



Transforming southern African cities in a changing climate

## Identifying moments of change in relation to transformative adaptation in water projects in two southern African cities

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### Introduction

The Leading Integrated Research for Agenda 2030 in Africa (LIRA 2030) programme seeks to increase the production of high quality, transdisciplinary, solutions-oriented research on global sustainability by early career scientists in Africa. Being part of the LIRA 2030 programme, the Transforming southern African cities in a changing climate project (hereafter referred to as the LIRA Project) aims to better understand the pathways to transformative adaptation as a response to climate change that promotes equality, inclusiveness and justice.

Within this transdisciplinary research project, LIRA researchers are interested in examining water-related projects with a transformative adaptation lens in two African cities: Durban, South Africa and Harare, Zimbabwe. These cities were selected as case studies, within which diverse water-related projects are being planned, implemented and imagined. Through transdisciplinary, participatory learning labs, a diverse range of actors with differing interests in water-related issues in their respective cities became involved in this project. Participants in the learning labs identified and deliberated on potential case studies and characteristics of transformative adaptation (TA). When coupled with main actor interviews, focus groups and additional learning labs, rich qualitative data was collected by the LIRA researchers in both cities.

One of the case studies proposed by actors in Durban was the eThekweni Municipality's Sihlanzimvelo stream cleaning programme, which was gaining momentum and interest - particularly in terms of potential upscaling, the introduction of new green economies into this programme, its multiple benefits and its climate adaptation and flooding risk reduction potential. Over a period of three years, this 'upscaled' version of Sihlanzimvelo evolved and was renamed the Transformative Riverine Management Programme (TRMP). Under the umbrella of TRMP, new actors, discourses, vocabularies and decision-making technologies (tools) have been introduced into this policy-making arena.

The imaginaries<sup>1</sup> of the TRMP represented something different in Durban's climate adaptation journey, notably an explicit climate change focus, large geographic scale, potential relationships with other ongoing river rehabilitation projects and its quest for the most effective models, among others. Linguistically, the meta-discourse of transformation has been discursively introduced into this policy-making arena, and it is critical to analyse how this discourse is being constructed to understand the

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<sup>1</sup> A social imaginary is "...the creative and symbolic dimension of the social world, the dimension through which human beings create their ways of living together and their ways of representing their collective life" (Thompson, 1984: 6). At the time of writing, the specifics of TRMP are being imagined, envisioned, negotiated and constructed by a range of actors. Once this imaginary has 'solidified', it will be translated into a formal plan or policy, and thereafter its implementation and practices will shape material reality.

scope of the change it actuates. Consequently, the LIRA researchers interrogated how this particular form of (transformative) climate adaptation is being constructed in Durban, and framed this in terms of moments of change. In addition, the LIRA researchers wanted to understand this construction in relation to the case study selected in Harare, namely the Harare Wetlands Advocacy Project.

## Approach

To understand and analyse these processes we used governance configurations as a heuristic<sup>2</sup> analytical tool. In the case of Durban, our research illuminated moments of change within the planning and implementation processes of Sihlanzimvelo; as well as captured the imaginaries which have filtered into the TRMP. The overview of the methodology adopted in this study is depicted in Figure 1.

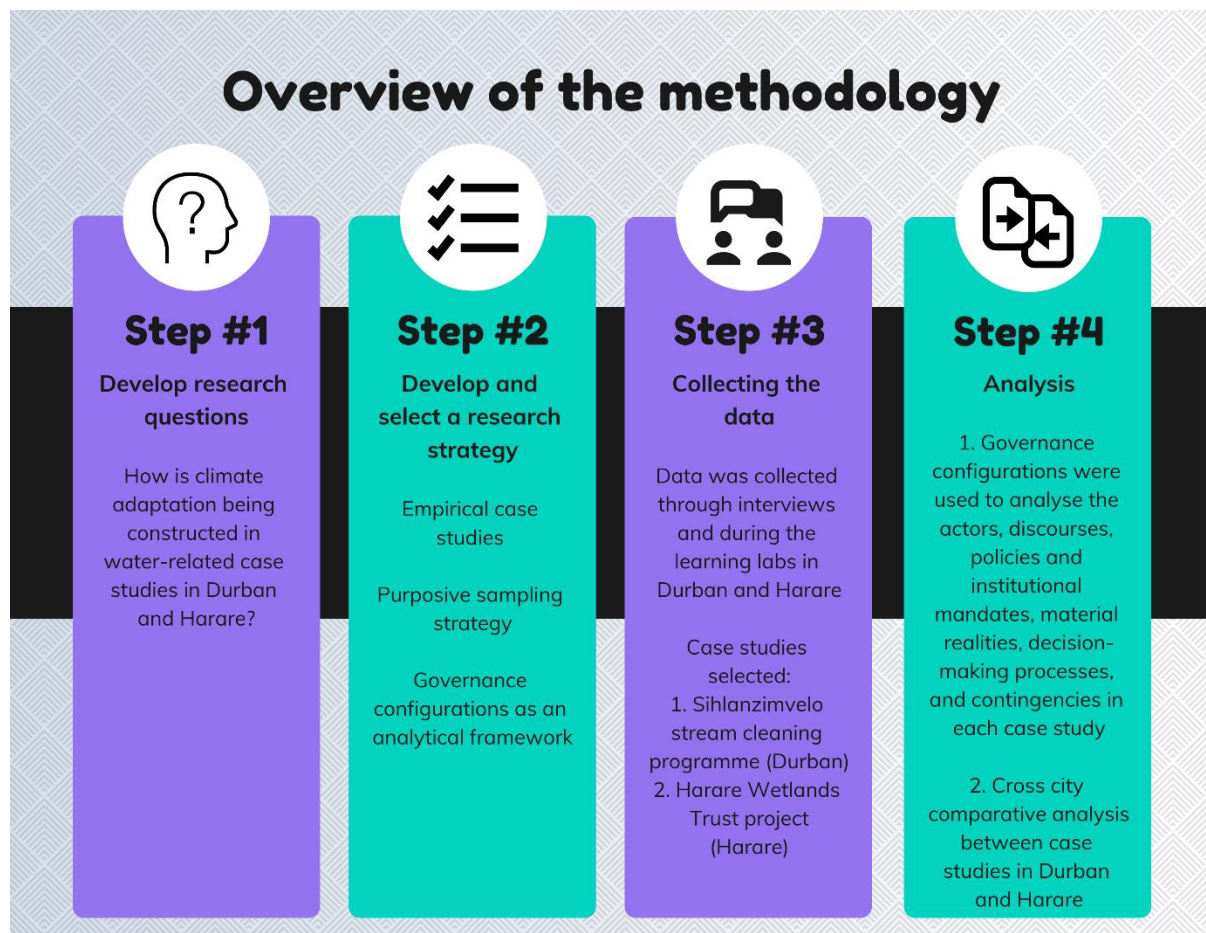


Figure 1: An overview of the methodology adopted in Paper 2 of the LIRA Project

Governance configurations enable cross-city comparison between Durban and Harare, particularly by unravelling the "...ensemble of social and material structures which are intimately entangled at a particular time and place, generating particular sets of decisions, interventions and outcomes for cities" (Jordhus-Lier et al, 2019: 56). Governance configurations consist of six dimensions, namely actors and networks; discourses; policies and institutional mandates; material reality (including material products, technologies and infrastructure); decision-making processes (formal and informal); and the situation-dependent, place-specific contingencies (Jordhus-Lier et al, 2019; Scott, 2017). A moment of change is identified when there is a relational alteration to the dimensions of the

<sup>2</sup> A heuristic approach "...treats analytical methods as investigative, instructional or exploratory tools rather than as a means of prescribing one policy choice among alternatives" (Hendrick, 1994: 37). This device serves as a frame of reference when investigating, analysing or searching for a solution to a complex problem

governance configuration. This information brief presents the analytical findings, which provides insight into a new, and potentially transformative, form of climate adaptation being constructed and imagined in Durban's waterscape.

## Findings from research in Durban

### Planning Sihlanzimvelo

The Sihlanzimvelo stream cleaning programme emerged from the eThekweni Municipality's Roads and Stormwater Maintenance (RSM) department in 2008. Driven by project managers from RSM, Sihlanzimvelo is rooted in a technical discourse, which promotes the preventative maintenance of public waterway infrastructure. Sihlanzimvelo rationalises that by reducing blockages in waterways, there will be less damage to infrastructure and communities, as this operational approach lowers flood risk potential in these spaces. This technical discourse is entangled with a job creation discourse (based on the national imperative), as well as socio-spatial discourses (focusing on high density, low income areas characterised by high levels of unemployment). The concept of Sihlanzimvelo was based on the realisation by RSM and the collaborating Coastal Stormwater and Catchment Management (CSCM) department that no single function in the Municipality was mandated to take full responsibility for manmade and natural streams in the city. Sihlanzimvelo was therefore conceptualised as a rationalisation exercise, which endeavoured to reframe how streams were managed by scarce departmental resources. As a result, a variety of municipal line functions, with partial mandated responsibilities for streams, were brought together by the RSM and CSCM departments and committed resources and budget to Sihlanzimvelo. This in itself represented a significant shift from business as usual, as management of a single natural resource is atypical in local government.

Prior to the implementation of Sihlanzimvelo, engagement with local councillors shaped the specific model selected for this programme, namely the community co-operative model. Negotiating from 2008 to 2010, co-operatives were ultimately favoured due to their small business development potential with broader poverty alleviation benefits. The City started engaging with the communities in the selected areas (Umlazi, Inanda, Ntuzuma and KwaMashu areas) through the ward structures. The City supported the communities to form co-operatives, and assisted them with regards to meeting legal and administrative requirements. In 2011 the City put out an expression of interest for work in the streams. Those co-operatives that applied and were vetted, were put through another round of training concerning aspects like health and safety and alien plant removal. At the same time, a contract was put out for a consultant, who was required to employ and train assessors from the communities.

### Implementation of Sihlanzimvelo

The failure of the involved line functions to commit their pledged budget to RSM once Sihlanzimvelo was ready for implementation is regarded as a moment of change. Nonetheless, functions were still able to provide resources for Sihlanzimvelo, albeit at varying degrees. The inability to supply budget was attributed to responsibilities ascribed by departmental Key Performance Indicators, which created anxiety and unwillingness to share budgets. As a result, RSM funded the Sihlanzimvelo from their operational budget and the programme was implemented. Further challenges encountered during the implementation phase of the programme included administrative mismatches, 'turf' and territory issues, legislative rigidities, the inability to secure funding from the Expanded Public Works Programme, missing 'add-ons' (such as the treepreneur programme and further technical skills development), and silo-mentalities from municipal officials. These implementation-related challenges, and particularly how the project managers used strategies to overcome them, resulted in changes to Sihlanzimvelo's project trajectory.

During the implementation of Sihlanzimvelo, the RSM Project Manager developed a web-based monitoring tool. By using this technology, the project managers were able to ascertain that 70 percent of blockages of the waterways were caused by alien vegetation (attributed to their shallow root systems), whilst 30 percent of the blockages were caused by human-generated waste. However, there was a realisation that multiple benefits were being generated by the programme, and these were anecdotally noted particularly by those working on the ground. Overall, Sihlanzimvelo's implementation was viewed as a 'proof of concept'. This success created further impetus for RSM project managers to geographically expand the programme to other streams in the city, whilst the programme's wider 'potential' began to draw increasing attention from other municipal departments. In addition, there was a growing recognition of the green economy potential of Sihlanzimvelo, where wastes collected during stream cleaning could be used to close loops, promote the circular economy and create value chains. These considerations, which viewed Sihlanzimvelo in a positive way, were drawn by municipal actors into a 'receptive' institutional environment, which promoted strategic thinking in relation to Durban's water projects.

### Shifting to the imaginaries of the Transformative Riverine Management Programme (TRMP)

What is regarded as a significant moment of change occurred when actors from the CSCM and Environmental Planning and Climate Protection Department (EPCPD) responded to a call from the C40 Finance Facility (CFF) in 2015. As an international actor, the goal of the CFF is to facilitate access to climate change mitigation and resilience projects in cities, particularly through project preparation, capacity development, knowledge sharing and partnerships (C40 CFF website). In 2015 the CFF partnered with the City to undertake a cost benefit analysis of the Sihlanzimvelo programme, and investigate business cases to upscale river management to all rivers in the municipal area. Over time, the name of this process evolved into what is known as the Transformative Riverine Management Programme (TRMP). Although this process has not been finalised, there has been the linguistic introduction of the meta-discourse of transformation. Consequently, there are a number of noteworthy observations revealed by applying a governance configuration lens to the ongoing processes and imaginaries of TRMP.

Cost benefit analysis is a decision-making tool which develops evidence-based conclusions around the costs and benefits of an action. With the goal of securing more operational budget, the current cost benefit analysis and business case development endeavour to provide evidence to the City Treasurer that the amount of money spent on riverine management will ultimately save the City money – when the overall costs and benefits are considered. Preliminary results from the cost benefit analysis articulate that for every R1 spent on maintaining and rehabilitating waterways, the City is saving R9 in infrastructure damages and accrued secondary benefits. In a sense, this process seeks to **reframe how rivers and streams are viewed in the city**, and reflects an assetisation discourse. This process, which has drawn in specialist consultants, has placed a strong focus on **acquiring 'formalised', evidence-based knowledge**, as well as **quantifying tangible and intangible benefits and costs**. The assetisation discourse is entangled with a discourse of **ecosystem services** – which views water in a holistic sense, and asserts that the maintenance of waterway assets is key to achieving economic, environmental, social and climate change benefits throughout Durban. This approach endeavours to fundamentally **reframe how the City values water, particularly by accounting and valuing ecosystem services, and investigating governance structures to enhance these services**.

While new ideas are emerging in this transition from Sihlanzimvelo to the TRMP, a number of themes remain from the programme's original conception. For example, **increasing the spatial coverage** of 'managed' **rivers**, through Sihlanzimvelo-like approaches, remains a central theme within the TRMP. However, there has been increasing recognition of the **value of 'other' water-related projects**, and particularly how they can contribute to the TRMP. These other projects, largely centred on river rehabilitation involving **diverse assemblages of state and non-state actors**, are increasingly viewed as **sites of learning** that can contribute to the **evidence-based argumentation of the TRMP**. Examples of learnings include environmental education and behaviour change; replanting strategies, creation

of governance platforms; the role of civic science and monitoring; the role of bridges or intermediaries; building state-citizen relations, citizen-environment relations, the implementation of ecological infrastructure, and encouraging water stewardship. A second dominant theme which remains in the TRMP is concerned with **green economy**, and how **learnings associated with technologies and practices to 'close the loop'**, create circular economies and the creation of value chains can be incorporated into the TRMP. Overall a **partnership-based discourse** is strongly embedded and reflected in the TRMP. In addition, there is recognition that **multiple models are required for riverine management**, and this is based on a strongly contextualised, spatial discourse. In this regard, the particular governance models employed by these river rehabilitation projects has become increasingly important, and value has been placed on what matters where, how and why.

The initial ideas of the TRMP structured river catchments into upper, middle and lower catchments. However, over time, this shifted, as an **entangled discourse of ownership and spatial administration** has emerged in the TRMP. These discourses are centred on who owns, administers or should be responsible for riverine corridors in different physical spaces. Being particularly influenced by legislation, this discourse spatially differentiates and structures the business cases of the TRMP, which focus on mechanisms for city-owned land, land administered by Traditional Authorities, and potential private sector and civil society partnerships.

## Quick overview of findings from Harare

The Harare Wetlands Advocacy Project (HWAP) was identified by learning lab participants in Harare as a case study to interrogate notions of transformative adaptation. The HWAP is similar to Sihlanzimvelo in some respects, focusing on using ecological infrastructure as a way of reducing water-related risks. The pathway (i.e. evolution) of the programme has, however, been vastly different and offers an interesting case for comparison.

The project was initially triggered by the degradation of wetlands surrounding Harare. Project partners noted several issues that contributed to wetland degradation, including *inter alia* urban development on sensitive areas (as a result of an outdated Master Plan), damaged infrastructure (and consequent seepage of pollution into wetlands), illegal sand abstraction and poor management and governance of wetlands. Birdlife International spearheaded the intervention, alongside relevant Civil Society Organisations, residents associations and government agencies, to look into legal aspects, implement awareness campaigns for community members living near wetlands and set up multi-stakeholder engagement platforms.

A shift in actors and themes was noted along the pathway of HWAP when Community Based Organisations (CBOs) were formed and began to take part in the project. A changing political and decision-making landscape in Harare enabled **more meaningful citizen involvement and collaboration** (i.e. stewardship); citizens became more informed, motivated and **empowered to challenge management decisions** associated with wetlands. Through a more **networked style of governing** and **multi-stakeholder platforms**, productive **relationships have been established** between different groups of people who are connected to the wetlands, including environmental organisations, the City of Harare (CoH), parliament and the private sector. These organizations have also made some headway on building a **common understanding of the importance of wetlands** for Harare. **Connections have also been made in terms of drivers of degradation and potential solutions**, as well as benefits of actions. Some of the outcomes of this shift include a report produced by parliament to sensitize cabinet on the importance of wetlands, the development of a gazetted wetland map (ongoing) and the willingness of CoH to apply for Wetland city accreditation.

The important moments of change on HWAP's pathway were supported by a shift in the political environment, enabling more meaningful community participation. This participation was facilitated by an NGO that values inclusivity and the voice of community members.

## Comparing Durban and Harare: the implications for water and climate governance

When comparing moments of change in relation to transformative adaptation in water projects in Durban and Harare, a number of observations emerge. These observations are relevant to water and climate governance in African cities, particularly when notions of transformative adaptation are being promoted.

The first observation is the relative level of institutionalisation of the climate change agenda in the eThekweni Municipality, in comparison to the City of Harare. In Durban, there appears to be a technical and political acceptance of climate change and its associated impacts – as a number of actors noted that a programme such as the TRMP would not have been possible in the recent past. The tactics employed by EPCPD since the mid-2000s include the entanglement of Durban's climate adaptation discourses with local development context discourses which promote job creation; the creation of cross-sector (technical) champions and institutional agency, political executive buy-in, and shadow networks. From a contingency perspective, an enabling environment was created to receive C40 CFF funding, and the TRMP has not encountered significant structural, political or institutional opposition. Consequently, actors in Durban explicitly refer to and draw on discourses of climate change in their programmes, whereas in Harare, discourses are more implicitly drawn upon.

In terms of a multi-level climate governance perspective, the second observation is the greater ability to vertically and horizontally integrate in Durban, in comparison to Harare. When encountering institutional voids, as is the case for both water and climate governance (see Martel and Sutherland, 2019), the local government in Durban has the capacity and capability to formulate 'innovative' solutions in the absence of mandated national actors. Furthermore, this local government is receptive to a degree of experimentation in pursuit of this innovation, which allows the critical element of being able to respond to learning and reflection. Lastly, as a powerful metropolitan municipality and global leader in terms of climate change, eThekweni Municipality also has a strong capacity to respond to international funding calls, whereas Harare is starting its climate adaptation journey. In terms of horizontal integration, there appears to be a form of responsibility for Durban, in terms of sharing with the KwaZulu-Natal Climate Compact (adjacent municipalities in KwaZulu-Natal) and within international 'horizontal' networks.

The third observation is that partnerships matter in water-related projects. In both cities, emphasis has been placed on partnerships between the state and non-state actors (including communities, civil society, the private sector and academia). This is a common global trend in water and climate governance, where partnerships endeavour to create synergies through networked forms of governance. Overall, spaces for engagement and reflection need to be maintained and enhanced in these networks.

The notion of partnerships can be extended to the creation of partnerships or networks between different government departments. When reflecting on partnerships within local government, the case of Sihlanzimvelo reflects the value of having cross-silo networks which facilitate interactions between departments. Despite departments failing to supply their pledged budget for Sihlanzimvelo, nonetheless the ability remained for these departmental actors to strongly draw on their silo-ised knowledge bases and networks. This was particularly critical when applying to the C40 CFF.

## Concluding remarks

Within each city, there is an interaction between a diverse range of multi-level actors, competing and complementary discourses, wide-ranging policies and institutional mandates, as well as formal and informal decision-making processes. These interactions are additionally shaped by material reality (including past, current and planned infrastructure, technologies and physical reality) and place-specific and site-specific contingencies. Projects, or other interventions, are situated within this set of dynamically changing relations, which influences their perceived success or failure. Based on the

application of governance configurations to these two case studies, we argue that these dimensions interact with each other in a relational manner, and can be used to identify moments of change. These moments alter the trajectory of a project or intervention. Importantly, these relations occur when projects are being imagined, conceptualised and planned, as well as when they are being implemented and practiced. Overall, the interaction of these relational dimensions is critical when aiming to normatively promote transformative adaptation.

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