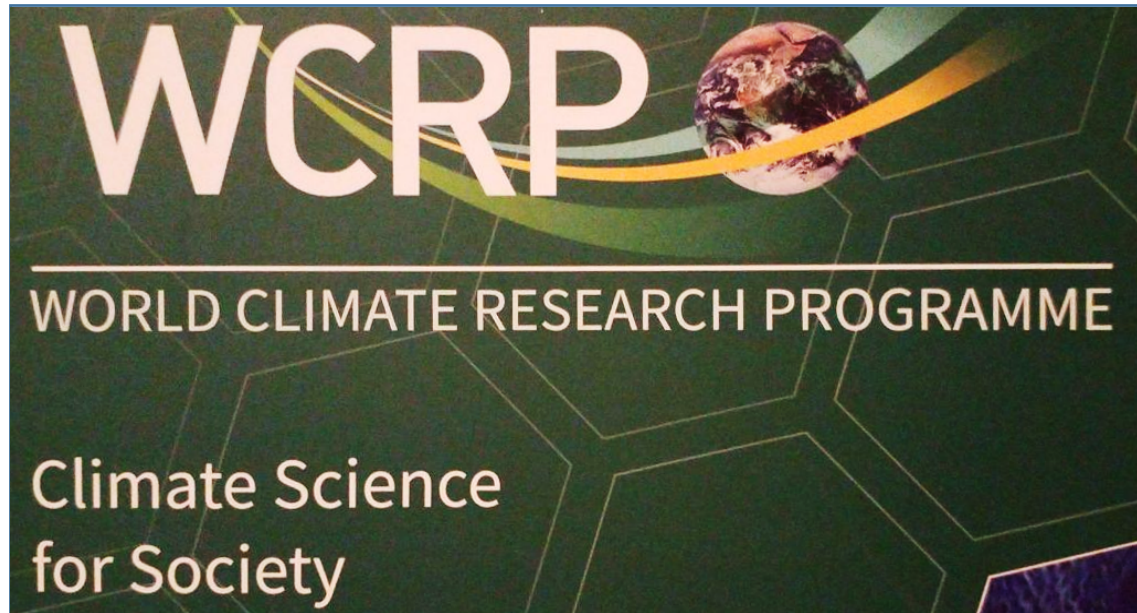


# Capacity Building Capacity Development



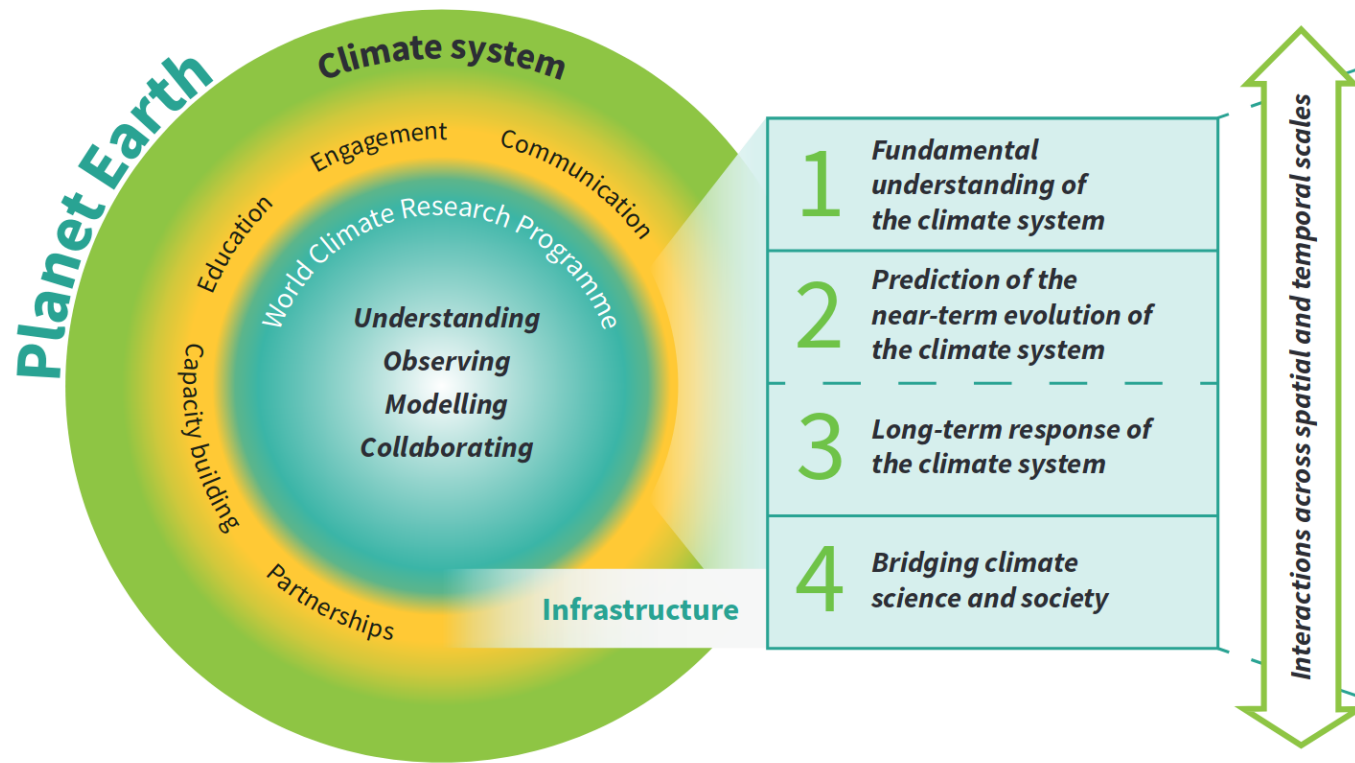
The mission: ...  
apply the climate  
knowledge that  
contributes to  
societal well-being.

- Capacity development considerations
- Key questions and issues
- What success can look like
- What might be “failures”
- The role of values
- WCRP challenges

This is a regional social  
activity requiring effort



# Capacity Building Capacity Development



Scientific success is predicated on:

The passion of the individual with competency to engage and confidence to explore

accessible opportunities in a community of collaboration

*“The four Scientific Objectives ... rely on the WCRP community working together ... through partnerships, capacity building, education, engagement, and communication.”*

[WCRP Strategic Plan 2019–2028]



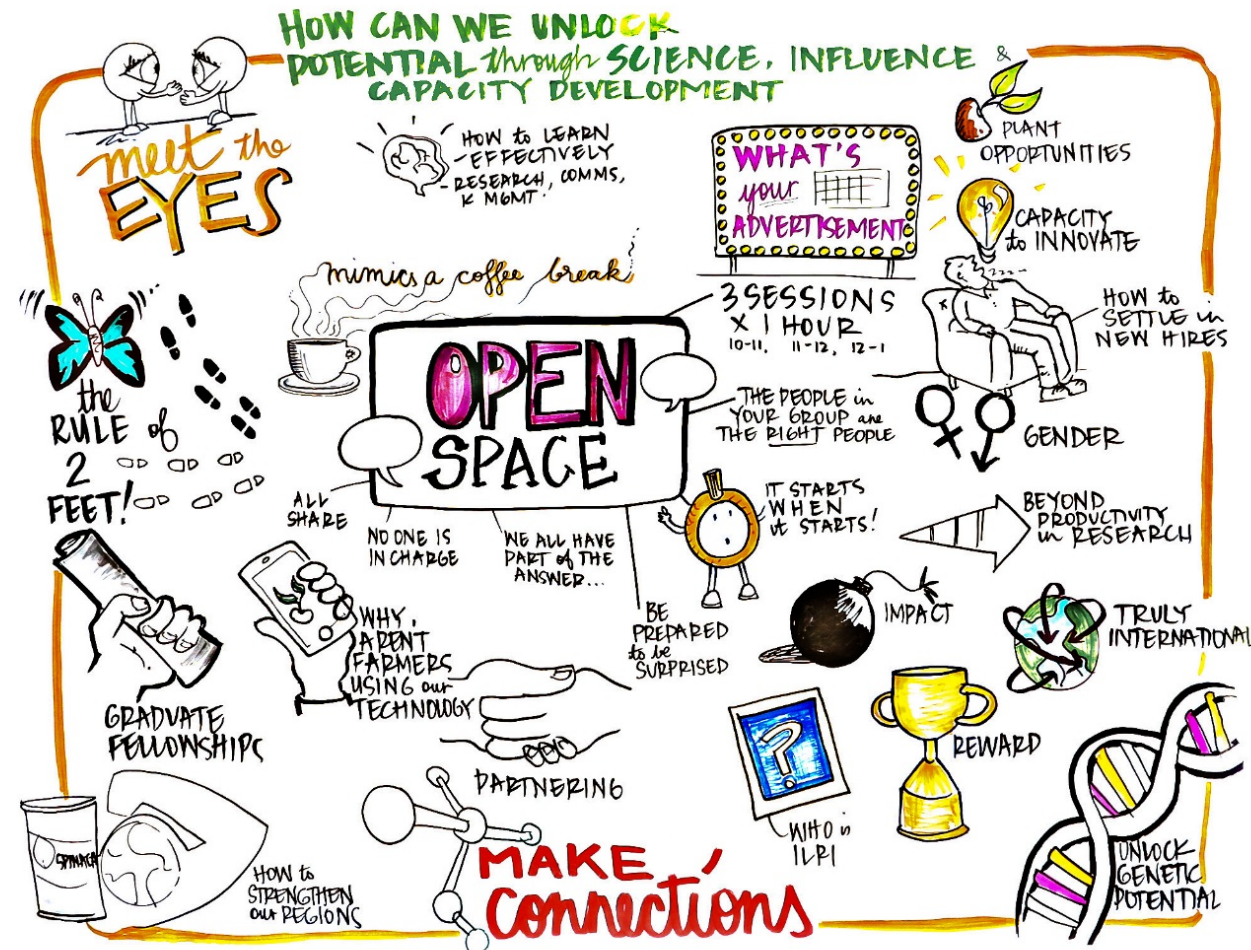
# What is Capacity building/development?

*The ubiquity with which the term is used seems only matched by the diversity of ideas about what it means or involves.*

## Selected definitions off the web

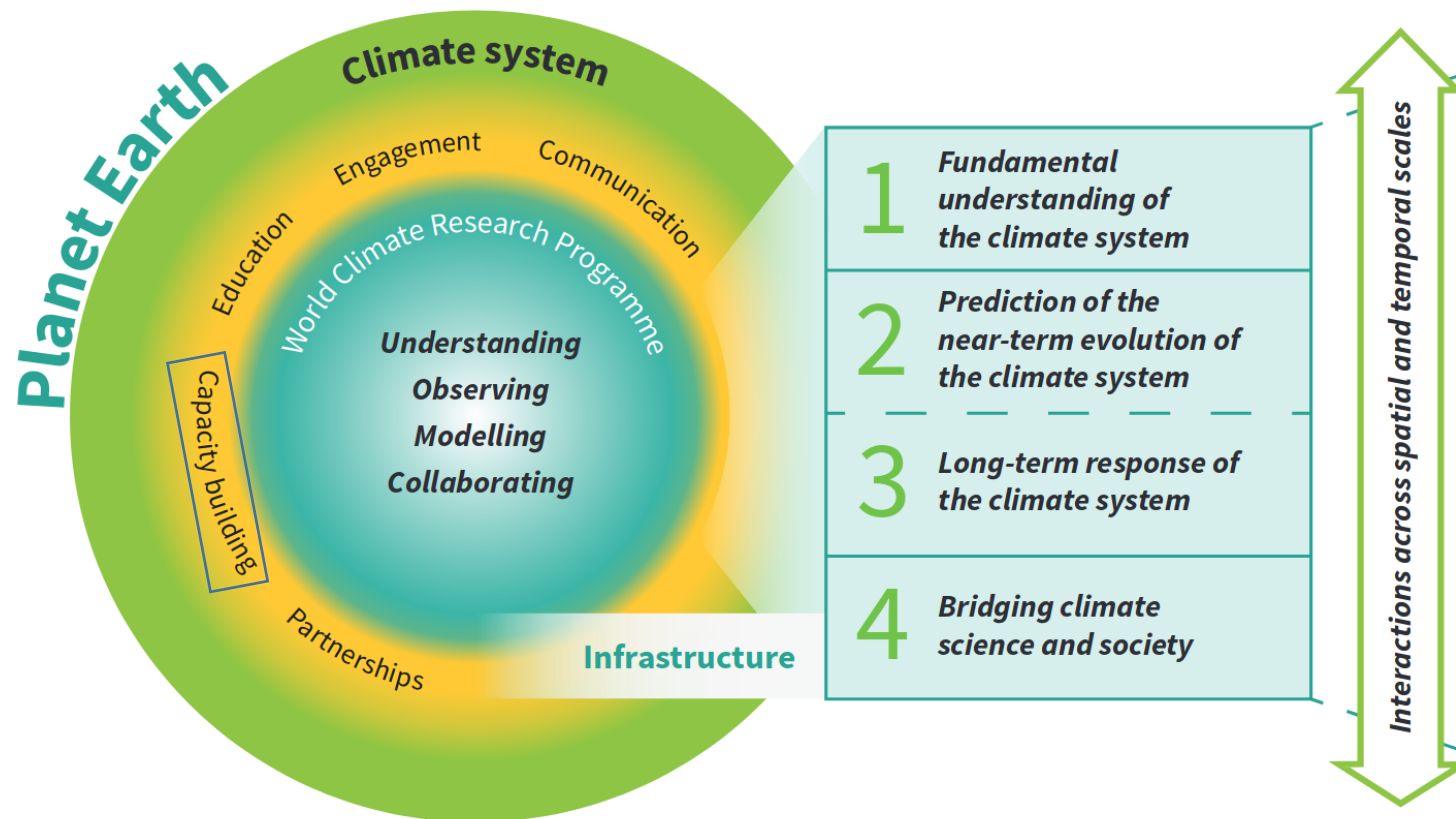
- obtain, improve, and retain the skills, knowledge, tools, equipment, and other resources
- the ability of people, organizations, and society as a whole to manage their own affairs successfully.
- building integrated, evidence-based, inclusive and well-funded national strategies and plans to achieve sustainable development
- capacities to achieve own goals ... at individual, organization and policy level

Capacity Building  
Capacity Development





# Capacity Building Capacity Development



“Most vital is enhanced support for a WCRP research community which embraces diversity, demands equality, and builds capacity for the future. This support must be interwoven with every implementation blueprint, every scientific activity, and every infrastructure enhancement as we take the Strategic Plan forward” [WCRP Strategic Plan 2019–2028]

## 1. Context:

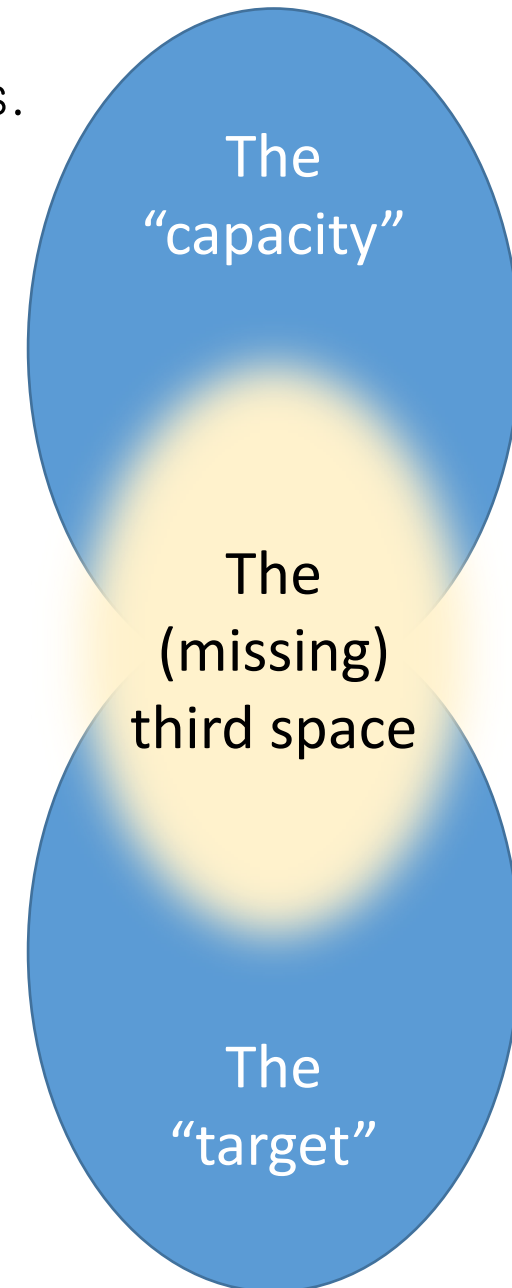
- A globally science community of heterogeneous priorities and values.
- Capacity development is often as much needed for the “enablers”
- Inflexible institutional mandates weaken evolving capacity needs
- Neglecting context leaves a weak legacy – not “one size fits all”

## 2. What Capacity, for Who, and Why?

- Developing capacity to do X may be contingent on capacity to do Y
- The capacity bottleneck may not be the presumed need
- The motivations of different players / participants may be at odds

## 3. (some) Hurdles and Barriers: HOW TO ...

- identify what capacity to develop when context is poorly understood
- match activity to the reality of the agency agendas and limitations
- sustain and retain capacity with a region
- accommodate differing worldviews and values
- measure “success” in terms important to all parties.



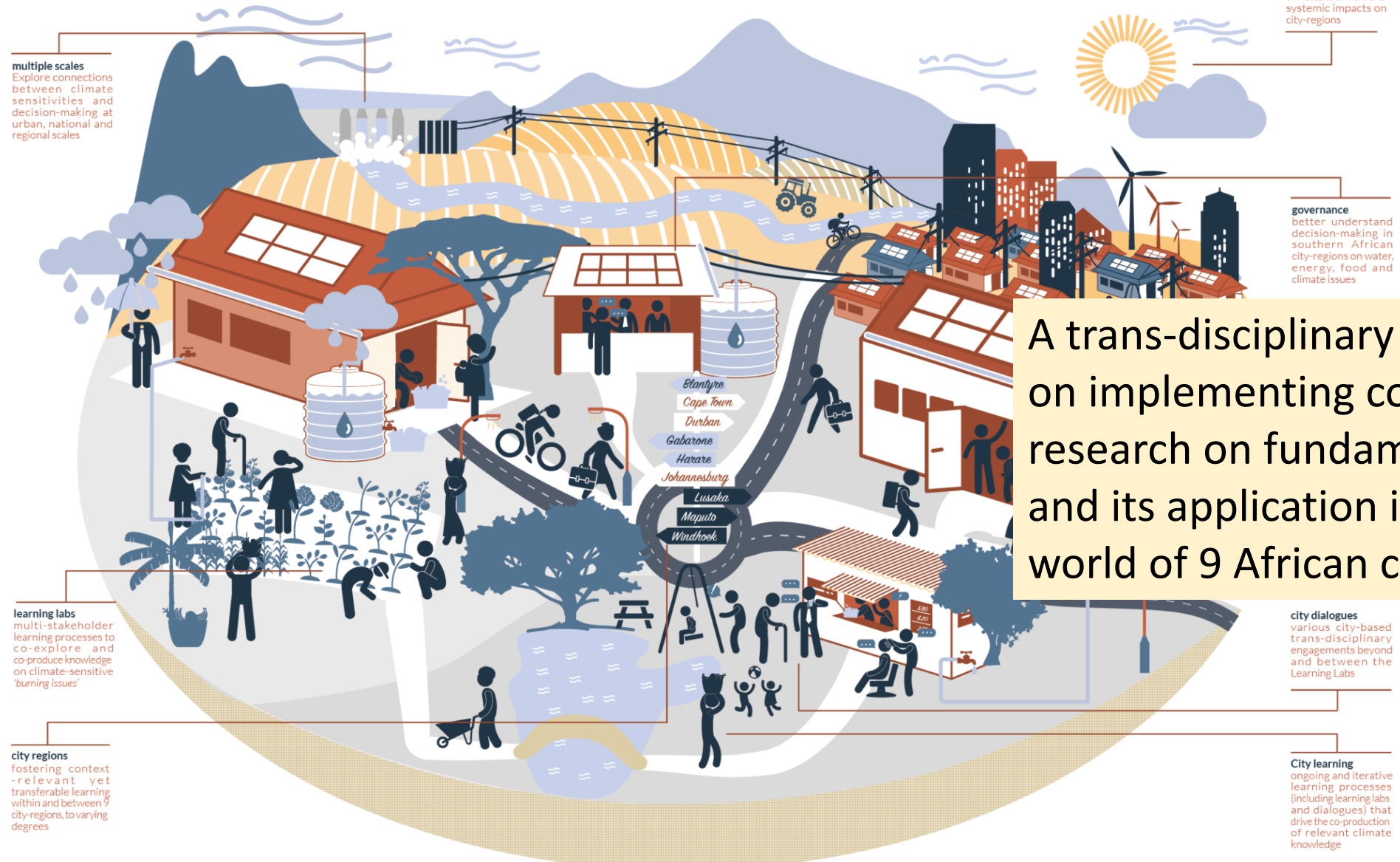


FRACTAL - mix science & society



# FUTURE RESILIENCE FOR AFRICAN CITIES AND LANDS (FRACTAL)

Growing Climate Knowledge for Action in Urban Africa



**multiple scales**  
Explore connections between climate sensitivities and decision-making at urban, national and regional scales

**climate**  
better understand southern Africa's climate, its drivers and systemic impacts on city-regions

**governance**  
better understand decision-making in southern African city-regions on water, energy, food and climate issues

**learning labs**  
multi-stakeholder learning processes to co-explore and co-produce knowledge on climate-sensitive 'burning issues'

**city dialogues**  
various city-based trans-disciplinary engagements beyond and between the Learning Labs

**city regions**  
fostering context-relevant yet transferable learning within and between 9 city-regions, to varying degrees

**City learning**  
ongoing and iterative learning processes (including learning labs and dialogues) that drive the co-production of relevant climate knowledge

A trans-disciplinary team focused on implementing co-designed research on fundamental science and its application in the decision world of 9 African cities

A deeply challenging experience that developed capacity of agencies, scientists, decision makers, and has left a deep legacy on the continent

Dosio A, Jones RG, Jack C, Lennard C, Nikulin G, and Hewitson B (2019) [What can we know about future precipitation in Africa? Robustness, significance and added value of projections from a large ensemble of regional climate models](#) *Climate Dynamics*, pp.1-26

Quagraine KA, Hewitson B, Jack C, Pinto I, and Lennard C (2019) [A Methodological Approach to Assess the Co-Behavior of Climate Processes over Southern Africa](#), *Journal of Climate*, 32 (9), pp.2483-2495

Hirpa FA, Dyer E, Hope R, Olago DO, and Dadson S (2018) [Finding sustainable water futures in data-sparse regions under climate change: Insights from the Turkwel River basin, Kenya](#) *Journal of Hydrology: Regional Studies*, 19, pp.124-135

Taylor CM, Prigent C, and Dadson SJ (2018) [Mesoscale rainfall patterns observed around wetlands in sub-Saharan Africa](#) *Quarterly Journal of the Royal Meteorological Society*, 144 (716), pp.2118-2132 Ilunga, MR (2018)

Pinto I, Jack C and Hewitson B (2018) [Process-based model evaluation and projections over southern Africa from Coordinated Regional Climate Downscaling Experiment and Coupled Model Intercomparison Project Phase 5 models](#) *International Journal of Climatology*, 38 (11), pp.4251-4261

Scott, D., Iipinge, K.N., Mfunu, J.K.E., Muchadenyika, D., Makuti, O.V., Ziervogel, G. (2018) [The Story of Water in Windhoek: A Narrative Approach to Interpreting a Transdisciplinary Process](#) *Water* 2018, 10 (10), pp. 1366

Hewitson, B., Waagsaether, K., Wohland, J., Kloppers, K. and Kara, T. (2017) [Climate information websites: an evolving landscape](#) *WIREs Climate Change*, 8 (5), e. 470

Wolski, P., Jack, C., Tadross, M., van Aardenne, L. and Lennard, C. (2017) [Interannual rainfall variability and SOM-based circulation classification](#) *Climate Dynamics*, 50(1-2), pp. 479-492

Maoyi, M., Abiodun, B., Prusa, J. and Veitch, J. (2017) [Simulating the characteristics of tropical cyclones over the South West Indian Ocean using a Stretched-Grid Global Climate Model](#) *Climate Dynamics*, 50 (5-6), pp. 1581-1596

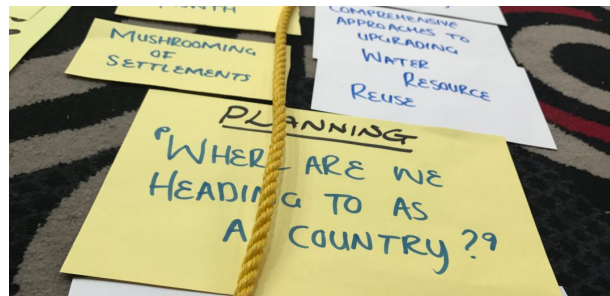
Steynor, A., Padgham, J., Jack, C., Hewitson, B. and Lennard, C. (2016) [Co-exploratory climate risk workshops: Experiences from urban Africa](#) *Climate Risk Management*, 13, pp. 95-102



A deeply challenging experience in trans-disciplinary research that developed capacity of agencies, scientists, decision makers, and has left a deep legacy on the continent



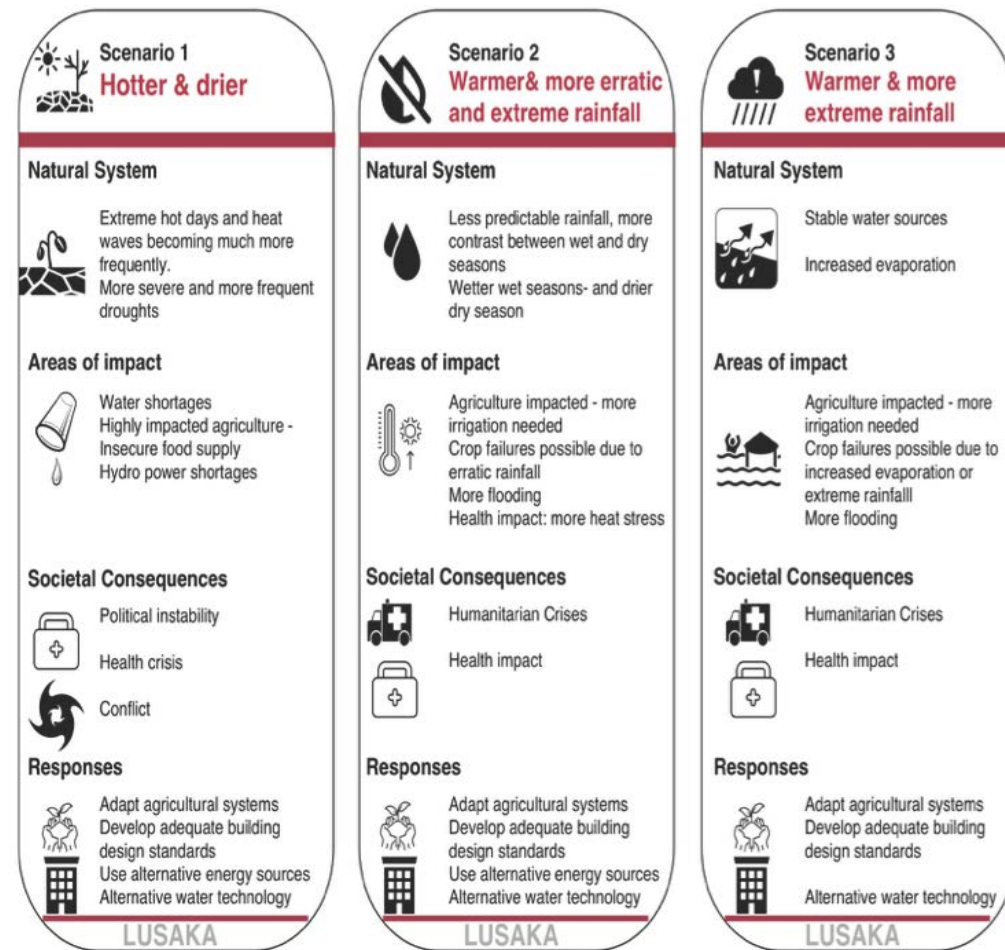
Embedded research in Maputo



Unpack climate uncertainties



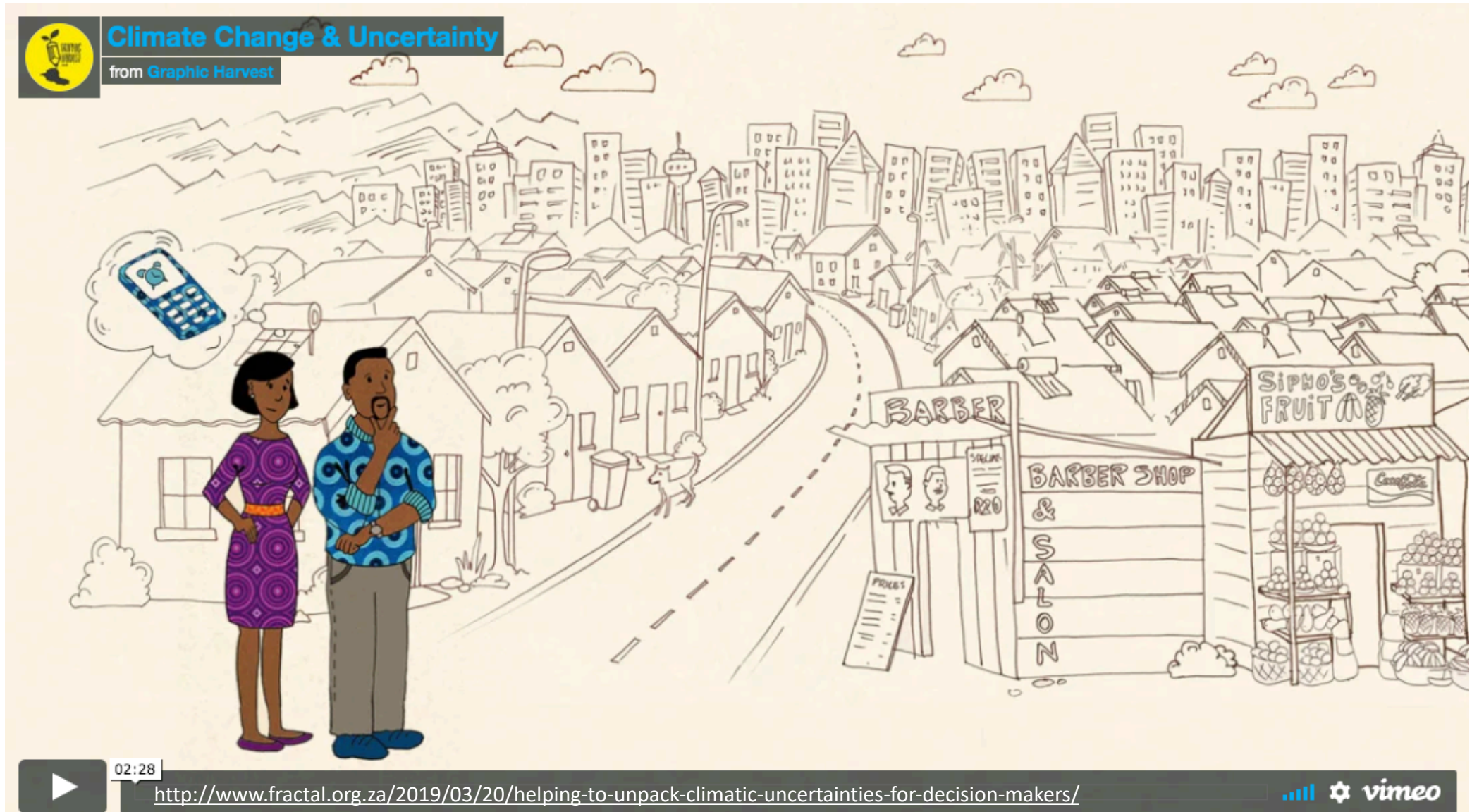
Weighing expert opinion in a transdisciplinary space



Climate Risk Narratives for Lusaka

Physical science research informed by societal needs developed individual and institutional capacity from the international scientists through to city councilors

In a capacity development perspective, engaging the CONTEXT emerged as paramount to enabling effective growth of capacity





## How to increase the science capacity in Africa?



START, CDKN, WCRP, SIDA and UCT collaborate on the first Africa-CORDEX evaluation team, led by U. Cape Town, consisting of 30 African scientists leading the analysis & use of CORDEX simulations in Africa.

# Using research as a vehicle for capacity development

Phase 1

## Cohort concept:

- Participation endorsed by each individuals home institution
- Working in regional teams with collaboration under mentorship
- Workshop series over three years framing ongoing research
- Build targeted and ancillary skills
- Establish momentum through ongoing commitments



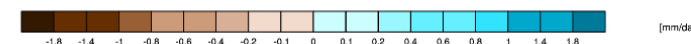
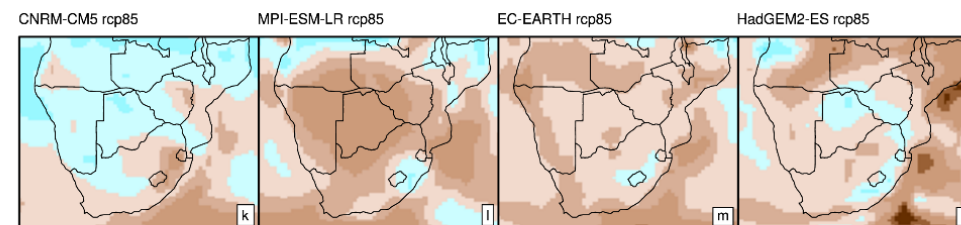
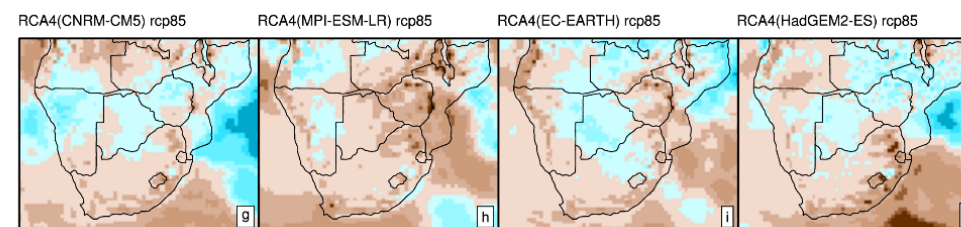
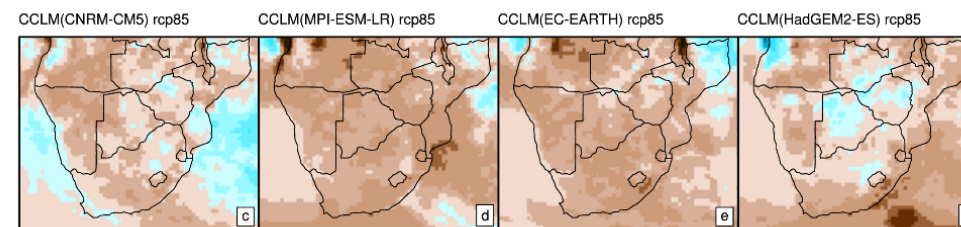
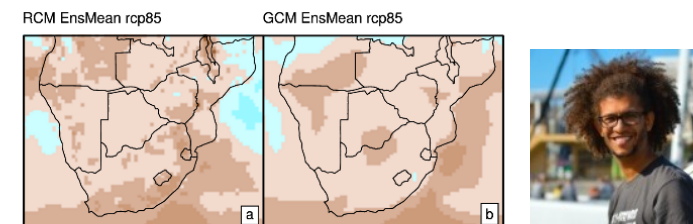


# CORDEX-Africa Phase 2



17 countries;  
21 Institutions

Example: Future changes in extreme rainfall events and circulation patterns over southern Africa – Izidine Pinto



Cohort concept continued ...  
building individual capacity,  
regional network collaboration,  
context incorporation



## Stories of capacity development “failures” (anonymous)

1. Assumptions of base skill: the case of MM5 capacity development
2. Presumption of purpose: Parachute training by a western nation
3. Competing agendas: “Capacity development” in modeling versus participant desire for analysis skills → a series of black box simulations
4. Unintentional arrogance: The instance of a global program’s top-down generation of anger
5. Brain drains: Capacity Development that takes people out of the region
6. Condescension: establishing a program that excludes local competency
7. “Fire and forget”: multiple agencies “let’s run a training workshop”, leading to competition among potential participants for the per diem.

## 1. The link to climate services

- Many climate services have variable ability to responsibly identify, construct, interpret, and communicate actionable climate science.

## 2. Values

- Increasingly it is understood that individual and institutional values play a substantive role how capacity development is implemented, most especially the weakness to stand “in the other persons shoes”.

## 3. Challenges for the WCRP

- How to effectively engage with heterogeneous contexts?
- “Climate science for society” is inherently a social activity that intersects at the regional and local scales; how to effectively make this connection.
- How to balance the western-led science agendas.

# To grow capacity, grow confidence

In the end one clear lesson emerges, one clear metric of success: Have the participants grown in confidence to engage with their established peers, to initiate new research, to let inquisitiveness take risks.

All the skill development and growth of conceptual understanding comes to naught if the participant has no confidence to implement their new capacity.

Personal closure: one of the humbling moments was when a competent, intelligent ECR said “I feel intimidated by you”: who’s problem is that?

