Exploring perspectives that underpin decisions for southern African urban development

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FUTURE CLIMATE FOR AFRICA

FRACTAL
FUTURE RESILIENCE FOR AFRICAN CITIES AND LANDS

Research team

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Summary

The objective of the Future Resilience of African CiTies and Lands (FRACTAL) innovation fund programme was to increase the capacity of Early Career Researchers (ECRs) to advance the frontiers of research related to effective regional responses to climate variability and change. The design of the innovation fund project was catalysed by initial FRACTAL findings about the complexity of decision spaces in rapidly growing cities in southern Africa. In light of this complexity, *Exploring perspectives that underpin decisions for southern African urban development* aimed to unpack real case studies of decisions that have been made in southern African cities in order to surface contextual characteristics that shape urban development in the region, including values, perspectives, attitudes and beliefs of those involved.

The FRACTAL innovation project was designed so that research was strongly led by research institutions in southern Africa, outside of South Africa. Through this design, senior researchers at The Polytechnic, University of Malawi, Chinhoyi University of Technology and the University of Zambia mentored up to two ECRs from each city to undertake research. Work was carried out in three southern African cities taking part in FRACTAL, namely Blantyre, Harare and Lusaka. The research process in each city was guided by a loose structure. 'Think tanks' were organised in a remote location near these cities, during which the general concept of 'development' for each city was explored, alongside the particular case study decision.

Across the cases that were explored, similar themes emerged, including a strong economic development value at the core of the decisions, as well environmental and social wellbeing values. These were generally aligned with the organisational mandates of participants involved in the think tanks. Another common influential element across decisions was that of politics and politicians, despite the technical nature of the decisions that were explored. The project highlighted the challenges associated with undertaking values-related research in larger, mixed group discussions as values are usually assessed at an individual or organisational level. However, the research did contribute to important conversations between different groups of societal actors involved in development decisions, as well as between academia and these societal actors.

Evidence suggests that the innovative design of the project also inspired ECRs to continue applied research that will contribute to a southern perspective of related issues.

Introduction

The FRACTAL project (2015-2019) has the main objectives to advance scientific knowledge about regional climate responses to anthropogenic forcings, enhance the integration of this knowledge into decision-making at the co-dependent city-region scale, and thus enable responsible urban development pathways. FRACTAL is one of five initiatives within the Future Climate For Africa (FCFA) multi-consortia programme, which aims to undertake fundamental research that will generate new climate science focused on Africa, and to ensure that this science has an impact on human development across the continent.

A Scientific Capacity Development (SCD) strategy was developed to complement and upscale the activities undertaken by the five FCFA research consortia (RCs) through a package of cross-programme initiatives. The primary objective of this strategy was to improve the ability of ECRs, with a focus on African researchers, to deliver high quality research that advances the frontiers of regional responses to climate variability and change. One of the channels of funding that was made available to FCFA consortia through this SCD was the 'innovation fund', which aimed to develop capacity of recipients while supporting additional research activities (i.e. activities that were not included in the core FRACTAL workplans).

Core FRACTAL activities shed light on the complex decision making spaces of rapidly growing cities in southern Africa. In response to this, the FRACTAL innovation project was designed to explore factors that drive development decisions in southern African cities, breaking away from western worldviews related to these factors. Acknowledging and working within these complex contexts requires a different perspective to the 'business-as-usual' approach of applied research programmes. The 'business-as-usual' approach is to generate relevant knowledge and expect that it will inform decisions. This approach assumes a relatively simple decision space and assumes that decision makers are "passive receivers" of research or information (Taylor and Scott 2019). The objective of the innovation fund work was to illuminate some of the complex characteristics of the decision spaces that related to development in southern African cities, and particularly the people involved. Importantly, the project was not undertaken with the objective of finding connection points between decisions and climate information or knowledge. The decisions were explored with a relatively loose agenda in an attempt to surface the values, perspectives,

attitudes and beliefs involved. A view of how the research findings are linked with implications for integrating climate knowledge is offered at the end of this document.

It should be noted that research related to human elements of decision-making (such as values, attitudes, perspectives and beliefs) is generally rooted in psychological studies and includes rigorous statistical analyses in order to understand the significance of these various elements. The objective of the FRACTAL innovation fund project was not to present statistically significant findings related to the psychology of decision-makers in Blantyre, Harare and Lusaka. Instead, it aimed to support exploratory, rich discussions. These were analysed qualitatively in order to contribute to seminal thinking about the characteristics of the decision spaces in rapidly growing southern African cities.

Research questions

Considering the objective of the broader SCD within the FCFA programme and those of the FRACTAL innovation fund, the following questions guided the research:

1. What contextual characteristics drive development decisions in southern African cities? What values, perspectives, attitudes and beliefs are involved? How are decisions made? Who is involved? What drives development?
2. How effective are 'think tank' engagements for providing insight into the characteristics of decision spaces that drive development in southern African cities, including the values, perspectives, attitudes and beliefs of those involved?
3. How has the innovation fund project contributed to capacity development of ECRs?

Methodology

Research design and data collection

The FRACTAL innovation fund research was designed to be strongly led by partners in African institutions outside of South Africa. To support this, a closed, competitive call was circulated amongst city partners. Several partners responded to this call by developing proposals for teams of researchers (one senior and two ECRs) to lead 'think tanks' in which interesting case study decisions related to urban development would be retrospectively analysed by those involved in the decisions (see the proposal template in Annex A). The senior researcher fulfilled the role of 'supervisors' to the ECRs. Through this process, teams of researchers from The Polytechnic, University of Malawi,

Chinhoyi University of Technology and the University of Zambia put forward the following case study decisions for analysis:

- Decision to upgrade the Morton Jaffray Water Works in Harare (Harare)
- Decision to implement the Kafue Bulk Water Project (Lusaka)
- Tentative decision to turn solid waste into energy (Blantyre)[1]

For a more detailed overview of the decisions, see Annex B.

Once research teams from the aforementioned institutions were established, a loose methodology was collaboratively framed. This methodology included five key phases:

i) Pre-think tank interviews with stakeholders from Blantyre, Harare and Lusaka who were involved in the selected case study decision and development of city-specific discussion papers;
ii) Think tanks in Blantyre, Harare and Lusaka (informed by the discussion papers) that focused on unpacking contextual characteristics (including values, perspectives, attitudes and beliefs) on the case study decision;
iii) Analysis of material that was generated within each think tank by city research teams to generate city-specific reports (see here);
iv) Analysis of material from all think tanks by the cross-cutting team to surface similarities and differences across the decisions;
v) Another phase of research was added to explore the contribution of the innovation fund project to the capacity development of ECRs, drawing on annual evaluations from 2018 and 2019.

The think tanks in Blantyre, Harare and Lusaka sought to bring together stakeholders (no more than ten) who were involved in case study decisions to unpack elements of the decision in the form of very rich, facilitated, semi-structured conversations. Think tanks were led by senior researchers from city teams and were supported by the ECRs. A loose think tank structure was developed within the broader research team and adjusted to fit the city and decision contexts. This structure is presented in Annex C.

Data analysis

To answer Research Question 1, raw notes from the think tanks were analysed inductively, focusing on phrases, statements or sentiments that revealed characteristics of the decision spaces including values, perspectives, attitudes and beliefs of those involved. This analysis was partly informed by Saldana's

[1] The Blantyre research team preferred to explore a decision that has not yet been implemented (i.e. it is still under consideration).

'values coding' approach (Saldana 2013, pg 268). According to Saldana (2013), *a value is the importance we attribute to oneself, another person, thing, or idea. An attitude is the way we think and feel about oneself, another person, thing, or idea. A belief is part of a system that includes values and attitudes, plus personal knowledge, experiences, opinions, prejudices, morals, and other interpretive perceptions of the social world*. The research sub-questions also provided a lense through which analysis of these data occurred, namely *how are decisions made? Who is involved? What drives development?*

Findings from the first layer of analysis used to answer Research Question 1 also contributed to answering Research Question 2.
To answer Research Question 3, the annual ECR feedback forms were analysed inductively, following a loose 'in vivo' or literal approach (i.e. based on words/language found in the ECR reports) to draw out themes related to capacity development (Saldana 2013).

Findings

What contextual characteristics drive development decisions in southern African cities?

What values, perspectives, attitudes and beliefs are involved? How are decisions made? Who is involved? What drives development?

The analysis of the think tank data tentatively suggests a strong economic development value at the core of the case study decisions. For example, two of the cases relate to the development or upgrade of technical infrastructure to increase water provision but revenue from these interventions featured strongly in the discussions. Stakeholders in one of the think tanks expressed that the main priorities for supporting development of their city are: provision of adequate land for development; infrastructure for enabling development and trade; and basic services that can enable development. Second to this strong economic development aspect, values related to natural environment, social wellbeing for inhabitants and general sustainability were also discussed as drivers of development decisions. The relative importance of these values in the conversations seemed dependent on the groups and institutions represented, as well as which decisions were being explored.

Conversations in all three think tanks revealed that influences from centralised government and in some cases, politicians, are also important in development decisions at a city scale in southern Africa. The idea that politics plays an important role is not a new one (see Leck and Simon 2018) but this finding serves to remind researchers of the importance of including government

representatives from different scales in their engagements for resilient development. Also common across the conversations in the think tanks, was the desire to include more representation from citizens on the ground in order to influence decision-making.

All three think tank discussions highlighted the fact that the decisions being analysed were reactionary in nature (i.e. in response to a current deficit or crisis) as opposed to being part of broader, long-term planning. In the case of the Harare decision, the infrastructure upgrade occurred in response to the cholera outbreak (2008) while the infrastructure development in Lusaka is being planned in light of the "urgent need to improve water and sanitation in and around the city". One of the participants at the Harare think tank exclaimed, "There is a difference when you make a decision in a crisis versus long-term visioning. Decisions are usually made during a crisis". Another participant highlighted the importance of crises for decision-making, saying, "I wish we could have more cholera cases to trigger action/implementation". The Blantyre case implies a similar situation. The decision to turn solid waste into energy is being considered in light of "inadequate, unreliable and poor quality power supply". These findings are in line with those from FRACTAL learning labs in Lusaka, Maputo and Windhoek, during which issues have been unpacked in order to explore how climate might intersect with them. In all cities, the priorities of decision makers stem from imminent, pressing challenges.

Another interesting perspective that was surfaced in one of the think tanks was the influence of development aid partners on decision-making processes. Such partners were referenced in all think tanks as supporters of infrastructure developments, particularly in terms of finance, but the need for contextualisation was emphasised by the following statement, "The problem comes from development partners as they come with success stories from elsewhere which do not work in [city A]". Another participant implied that foreign visions are often adopted when making decisions and that instead, "Development partners should come and support already existing visions".

How effective are 'think tank' engagements for surfacing values, attitudes and beliefs that drive development?

While the innovation fund think tanks provided insight into some aspects that drive decision-making for infrastructure development in southern African cities, several limitations were experienced by the teams. Some development decisions are politically sensitive and cannot easily be discussed. Furthermore, the think tanks were mostly attended by representatives of organisations and

government institutions who have been (or will be) involved in the decision process instead of the individual decision-makers themselves. This meant that some broad value orientations could be explored but not in much depth. Many of the conversations were influenced by the values, perspectives, attitudes and beliefs of people participating in the think tank and these were often tied to organisational mandates and responsibilities. As a result, several different value orientations were expressed during the engagements, especially when participants were tasked with imagining a 'developed' Blantyre, Harare or Lusaka. Deeper insights into the contextual characteristics that drive development decisions (including values, perspectives, attitudes and beliefs) could be gathered through follow-on research and interviews with the decision-makers, building on the initial findings from these think tanks.

However, the think tanks were useful cross-cutting engagements for groups of stakeholders who are involved in development of the cities. The engagements allowed a space for stakeholders to hear the values, perspectives, attitudes and beliefs of others, thereby broadening their own perspectives and growing 'receptivity'. This is in line with FRACTAL research, and a working paper has been developed around the concept: 'Receptivity and judgement: expanding ways of knowing the climate to strengthen the resilience of cities'. Receptivity is defined as:

> *A way of understanding what is needed for people to be able to open themselves up to engaging with and assimilating different perspectives, frames of reference, values and interests that others bring. Receptivity goes further than simply opening up. Receptivity entails actively and critically reflecting on one's own knowledge and that offered by others (i.e. recognizing various assumptions and framings). This forms the basis for expanding or enhancing one's ability to make less partial, narrow judgements, and to shift ones practices and actions based on a broader view of the system and what changes are underway and are sought (by individuals, organisations and collectively). As such, receptivity to other frames of reference is in no way passive. Rather it is a stance, a way of engaging, thinking and acting in relation with others that is open and considered, with a willingness to share, to let go, to take on and arrive at new insights and new ways of thinking and being.*
> *(Scott and Taylor 2019)*

This notion of receptivity was reflected by a participant at one of the think tanks, who commented, "Brains are beginning to be open because of rich information within this team". In another think tank, participants noted that the structure of the engagement helped them feel "free with each other to share ideas", and that the engagement is likely to support working networks among the participants.

How has the innovation fund project contributed to capacity development of ECRs?

Exploration of the reflections from the ECRs revealed several positive benefits from the work that was undertaken, despite the challenges mentioned above. These benefits are described below.

Building connections within southern Africa

The FRACTAL innovation fund project was designed to be led by research teams within southern Africa, but outside of South Africa, with much of the planning, data collection and analysis happening within these teams. Through this design, the senior researchers from The Polytechnic, University of Malawi, Chinhoyi University of Technology and University of Zambia were tasked with guiding ECRs from these institutions through the research process. The proximity of these senior researchers to ECRs enabled more frequent communication and guidance, which is evident in the feedback from ECRs. In one case, an ECR mentioned that his supervisors had been somewhat of a role model during the research process, saying, "They did not just supervise but by being involved, they demonstrated how the data collection and report writing should be done with commitment". This is important for inspiring continued research within southern Africa.

Insights into different types of research

The innovative type of research that was designed and implemented supported the development of ECRs' traditional research skills, as well as skills in more applied research that connects science with policy. For example, an ECR mentioned, "My reporting, presentation and general research skills (conducting interviews and stakeholder engagements) have also significantly improved". Another ECR emphasised lessons learned related to research ethics and good teamwork. Nearly all of the ECRs included reflections on how more applied research requires a different set of skills. These skills include innovation and flexibility with regards to planning and implementing research, which is illustrated in this reflections from two other ECRs who said, "Significant lessons were learnt. Making a flexible data collection strategy helped in addressing the challenge of respondent unavailability", and, "This also taught me that in research the researcher needs to be innovative to ensure data for the research is acquired". Several ECRs reflected on the need for further research that minimises the science-policy gap, which surfaced through these engagements, as well as forward planning and collaboration between various stakeholders to deal with city development issues. For example, one of the ECRs stated, "It is

only when a researcher is able to acquire this rich data [that it will] become relevant in providing solutions to identified problems".

Inspiring further applied research

Along with developing skills to advance research related to southern African cities and climate change, FRACTAL hopes to inspire ECRs to remain engaged. Pivotal to developing capacity is building confidence so that researchers within southern Africa continue to ask questions and drive the research agenda. Several of the ECR reflections indicate that they feel inspired to continue research in this field. One of the ECRs was in fact working within a government organisation while he was part of the research team and has implied that he would like to stay engaged in the research domain. Supporting this finding, one ECR stated, "I've learnt a lot and my academic path has gone a mile further with the interaction I've had with my Supervisor. It has been a mentoring process that has sharpen[ed] my research skills, and [I] am geared to embark on finding a place and scouting for funding for my PhD study. The experience has really energised me academically". Another ECR commented, "As my long-term goal, I plan on extending my qualification up to the PhD level in the field of urban planning, beyond which I would like to become a research specialist in the field of urban planning".

Implications for climate resilient decisions

"Decisions always involve both facts and values, whereas most science communication focuses only on facts." (Dietz 2013)

It is increasingly acknowledged that research that aims to inform policy should be contextualised so that it is both useful and usable (e.g. see Polk 2014, Klein 2013). Historically, emphasis has been placed on the 'cognitive' element of producing and communicating climate information as described above. In other words, people have believed that if relevant knowledge is produced and shared with decision-makers, it will be used in decisions (Dietz 2013). Little emphasis has been placed on other elements that affect how people engage with climate change information, namely affective and behavioural elements. Affective elements are closely linked with how people choose to interpret (i.e. filter) information based on their values, perspectives, attitudes and beliefs. If information shared with someone does not align with her/his values, s/he might choose to dismiss it even if has been produced from a 'trustworthy' source (ibid). Behavioural elements consider the gap between knowing and doing. One can know a lot about a problem but still not act on this information for several reasons - such as limited resources (Pasquini 2019).

Considering the role that affective and behavioural elements play in interpreting and acting on information, there is a growing interest to understand how values, perspectives, attitudes and beliefs shape engagement with climate information. There is also interest in understanding the ways in which climate information might be phrased to better align with these contextual elements. For example, a message phrased as "polar bears will become extinct because of climate change" will appeal to the group of people who hold environmental values, while a message phrased as "climate change will affect your health" will likely appeal to a broader group concerned with their health (Schwartz 2012). The findings from the FRACTAL innovation fund project provide some insight into the contextual factors that might influence such decisions, as well as a potential 'economic development' values framing for climate change messages. To understand the intricacies of values, attitudes, beliefs and perceptions of development decisions in southern African cities, further work should be undertaken.

Findings from the FRACTAL innovation fund project emphasise the difficulty of integrating future climate change information into decisions, which are generally responding to pressing challenges. Emphasis should be placed on finding novel ways of connecting these current pressing challenges with future planning that integrates climate information. The findings also tentatively suggest that two important stakeholder groups should be better engaged in the processes of connecting scientific knowledge with decision-making in southern African cities: politicians and development aid partners. Often, such applied research processes engage technical stakeholders and those operating at a municipal level in the case of southern African cities. To truly support decision making, much effort should be directed at involving politicians where possible, or at least finding opportunities to communicate important (well framed) messages for their consideration. The influence of development aid partners on development decisions in southern African cities should also be seriously considered. Interventions that aim to build resilience should strive to engage these stakeholders in some way. Creating open, safe spaces in which a variety of different stakeholders can engage with one another on issues of development and resilience (e.g. through learning labs) might contribute to a better understanding of various values and aligning of visions for the future.

Conclusion

The FRACTAL innovation fund research contributes to the ongoing conversation about the complexity of decision-making spaces in growing southern African cities, the factors that influence development decisions, as well as ways in which

scientific information might be better integrated into these spaces. Similar to many other rapidly urbanising places, a strong economic development value seems to be at the core of the case study decisions that were analysed. The findings also shed light on two important stakeholder groups that influence development decisions: politicians and development aid partners.

The challenges experienced in this research relate to the difficulty of openly surfacing the values, perspectives, attitudes and beliefs that drive development decisions though open, exploratory conversations in a group of people that remain rooted in their institutional mandates. Furthermore, some development decisions are politically sensitivity and cannot easily be discussed. The innovative approach did, however, seem to spark interest among ECRs in applied research, and build confidence for ECRs to take this work further.

References

Annex A: Proposal template for the FRACTAL innovation fund

Project team

Lead institution	
Name of Experienced African Researcher (ExR)	
Position of ExR at the lead institution	
Relevant experience of ExR to undertake the task and mentor ECRs	
Name and academic record of lead ECR	
Name and academic record of supporting ECR1	
Name and academic record of supporting ECR2	

Project design

Description (overview) of decision process that will provide a foundation for the "think tanks" (general overview of the process/activity and related institutions).

Indicative list of sectors/institutions that will be involved in the "think tank" sessions

1.

2.

3.

4.

5.

Please describe why this decision process is relevant to the project theme: *exploring perspectives and values that underpin decisions for southern African urban development and infrastructure*?

Annex B: Overview of decision case studies (extracted from the proposals submitted by research teams)

Prospective decision to turn solid waste into energy in Blantyre

Background

Since 2017, motivated by a review of the Local Government Act that led to decentralization, the Blantyre City Assembly has been able to make bylaws as it deems useful for its development. The City Assembly has subsequently embarked on a number of reforms aimed at addressing some of the main challenges that the city is facing, primarily solid waste management. The City Assembly unveiled a decision to turn solid waste into energy in order to enhance power infrastructure development. They came up with an investment proposal seeking the involvement of the private sector in the project. They aim to develop a sustainable way of disposing of waste that will also improve the quality of surface water resources such as rivers and lakes, which often get contaminated by untreated wastes through run-off and flash floods.

The issues surrounding this decision process are multidisciplinary in nature and will involve collaborations with various institutions. In addition, the City Assembly has a lot of unanswered questions pertaining to the current state of the environment. For instance, there has been a rise in mosquito infestations in Blantyre. The city is not sure whether the rise in mosquito population is as a result of climate variability (rise in temperature) or due to poor waste management that has led to stagnant, sludge pools, which act as breeding areas for mosquitoes. The think tank sessions planned for this study are expected to explore these questions forensically.

Decision-makers involved in the think tank:

- Blantyre City Assembly
- Ministry of Local Government and Rural Development
- Environmental Affairs Department: Hosts a Technical Committee on Climate Change (TCCC)
- Department of Climate Change and Meteorological Services (MET)
- Ministry of Agriculture, Irrigation and Water Development
- Ministry of Lands, Housing and Urban Development
- WASHTED (Centre for Water Sanitation, Health and Appropriate Technology Development)

Decision to upgrade the Morton Jaffray Water Works in Harare

Background

One of the mandates of Harare Water (a division of the Harare City Council) is to supply potable water to Harare and the surrounding local authorities of Greater Harare. These areas include: Chitungwiza; Epworth; Ruwa; and Norton Town Councils. They have a combined estimated total population of about 4.5 million people. The Harare water supply infrastructure, which was set up in 1956, was designed to supply 350,000 people. It therefore has a huge under capacity to service the ever-expanding population of the city. In addition, climate induced changes in rainfall patterns (reduced rainfall totals and river flows, and extreme events such as droughts and floods) within the 890 sq km Harare landscape worsen the situation. Too dry a rainy season means limited water supply for residents and excessive rainfall and flooding mean a high risk of contaminated water sources. Thus, climate related impacts exacerbate the challenges of access to safe water, sanitation and hygiene and lessen the city's capacity to provide adequate water to its residents given its already limited capacity.

In view of these challenges in the water treatment and supply infrastructure, an ever-increasing population and weather and climate fluctuations, Harare City is currently experiencing greater than ever pressure to improve the quality and reliability of water service provision. This current pressure comes alongside climatic and anthropogenic induced factors, among which are aged and inadequate infrastructure, ever depreciating raw water quality, poor revenue inflows, insignificant external support, and ever increasing arrears among many high level challenges.

In response to some of the challenges cited above and in a bid to improve water treatment and supply services under a changing climate, the City of Harare adopted the 100 days Rapid Results Approach (RRA) as recommended by the office of the President and Cabinet. This initiative is part of the government of Zimbabwe's broader Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET) and 10-point plan. The City of Harare is the pioneer among local authorities to implement the RRA initiative. The decision-making process and implementation of the RRA is a pilot, which the government of Zimbabwe will expand to all local authorities (both urban and rural) across the country. The main purpose of the RRA is to streamline structures and processes and to improve service delivery in public sectors through efficient utilization of resources against the above cited challenges. The first phase of the 100 days was implemented from October 2016 to January 2017 while the second 100 days were implemented from February 2017 and came to an end on 30 May 2017. Therefore, the decision process that will provide a foundation for the 'think tanks' in this proposal is the refurbishment of the Morton Jaffray Waterworks

Treatment Plant by Harare City Council. This decision was made in October 2016 under the RRA program for the City of Harare and more specifically, the Potable Work Team.

The Morton Jaffray Water Treatment Plant infrastructure was upgraded progressively with one phase commissioned in 1994 as an upgrade to supply 1,500,000 people. The next project to refurbish Morton Jaffray waterworks was implemented in 2010 after a cholera outbreak that hit the country. The project was funded by the Ministry of Finance under the Government of National Unity with the China Machinery Engineering Company (CMEC) as the contractor. In 2013, the African Development Bank through ZIMFUND phase 1 funded the refurbishment of Morton Jaffray Waterworks. The work carried out under the project was the replacement of three (3) pumps that pump to Lochinvar and Marimba, installation of chlorinators and valve actuators. China exim Bank also funded the refurbishment of Morton Jaffray by providing USD $144 million. The major work was to supply vehicles, plant and equipment, construction of warehouse, replacement of six pumps and commissioning of unit 1 works. The decision to refurbish Morton Jaffray under the RRA and the Potable Water Team was made to address the potable water shortages in Harare by increasing the production capacity and enabling the Treatment Plant to produce an additional 200 000 cubic meters of water from the previous 470 000 cubic ML day^{-1}. Despite these efforts, the Morton Jaffray Water Treatment Plant is still under capacitated. It is currently (as of May 2017) producing at 58% capacity of 670 000 cubic ML of water per day against a demand of 1,2 million cubic ML day^{-1}. This would enable all households to receive water every day. Only the Central Business District Area receives water every day with the majority of Harare's suburbs under water rationing, receiving water three to four times a week at most with some suburbs having no water at all delivered to them by Harare City for a number of years now.

The two phases of the 100 days' initiative were implemented under the City of Harare's technical working groups namely the Potable water team, Ease of doing business, and Sanitation working group. This was done in order to improve the capacity of institutions of the City of Harare and move from the business as usual approach of working. The Potable Water Team, led by Engineer Hoko from the University of Zimbabwe's Civil Engineering Department is made up of representatives from Harare Waterworks, the Zimbabwe National Water Authority (ZINWA), Environmental Management Agency (EMA), Institute of Water and Sanitation Development (IWSD), Chitungwiza and Chegutu Municipality and Ms. Rudo Mamombe, the FRACTAL-Embedded Researcher from Chinhoyi University of Technology. These organizations represent the related institutions

to the decision-making processes whose discussion is proposed for the 'think tank'.

Decision-makers involved in the think tank:

- Harare City Council: Department of Waterworks and the Potable Water Team under the RRA program
- Zimbabwe National Water Authority (ZINWA)
- Relevant Ministries and government departments: Ministry of Local Government, Public Works and National Housing; Ministry of Environment, Water and Climate; Environmental Management Agency; Climate Change Office; Zimbabwe Met Services Department
- Concerned citizens and non-governmental organizations (civil society), for example: Combined Residents of Harare Association; Community Water Alliance; Institute of Water and Sanitation Development (IWSD)
- Academics: Chinhoyi University of Technology and University of Zimbabwe

<u>Development of a pipeline from Kafue river to Lusaka</u>

Background

The Bulk Water Project for the development of a pipeline from the Kafue river to Lusaka to improve access of water by residents and businesses in the city of Lusaka. It is hard infrastructure project that was funded using a loan from the Africa Development Bank, the World Bank, the German Development Agency, European Investment Bank and the Government of Zambia. The project will be implemented by Lusaka Water and Sewerage Company. Collaboration with Kafue city council, Lusaka city council and community representatives of those along the corridor through which the pipeline would pass was present. The decision making process for application for a loan, selection of the prime area where the pipeline would pass as well as the socio-economic studies and decisions involved in the beneficiaries are some of the processes that could be discussed under this process. The project is a large infrastructure project, covering three Districts, and supplying businesses and residents in both planned and unplanned settlements.

Decision-making will focus on expenditure as well as consultation with proposed beneficiaries along the corridor where the pipeline would pass as well as those negatively affected by the laying of the pipeline. The different interests of the stakeholders will be analyzed to determine the conflict that may have arisen in valuing such and infrastructural project. What decisions were made in such situations? City authorities, national government, the implementing agency, residents and business not forgetting (Lusaka Water and Sewerage and its partners) were all involved in the decision-making process.

Decision-makers involved in the think tank:

- Lusaka Water and Sewerage Company
- Kafue City Council
- Lusaka City council
- Ministry of Local Government and Housing
- University of Zambia- Department of Geography and Environmental Studies
- Africa Development Bank/World Bank

Annex C: Loose think tank structure (adjusted to fit city context)

Session	Outcome (and conversation milestone)
Day 1	
Introduction (river of life? Or similar exercise)	Details of participants backgrounds
Facilitated conversation about the **development of cities** - what does this mean? (general). What are the characteristics of a developed city (or various possibilities for development), and why are these characteristics important? For example, is the city working towards being: • Sustainable • Just in terms of access to resources • Growing economically • "modern" according to a western or global standard • Innovative • Independant • Equal (gender, age etc.)	Perspectives on the meaning of development, and priorities for development, particularly for African cities and relevant sectors.
Visioning exercise; what does a **developed Blantyre, Harare or Lusaka** look like, particularly in terms of the sector within which the case study decision fits? What are the various perspectives on this?	Specific perspectives on what the developed city (and chosen sector) would look like (Blantyre, Harare and Lusaka).
Backcasting: what are the pathways and steps that should be taken to get to a developed Blantyre, Harare or Lusaka (from session above)? Through a backcasting exercise, these steps would be identified "backwards" (i.e. starting with the vision and working back to the now/current status). What are the various perspectives on this process?	Maps and notes on moving from a developed Blantyre, Harare or Lusaka to now (backwards steps).
Reflection and closing	Reflections on the first

	day of the event
Day 2	
Unpacking the case study decision How did the case study decision come about in the city? To what broader development objective does it contribute? Who was involved in the decision-making process in this case study? Were some voices louder than others? If so, whose? Most decisions include trade-offs, particularly within contexts where resources are tight. What trade-offs were considered within this decision? Have costs because of these trade-offs been experienced, and who was most worried about these costs? Were there any priorities that were beyond the control of the present (expected) decision makers? If so, what were these?	Notes on the "real factors" that influence decision-making.
Comparing the case study decision with the backcasted steps from Day 1 Does the case study decision fit within the steps that have been identified through the backcasting exercise? (i.e. does the case study decision fit within the idea of a developed Blantyre, Harare or Lusaka). What could the alternatives to this decision/action be to contribute to the envisaged development in the city? Were these alternatives considered? If not, why not? If the decision does not fit within the steps that have been identified through the backcasting exercise, why was this decision made?	Notes on the "real factors" that influence decision-making (cont).
Reflection and closing	Reflections on the second day of the event, and event in general.