



City Learning Labs

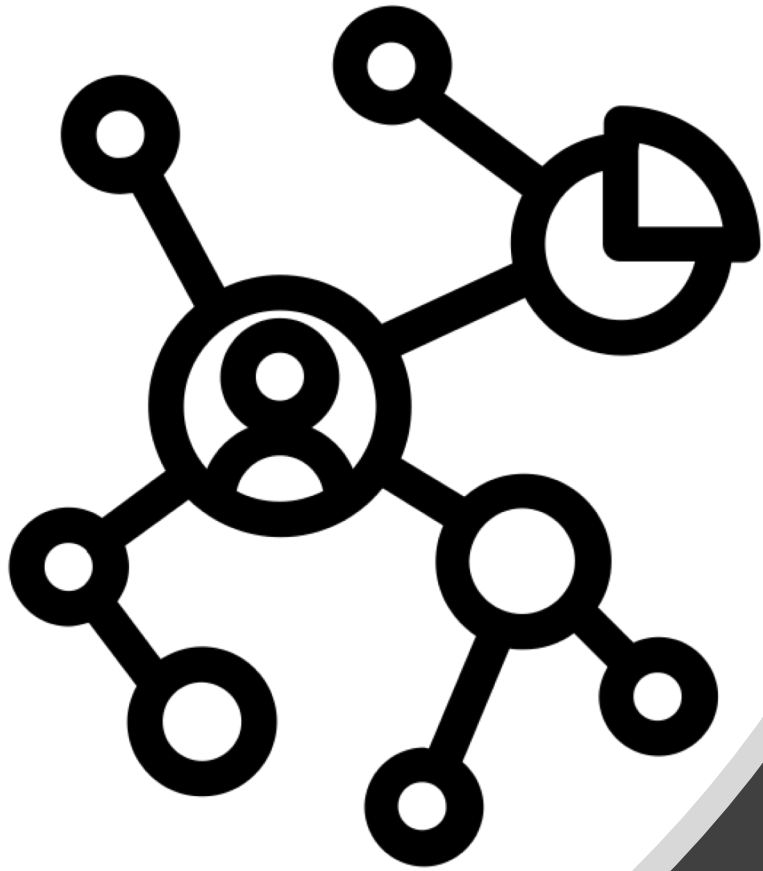
for dialogue and decision making

Bettina Koelle, Red Cross Red Crescent Climate Centre

Gilbert Siame, University of Zambia

Richard Jones, UK MetOffice

Chris Jack, CSAG, University of Cape Town

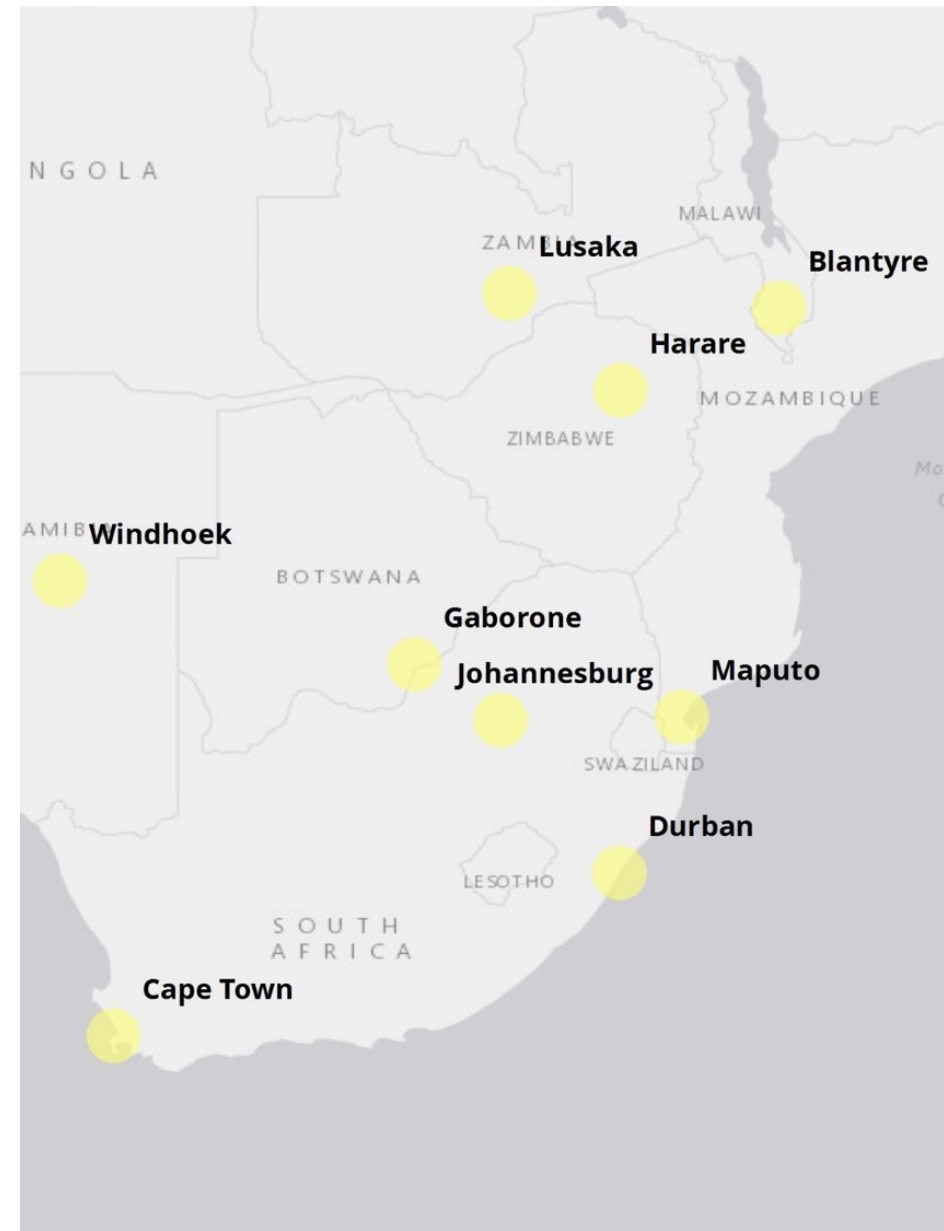


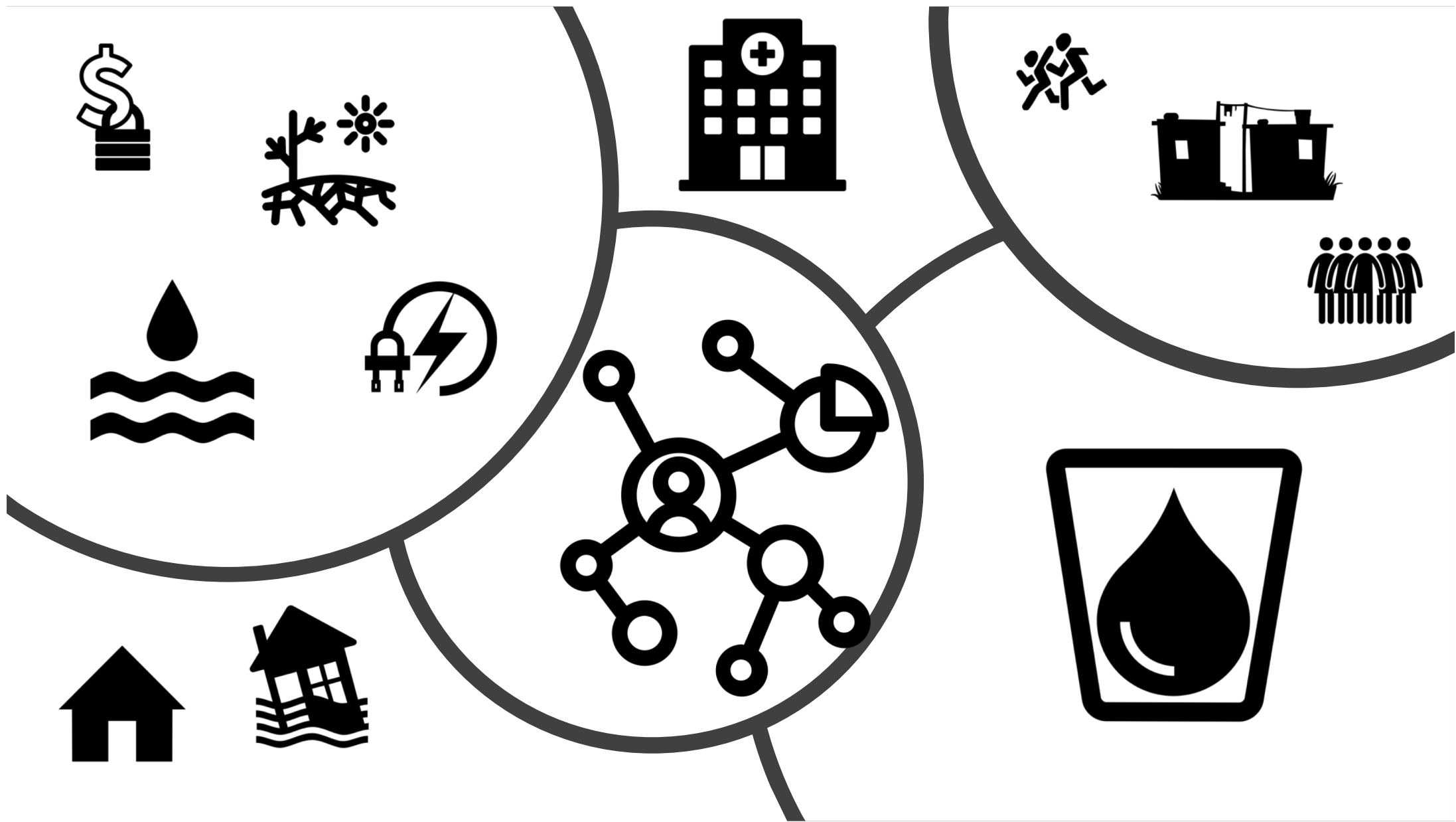
City Learning Labs

Introduction

CITIES & CLIMATE

- Exploring challenges on city level
- Multi Stakeholder dialogue
- Including scientific climate information
- City to City Learning





City Learning Labs

Action Research process

Guided by participants

Focused on a burning issue

Including a range of diverse stakeholders

Exploring systems perspective

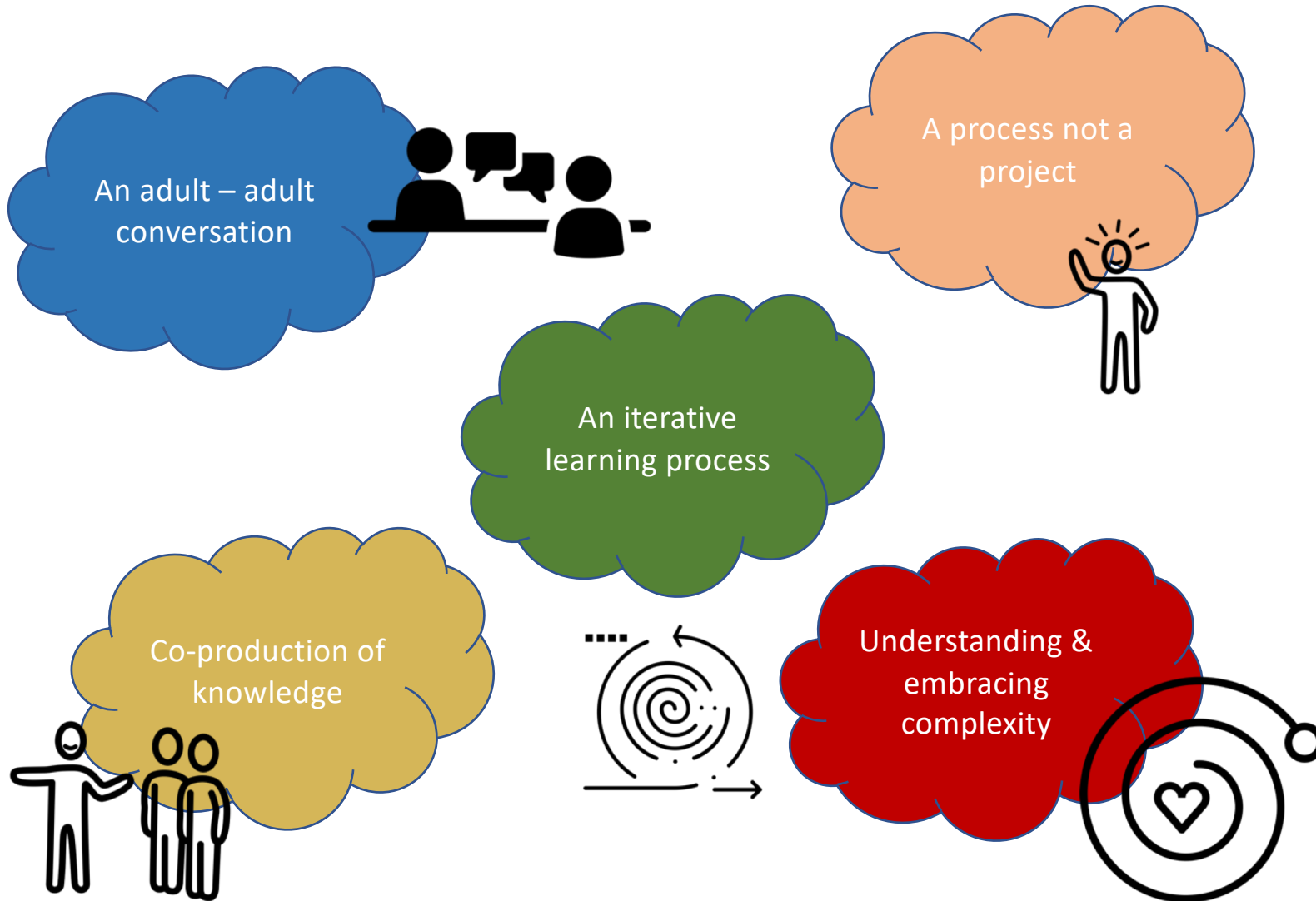
Deciding on research & action

An iterative process over some time

Concluded by participants



Some principles of a City Learning Lab approach...



Trust

Openness

Respect

Flexibility

Safety

Humility

Learning



Generating enthusiasm



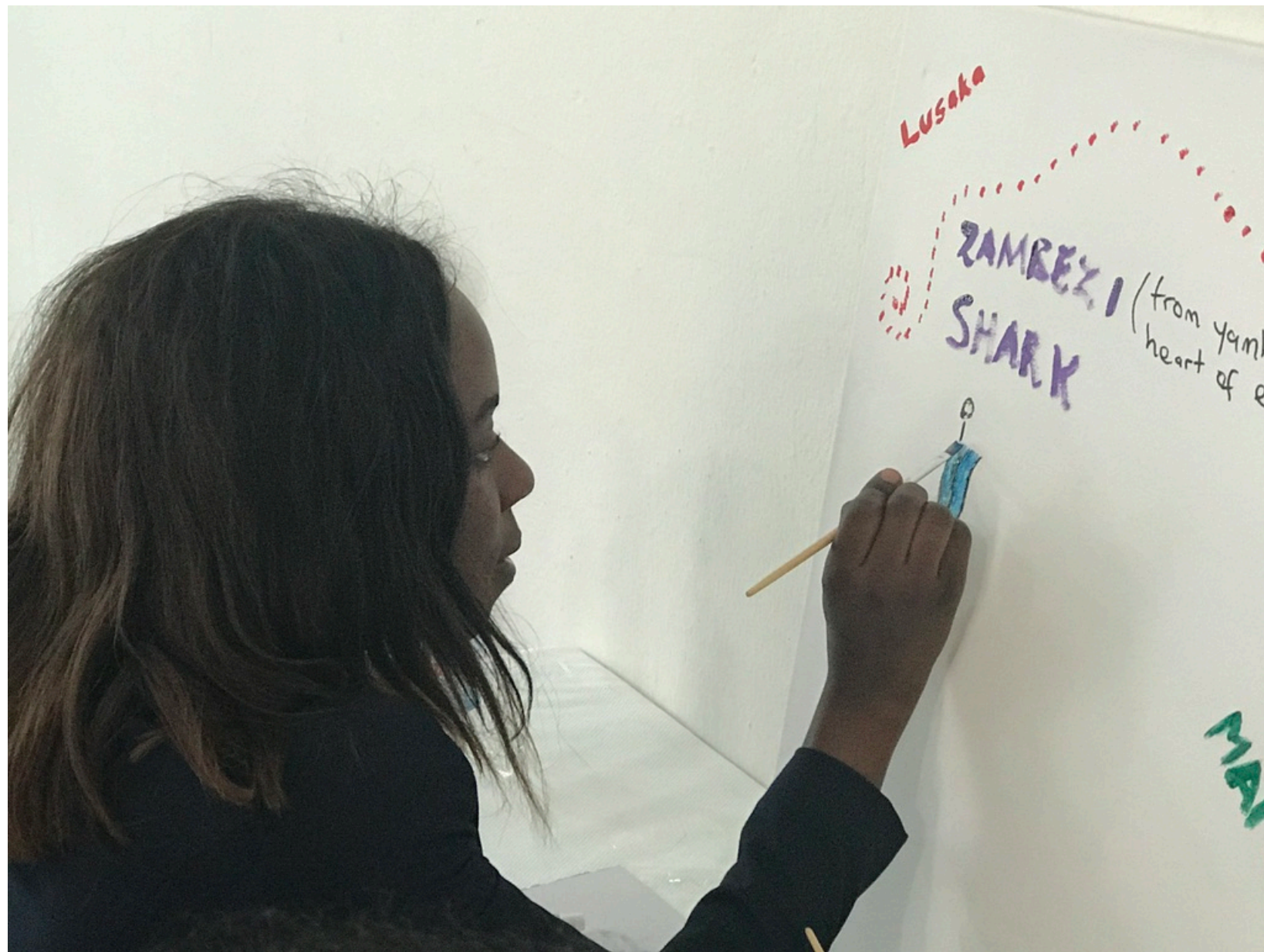
The diagram illustrates a community-based water quality monitoring system. At the center is a red oval labeled "Water quality in Peri urban areas" with "(om muni ty)" written below it. Surrounding this central area are several small figures (stick figures) and labels. To the left, a yellow label "DMN" is connected by an arrow to the central area. Above the central area, a group of figures is labeled "NGOs". To the right, a figure is labeled "Notice". Further right, a figure is labeled "MA". Below the central area, a figure is labeled "TRU". To the right of the diagram, a separate sheet of paper lists "WATER RECOMM" and several bullet points: "Strengthen amongst MoH", "Strengthen quality mo", "Strengthen voice and for accountability", and "Behavioural in community".

Community

- Strengthen amongst MoH
- Strengthen Quality
- Strengthen voice and for accountability
- Behavioural in Community

Recognizing individuals





**Unleashing
creativity**

Reaching out to stakeholders





Flexible
mind ...
For dynamic
problems

FRACTAL timeline in Lusaka



2016

Lusaka Learning Lab 1

- Exploring water and energy challenges
- Jointly defining **the burning issue: Water in peri-urban areas**



2017

Lusaka Learning Lab 2

- Defining a **joint vision and thematic areas**
- Field trip to Kanyama



2017

Lusaka Learning Lab 3

- Working on thematic areas
- Field trip to Shaft 5 and Iolanda treatment plant



2018

Lusaka Learning Lab 4

- Deepening the policy briefs
- Deeper exploration on Groundwater and Water quality



2018

Lusaka Learning Lab 5

- Finalising the policy briefs
- Deeper exploration on Flooding and Water supply



City Learning Labs

The Lusaka Experience

City Learning Labs for dialogue and decision making

Gilbert Siame (PhD)

University of Zambia

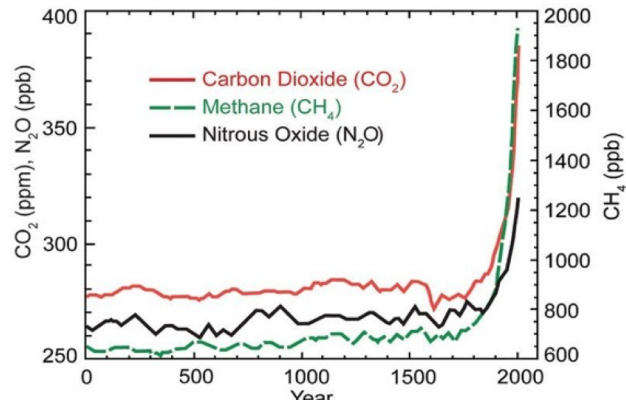
Co-PI- Fractal, Project, Lusaka

Webinar on Learning Labs: Reflecting on the Fractal Learning Lab Process in Lusaka



Presentation outline

- What is the challenge?
- The Learning Lab
- Substantives Science in the Lab Processes
- From science to solution exploration
- The art of listening, science listening
- Conclusions



The challenge:

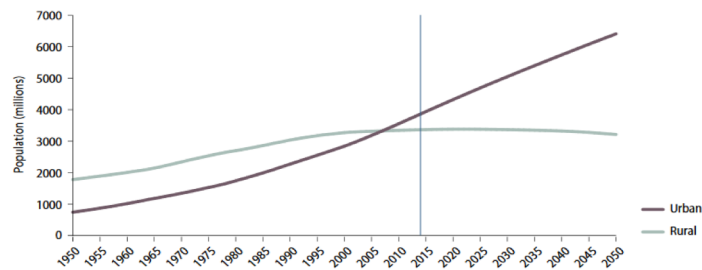
[Moving] From “it’s real” to “here is the information you need to make good decisions for your stakeholders” Chris Field, IPCC AR5 WGII co-chair



FRAC TAL

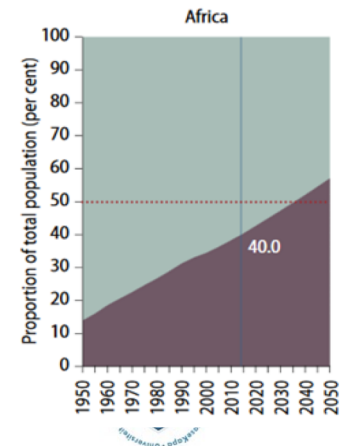
FUTURE RESILIENCE FOR AFRICAN CITIES AND LANDS

Figure 2.
Urban and rural population of the world, 1950–2050



A majority of the
world’s population
lives in urban areas

**Lusaka is urbanizing at
4.9%, but with major
infrastructure deficits
and capacity constraints**



What is a learning lab?

- *A **learning lab** is a multi-stakeholder platform for addressing a particular complex social challenge.*
- *City Learning Labs build on active participation of diverse stakeholders, and take an experimental and systemic approach to designing potential solutions*

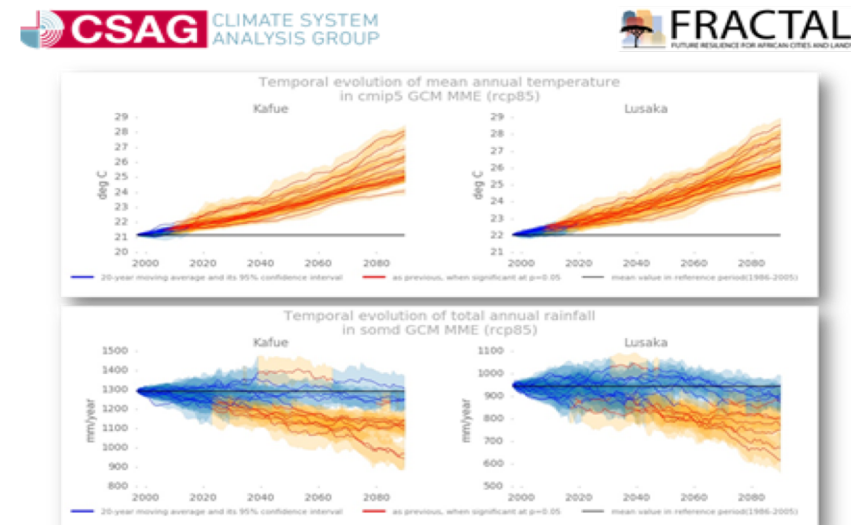
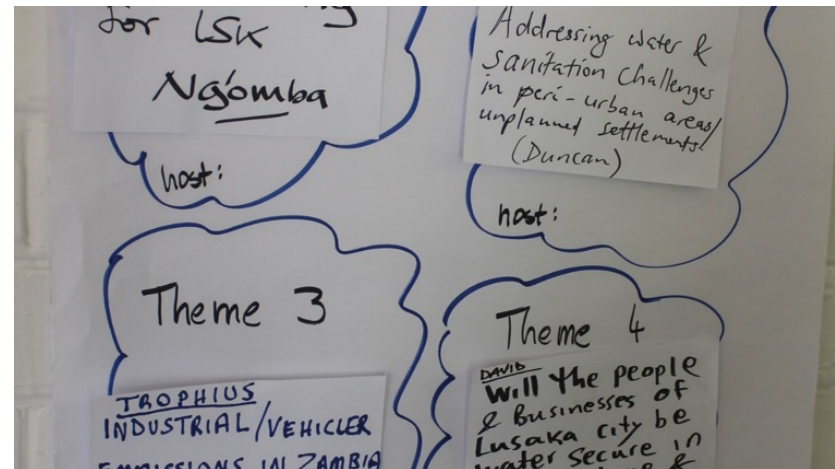
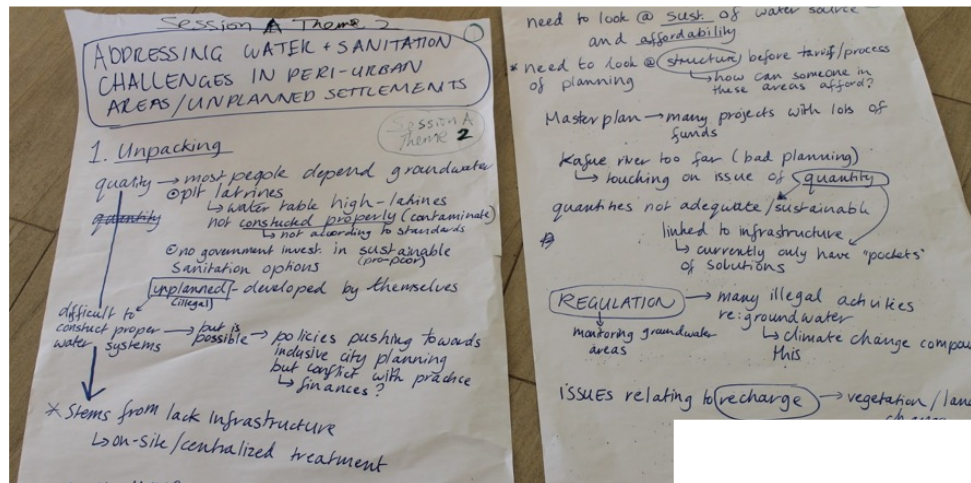


Diversity and active participation at Lusaka Fractal Lab

The Fractal Learning Labs: Overarching objectives

- Create a platform for an **iterative, transdisciplinary co-exploration/co-production processes** and enhance understanding of these (co-production of climate knowledge).
- Enhance **knowledge** on how to integrate climate information into **decision making at the city-region scale** (decision-making/governance);
- Create a platform for climate science- decision-making interactions, bi-directional feedback
- Platform for doing humble science, increase ‘wisdom’ of science



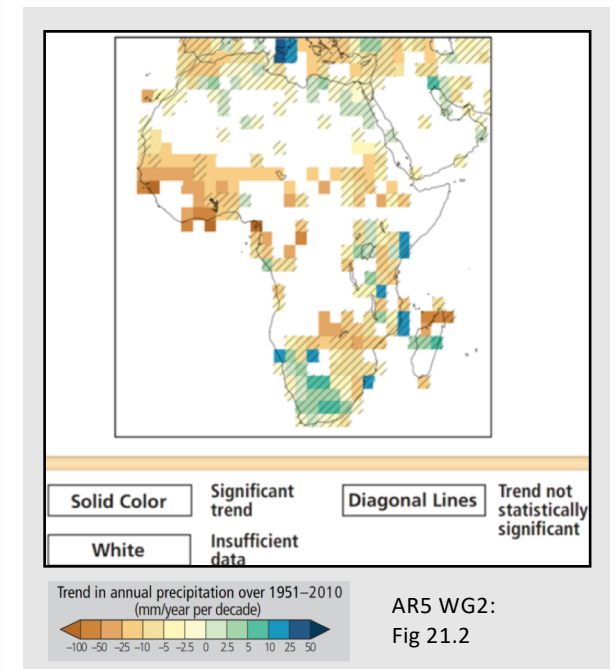


Walking the talk: Humble Science

Adding value in the Lusaka Lab Processes

Substance of the work during the lab processes:

- Governance analysis and mapping
- Climate baseline and projections data & guidance
- Climate risk and impacts scenarios, what future?
- Contributions towards urban resilience, climate adaptation & risk management planning



From Science to solution exploration



- Learning Labs – Identify burning issues & explore solutions
- Training workshops – new skills & knowledge
- Embedded researcher – bridging research & practice
- Inter and intracity learning- knowledge exchange
- Targeting decision makers
- Success is shaped by careful and well informed facilitation



Creating value for all

- **A lab served as an exemplar for integrated, user-informed climate change research** to guide future investment in development and research
- **Alter how Lusaka include climate change** in development planning
- **Increased understanding of regional climate information** informed by co-exploration with decision makers
- **Fundamental changes in key decision pathways** (around water, flooding, land use and infrastructure development) to increase the resilience of city-regions
- **Allows for a balance in a research landscape** dominated by actions with national, sectoral and regional level
- Climate Science as product of lived reality



The art of listening, science listening



Learning Labs: Some Reflections



“Burning Issues” in the cities

Lusaka, Maputo and Windhoek



Maputo

Maputo
"Potable Water"
followed by
"Drainage and Sanitation"

Windhoek
Water availability
in and around
Windhoek, and
services in
informal
settlements



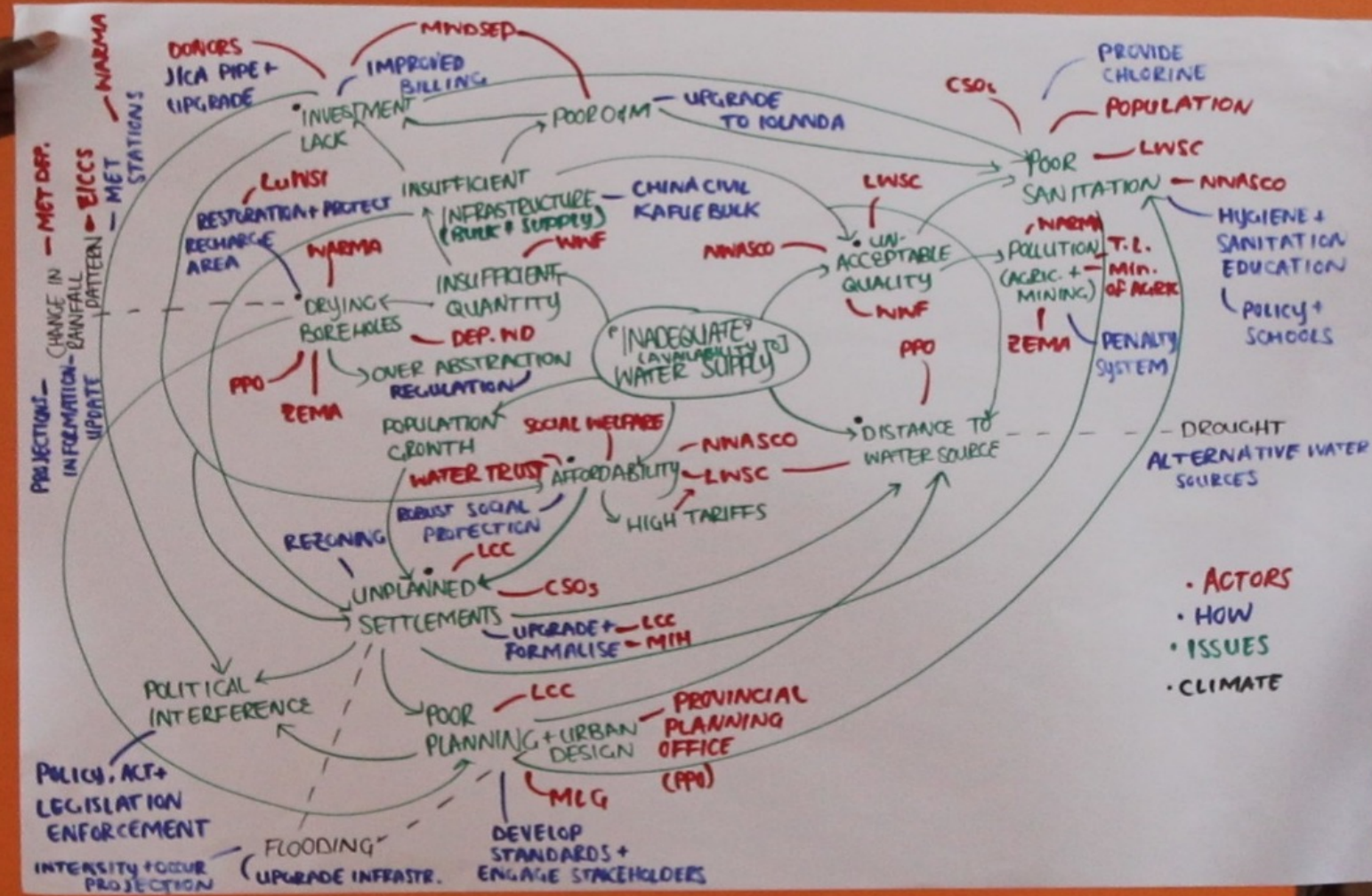
Windhoek



Lusaka

Lusaka
Peri-urban water issues:
i) water supply;
ii) flooding;
iii) sanitation

Mapping actors, issues, solution options

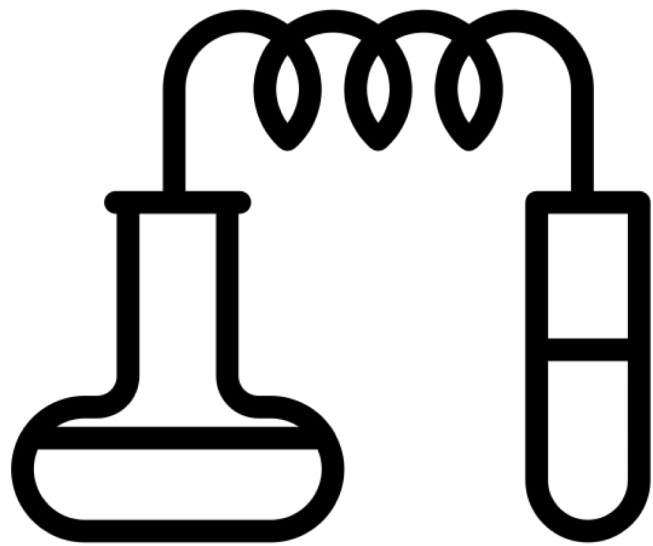


Informal spaces to build relationships



Field visits
for context,
networks,
voices





City Learning
Labs and climate
services

The Distillation Process

We are not short of “information”

159 reports, briefs, technical notes, etc. Related to water and climate in Lusaka

[illegible]

Decision makers don't have information

The problem

- Too hard to access
- Too difficult to understand or interpret
- Too many different sources, which is the right one?
- Too uncertain, we need more precise information

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- Too uncertain, we need more precise information

The solution?

- Make it more accessible (another portal?)
- Better communication/visualisation
- One central repository
- Reduce uncertainty, more research

Isn't it a communication problem?

Improving methods of communicating climatic uncertainties to aid decision-making

Project report and guidelines prepared for Future Climate for Africa

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Irene Lorenzoni School of Environmental Sciences, Tyndall Centre for Climate Change Research, and Science, Society and Sustainability (3S) Research Group, University of East Anglia, UK.

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Emma Visman VNG Consulting Limited and King's College London, UK.

Isn't it a communication problem?

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Communication formats should transparently convey the nature of uncertainty being communicated and be readily comprehensible to ensure that decisions can be made based on an understanding of the uncertainties. Traditional, scientific formats for communicating uncertainty, such as technical graphs, can be difficult for non-scientists to comprehend. Although simplified information may be more easily understood, it may not provide sufficient depth of information to inform decisions. Finding the right balance may be best achieved using co-production (see section 7.1 and 7.3 for further context).

Isn't it a communication problem?

Improving methods of communicating climatic uncertainties to aid decision making
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Trust in climate information and in those who communicate information should be measured and evaluated to assess how communication and engagement activities influence trust in information. Stakeholders often equate uncertainty with 'not knowing' and/or a lack of accuracy. This can reduce trust in using the information and in turn prevent action. Measuring trust can help identify communication approaches that foster shared understandings of uncertainty (see section 7.2 for further context).

form
(see

Isn't it about reducing uncertainty?

- Uncertainty equated with ignorance which isn't a great starting point
- Uncertainty should motivate engagement, not dissuade engagement
- Often epistemic uncertainty is a small part of the total uncertainty landscape

Isn't it about tailoring to user needs?

Yes... and also no...

Tailoring speaks to an underlying challenge?



Do we just keep going?



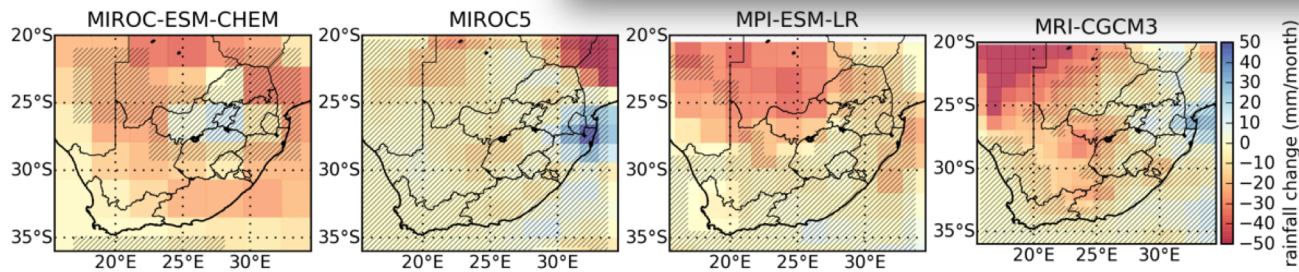
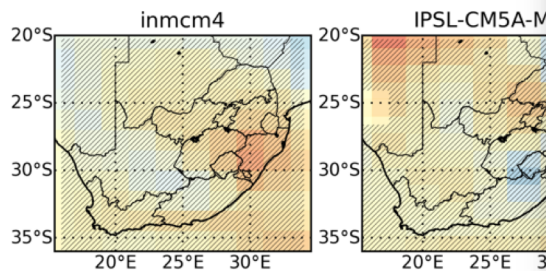
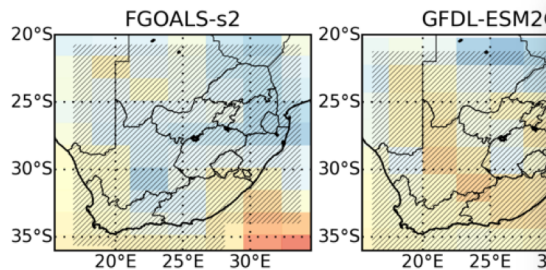
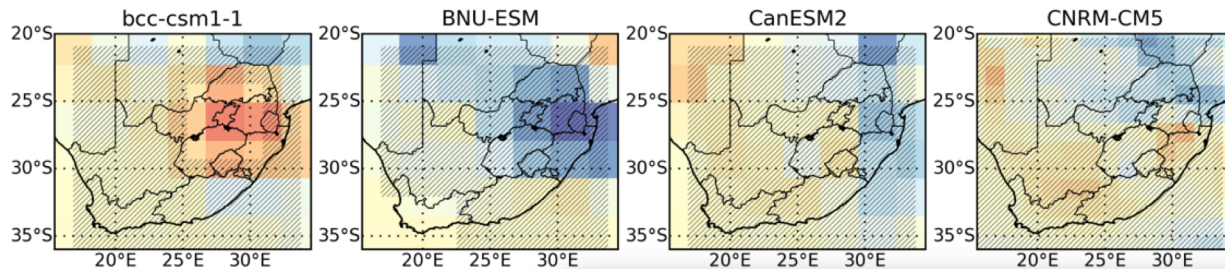
PHOTO: TIM MACPHERSON/GETTY IMAGES



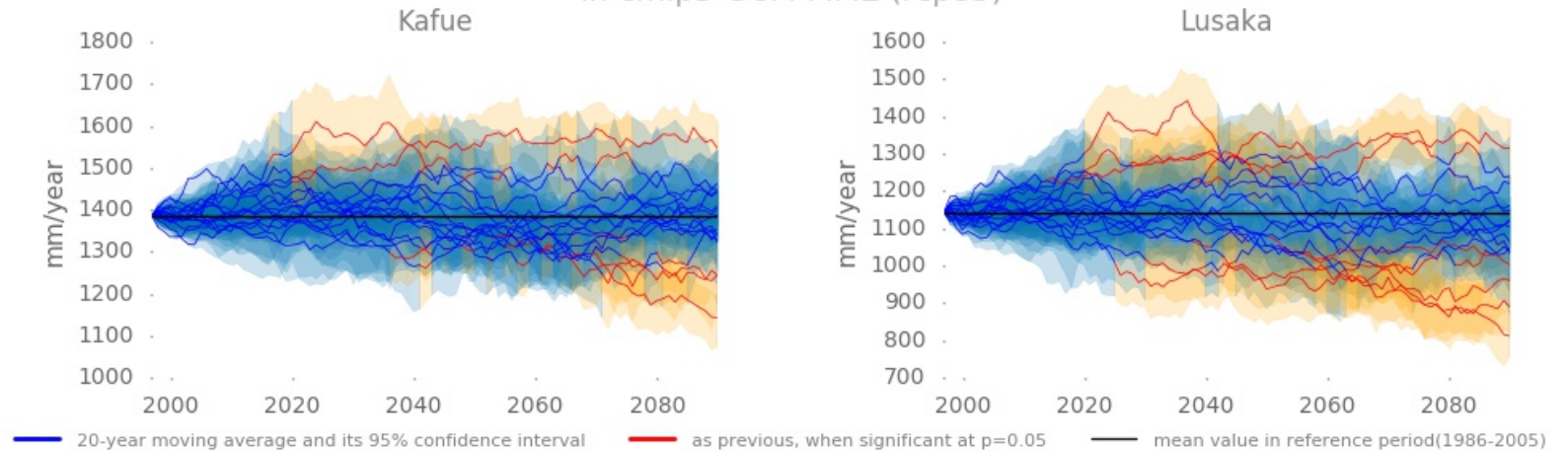
Climate Risk Narratives

- Strong evidence that we use narratives to capture the essential meaning of complex evidence
- Presented with complexity, we gravitate towards constructing a narrative
- We tend to hold existing narratives and seek evidence that confirms these

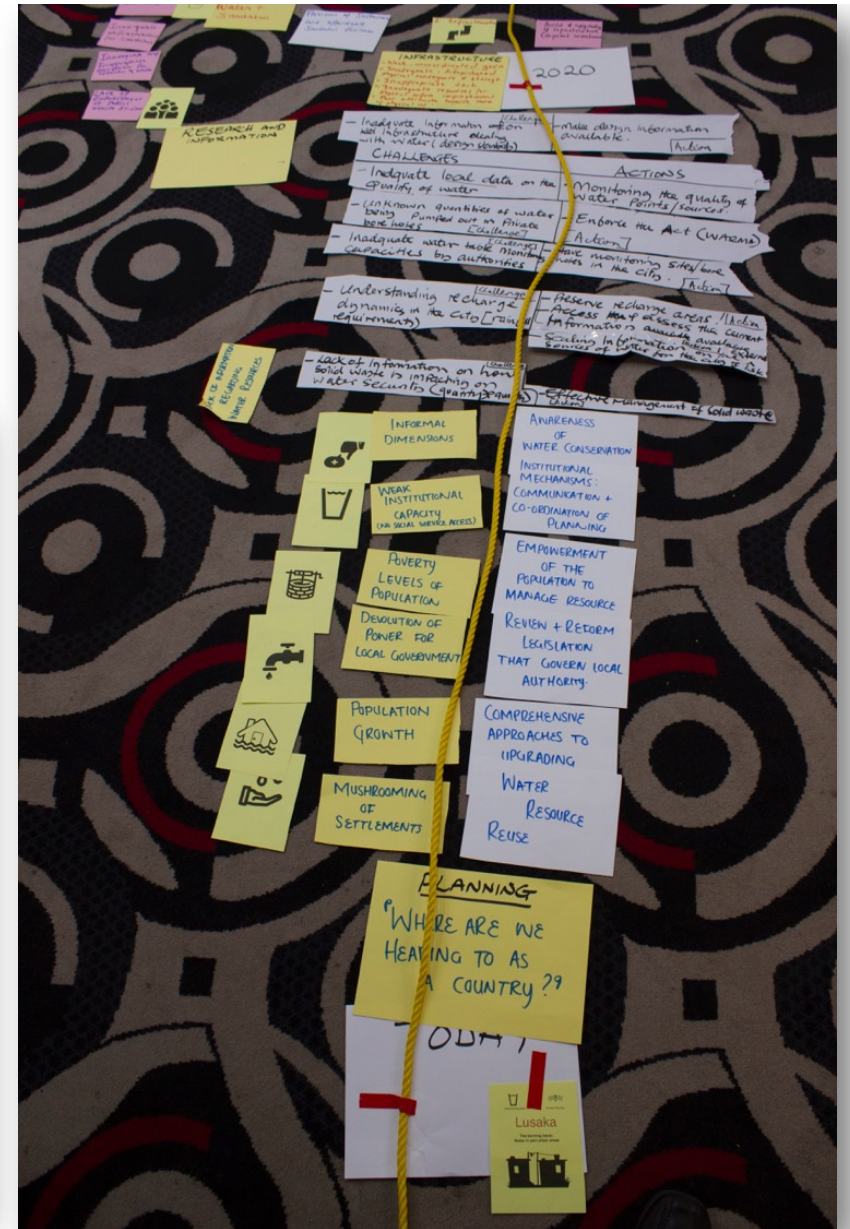
DJF anomalies of monthly rainfall totals GCMs rcp85 2040-2059



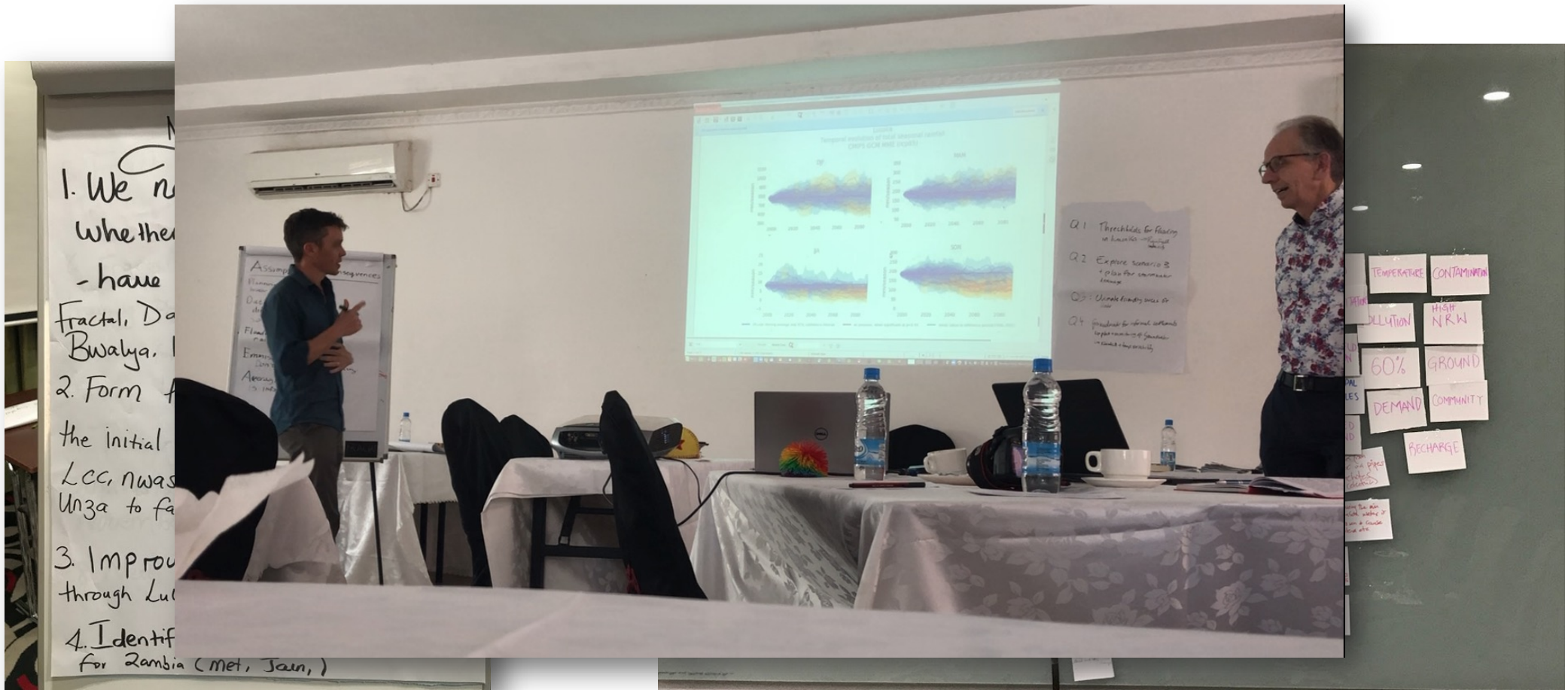
Temporal evolution of total annual rainfall in cmip5 GCM MME (rcp85)



Distilling narratives



Deliberated, negotiated and owned





Scenario 1 Hotter & drier

Natural System



Extreme hot days and heat waves becoming much more frequently.
More severe and more frequent droughts

Areas of impact



Water shortages
Highly impacted agriculture -
Insecure food supply
Hydro power shortages

Societal Consequences



Political instability

Health crisis



Conflict

Responses



Adapt agricultural systems
Develop adequate building
design standards
Use alternative energy sources
Alternative water technology



LUSAKA



Scenario 2 Warmer & more erratic and extreme rainfall

Natural System



Less predictable rainfall, more contrast between wet and dry seasons
Wetter wet seasons- and drier dry season

Areas of impact



Agriculture impacted - more irrigation needed
Crop failures possible due to erratic rainfall
More flooding
Health impact: more heat stress

Societal Consequences



Humanitarian Crises



Health impact

Responses



Adapt agricultural systems
Develop adequate building
design standards
Use alternative energy sources
Alternative water technology



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Scenario 3 Warmer & more extreme rainfall

Natural System



Stable water sources
Increased evaporation

Areas of impact



Agriculture impacted - more irrigation needed
Crop failures possible due to increased evaporation or extreme rainfall
More flooding

Societal Consequences



Humanitarian Crises



Health impact

Responses



Adapt agricultural systems
Develop adequate building
design standards



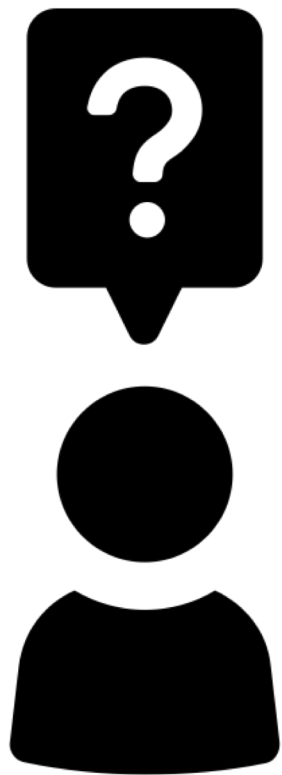
Alternative water technology

LUSAKA

Its all about the process

- Humble science and balancing power
- Transparency and assessability
- Building trust, in evidence and people
- Surfacing values and ethics
- Creating meaning from data

“This is the first time I’ve actually understood what climate change means for my city”



Questions?