. Mogale: we appreciate the work that City of Windhoek has done and Gaborone are behind. We would like to put the cart before the horse in Botswana and take the lead as a city dealing with climate change – we can learn from our colleagues in Windhoek and make impact at a city level.

Mr. Ramatuhare: we are in a similar climate region to Windhoek, so it would be interesting to align challenges. We would like to work hand-in-hand with other departments as we are currently planning in a haphazard way. So I would like to know how we can try take the initiative that has been taken in City of Windhoek. We would like to find out what City of Windhoek are doing and how they are planning on drafting and implementing the Integrated Climate Change Strategy and Action Plan.

Session 2C: Introductions of participants

Dr. Taylor led the introduction of participants session to get a feel for who' is in the room. To do this, she posed three questions and asked participants to stand, and sit down when questions did not pertain to them. These questions were listed below. Some feedback was gathered to shed light on who was in the room.

1. If your birthday is in August, please stay standing.
2. If you have attended a Learning Lab before, please stay standing
3. If you work at government (city or national), please stay standing
4. If you work at an organisation outside of government, please stay standing

Figure 4: Introduction of participant's game

Thereafter, participants were asked to reflect on what they would like to get out of the Learning Lab; either a question they would like answered, or a motive they would like to put forward to the Learning Lab. See below all contributions and questions that were subdivided

into themes i.e. FRACTAL, ICCSAP, water, energy, informal settlements and others (see Table 1 below).

Figure 5: Participants sharing their reflections in pairs

Table 1: Participants questions and contributions to the Learning Lab

Themes	Questions or contributions
FRACTAL	• I would like to know what the FRACTAL project entails. • Where to from here for the FRACTAL project? • Practical issues for FRACTAL. • When are we starting with implementation of all FRACTAL activities? • How do we keep the momentum? • How will stakeholders in Windhoek continue to grow climate knowledge? • How is the end product of this initiative going to be translated into tangible results on the ground to assist residents to cope with the impacts of climate change?
CoW ICCSAP	• How can we ensure that implementation of decisions happens? • Exploring the integration and coordination of CCSAP activities to support and drive its implementation across the City of Windhoek (across the different departments). • I want to know more details about the City's I and how long will the process be, more or less? Is there a deadline? • Does the Windhoek ICCSAP adequately deal with social equity? • Implementation of the City's master plan vs. climate change vs. industrialization. • What plans/strategies does the CoW have on the burning issues? • Since informal settlement is one of the challenges Windhoek is facing, in terms of services, what are they planning to do to resolve this issue? • How does the CoW, through FRACTAL, aim to get the youth involved in strengthening their capacity building of a climate resilient city? How is the youth get involved? • How to align climate change strategies with the informal settlement,

	or rather involve the informal settlement communities in such strategies / planning and way forward? ● How much climate change action is in the hands of the city government? ● How will the CoW ICCSAP be incorporated in other CoW strategies and plans? ● To assist the CoW with the implementation and developing the policies, strategies and programmes related to climate change ● What measures are CoW planning to ensure adequate supply of water and energy for industries? ● Mainstreaming climate change in the developmental plans.
Water	● Access / provision of safe drinking water to Windhoek's inhabitants, including the informal settlements ● How is Windhoek going to handle the issues of informal settlements with special focus on water and sanitation infrastructure (what is the way forward because informal settlements are here to stay)? ● How do we make the 'save water' message more effective and consistent (proactive instead of reactive)? ● Water availability is critical for the city of Windhoek, hence the management efforts have to be prioritized more than anything else. The time to act is now! ● Repeatability of research on current and future flood modelling on different river basins in Windhoek. ● What are the water quality and climate change interactions? (Often we only speak to water quantity aspects). ● Strategy support for integrated water management.
Energy	● We generally think climate change is a water problem, how is it implementing energy/electricity? ● Incorporation of greenhouse gases emission reduction renewable energy technologies in the informal settlements to address access to electricity. ● Possibility of awareness campaigns in informal settlement. ● CoW plans / programmes for renewable energy, especially in informal settlements. ● Renewable energy needs to be discussed. ● Impact of climate change on energy security in the City of Windhoek.
Informal settlements	• How does climate change impact on the socio-economic wellbeing of urban population, especially the low-income groups? • How can our cities and stakeholders work together to address the natural disaster affecting informal settlements? • To what extent climate change can affect / impact township development especially in informal settlements. • How to mitigate the effects of climate change in existing informal areas? • How do we promote resilience in informal settlements amidst uncontrolled settlement?
Others	• To control / manage de-bushing in order to conserve the biodiversity and our environment – aim is for more greenies. ● Climate related facts to become part of City's publications, e.g. newsletters.

	• Get more youth involved in a climate change issue; community engagement in such issue so that they can be more aware. • Sign Memorandum of Understanding (MOU) with different stakeholders, especially NGOs. • Can the government be consulted to fairly distribute major employment generated projects to cities / town that are not clustered with urbanization? • Is climate change a slow onset disaster? • How does climate change affect the general livelihoods of urban dwellers? • I would like to contribute to climate change training to strengthen the knowledge and skills of the participants. • Contribute towards ensuring the sustainability for future generations, especially building resilient informal settlements when it is difficult to control migration into the city.

Session 3: Games on exploring language & terminology in climate change adaptation and decision-making

Dr. Sukaina Bharwani and Ms. Liz Daniels, Stockholm Environment Institute

The played a game, participants were divided into two groups were they rotated within the session: (1) Disaster Risk Reduction (DRR), adaptation, development, mitigation; and (2) Climate vs. weather. The game was set up to explore the challenges people working in the climate change field might face with regards to overlapping or confusing terminology. To do so, on one table, large cards with the categories "DRR", "adaptation", "development" and "mitigation" were set up and people were given smaller cards with words or phrases related to these terms (e.g. rainwater harvesting, flood monitoring) written on them. Whilst on the other table, "weather" and "climate" were presented as overarching categories, with smaller words or phrases including "today is hot", "El Nino", "average temperature". Depending on their association with the word or phrase, they had to place the smaller cards nearest to the larger term to which it related (see Figure 4 below).

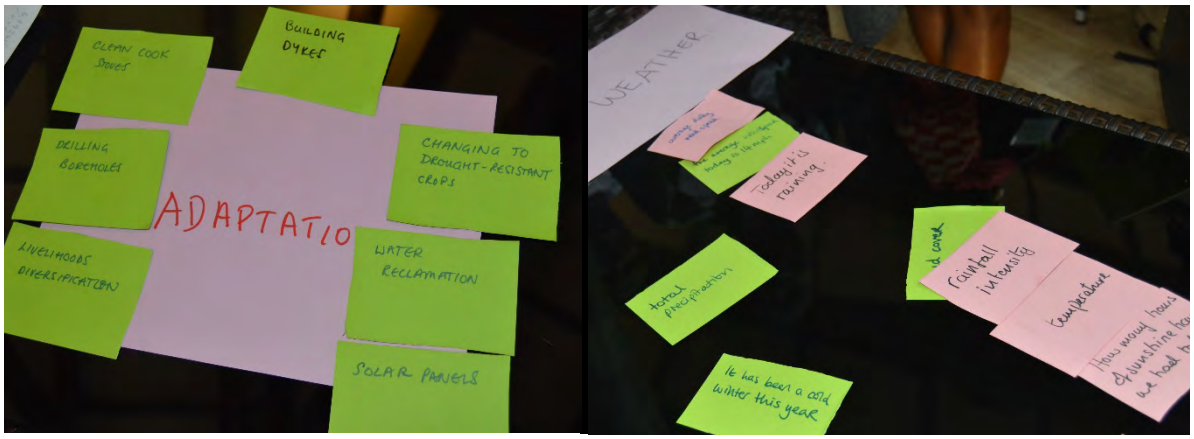

Figure 6: The terminologies word game

The game opened up important dialogue about the differences and similarities in terminology related to climate change and planning. For example, in DRR, the term "mitigation" is

understood differently to how it is understood in the field of adaptation. Dr. Bharwani highlighted that this is never going to go away; it will likely remain a tension forever. We should not try and impose our language or meaning on other communities, we should rather be aware of the differences. Dr. Bharwani also mentioned that planning for climate change is related to longer-term planning that integrates climate change information, so there is a distinction between coping and adaptation. The conversation then steered to one about urbanisation (i.e. business as usual development) vs. climate change adaptation. This sparked debate among the CoW team, particularly around what constitutes development vs. adaptation vs. coping. For example, some people thought that drilling boreholes to increase water security constitutes adaptation, while others thought this activity is part of business-as-usual development.

Figure 7: Participants discussing the different terminologies

Another CoW participant put forward the idea that adaptation is about making long-term changes. Prof. Ziervogel brought up the idea of individual adaptation vs. systemic adaptation; all small elements have a much bigger consequence. Anna also mentioned the idea of different versions of development. Dr. Persendt of from University of Namibia mentioned that the poor and marginalised will be the most effected by climate change, so it is a social justice and equity problem. At the "weather" vs. "climate" table, people discussed how important the framing of terms is to distinguish between weather and climate, particularly related to spatial and temporal scale. Key phrases from the exercise: "the more we work together as a team, the better the solution will be".

Session 4: FRACTAL Learning Lab Link

Before the lunch break, all participants got raffle tickets for gift from Maputo prize completion. After lunch, Dr. Taylor presented the drawing from the Maputo Learning Lab as part of the FRACTAL Learning Lab Link. Windhoek learning lab participants had to draw as well, Ms. Amutenya volunteered to draw which would be presented at the next Lusaka Learning Lab.

Figure 8: FRACTAL learning lab link drawing

The winners were announced after lunch, the prizes included/: African print fabric, cashew nuts and a bag (see pictures below).

Figure 9: Raffle prize winners

Session 5A: Climate Information Training

Dr. Laura Burgin, UK MET Office and Dr. Victor Indasi, Climate System Analysis Group, University of Cape Town

Dr. Burgin opened the training and mentioned that it was a very condensed version of a climate science training that generally takes a lot longer to run. Dr. Burgin introduced herself and Dr. Indasi, and all participants introduced themselves. Thereafter, the participants played the climate cards game, which highlighted the uncertain (and different) outcomes of climates, despite understanding their forcing and variables.

Figure 10: Climate information training in session

Dr. Indasi then kicked off the presentations with an introductory session on weather vs. climate and the climate system. He mentioned that his session was going to be very interactive and that he didn't want to deliver a lecture, but rather lay the groundwork for Dr. Burgin, who would be talking about climate models. He posed questions throughout his presentation, stimulating the group to think about the climate system. Thereafter, Dr. Burgin went over climate models, including variables, forcings and uncertainty. She presented the cascade of uncertainty figure shown by Wilby and Dessai (2010). At the end of the training, participants were given sticky notes to reflect on the training (see below Table 2).

Table 2: Participants reflections from the Climate information training

Question	Reponses
1. What was your main take-home point?	● Ocean circulation and the impact. ● Very enlightening in term of modelling and data enhancement and interpretation. ● Good to know that there are different climate models. I have had a glimpse of the climate system.
2. What would like to have more training in?	● Simulations when adding/removing variables in the RCM model. ● Focus on biomass burning emissions. ● More knowledge on how to interpret data and/or models regarding climate change. ● Interpretation of modelling. ● More time/days and to do a run on software. ● Provide more Namibian examples for people to understand the type of data and what it means. ● Climate modelling and mapping using GIS software. ● Practical course on map generation and modelling. ● Hands-on is needed.
3. What did we not cover that you would like to see in future?	● To include such topics in school, to be the topic on its own, starting at a lower grade and have more understanding of what climate is about. ● To have more training on the different module and how it works. People should get physical and theoretical training to also have the feel in the training. ● How to encourage data collection at all levels, in all

	institutions. ● To know more about deforestation.

Session 5B: City of Windhoek Integrated Climate Change Strategy and Action Plan (ICCSAP): Introduction and Themed Discussions

Mr. Olavi Makuti, City of Windhoek and Prof. Gina Ziervogel, University of Cape Town

Mr. Makuti mentioned that the City of Windhoek's Integrated Climate Change Strategy and Action Plan will first put emphasis on the focus areas discussed below. This is mainly due to limited resources and these focus areas also represents the burning challenges that are hampering the city from achieving its sustainability goals and climate resilient status. Mr. Makuti explained the ICCSAP themes and the goal for the ICCSAP as "Water Secure and Climate Resilient City". The themes listed below represent the core/focal target areas of the Strategy for activity to tackle climate change and enhance sustainability within the City of Windhoek:

1. Water Security and Efficiency
2. Renewable Energy and Energy Efficiency
3. Biodiversity and Ecosystem Goods and Services
4. Healthy Communities
5. Disaster Risk Management
6. Awareness Raising
7. Sustainable Transportation
8. The Built Environment:
    A. Critical Infrastructure
    B. Waste Minimization and Management
    C. Human Settlements (eradication of informal settlements)

Then after Mr. Makuti asked participants to join a thematic group of their expertise or interest. The participants had to read the thematic action plans and answer or address to the following questions:

1. What is missing on the strategic aims, targets and activities?
2. To what extent will the ICCSAP address or moderate against projected Climate Change Impacts?
3. Are the strategic aims, targets and activities comprehensive and clear?
4. Are the targets specific, measurable, achievable and time bound?

Figure 11: Participants giving feedback from their thematic group discussions

Session 6: Closing

Mr. Makuti closed off the Learning Lab by thanking all participants for their attendance, their valuable discussions, reflections and their contributions to the ICCSAP. Mr. Makuti invited all participants to join the Cocktails event straight after the end of the Learning Lab.

DAY TWO: 15 AUGUST 2018

Prof. Mfune welcomed all participants to the second day of the learning lab. A recap of the Day one sessions was made and the introductions to the Day two sessions.

Session 7: Climate Change governance findings emerging from Interviews: Themes and interactive session using Kumu

Prof. Dianne Scott and Prof. Gina Ziervogel, University of Cape Town

Prof. Scott went through the results from the governance research, focussing on decision making for climate change. She introduced the session by presented the objectives, framework and methodology. Prof. Scott started with an idea about what is a governance arrangement. Interested in the knowledge and information the actors have, and the languages and frameworks the "discourses" that the actors talk in. The interviews took place in 2017 with 32 semi-structured interviews undertaken with city officials, councillors and representatives of civil society.

The NVIVO coding, a qualitative analysis tool that examines the text that has been transcribed. The word cloud shows the words which mainly came out. The text search used nodes to find themes and added in sub-themes. This showed that this was carefully and rigorously analysed. The results are the four themes: climate information, communication between actors, responses, and actor's capacity to respond.

Thereafter, Prof. Scott and Prof. Ziervogel, use kumu to present some of the results visually, and to collate feedback on these results. Kumu is a powerful visualization platform for mapping systems and better understanding relationships. Kumu is colour-coded for the different themes and has another colour for entry points where FRACTAL could work with city. The information sub themes are mixed societal understanding of climate change, different interpretations and meanings of words. Various quotations from the interviewees "Urban communities are less aware than rural". "Reluctance from religious groups to get on board." Some are contradictory. Communication theme: sub-theme – new topic for some institutions. Need a more user friendly way of sharing data with institutions. "So difficult to communicate when data is stored in islands" – theme of fragmented data coming out. Might be referring to weather forecasting rather than climate info, saw the difference in the word game yesterday. Prof. Scott emphasised the fact that the data collected was qualitative, thereby looking at contextual factors (not numbers).

Feedback from the participants is presented below.

1. We do not have an innovative way of managing complex climate information.

2. Mrs Ashipala from CoW said kumu is a good tool as sometimes there is only raw data, and we need to know what it really means. The need arises for interpretation and put it in lay terms. E.g. can I drink this water? They can go and collect water from the house and test it. It is a service they provided as CoW, we analyse it in the lab. It is water quality information, but it is related to climate change.
3. Mr. Amweelo asked we have southern African representatives in IPCC. Dr. Taylor said University of Cape Town has eight authors on IPCC – maybe not representative of Namibia. Research capacity should be represented across the region. There needs to be mechanisms for feeding in the science, particularly the grey literature, such as reports. What is the process for feeding back from UNFCCC? People in the room may be able to feed back more. Prof. Ziervogel has been nominated as an author on the IPCC chapter on cities.
4. Dr. Mogale said that the IPCC is an academic exercise not really for improving capacity. Money is with the donors and not cascaded down. For local capacity South Africa is far ahead as they have scholars who can interact with local people.
5. Mr. Dieter asked how Prof. Ziervogel will share the results from IPCC. Prof. Ziervogel Gina explained that it is a review process, but generally there is a problem with sharing results from academic work, normally just published in journal articles. The Adaptation at Scale in Semi-Arid Regions (ASSAR) Project is doing some interesting work e.g. radio show with Bernadette. Prof. Scott added that most of the literature has been in the natural sciences. So it is particularly the social science and the grey literature e.g. the report on informal settlements in Namibia.
6. Climate research needs to be translated into policy relevant information, maybe even indigenous languages. There is a difference between local and useful languages.
7. Dr. Taylor posed the question on who is well positioned to translate into indigenous or useful languages. A member from the Ministry of Environment and Tourism (MET) mentioned that adaptation toolkits have been developed and translated into local languages. This were developed by MET in collaboration with United Nations Development Programme (UNDP).
8. A representative from CoW water mentioned that if a civilian wants information about water quality, then s/he should contact CoW water and tell them why, but it is available. CoW water are producers of water quality information (through a research lab).
9. Mr. Makuti mentioned that they invited Mr. Shigwedha the CoW specialists in communications. The CoW has a public communications division, which is responsible for sharing information. They source information that is needed, translate it and simplify it. "The Aloe" is a monthly newsletter that enables sharing of information. A platform is also available, through which people can upload information and ask questions.
10. It is important to remember with whom you are engaging – the information that is shared might not be relevant or meet their needs. Mrs. Shalumbu added that it is also important to understand who you are communicating to. If you put something on your website or Facebook – people may not have access to these. Additionally, the CoW could look into publishing climate change info specific.
11. Mr. Shigwedha stated that when it comes to climate change it is related to the water crisis. We have the publication, Aloe, it is written in the language for the person in the

street. Depending on budgetary provision, we can source the information. Mr. Dieter gave an example that there was a time that the water became brown after pumping water out of the reservoir. The lab did the testing and communicated the results to the commutations office who communicated with the public.

12. A participant think people are very sceptical, you find people not knowing what to do. The information is there but they have to read and we do not have a reading culture so it requires a mentality change.
13. The Ministry of Communication and Information Technology play an important role in sharing of information at national level
14. To say that there is a concern that local partners do not have capacity to implement donor-driven policies is a broad statement… which policies?
15. People have capacity to implement policies, we just need more efficient systems.
16. We need to narrow the gap between politicians and technicians.
17. People in the CoW have general capacity but not the technical skills for managing climate change – we need constant updating of skills.
18. As a representative of the technical community, we try and meet politicians but it takes ages. Why don't the politicians take time to meet with technical people (with all due respect)?
19. We have the capacity to translate information but we cannot talk to local people about climate change if we do not understand their socio-economic issues. People are being asked to adapt to climate change but they also have not had a part to play in emitting.
20. It is important for technical people to understand the mandates of politicians – we need to align our issues with those of politicians.
21. In essence, when we communicate information, we should make sure our framing links to the reality of the person with which the information is being communicated.
22. Mr. Makuti mentioned that twice a year there are public meetings by CoW. They gather information on public concerns through the meeting and on a platform. Reports are published for each departments. The CoW e go back to the community to report back. The systems are there for public participation and public meetings can also be arranged on other issues.
23. We commend the FRACTAL effort – it is giving us the platform needed to share ideas and issues.

Session 8: Water Dialogue and Energy Dialogue

An introductory background was given by the FRACTAL Team on the Water related studies conducted in Windhoek and the proposed energy research. Thereafter, the dialogues were held in parallel to explore: i) Research into Use (RiU) opportunities for the water work; and ii) means to improve the proposed energy research.

Session 8A: Water Dialogue

Prof. Dianne Scott, (UCT), Mr. Gerard Iiputa (UNAM) and Ms. Kornelia Iipinge (UNAM)

Prof. Scott explained the Story of Water in Windhoek that it present a story about the 2015 to 2017 Windhoek drought in the context of climate change using the narrative approach, as told by the Windhoek First Learning Lab participants. The story phases are initial situation, the

complications, the reactions (the plot), the resolution, and the final situation. With the characters of the hero, villain and victim.

Ms. Iipinge gave the Water governance research – case study of Ujams Wastewater Treatment Plant (WWTP) findings. Ujams WWTP is a build–own–operate–transfer (BOOT) contract with the CoW due to operate and maintain for 21 years. The Operators make the decisions but they report to the city and have to comply with them. The WWTP treats industrial wastewater only and the water is released in the Klein Windhoek River. The governance discourses are around environmental protection and wastewater management. A question was raised if the public partnership working well? Mr. Iiputa explained that the plant is operating well and the water is much cleaner than before.

Prof. Scott's piece of research is on a particular piece of policy. The Water Supply and Sanitation Policy, critical and significant policy for Namibia. Tried to understand the hidden frameworks. This is a discourse analysis i.e. a language that frames a particular policy. Before the policy was accepted there was already corporatisation of water into NamWater. The discourses are used to frame their point of view. Each provides a different way of understanding the social world. Example, the exercise yesterday of voting with your feet. In a policy document there are often a number of different competing discourses. We talk about dominant and marginal discourses. Results indicated four discourses – neoliberal economic (dominant), social development, environmental discourse, sustainability and also overlapping discourses. Neoliberalism is a global discourse – powerful. Assume water is a commodity and not a human right. Cost recovery and privatisation of water supply and the main influences. Cost recovery does not have a level for people who cannot afford to pay for water.

Ms. Iipinge explained on the AURECON research of integrating climate change information into long term planning and design for critical water related infrastructure in Windhoek. They used rainfall information as scenarios to see what the impacts might be on the water infrastructures. They also reviewed the design standards using the red book from the Council for Scientific and Industrial Research (CSIR) and training manuals. The report is included in the Windhoek City Digest Issue 2.

The participants were asked how they would take this forward. Mr. Amweelo stated that the results from research need to go further. We should look at the people who are being most affected, the grassroots people. Need to understand the scarcity of water, then can explain more e.g. climate change. We expand the knowledge of the grassroots people. Question of sanitation very important. Windhoek was the cleanest city in Africa two year ago but know over taken by Kigali. We need not only policy but implementation.

Dr. Bharwani asked if it would it be useful to have something to help narrow the gap between the technical person and the politician. Something like a two page brief. May take time to change mind set but would incremental steps help? Mr. Dieter stated that technical people and politicians need to work together better. Hard to implement practical implementation. Mr. Uaka added that there is need to monitor policy implementation, need to pilot and see how it works in practice. Dr. Taylor supported the ideas on how to help technical and politicians to work together. There is need to present a simplified version of the paper. And identify what is the barrier for people sitting together? She gave an example in Cape Town that it is better to have an academic expert presenting a paper at a committee meeting.

Session 8B: Energy Dialogue

Funding through the FRACTAL's Small Opportunity Grants (SOG) by Global Change System for Analysis, Research and Training (START), the Windhoek team applied for the Energy provision and legislation in Windhoek's informal settlements research. Prof. Mfune presented the proposed research with an aim of identifying the energy policy and institutional arrangements in informal settlements in Windhoek. The research will include a survey, focus groups, dialogues such as today, semi structure interviews with key informants and secondary observations. Participants were asked to contribute to the proposal, see below are the *Feedback gathered:*

1. Check National Census 2011 data for energy sources.
2. Might also be good to weave in a question on whether people using wood for fuel are of the impact on the environment and climate change.
3. Need to understand the barriers to using renewable energy (as well as being aware).
4. Might be good to explore the point source.
5. We should not undertake extractive research – how are we going to ensure buy-in? Response from Prof. Mfune: learned lessons from Lusaka – mirrored results back to the community on an ongoing basis.
6. Important to have multiple data sources.
7. Could be useful to explore energy efficiency – which of the alternative technologies are more efficient?
8. Interested in exploring policy interventions. We know that the department of energy cannot connect to structures in informal settlements. What are our options?
9. The dialogues that are planned; would be good to expose communities to renewable energy through these platforms. Have the communities been exposed to renewable energies? What are the challenges associated with accessing different sources of energy?
10. Quantification – how do we understand the efficiencies of energy sources?
11. What is the economic loss when the electricity is tapped?
12. Explore the solar revolving fund as an option.
13. Make sure all interest groups are represented at the dialogues.
14. Make sure the surveys are in local languages.
15. Would like to make sure the project is exposed to an honest and candid view from the youth in informal settlements – Mr. Shekuza can help with this.
16. Should also be sure to connect with the Shack Dwellers Federation of Namibia, as well as the CoW's Division of Community Development, Youth and Social Development.
17. Perhaps focus on Havana informal settlement.

Session 9: Learning Lab Link to Lusaka 5th Learning Lab and FRACTAL Project Legacy

Participants were divided into group, they had to come up with a message to be send to Lusaka on the FRACTAL Learning Lab Link. Each group message was recorded and was to be edited into one video by the FRACTAL Team. Dr. Taylor explained the purpose of the session as to look at "What have we started that we want to finish in the next year" .What

new seeds do we want to plant to be the impetus for moving forward into FRACTAL2 or whatever it might be and what fertilizer to add or new seeds to add?

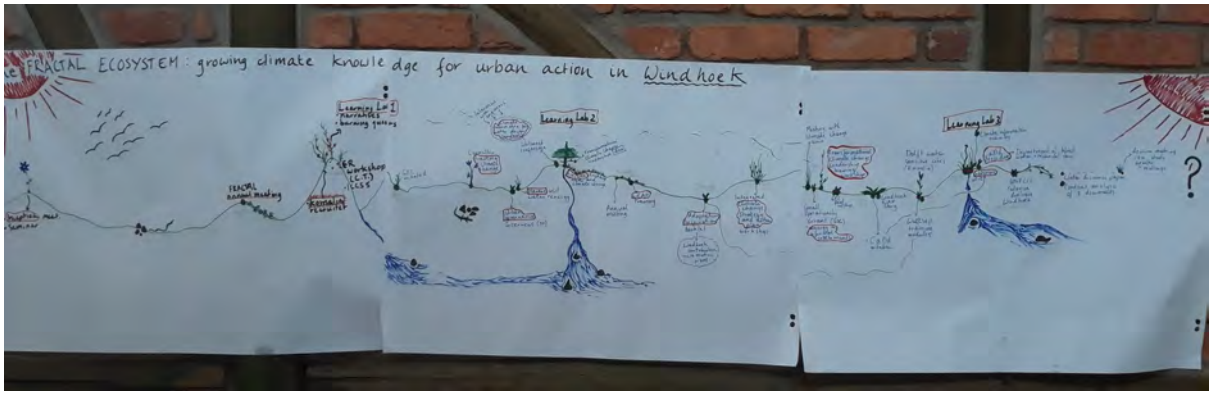

Figure 12: Windhoek- FRACTAL ecosystem picture

Ms. McClure indicated the key aspects in the Windhoek-FRACTAL process as displayed in the Figure 10 above. First inception meeting May 2016 were lots of groundwork and relationship building took place. Recruitment of the Windhoek Embedded Researcher in February 2017 and thrown into the deep end to organise first Learning Lab were burning issues came out. Embedded Researchers attended conference in Cape Town. Councillor awareness workshop on climate change in Windhoek. Exchange visits with Harare, urban governance interviews, Lusaka-Windhoek exchange to learn about water and climate change. Idea from the city on Transformational leadership on Climate Change training started at Second Learning Lab (October 2017) and was carried to April 2018 using material produced in FRACTAL e.g. adaptation inspirational booklet.

In March 2018, the ICCSAP first stakeholder workshop took place and the climate risk narratives were presented. NAP enquires on how Cities / towns can be included with MET. Climate Capacity Diagnosis & Development (CaDD) tool in June 2018 and deeper dive on 16th August 2018. The Windhoek Embedded Researcher attend a short training course on Water sensitive Cities at IHE Delft Water Education Institute. The Third Learning Lab is happening with the Gaborone colleagues visiting and the Climate information training. CoW will take part in Talanoa Dialogue – a global process hosted by ICLEI-Africa.

Session 10: Action planning and next steps for CoW ICCSAP and for FRACTAL Project

Session 10A: Integrated Climate Change Strategy ad Action Plan feedback

Olavi Makuti, Heath and Environment Services Division, City of Windhoek

The purpose of the ICCSAP exercise was to gather information from lots of people, as represented within the guidelines of the policy. The council need to see a need for the policy, and the CoW would like to capture what was said yesterday, understand the different perspectives and make changes. Mr. Makuti explained that the document will be limited to 50 pages once all the suggestions have been integrated, and this will be presented to the Strategic Executive (SE) Forum. The SE would like to know what they are committing to. Many of the SE comments and questions will do with timing and budget. Once the SE has commented and

comments addressed by City Climate Change Desk it will be pass it back to the FRACTAL team for checking. The Ministry of Environment' Climate Change Unit will also need to see and endorse the document. Lastly, the document will need to be approved by Council to become a policy. The CoW is looking at the implementation plan already – they would like for most aspects to be reflected in the targets of the executive heads.

Mr. Makuti stated that the City's Climate Change Desk would like to set up a City's Climate Change Steering Committee, which will comprise of all City departments as well as external representatives from different parts of society (NGOs, researchers, decision makers). The Desk will invite people from different departments to present information on a quarterly basis. In addition, the Desk will continue to organise dialogues and seminars, during which stakeholders can get together and talk. Moreover, the Desk aims for the public to have an article in "Aloe" for all and "City Voices" as the internal newsletter for the City. Lastly, CoW have committed to have a draft policy for council by the end of October/November 2018.

The participant's comments are below:

- Participants are keen to understand how to continue being involved and contribute to implementation.
- Marginalised communities and people need to remain involved. Great to see this continue to be inclusive.
- Need to think carefully about who is represented on the committee
- Accountability – need to think about who chairs the committee – would be good have someone who is heavily invested in the process (e.g. Mayor).
- Would like to see policies updated to mainstream climate change information. This might involve updating the policy that governs policy making.
- Is there an issue of resourcing? Does the city need to prioritise climate or find funds from other sources. MET are the intermediaries to other sources of funding. Who will mobilise this process? The CoW obviously needs to allocate its own resources but will also need to unlock international funds.

Session 10B: Looking forward for FRACTAL

Dr. Anna Taylor, African Cities Centre, University of Cape Town

Dr. Taylor stated that we should think about an extension to validate what we have done – check what's happening in the city in a couple of years. The city can sustain itself but it would be good to help guide implementation through some sort of framework, as well as to access funding. Through FRACTAL, fruit has been born but it might be worth checking this in the future. Dr. Taylor mentioned that it is often the tension we feel; when making research useful, we need to think about how research moves into action. Perhaps we need to focus efforts on designing a framework for planning to access/mobilise funding, as well as learning once a policy has been implemented.

Prof. Mfune stated that consideration must be made to mainstreaming climate into policy. Mr. Makuti added that there is need to look at policy on policy making process in CoW. Mr. Makuti added that there is need for a guidance on implementation frameworks and with the limited resources, resource mobilisation important. There will be need to do monitoring and

Evaluation (M&E) of ICCSAP to support and guide implementation and to mobilize additional resources. Prof. Mfune is hoping to set up a sustainability institute to deal with training for different levels e.g. awareness for school children then adults and members from the CoW. To serve as a basis for continuing education and training and to showcase what the city is doing. Mr. Makuti mentioned that CoW has started thinking about an educational centre.

Mr. Dieter mentioned that the water regulations require drainage body with private sector involvement. But the body is struggling to get heard and needs a platform to speak to the government. FRACTAL has put its efforts in, needs monitoring and crossing cutting evaluation through the different countries. Should be done by an independent body. On an independent platform the process can be kick started. Is the drive going to be supported further? FRACTAL could be the independent body.

Mr. Amweelo contributed that there is need for research on the impact of tree cutting in Windhoek on biodiversity and the controversy as some believe aquifer losing water to trees. Furthermore, Mr. Shigwedha suggested that there need for research on heat island effect of corrugated roofs and potential of green roofs and ecological parks integrated into informal settlements. Moreover, a participant suggested that there is need to integrating climate change into Environmental Impact Assessment (EIA). Lastly, participants applauded that it is good that FRACTAL works across the southern African cities – building collaboration and healthy competitiveness. Idea of a FRACTAL to provide training on accessing, manipulating and analysis of large climate datasets.

Session 11: Reflection, evaluation and way forward

Dr. Anna Taylor, African Cities Centre, University of Cape Town

Dr. Taylor instructed participants to write down on sticky notes: Firstly, One thing I will do; Secondly, One thing I will tell my colleague that I enjoyed; and Lastly, One thing that I would tell the FRACTAL team to do differently? See Table 3 below for some participant's responses.

Table 3: Participants reflections of Day Two

Question	Answers by participants
One thing I will do?	1. To implement the learnings myself as an individual in all the decisions that I make. Rather than wait for ICCSAP implementation in my sector. 2. Discuss with colleagues over tea and share materials; broaden the stakeholder base. 3. We will change our mind-set to consider that climate change impact is a serious issue affecting everybody; we should stand together to adapt and mitigate the impact of climate change. 4. Communicate / coordinate with politicians and grassroots communities about FRACTAL activities. 5. Gather more information / research in climate change. 6. Share information on climate change with colleagues. 7. Consider climate issues in planning.

	8. I will monitor my water usage at household level. 9. Mainstream climate change into grassroots level. 10. Introduce climate related information into our work. 11. Better way to communicate to non-technical persons, i.e. not technical talk and give background. 12. Continue learning, participating, contributing to what should be in the project (exchange idea).
What I will tell my colleagues?	1. I enjoyed discussions around water security issues. 1. FRACTAL is a good driver. Dialogue is key for getting action. We enjoyed the interactive process and discussion. Credit to the facilitators – to the point – diverse – young Dr.'s. 2. We have enjoyed how the FRACTAL team made the learning lab exciting with their different activities. 3. Knowledge and experience learnt from participants; are better equipped with the knowledge from the Learning Lab. 4. Interaction of the groups on different issues. 5. Interactive approach of the workshop. 6. Share the gospel of climate and its impacts on our city. 7. That I have enjoyed the interpretation of weather pattern / projection language term used in climate change. 8. Climate change terminology and language. 9. Responsibility bigger, beyond the job. 10. Interaction with others, we have the same struggle; one big team, we must share experiences. 11. "Climate change is real!" especially because we have associated it more with the rural areas because we see agricultural related results, but it affects the city equally. 12. About water issues / management plans in place within the city and the way forward.
What I think the FRACTAL team could do differently?	1. Water Dialogue study presentations were a bit shortened; it would have been nice if more information / results were given. 2. Continue with city exchanges. Can the city continue to facilitate the workshops? Have they built technical capacity locally to cope without the international FRACTAL team? 3. FRACTAL team should continue to assist the CoW, so we can reach the stage of the strategic action plan implementation. 4. Bring in other themes such as land degradation and deforestation; strengthen policies on biodiversity in Windhoek. 5. More frequent and short – keep alive. 6. For the next session include site visits. 7. Site visits to areas with burning issues. 8. Have one or two of the decision makers. 9. To give practical training on weather pattern / models projection and resolution thereof. 10. Not to divide section on dialogue because some people have interest in both section of discussion, so people are missing out on one discussion. 11. Diversification of participants. 12. Platform for obtaining more information. 13. Get to the point quicker; some could not stay the whole two

	days. 14. Water bottles – please request the caterers of the workshops to do away with the water bottles or refuse them for your workshops. 15. To extent the project and keep on giving training; to have this training for three days not two days, it's too compact.

Dr. Mogale from the University of Botswana said that when she heads home, she will tell her colleagues how amazing the city learning team in Windhoek is. She realises the stakeholder base in Windhoek is much larger than in Gaborone, and really enjoyed the interactive sessions, during which she could learn from the Windhoek colleagues. Dr. Mogale is, however, aware that facilitation capacity should be built to sustain FRACTAL activities after the project ends in June 2019.

Session 12: Closing remarks

Mr. James Kalundu, Sustainable Development and Youth Officer, City of Windhoek

Mr. Kalundu reiterated the learning as he had never sat through a workshop until the end – testimony to the workshop. He stated that the City of Windhoek is proud to have been part of the FRACTAL Project. He appreciated the University of Namibia as the knowledge base which the City depend on them for so many things. Mr. Kalundu stated that the City are eager to move the FRACTAL project forward even after the project ends. Furthermore, Mr. Kalundu expressed how Mr. Olavi Makuti has been nicknamed *"Mr Climate Change"* and he has been doing such a great job that he should not be surprised of every City document from now on has the words climate change in it. Mr. Kalundu showed appreciation to the City's political leadership, that they had supported the ICCSAP discussions / workshops. Lastly, Mr. Kalundu stated that the City would like to see ourselves going on a city exchange soon, and would like to take the climate change planning to another level.

ANNEX 1: AGENDA

Windhoek Third Learning Lab
Future Resilience for African Cities and Lands Project
Roof of Africa Hotel, Windhoek, Namibia
14th -15th August 2018
Programme

Time	Session #	Session	Facilitator
DAY 1: 14 AUGUST 2018			
Morning: Opening Plenary Session			
08:30 - 08:45	Registration & Tea/Coffee		
08:45 - 09:00	1	Official Welcome by Mr. Fillemon Hambuda, Strategic Executive: Department of Economic Development and Community Services, City of Windhoek	
09:00 - 10:30	2	Plenary session: Objectives of Third Windhoek Learning Lab and Reporting back on FRACTAL- Windhoek activities	Prof. John Mfune, University of Namibia
		Introductions of participants	Dr. Anna Taylor, University of Cape Town
		Tupopyeni oClimate Season 2: with University of Botswana and Gaborone City Council	Prof. Gina Ziervogel, University of Cape Town Dr. Lapogang Mogale, University of Botswana
10:30 - 10:45	Tea break (and group photo)		
10:45 - 11:00	3	FRACTAL Learning Lab Link: Receiving gift from Maputo 2nd Learning Lab	Dr. Anna Taylor, University of Cape Town
11:00 - 12:30	4	Games on exploring language & terminology in climate change adaptation and decision-making	Dr. Liz Daniels, Stockholm Environment Institute
12:30 - 13:30	Lunch		
Afternoon: Parallel Session			

13:30 - 16:15	5A	Climate Information Training: 1. "Climate of cards" game 2. The climate system and climate models 3. Regional climate models and sources of uncertainty 4. Datasets and hands-on session looking at data portals	Dr. Laura Burgin, United Kingdom Meteorological Office Dr. Victor Indasi, Climate System Analysis Group – University of Cape Town
	5B	City of Windhoek Integrated Climate Change Strategy and Action Plan (ICCSAP): Introduction and Themed Discussions	Mr. Olavi Makuti, City of Windhoek and Prof. Gina Ziervogel, University of Cape Town
16:15 - 16:30	6	Reflections of Day 1 and closing	Ms. Alice McClure, FRACTAL Project Coordinator
16:30-18:00 Social event & conversations about FRACTAL Legacy			
DAY 2: 15 AUGUST 2018			
Morning: Decision-making			
09:00 - 10:30	7	Climate Change governance findings emerging from Interviews: Themes and interactive session using Kumu	Prof. Dianne Scott, African Cities Centre and Prof. Gina Ziervogel, University of Cape Town
10:30 - 12:00	8A	Water Dialogue	Ms. Kornelia Iipinge, FRACTAL Project and Prof. Dianne Scott, African Cities Centre
	8B	Energy Dialogue	Prof. John Mfune, University of Namibia and Ms. Alice McClure, University of Cape Town
12:00 - 13:00	9	FRACTAL Project Legacy and Learning Lab Link to Lusaka 5th Learning Lab	Dr. Anna Taylor, University of Cape Town
13:00 - 14:00	Lunch		
Afternoon: Action planning and next steps			
14:00 - 16:00	10	Action planning and next steps for CoW ICCSAP and for FRACTAL Project.	Mr. Olavi Makuti, City of Windhoek Dr. Anna Taylor, University of Cape Town
16:00 - 16:15	11	Reflection, evaluation and way forward	Prof. John Mfune, University of Namibia
16:15 - 16:30	12	Closing remarks	City of Windhoek

ANNEX 2: ATTENDANCE REGISTER

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