

## Transforming southern African cities in a changing climate

### Learning lab 3



Collaborative exploration of challenges, barriers, catalysts and opportunities on the pathway towards a transformed landscape

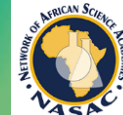
23 & 24 October 2019

Paradise Valley Nature Reserve, 10 Oxford Rd, Pinetown, Durban

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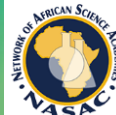
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## Executive summary

The main objective of Transforming southern African cities in a changing climate is to better understand the extent to which transformative climate adaptation has been envisioned or implemented in southern African cities, explore interventions that have transformative characteristics, as well as unpack how these might be more transformative in the future to promote equality, inclusiveness and justice. Using Durban (South Africa) and Harare (Zimbabwe) as cases, the project aims to contribute to understanding how theoretical ideas related to transformative adaptation play out in reality (if they do). Considering both cities are faced with the challenge of managing water under changing climate conditions, water resilience interventions will be used as case studies.

The first Learning Lab (LL) took place in Durban in November 2018, during which potentially transformative cases in Durban were selected so that data about these cases could be collected with people involved. The second LL took place on 24 June 2019 to provide feedback from these initial interviews, articulate and link ideas of TA across stakeholder groups, explore the extent to which climate change is considered in planning, as well as ways in which relevant climate change information might be better integrated. A 'landscape of change' for Durban was developed during this second event. The aim of the third LL was to collaboratively explore challenges, barriers, catalysts and opportunities on the pathway towards a transformed landscape. To ground some of the concepts that had been discussed in previous labs, a day was also set aside (before the LL) to visit the sites of cases that were being explored (23 October 2019).

Alice kicked off the day with a reminder of the Leading Integrated Research in African for Agenda 2030 (LIRA2030) focus, which is to support "integrated (inter- and transdisciplinary), solutions-oriented research on global sustainability by early career scientists in Africa to address complex sustainability challenges in the region" (see video here). Alice also reminded participants about the specific objectives of the Transforming southern African cities in a changing climate project (see above) and presented a timeline to represent activities that had already been undertaken. The importance of the Transdisciplinary Research (TDR) approach was emphasised, highlighting the differences between 'regular' workshops and Learning Labs, such as the focus of LLs on inclusivity, co-production, iteration, experimentation, as well as the intention to produce knowledge that is usable in context.

Thereafter, Harare participants shared some information on the challenges and opportunities associated with water and climate change in their city. Chipu Mubaya (CUT) spoke about the changing climate patterns (increase in temperature and decrease in rainfall) and the fact that interventions have historically focused on rural environments. More recently, issues of climate change have become more important in Harare, and projects such as LIRA2030 and Future Resilience of African CiTies and Lands (FRACTAL) are supporting multi-stakeholder engagements around the issue. Rudo (CUT) described how Harare is placed near the top of the catchment in which their water source is located; this presents challenges associated with pollution and costly treatment. Degradation of wetlands that have provided important regulatory services is exacerbating such issues. Alfred Muriya (CoH) spoke about the poor



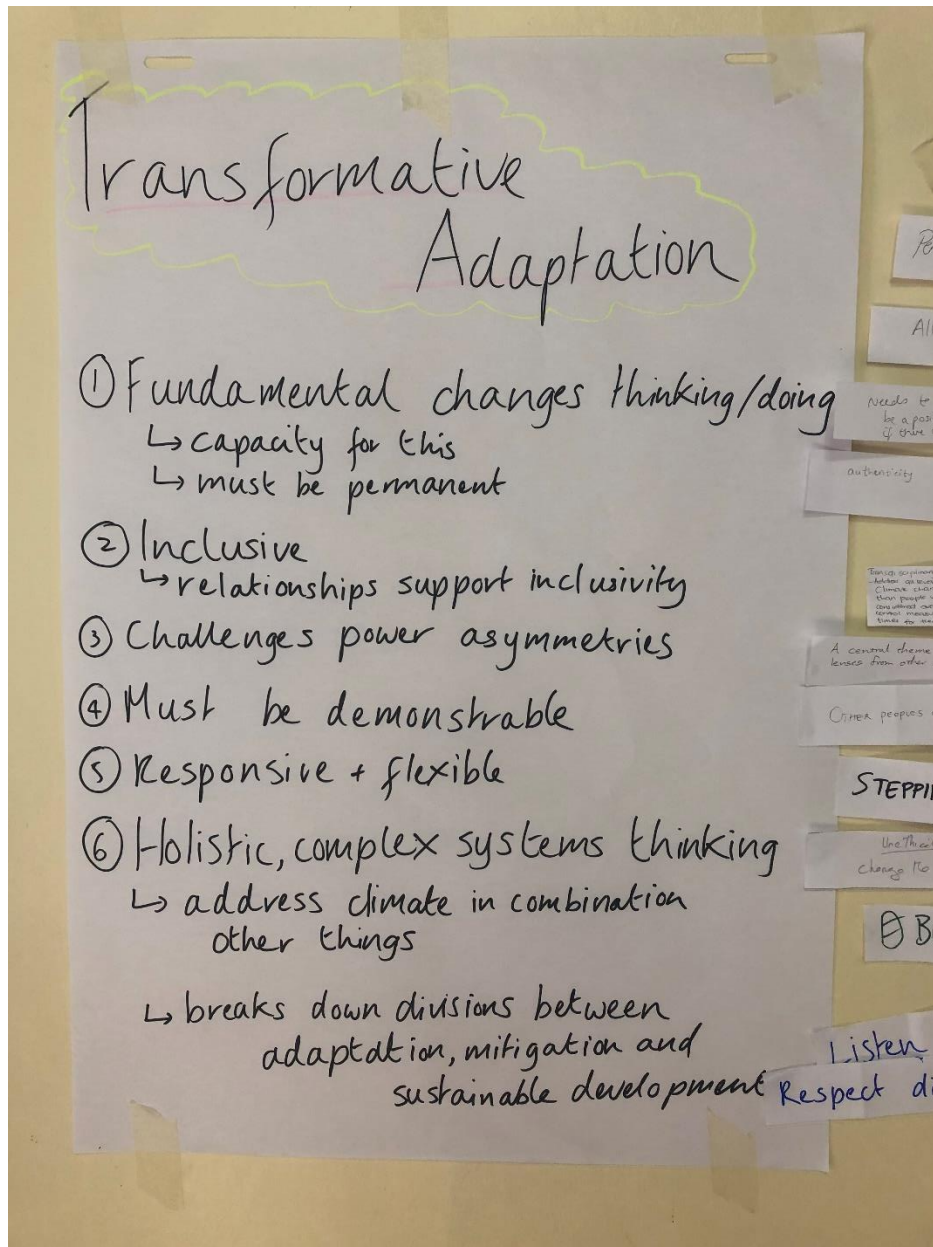
productivity of the water treatment plant. Alongside the technical issues, political interference also contributes to climate risk. Finally, Rudo spoke about the Harare Wetlands Trust, one of the potentially transformative cases that has been identified in Durban, that has been empowering citizens to advocate for wetland protection.

Participants then took part in a ‘River of Life’ (RoL) exercise, during which they reflected on the history of potentially transformative cases and considered what could be learned from these. Unfortunately, the river of life for Wize Wayz Water Care could not be developed as an anchor from this group wasn’t present.

Sean O’Donoghue presented the RoL for the Palmiet Catchment Rehabilitation Project (PCRP), explaining how a diverse set of actors had come together to establish a Community of Innovators who had a joint vision to improve the state of the Palmiet Catchment and river, even through their objectives were slightly different. He also explained that UKZN has supported the residents of Quarry Road (an informal settlement in the catchment) to develop and action plan (focusing on governance, social and biophysical aspects), and that the ‘enviro-champs’ model has been implemented. Luci Coelho spoke about the Aller River Pilot Project; it was born of the Kloof Conservancy (though the ‘take back our rivers’ initiative) and has aimed to build ownership of environmental issues with residents living near the rivers, in partnership with local government. Luci explained how the model used (also eco-champs) has been successful but that the project has run into challenges associated with funding. Geoff Tooley explained how Sihlanzimvelo started when several departments realised they should rather adopt a proactive approach to infrastructure maintenance (i.e. roads and drains) than repair damaged infrastructure. The team across Environmental Health Department, Department of Water and Sanitation, Durban Solid Waste, Roads and Stormwater Maintenance Department, Department of Parks, Recreation and Culture, and Environmental Planning and Climate Protection Department came together in 2007 to try and identify solutions and the idea of adopting the community-co-op model was put forward. The project dealt with some teething issues but benefits have been demonstrable (even to the city treasurer) and a team in Durban is currently designing a bankable ecosystem-focused project to scale up Sihlanzimvelo (in terms of ambition and scale) with the support of C40 Finance Facility.

After the RoL exercise, participants looked to the future and revisited the “Landscape of change for Durban in 2040”, which had been co-produced during the second LL. Elements of the landscape of change were updated based on participants ideas and perspectives. Participants also revisited the pathways towards this landscape that had been suggested at the second LL according to various elements, namely social/residents, business, governance, as well as environment and land. The group acknowledged that the interconnections between these elements are strong and that it is not ideal to separate them out as an important characteristic of a more transformative approach is more integration. However, for the sake of discussion, participants chose to home in on one element. Several comments and updates were made on the pathways and participants noted that several pathways are already being released through the LIRA2030 case studies and other ongoing work in Durban.

Near the end of the day, participants reflected on their major 'aha' moments and Alice closed the LL.



Transformative  
Adaptation

- ① Fundamental changes thinking/doing
  - ↳ capacity for this
  - ↳ must be permanent
- ② Inclusive
  - ↳ relationships support inclusivity
- ③ Challenges power asymmetries
- ④ Must be demonstrable
- ⑤ Responsive + flexible
- ⑥ Holistic, complex systems thinking
  - ↳ address climate in combination other things
  - ↳ breaks down divisions between adaptation, mitigation and sustainable development

Needs to be a positive of...  
authenticity  
Energy systems...  
A central theme...  
Other peoples of...  
STEPPIN...  
The...  
change the...  
BE...  
Listen...  
Respect dif...



## Background

The *Transforming southern African cities in a changing climate* project is part of [Leading Integrated Research in Africa \(LIRA\) 2030](#); a 5-year programme that seeks to increase the production of high quality, transdisciplinary, solutions-oriented research on global sustainability by early career scientists in Africa. The knowledge will be used to address complex sustainability challenges in the region.

The main objective of the project is to better understand the extent to which transformative climate adaptation has been envisioned or implemented in southern African cities, explore interventions that have transformative characteristics, as well as unpack how these might be more transformative in the future to promote equality, inclusiveness and justice. Using Durban (South Africa) and Harare (Zimbabwe) as cases, the project aims to contribute to understanding how theoretical ideas related to transformative adaptation play out in reality (if they do). Considering both cities are faced with the challenge of managing water under changing climate conditions, water resilience interventions will be used as case studies.

The first Learning Lab (LL) in Durban took place in November 2018. Through this engagement, participants reflected on the academic notions of Transformative Adaptation (TA) and offered their own ideas, rooted in practical experience. A discussion on potential case studies was also convened, which culminated in four cases selected for further investigation; Sihlanzimvelo, Aller River Pilot Project (ARPP), the Palmiet Catchment Rehabilitation Project (PCRP) and Wise Ways Water Care (WWWC). Interviews were undertaken with stakeholders involved in these cases from February-May 2019. The second LL took place on 24 June 2019 to provide feedback from these initial interviews, articulate and link ideas of TA across stakeholder groups, explore the extent to which climate change is considered in planning, as well as ways in which relevant climate change information might be better integrated. A 'landscape of change' for Durban was developed during this second event.

The aim of the third LL (24 October 2019) was to collaboratively explore challenges, barriers, catalysts and opportunities on the pathway towards a transformed landscape. To ground some of the concepts that had been discussed in previous labs, a day was also set aside (before the LL) to visit the sites of cases that were being explored (23 October 2019).

See Annex A for the meeting agenda and Annex B for a list of stakeholders who attended the meeting.

Slides from the meeting are attached separately.

## Introductions

Alice welcomed all stakeholders and introduced LIRA2030 by showing a [Youtube video](#)

The LIRA2030 programme aims to support “integrated (inter- and transdisciplinary), solutions-oriented research on global sustainability by early career scientists in Africa to address complex sustainability challenges in the region”. It promotes collaborative research and explores new approaches to thinking about urban futures in Africa, in partnership with local authorities, communities, industries, civil society and the government. The programme hopes to support implementation of [Sustainable Development Goal](#) 11 in cities in Africa, which endeavors to make



cities and human settlements inclusive, safe, resilient and sustainable. Furthermore, this programme aims to identify pathways towards Sustainable Urban Development in Africa.

The LIRA2030 project focused on Durban and Harare is entitled *Transforming southern African cities in a changing climate*. The team working in in these cities chose to explore the concept of Transformative climate change Adaptation (TA); particularly what this means in local development contexts of southern African cities. TA aims to address the underlying drivers of risk, tackling the root causes of vulnerability (e.g. poverty). It can be compared with incremental climate change adaptation, which responds to climate risks or hazards by ‘tweaking’ business-as-usual decisions and actions. Conscious transformative adaptation is seen as an integrated, holistic response that challenge the status quo. In practice this involves questioning assumptions about power, interests and identities. Bearing this in mind, Alice challenged everyone to have a critical mindset about their own values and interests and hear the perspectives of others during LL3.

Alice also provided background on the focus of the research. Initially, the LIRA2030 project was set to focus on examining potable water provision in Durban and Harare through a TA lens. However, following the stakeholder engagements and evolution of the research process, the focus shifted to that of nature-based responses to risk (still focusing on water resilience) in Durban and Harare. As cities, Durban and Harare are at varying stages of adaptation maturity. Durban is considered a world leader in climate change adaptation, while Harare has recently embarked on its climate adaptation journey.

The broad research questions for the *Transforming southern African cities in a changing climate* programme are:

1. What are the understandings of transformative climate adaptation in southern African cities?
2. Are there existing cases of transformative adaptation in the water sector (connecting Durban and Harare), or cases that are offer the potential to achieve transformative adaptation? What were/are the pathways towards these? What lessons can other southern African cities learn about TA?
3. How can we inform the ‘theory’ of TA based on what’s happening on the ground?

Alice presented a timeline of the Transforming Southern African cities in a changing climate project (see Figure 1), showing the progression of activities.

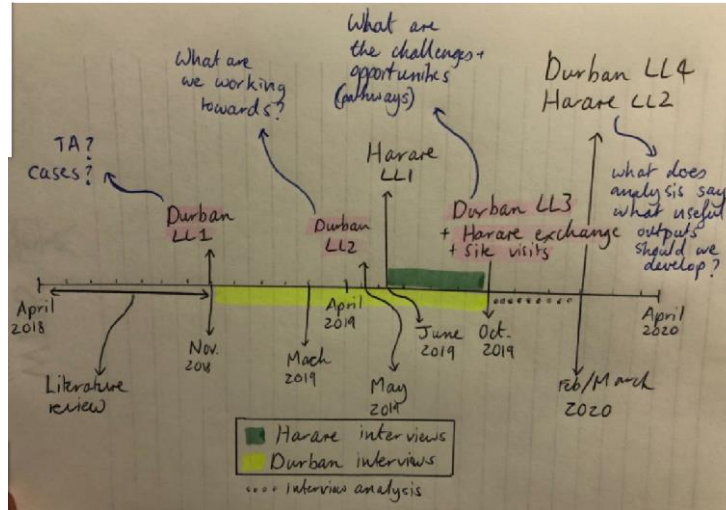


Figure 1. LIRA2030 timeline (hand drawn)

Alice noted that the research process has been emergent, with stakeholders shaping the evolution of the project; the LLs are critical in this regard. A major outcome from Durban LL1 was the identification of characteristics of TA. These were combined with criteria from academic literature to iterate a final set (see insert on the right). Cases of potential TA were also identified in LL1 for exploration, namely; Aller River Pilot Project (ARPP), Palmiet Catchment Rehabilitation Project (PCRP), Sihlanzimvelo and Wise Wayz Water Care (WWWC).

<ul style="list-style-type: none"> <li>Fundamental/sustainable changes in thinking and doing</li> <li>Capacity is developed for those involved to support this fundamental change</li> <li>The fundamental changes must be permanent</li> <li>Inclusive                             <ul style="list-style-type: none"> <li>Relationships across stakeholder groups support inclusivity</li> </ul> </li> <li>Challenges power asymmetries</li> <li>Must be demonstrable in practice</li> <li>Responsive and flexible</li> <li>Holistic, complex systems thinking                             <ul style="list-style-type: none"> <li>Thereby addresses climate in combination with other things</li> <li>Breaks down divisions between adaptation, mitigation and sustainable development</li> </ul> </li> </ul>
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Alice explained that the main objectives of LL3 were to collaboratively explore the transformed landscape for Durban, as well as pathways towards this, which were developed in LL2. This would be done by; i) looking back on potentially transformative cases that are being assessed to understand what we can learn from the past; ii) looking forward to consider more transformative pathways; and iii) looking sideways to understand the different approaches in different southern African cities.

In LL2, there was a request for private sector to be invited to LL3. Alice noted that the team was not successful in achieving this, despite efforts to send out communications.

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Questions and comments from introduction session

Question/comment	Response
Nono Lugongolo (Environmental Health Manager at eThekweni Municipality) stated that the	Alice stated that people could consult the various outputs that have been produced by the project



<p>information shared during LIRA2030 LLs can assist government departments to plan better. She enquired about ways in which government officials can access information on the research and its results. She recognizes the value of the LIRA2030 project to the local government, as city officials are often not aware of interesting projects in their jurisdiction.</p>	<p>(working papers and LL reports), and that the team will share final outputs once the research has produced results from analyses. Alice explained that a key aspect of LL4 (~February 2020) will be to identify ‘useful’ knowledge from the research process, which will shape project outputs. Examples of outputs could possibly include reports, a seminar with government or any other creative means.</p> <p>Alice also mentioned that a video is currently being made (through the LIRA2030 project) on TA, linking from the global perspective to what is happening in Durban. She asked that participants let her know if they were uncomfortable with being filmed.</p>
<p>Suzanne Malan (PCRP) requested further clarity on the point that “transformative adaptation involves changing systems to address underlying causes of risk – tackles root causes of vulnerability (e.g. inequality)”. She stated that in the case of the PCRP, the Quarry Road West informal settlement should be moved away from the Palmiet River. Suzanne also provided an opinion that top down interventions seem to be more effective, in general.</p>	<p>Alice noted that climate change affects people based on their location, and that risks are linked to vulnerabilities. Inequalities often lead to marginalization. Alice mentioned that there are lots of reasons why people are located in areas associated with high risk, and that this is a sensitive topic. She acknowledged that the eThekweni Municipality is looking at relocating people; however, there are limited resources for such interventions (e.g. land near the work hub of Durban).</p>

Alice then moved on to talk about the transdisciplinary research (TDR) approach, which participants also explored in the second LL. She noted that there is no single definition for TDR, but that, generally, the approach aims to transcend the narrow scope of academic worldviews. TDR integrates different forms of knowledge in order to address the complexity of contemporary problems in society. Importantly, academic knowledge is not superior to other forms of knowledge in TDR; all forms of knowledge are equally embraced.

Alice then reflected on the difference between a learning lab, the TDR approach being implemented in LIRA2030, and a general workshop, showing the table below.

Table 1. Differences between regular workshops and Learning Labs (adapted from Koelle et al., forthcoming)

Traditional/conventional workshops	City Learning Lab process
Participants stay in their own ‘spaces’	A ‘third space’ is created by participants; an inclusive space outside of particular disciplines or knowledge types

Process is controlled by a select few driving the agenda	Shared ownership of the process
May be transdisciplinary	Always transdisciplinary
People seek and are able to dominate the process based on their agenda, societal role or title	All people should be able to contribute equally, no matter their different roles, titles, societal importance (while still being aware of protocols)
Co-production of new knowledge may occur but is not a central aim	Co-production of new knowledge is central to the process/critical aim
There may be links between workshops, but this may not be guaranteed	Iterative process that builds on previous knowledge and outcomes from earlier labs to consolidate and extend new knowledge and achieve new outcomes.
May not be anchored to a city policy or governance process	Anchored in a policy, governance or decisions (with the aim of producing usable knowledge)
Experiential and social learning processes may be created	Creation of experiential and social learning processes
	Safe spaces created in which dominant approaches can be challenged and/or shifted
	Constructive deliberations; time for all to speak and no "attack" of people
	Shared learning process that seeks to maximise individual and collective learning

Participants were requested to consider the principles of TDR for a few minutes and write down (anonymously) important principles on pieces of paper. These principles were stuck on the wall and Alice encouraged participants to read these during tea and lunch breaks.

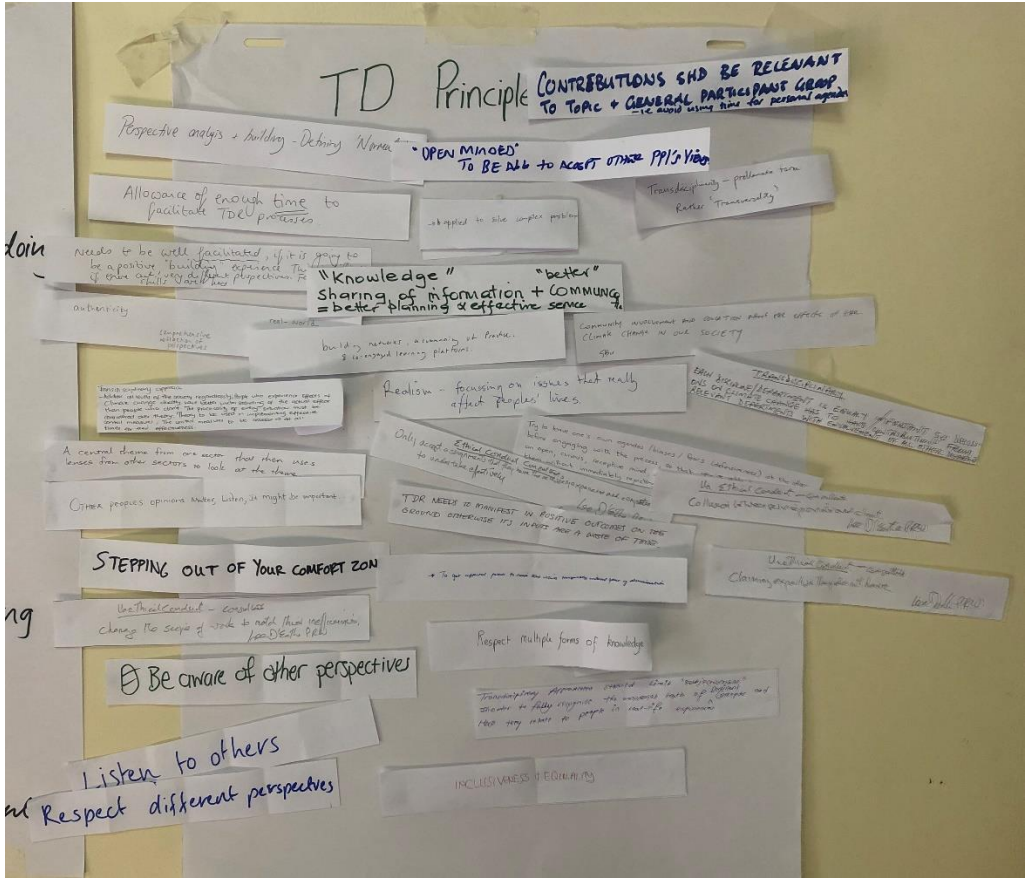


Figure 2. TDR principles (brainstormed by LL participants)

An ice-breaker exercise then commenced, during which participants reflected on the field trip the day before, during which many had visited case study sites in Durban.

**Ukukhuluma Amadolobha Harare**

A talkshow-style discussion then took place, during which team members from Harare, Zimbabwe shared information related to climate change and environmental issues in Zimbabwe. These ranged from weather and climate features (temperature and rainfall), to the geographical location of Harare and interventions that are being implemented in response to water-related problems. The session highlighted the dynamic characteristics of Harare and allowed participants to consider how challenges and opportunities associated with water resilience might be similar or different to those experienced in Durban.

Chipo Plaxedes Mubaya (Chinhoyi University of Technology) spoke about changing patterns in temperature and rainfall for Harare. In a 30-year period, average annual temperature has increased while average annual rainfall has decreased, with expected occurrences of drought in future. Chipo spoke about increased variability of weather conditions as well as extremes. Most climate change interventions to date have focused on water security in rural areas and more recently, focus has shifted to the city. Stakeholder collaboration (as a part of [FRACTAL](#)) has been



recognized as an important part of response; the city, private sector and residents have been talking together about ways for resolving climate-related issues. The Meteorological Department has been increasingly proactive in providing climate information, for example, more frequent and intense heat waves have been recorded in the past 5-6 years.

In terms of national-level interventions, Chipo mentioned efforts to develop policies, legislation and strategies to deal with climate change, with the current possibility of formulating a climate bill. She also stated that there are efforts to develop a Climate Change Management Department by the Ministry of Environment and Climate Water and Rural Settlement.

Rudo Mamombe (Chinhoyi University of Technology) shared information on how Harare is special in terms of its placement in the catchment, as well as how this affects water security for the city. Harare’s upstream location leads to downstream pollution on Lake Chivero, which has been increasing with growth in population of and ongoing migration to Harare. Expensive and dangerous chemicals have been used to treat the water before it’s distributed to residents in the city. This pollution affects water downstream, contaminating consumable water.

Human activity, such as agricultural and industrial pollution, degrades important surrounding ecosystems that have, in the past, provided functions for water security of the city. The wetlands surrounding Harare contribute to improving the quality and quantity of water that the city receives; water is filtered through these areas as it flows downstream and groundwater recharges more quickly. These wetlands also contribute to reducing sediment runoff when heavy rains occur.

Alfred Muriya (City of Harare) then described the issues Harare faces in terms of water security, the plans to deal with these issues at hand, as well as the role that civil society plays in these plans. He confirmed the downstream contamination and the economic challenges (purchasing many chemicals) associated with treatment of water. Alfred also spoke about issues associated with maintenance, which has resulted in poor productivity of the treatment plant. Inadequate provision of water services from the City of Harare has led to residents consuming water from shallow wells which, in turn, has resulted in cholera outbreaks. Political issues have also exacerbated risks as water services are prioritized for certain areas. Approximately 72 million Zimbabwean dollars are being allocated each year to repair water works but this is not sufficient. Limited access to power/energy also adds complications.

Rudo spoke about one of the cases that is being explored in Harare through LIRA2030; the Harare wetlands Trust. This trust is a movement to preserve the wetlands, focusing mostly on development projects that negatively influence affecting water quality and quantity. The intervention is focused on educating and empowering citizens to advocate for wetland protection. The trust has supported citizens in nine suburbs in Harare to challenge decisions associated with development in wetland areas. Activities have included petitions in parliament, education and fostering social change to conserve wetlands for future water security. Demonstrable benefits from interventions include an increase in awareness related to wetland degradation and safer agricultural practices.

Questions and comments from “Ukukhuluma Amadolobha Harare” session

Question/comment	Response
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<p>Suzie complimented the team on good work in Harare</p>	<p>N/A</p>
<p>A question was asked related to whether EIA's are done prior to development, and if such processes include residents.</p>	<p>Alfred explained that EIA's did not take place during the allocation of land in the 1960's, which affected wetland conservation; development took place in many sensitive areas. Local authorities battle to restrict development on private land as the EIA system is not well implemented. However, policies and plans are being updated to support implementation of EIAs. These days, civil society groups are taking landowners to court if the notice lack of adherence to rules and regulations.</p>
<p>A question was asked about whether people in high density areas have built rainwater systems to collect and store water from roofs</p>	<p>Alfred was not sure if this has happened and if it has, how many people are implementing this mechanism. He mentioned that many more people are drilling boreholes rather than harvesting rainwater. UNICEF has been involved in this.</p>

### River of life exercise

Participants were divided into project groups, based on three case studies that were well represented at LL3, to draw their 'Rivers of Life' (30 mins) from the 'source' (i.e. when the project started) to present day. This provided a space for participants to reflect on the history of cases and consider what could be learned. Unfortunately, the river of life for Wize Wayz Water Care could not be developed as an anchor from this group wasn't present. Participants were asked to bear the questions below in mind.

- How and why did the project start?
- What have been the notable changes and why did these happen?
- Who was involved and when?
- What needed to be in place for a change to happen (unpacking the 'how' question further)
- Who hasn't been involved in the river of life and why?

### Palmiet Catchment Rehabilitation Project (PCRP)

Sean O'Donoghue (Senior Manager of the Climate Protection Branch of the Environmental Planning and Climate Protection Department, eThekweni Municipality) presented the Palmiet Catchment Rehabilitation Project's 'River of Life' (Figure 3).



	<p>colour of the river. Officials were trying to find solutions, so they formed a partnership. People reported the changes noticed at different points in the river, after which Lee worked to find the source. Data collected were sent to municipality so that they could respond. The number of incidences are not reduced because the sewage system is still problematic but the impact is minimized because of the quicker response from the municipality. Lee went to a meeting to share data and the development of the Action Plan followed. Lee emphasized the fact that different stakeholders should be included in such interventions so that everyone is part of the solution and mistakes are not repeated.</p>
<p>Geoff added that knowledge contributes to resilience (e.g. providing knowledge about hazards so that residents can respond in time). The authorities do not need to be responsible for everything; a simple mechanism of knowledge sharing can benefit many people (e.g. this can happen through mapping).</p>	<p>N/A</p>
<p>A question was asked about whether any schools have been involved in the project.</p> <p>A suggestion was put forward to develop a program that allows schools to visit the PCR</p>	<p>Lee explained that there are 77 schools in the catchment but engaging with schools had been very hard work and they were not very successful.</p>

**Aller River Pilot Project (ARPP)**

Luci Coelho (Project Manager of ARPP) presented the 'River of Life' for ARPP (Figure 4).

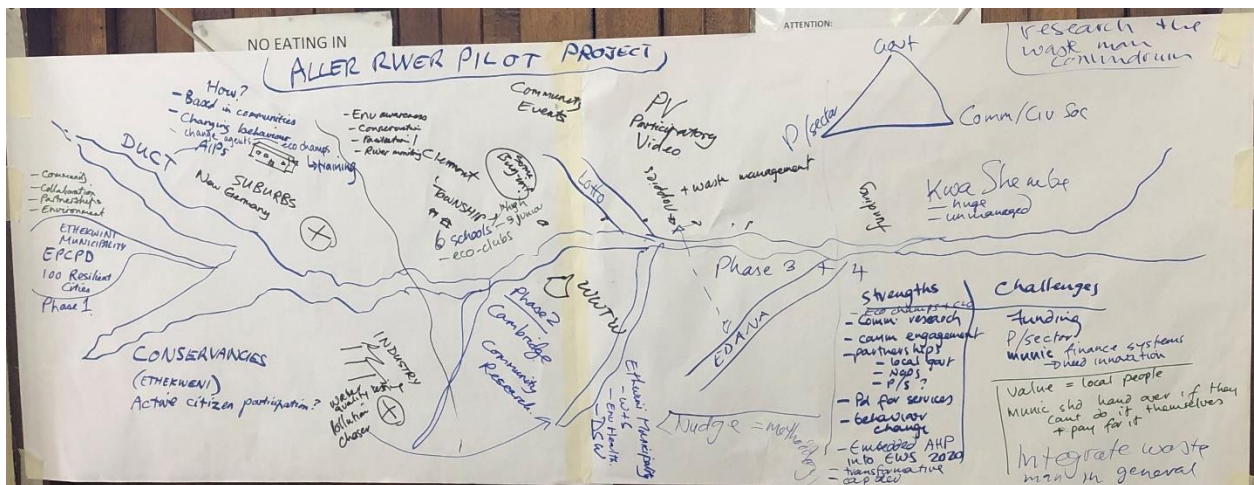


Figure 4. River of Life for Aller River Pilot Project



The project was born out of the Kloof Conservancy, which comprises residents in and around Kloof suburb who are concerned with environmental issues. They applied the notion of ‘take back our rivers’ to build ownership within communities near the river, in partnership with local government. The eco-champs model from Mpophomeni was used in peri-urban and rural communities, initially with the main aim of managing alien invasive plants.

The project received R650,000 near the beginning, which was used to employ a project manager and residents liaison officer, as well as eco-champs. The second phase of the project, which was research-based, in partnership with scholars from Cambridge University, introduced a community-based research approach. This approach improved the relationship between the residents along the Aller River and DSW but the project, again, experienced problems when funding from Cambridge University dried up. National lottery then stepped in with funding and residents were expected to report on contaminants and waste, including nappies. When funding started to run out, the group approached Absorbent Hygiene Products (responsible for nappies production), which provided a small amount. Thereafter, funding was received from EDANA.

ARPP has been driven, largely, by the conservancy (and willingness of people involved) but once the river started improving, people were motivated to continue. The project extended from central Clermont to kwaShembe, shifting perspectives on pollution and society. The topography of the area has introduced challenges, while innovative events (including interactive ice breakers etc.) created environmental awareness in the residents.

Luci stated that the strengths of the project have included the model used (eco-champs), engagement between different stakeholders including local government and residents and indications of behavior change. Project managers are paid by the project, ensuing dependency on their services. The project has experienced challenges associated with funding and finding entry points to the private sector.

#### Questions and comments for ARPP

Question/comment	Response
<p>A comment was made on the apparent problems with sustainability of ARPP and a question asked; if the team could learn from other programmes, such as Sihlanzimvelo.</p>	<p>Luci confirmed that funding is a challenge for ARPP and that Sihlanzimvelo is supported by government, which helps with boosting involvement from the residents and private sector.</p> <p>Nic asked if perhaps the nappy waste (i.e. plastic) could be used to produce a product for selling as a means of income for the project.</p>

#### Sihlanzimvelo

Geoff Tooley (senior manager of the Catchment Management Branch at eThekweni Municipality) presented the river of life for Sihlanzimvelo (see figure 5).



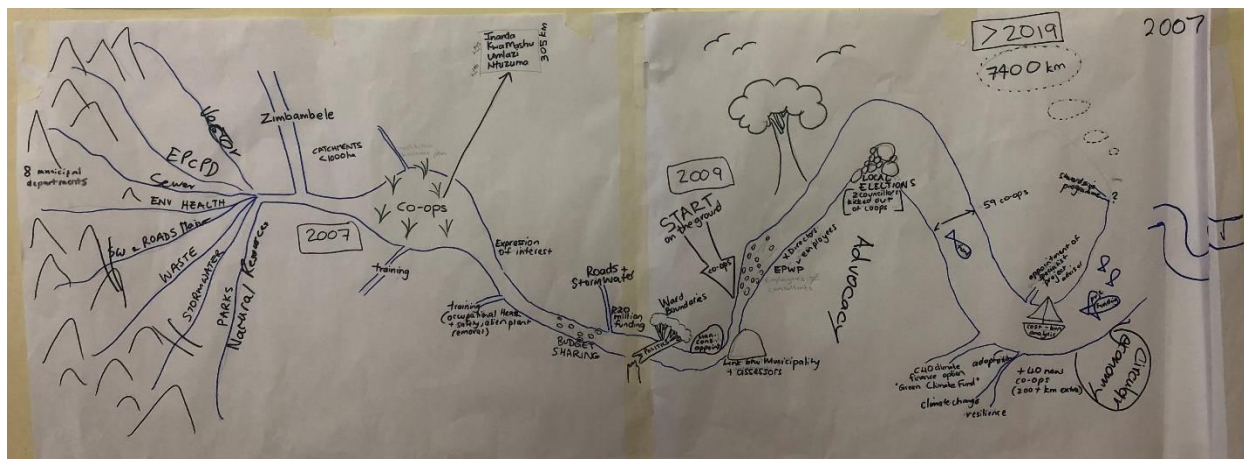


Figure 5. Sihlanzimvelo River of Life

Sihlanzimvelo was inspired by another government-run project, which employs individuals to maintain roads. Sihlanzimvelo hoped to deal with was floods that were damaging property and contributing to loss of life. Main drivers of these floods included blocked culverts, filled with waste. The Department of Water and Sanitation (national) is mandated to care for water in rivers but various types of property ownership (private, state and government) on land through which these rivers and streams run leads to confusion. As a result, the city (and government) lacks an organisation that is responsible for cleaning the edges of streams.

Problems manifest where roads cross the rivers. The Roads and Stormwater Maintenance Department initiated a discussion in the hope to be more proactive so that they wouldn't have to replace damaged infrastructure too often (a very expensive exercise). Geoff Tooley and Mark Tomlinson were curious to explore ways in which the government could stop waste going into the rivers. After some initial research, they found that 70% of the blockages in culverts resulted from alien vegetation, while 30% was from solid waste. The Environmental Health Department, Department of Water and Sanitation, Durban Solid Waste, Roads and Stormwater Maintenance Department, Department of Parks, Recreation and Culture, and Environmental Planning and Climate Protection Department came together in 2007 to try and identify solutions to the problem. Geoff and Mark requested funding as they hoped to pool resources (financial and human) that could be allocated to dealing with the problem.

The group that came together decided to manage the streams through residents' co-operatives (co-ops), which fitted with the political and administrative ward structures. Initially, capacity development activities were implemented to support the development of co-ops, after which eThekweni put out an Expression of Interest for application by co-ops to work on Sihlanzimvelo. All co-ops that were registered went through a training process for managing waste. Terms of Reference for a consultant were also shared; the responsibility of the consultant was to identify resident members who would be trained as project assessors, who would provide a line of communication between co-ops and government. The focus of the project, initially, was on Inanda, KwaMashu, Ntuzuma and uMlazi as it was not possible to implement interventions across the whole city. The team prioritized streams that were severely degraded and near



communities with high unemployment rates. They also sought to find areas that would reduce the need for transport of co-ops.

When the project was first implemented in 2009, the group experienced issues with regards to budgets being shared from different departments; although the different departments had committed to this in theory, willingness to make budget available was limited. The Roads and Stormwater Maintenance Department committed ZAR 20,000,000. The project also ran into political challenges associated with ward selection, as selection of wards (and provision of jobs) seemed like political favouritism. After some time, two members of co-ops also became ward councilors and were removed from the co-ops.

Through the creation of jobs, the project could access Expanded Public Works Programme (EPWP) funding but this also introduced challenges; to continue receiving EPWP funding, the number of people who are employed through the programmes needs to be counted. In the case of Sihlanzimvelo, not all co-ops were doing the work themselves; some outsourced activities. Co-ops also expressed issues with not being involved in the selection of streams.

After some time, the project started receiving positive feedback from residents near streams, assessors and contractors. eThekweni municipality also recorded fewer blockages and 4-5 years ago, the team working on Sihlanzimvelo were encouraged to expand. The team applied for and was awarded the C40 Climate Finance Facility (CFF) international funding; their main aim is to assist the municipality to design a bankable programme for rehabilitating streams, thereby reducing storms and floods in the face of increased climate hazards. While the project currently covers 300 km of river in Durban and is employing 59 co-ops, 40 new co-ops have been approved and will be supported by CFF funding, stretching into other ward areas. The project aims to expand to cover 7000 km eventually but would like to learn from other projects (e.g. in this LIRA forum) to find models that can be applied across the city. The team working on the CFF project is currently undertaking cost-benefit analyses.

Designing a bankable ecosystem-focused project also requires closing loops; eThekweni is currently exploring ways to turn waste and alien vegetation that is removed from rivers into valuable resources through other projects<sup>1</sup>. Geoff explained that unemployment is a problem in Durban, but it also provides an opportunity for change when thinking about developing Small-to Medium-Sized Enterprises associated with river management.

The team is hoping to see the results of the cost-benefit analysis in March next year (2020). To date, the city treasurer is satisfied with what he sees. The team has started to engage private landowners through the Umhlathuze Water Stewardship Partnership<sup>2</sup>. They are also trying to engage businesses, but there is resistance from the private sector to support government. However, the stewardship programmes (e.g. mentioned above) provide a means to gain financial support from the private sector as businesses maintain deciding power. The team is working hard to explore options to access enterprise and CSI funding.

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<sup>1</sup> For example: <https://southcoastherald.co.za/381847/search-innovations-reduce-eliminate-plastic-waste/>

<sup>2</sup> <https://www.nbi.org.za/focus-areas/environmental-sustainability/water/umhlathuze-water-stewardship-partnership/>

Through the CFF project, the team would like to prove that rivers should be registered as assets so that loans (low or no interest) can be accessed. eThekweni will then be able to access such a loan, implement interventions and pay back while accelerating benefits.

Questions and comments for Sihlanzimvelo

Question/comment	Response
<p>A participant touched on the issue of budget; ZAR 20,000,000 from the Roads and Stormwater Department seems like a lot of money that was being spent on interventions. It is interesting to think how this might have been spent by other entities, like NGOs. It also seems fair that other programmes, such as PCRP and ARPP, should receive some of the funding.</p>	<p>Geoff acknowledged the comment and stated that he recognizes Sihlanzimvelo is not the only river rehabilitation project that has brought benefits. They are hoping to support the broader concept of “transformative river management programs” under the upscaled version of Sihlanzimvelo, bringing all the lessons together.</p>
<p>A question was asked about whether Sihlanzimvelo deals with EWS to identify the sewage spills that flow into the streams? Another question was also asked related to whether there are plans to upgrade and redirect those sewer lines in the future.</p>	<p>Geoff explained that Sihlanzimvelo co-ops are mandated to report sewage spills along the streams, to which the municipality responds. The nappies and blockages are, however, the main problems; the pipes are correctly sized but not for solid waste. If the pipes are not correctly sized, they are being replaced with bigger pipes. There is, however, a backlog to replace pipes because of political issues.</p>
<p>Lee mentioned that a lot of data has been collected through these programmes, and that there are some common problems being experienced; waste and nappies in sewers, illegal connections to storm water drains and sewer lines next to rivers. He also emphasized the fact that industry needs to be engaged as they are part of the problem.</p>	

**Revising the landscape of change from LL2**

Participants of LL3 revisited the ‘landscape of change for Durban’ (produced in the second LL). This activity initially began by showing the landscape of change on powerpoint as a textual narrative in future present tense. Participants were asked to read the landscape of change text while standing and those who agreed with the landscape sat down, while those who hoped to tweak or add to it remained standing.

Three elements were highlighted as missing from the original textual narrative that was shared. Nick Swan (project manager at Durban Green Corridors project) requested that the private sector be given a stronger focus in the “transformed landscape”, and that the value of river ecosystems becomes much more apparent to people, especially residents living nearby. Jo Douwes (Manager of EPCPD) suggested a stronger focus on people, as well as skills and



capacity development for a green economy. She hoped for change in people’s access to services and livelihoods (improved). Lee argued that 2040 is too far away and that we should be looking somewhere in the near future, taking advantage of low-hanging fruit. The updated narrative of the transformed landscape for Durban is presented below.

“It’s the year 2040 and the landscape of Durban has transformed. People are working in collaboration (including government, communities and other organisations) with values of caring for ecosystems and other people at their core. The city has an effective mix of built and ecological infrastructure, which helps society deal with climate change, but also to derive other forms of services. Everyone contributes to and benefits from clear and healthy rivers and other green, leafy spaces within Durban; these include spiritual, recreational benefits for people across socio-economic classes and cultures. Clean water running through rivers supports animal life, such as fish, amphibia and insects, as well as the production of vegetables, fruits and other important commodities. Residents that were once vulnerable have built thriving Small- to Medium-Sized Enterprises that support a green economy. Businesses and industries also support this type of economy and acknowledge the importance of riverine areas for production; these larger corporations work hard to give back what the rivers give to them through strong relationships with government, civilians etc. Loops have been closed in production cycles so that very little (no waste) is produced and everyone understands the economic value of river ecosystems.”

Participants then reflected on the pathways towards the landscape of change that were put forward during LL2 and unpacked these according to various dimensions (see below). The group acknowledged that the interconnections between these elements are strong and that it is not ideal to separate them out as an important characteristic of a more transformative approach is acknowledging and emphasizing connections between problems. However, for the sake of discussion, participants chose to home in on one dimension.

- Pathways to change (suggested in LL2)
- Social/residents aspects
- Involve communities and other stakeholders in planning and decision making for the city/catchment
  - Foster responsibility for the environment in communities across the city
  - Show the value of rivers to all communities
  - Connect communities with more solutions (e.g. bins for nappies disposal)
- Business aspects
- Foster responsibility for the environment in companies/private sector
  - Develop circular economies and innovative technologies that support healthy rivers
  - Show the value of rivers to relevant businesses
- Governance aspects
- Improve governance across scales and at different levels (i.e. how can these different scales work together better?)
  - Improve monitoring, evaluation and learning
  - Better manage informal settlements



- Make decisions that constantly support the development of ecological infrastructure
- Strengthen regulation associated with healthy rivers
- Foster political support for enforcement
- Improve service delivery in informal areas
- Implement river rehabilitation programmes that are multi-model, flexible and locally determined

Education, learning and behaviour

- Foster values associated with caring, responsibility and leadership
- Integrate environmental values into education
- Produce knowledge and science that informs decisions for a better city and its people
- Implement ongoing capacity development for river rehabilitation and management

Environment & land

- Remove alien plants
- Rehabilitate areas around rivers to that they are useful
- Manage land near rivers (& throughout catchment?) effectively
- Reframe the understanding of the interconnected relationship between people and the environment

Participants were asked to bear three questions in mind while considering these dimensions; i) is eThekweni Municipality working towards achieving these pathways or have they already achieved them? ii) what are the suggestions for improvement? Responses to these are presented below.

Social/residents aspects

Examples of projects such as ARPP and Sihlanzimvelo were discussed, reflecting on the fact that the city has been able to involve residents in planning and decision making. eThekweni municipality has realized, over the years, that working with residents to find solutions that are suitable for them has been beneficial. Projects such as those that are being explored through LIRA2030 have supported responsibility and ownership among residents for the catchments near them. For residents to value river ecosystems, ownership needs to be built, as well as education (e.g. how actions affect the river). Lastly, there is still a need for basic services or other solutions for waste management (e.g. bins for nappies disposal) as waste is a strong driver of poor river health.

Business aspects

The group discussing these dimensions noted that it is very necessary but challenging to involve the private sector. Energy should be focused on developing innovative technologies that create circular economies. Work that is being undertaken through the Sihlanzimvelo upscaling venture is looking at these dimensions.

Governance

The group that discussed governance reminded everyone that the different departments in the city follow particular mandates and although this is very effective, it can also be problematic



when dealing with cross-cutting issues. There is a need for improving governance and planning within informal settlements because informality will continue to shape southern African cities into the future. eThekweni should involve residents in monitoring, evaluation and learning to build ownership and responsibility. The co-op model that is being applied in Sihlanzimvelo is a good example of local governance mechanism, as are other locally organized projects such as ARPP nappy project. The team suggested a regulation that controls the amount of effort and resources that can be channeled to residents for personal (or political) gain of politicians.

### Education, learning and behavior

The group reflected on ways in which eThekweni is working towards achieving the “fostering values associated with caring, responsibility and leadership”. Participants suggested a central education body or group that can work across government departments to break down silos and offer support. Knowledge should be shared across all generations, and an exchange of scientific and indigenous knowledge should be fostered through research.

A suggestion was put forward to improve support, from an early age, for ‘educational champions’ (such as eco-champs). Pedagogies should also be revised to be more inclusive, effective, participatory and creative. It was also noted that knowledge becomes valuable to people once they can link it to their everyday existence.

### Environment and land

The group explained that removal of alien invasive plants needs to remain a priority and effort needs to be directed at better managing (and rehabilitating where necessary) areas of land closer to the rivers and sources of water. Experiential learning plays an important role in instilling environmental values in people (e.g. field trips, development of information centres etc.). The group suggested more public outreach programmes to reach residents and people who do not have immediate access to information. Relationships and actions that benefit both the environment and people need to be identified and information about these shared.

### **Reflection session (aha moment) and closing**

The final session involved sharing an ‘aha’ moment in a group. This moment could be from LL3, the site visits or learning in general. These reflections are shared below.

- ARPP has supported an environment of learning, which has resulted in transformation of people into agents of own communities
- Understanding that different people with different perspectives have the same goal in mind.
- Invasive species (plants) can be replaced with indigenous vegetation
- Amazing that Sihlanzimvelo works with over 50 Co-ops
- Good to see municipal drivers of different projects coming together from different perspectives
- People can find it so difficult to shift their personal perspectives away from issues of environmental concern (e.g. to focus on people)
- Some individuals from projects are not involved; they need further involvement.
- The different catchments have such different, dynamic characteristics
- People often get caught in the details of everyday responsibilities and forget how to get a view from other perspectives



- Interesting to learn about how other departments tackle climate change concerns
- Learning from the Harare research team was great
- There are so many different and unique jobs in government departments
- Enjoyed learning about the controversial issue of the nappy challenge
- Enjoyed creating my own world view of the environment and rivers (projects) through charts
- Have a realization that different environmental bodies being given right to hold people accountable for certain behaviors
- Learned how different organizations can maybe come together and combine ideas to tackle major issues
- Learning about prospective projects and ideas to introduce.
- Learning of the progressive and positive work of Sihlanzimvelo
- Finding ways to incorporate characteristics of Sihlanzimvelo into PCRIP
- Realizing how monetary aspects of projects are not always as important as people would assume.

Alice then closed the meeting, thanking everyone for attending.



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## Annex A: Meeting agenda

Time	Session & facilitator
08h30-09h00	Registration & biscuits
09h00-09h30	Introduction of participants, as well as the objectives of the day
09h30-10h00	Feedback from visits to case study sites
10h00-10h30	ukukhuluma amadolobha (Harare)
10h30-11h00	Tea
11h00-12h00	'River of life' exercise of various case studies (looking back on case studies)
12h00-12h30	Revisit landscape of change from Learning Lab 2
12h30-13h30	Lunch
13h30-15h30	Looking forward towards the landscape of change to identify challenges, barriers, catalysts and opportunities that arise in the future
15h30-16h00	Reflections, next steps & closing
15h15-15h35	Tea





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## Annex B: Workshop attendee lists

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