



## Dr Gloria Maimela

*Senior Technical Advisor Climate and Health, Wits RHI, South Africa*

**Co-designing heat interventions:** Describing processes and outcomes of a joint HAPI and HIGH Horizons South African co-design workshop

Celeste Madondo, Rose Lamola, Shobna Sawry, Lebohang Radebe, Pascalia Munyewende, Jean Le Roux, Ijeoma Solarin, Rita Songo, Fortunate Machingura, Matthew Chersich

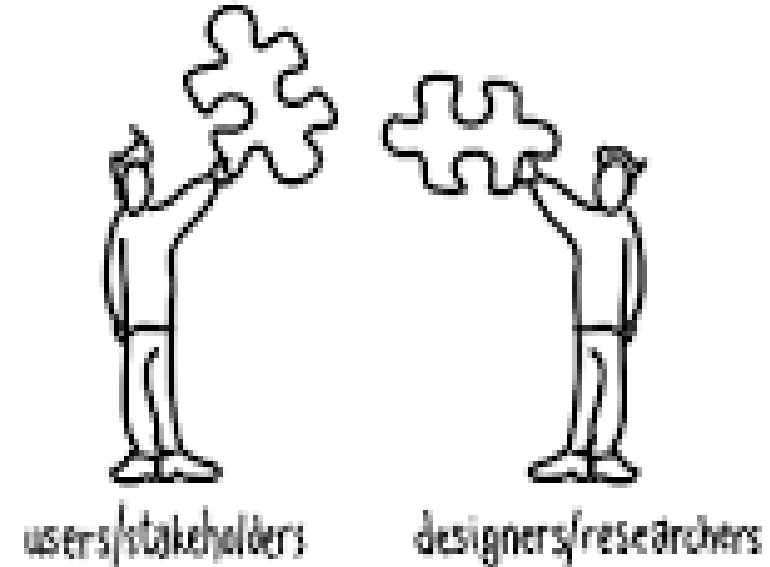


**CHANCE**  
CLIMATE & HEALTH AFRICA NETWORK  
FOR COLLABORATION AND ENGAGEMENT

A process of involving all ‘stakeholders’ which includes ‘consumers’, ‘communities’, and ‘end-users’ in the planning and design, implementation and evaluation of products, services and research to combine lived experiences and professional expertise Sara Javanparast<sup>1,2</sup>, Sally Robinson<sup>1</sup>, Alison Kitson<sup>1</sup> and Joanne Arciuli<sup>1</sup>

*“Active collaboration between stakeholders in designing solutions to a prespecified problem”* Carmen Vargas, Jill Whelan, Julie Brimblecombe, Steven Allender

## CO-DESIGN WHAT?



A **democratisation** of the design process

Source: Penny Hagen

# South African Co-Design Workshop

- Held in July 2024 in Tshwane
- Informed by preliminary findings of the Heat Adaptation for Pregnant Women and Infants (HAPI) and HIGH Horizons studies
- In preparation for the implementation and the evaluation of the selected interventions

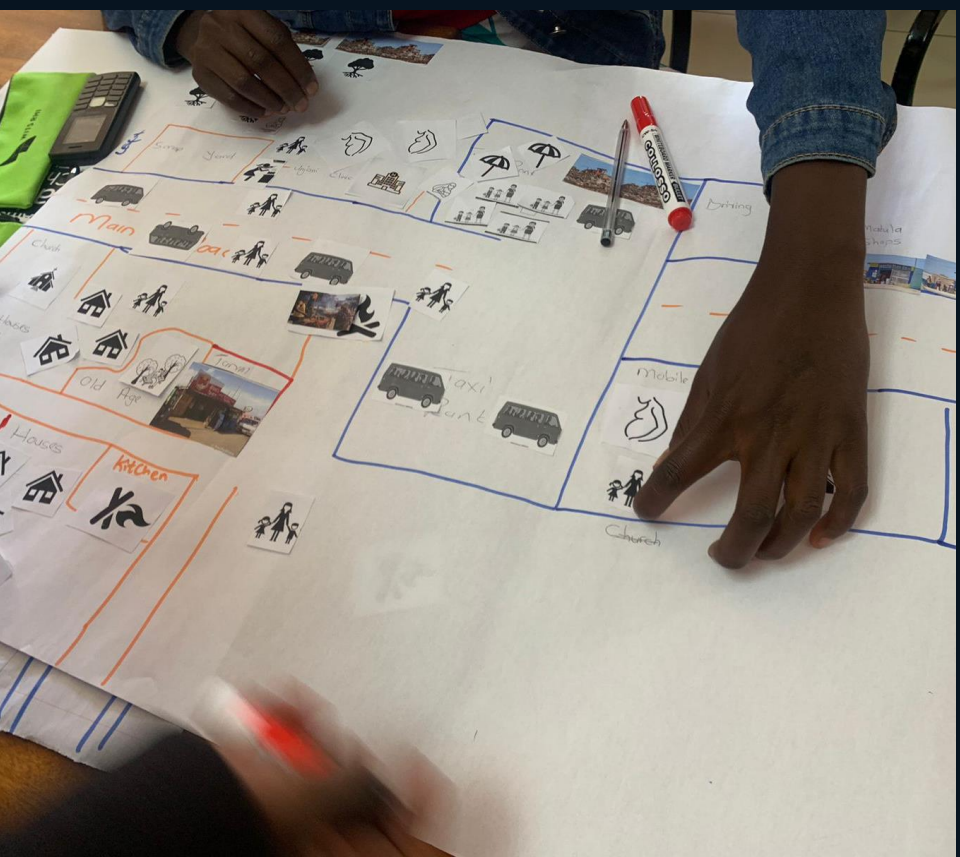


Identify **cost-effective, integrated adaptation-mitigation interventions** to alleviate heat impacts on **pregnant women** and **healthcare workers**, and to reduce **carbon emissions** associated with health care.



Co-produce **multi-level, multi-component** interventions to **reduce heat impacts** on maternal and newborn health in diverse contexts and assess **feasibility, scalability, intervention** mechanisms and pilot effectiveness of a theory-based, **progressively-refined** heat-adaptation package of interventions.

## Purpose of the Co-Design Workshop



- Design and prioritize innovative heat adaptation interventions
- Foster multi-stakeholder collaboration
- Build heat on health capacity and awareness
- Inform heat adaptation policy and practice

# Co-Design Objectives and Key Outcomes

## Objectives

- To understand the lived experiences and needs of pregnant and postpartum women and healthcare workers facing heat-related challenges.
- To engage co-design participants on heat-related health risks and findings from research.
- To develop and prioritize interventions aimed at improving health outcomes for women, children, and healthcare workers.
- To develop a Theory of Change for heat adaptation

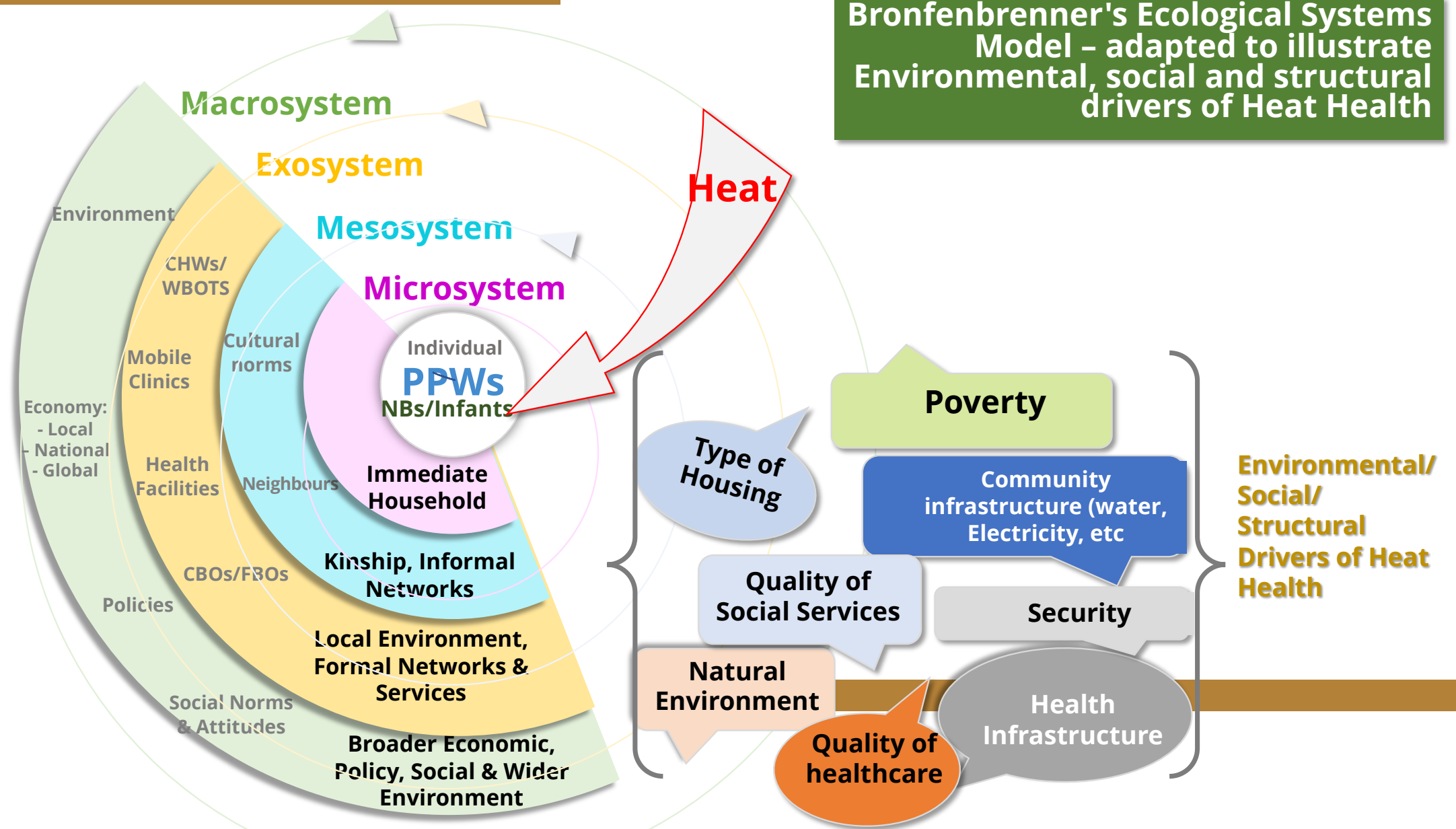
## Outcomes

- Increased awareness and understanding of heat impacts on health
- Identification of specific and prioritised heat adaptation interventions for pregnant and postpartum women and healthcare workers
- A heat adaptation Theory of Change framework



Source: Eval Academy

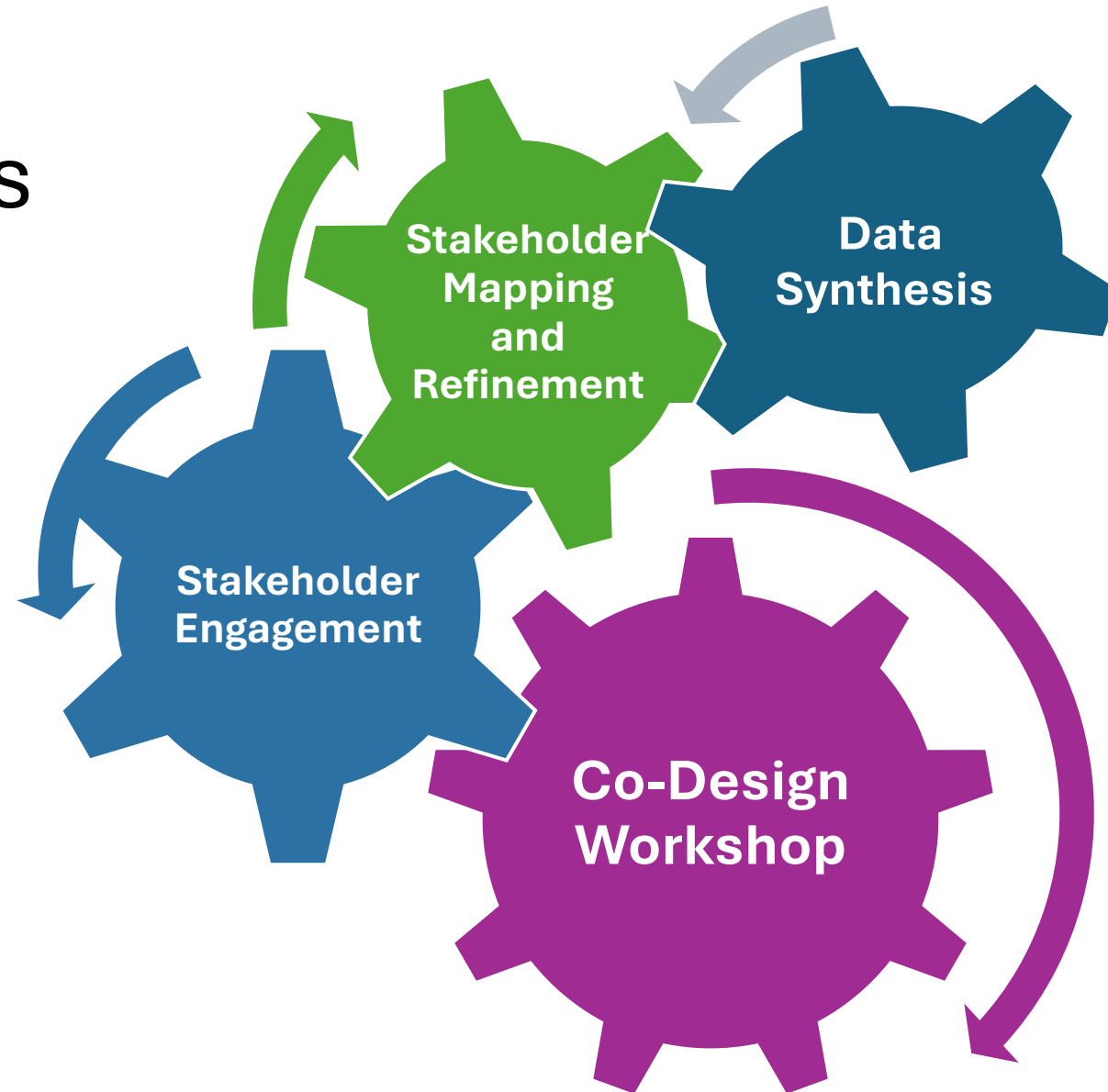
**Bronfenbrenner's Ecological Systems Model – adapted to illustrate Environmental, social and structural drivers of Heat Health**





## Study Sites: Tshwane Metro, South Africa

# Co-Design Steps and Processes



# Data Synthesis

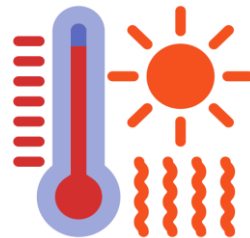
- Held on 11<sup>th</sup> & 12th July 2024 prior to the co-design workshop
- Consolidation of findings from the formative HAPI Stage-1 and the High Horizons studies

**IDIs**



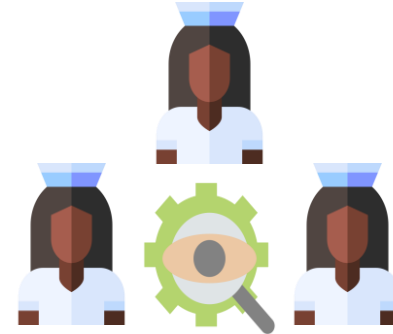
Interviews with Pregnant and Postpartum Women and Health Workers

**Thermal Monitoring**



Recording Personal, Indoor and Outdoor Heat

**Participant Observations**



Watch Nurses in the Clinic

**Fitbits**



Recording Movement and Sleep

**KIIs**



Interviews with Community Members and Policy makers

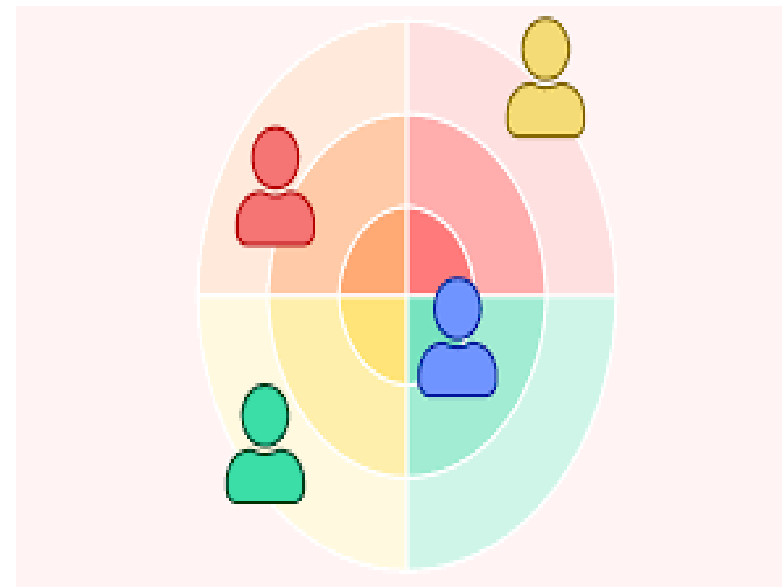
**Survey**



HCW Kept Diaries about Heat

# Stakeholder Mapping and Refinement

- Stakeholder matrix developed
- Reiterative process
- Refinement informed by preliminary findings after data synthesis
- Included stakeholders not previously engaged e.g.,
  - Community safety,
  - Water supply chain management
  - Waste management,
  - Housing by-laws



Source: Graphite Connect

# Stakeholder and Engagement

- Held on 18<sup>th</sup> July 2024
- To share and sensitize high level stakeholders of the preliminary findings
- Informed by the outputs of the above-mentioned data synthesis workshops.



# Co-Design Workshop

- Convened over 3 days : 29 - 31 July 2024
- Total Participants: 122
  - Pregnant and postpartum women and their infants n=21
  - Healthcare workers n=13
  - Household heads, community leaders, civil society organization representatives, and government representatives (local, provincial, and national levels) n=88

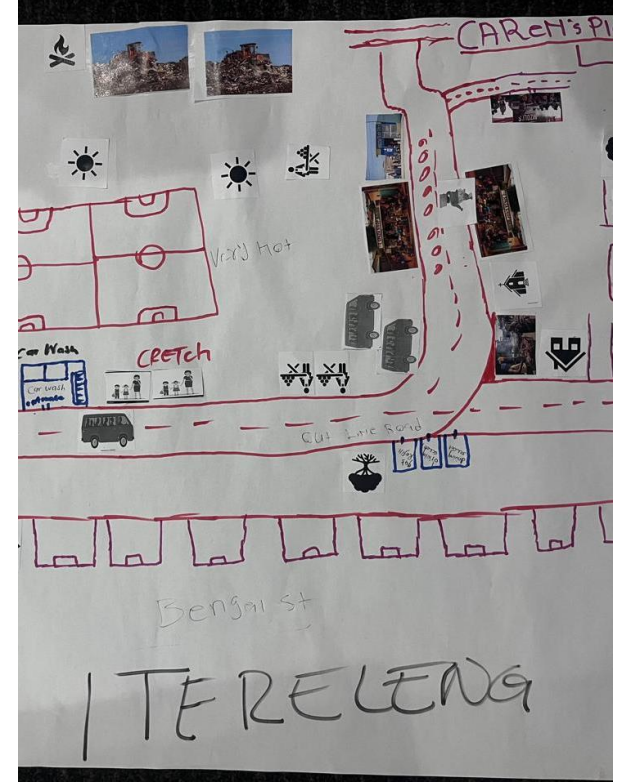
	Level	Participants
<b>Day 1</b>	Individual	Pregnant and postpartum women
<b>Day 2</b>	Individual	Healthcare workers
	Household	Household heads, built environment experts
	Community	Community leaders, town planners etc.
	Health Systems	Facility operational managers and administrators
	Sub-national	Provincial and district managers
	National	Policymakers
<b>Day 3</b>	Plenary	



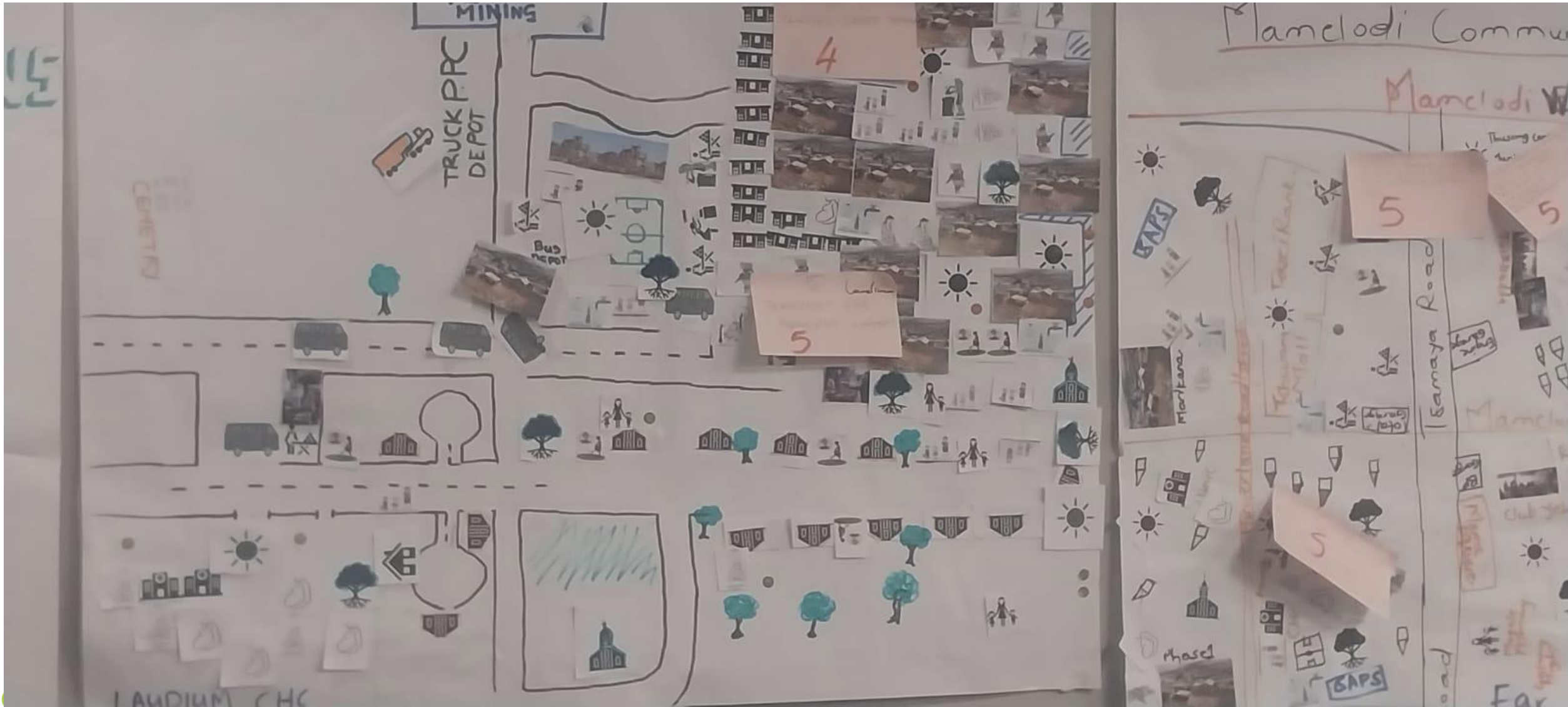
## Day 1: Engagement with pregnant and postpartum women



# Community Mapping: Mooiplaas and Itireleng Informal Settlements



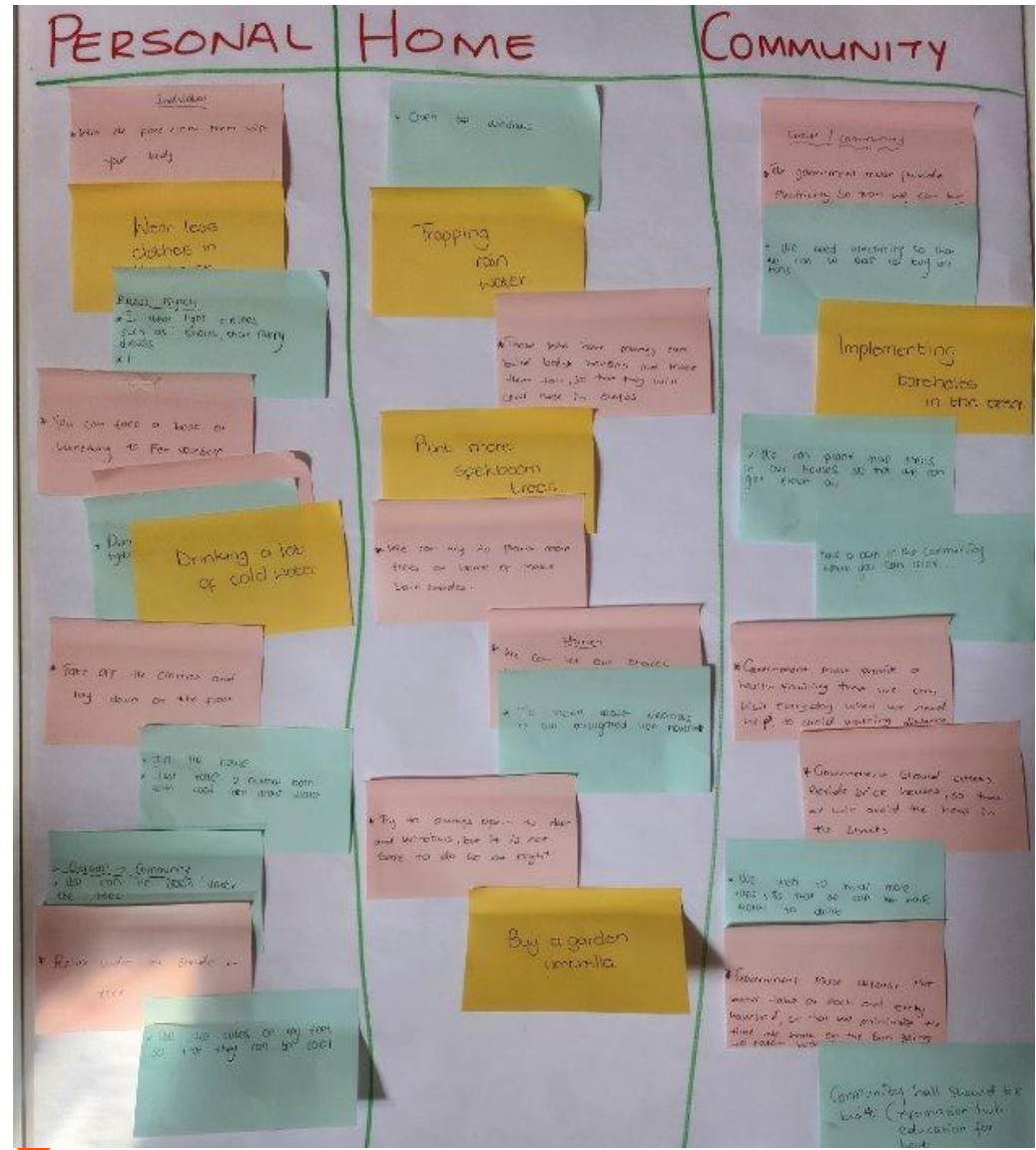
# Community Mapping – Laudium and Mamelodi



**Day 2:** Engagement with healthcare workers, household heads, community leaders, civil society, and health system and government representatives



# Interventions identified and prioritised by Pregnant and Postpartum Women



HIGH PRIORITY	MEDIUM PRIORITY	LOW PRIORITY
Health talks about heat	In the house just take a normal bath with normal water	Open doors
The government must provide a health services closer to their demarcation areas (mobile clinic, small clinic in the area)	Early warning systems	Remove dumping site
Doing things/tasks when it is cooler	Provide a community park for relaxing	Sit outside
Drink more water to stay hydrated	Provide education on heat	
Wet the face cloth then wipe your body		
Take a book to fan your self		

# Interventions prioritised by Healthcare Workers

Domain	Intervention	Description
Quality of care	CPD training on heat	Add heat-related topics to CPD training material
	Advocate teamwork	Have a tag-team approach if a colleague is struggling with heat
	Early Warning System	Early-warning-system message warnings for heatwaves etc.
Physical wellbeing	Water dispensers	Add more water dispensers to the facilities, in key areas
	Aircon control	Aircon remote is not always available – improve availability
	Handheld fans	Battery-powered fans that can be held in the hand
	Personal water bottle/Camelbak	Either a bottle or Camelbak that HCWs can carry with them to hydrate
Mental wellbeing	Education/peer support	Support groups and discussions around heat-related issues
	Add heat to employee wellness	Existing employee wellness programmes don't include heat – add this
Performance	Trees, shades, chairs outside	Add trees, shadings, and chairs for both patients and HCWs to use
	Early start	Start earlier in the morning where possible to reduce heat exposure
	Awning on windows/doors	Awnings at windows and doors to improve cooling
	Reflective roof paint	White/reflective paint to reduce heating of the facility
	Mist bottles	Bottles to use to spray a fine mist on the face/neck for cooling

# Interventions ranking by Healthcare Workers

## Rankings (mean scores)

<u>Practicality</u>		<u>Feasibility</u>		<u>Importance</u>	
CPD training on heat	5.0	Personal water bottle/Camelbak	5.0	CPD training on heat	5.0
EWS	5.0	Awning on windows/doors	5.0	EWS	5.0
Water dispensers	5.0	CPD training on heat	4.9	Water dispensers	5.0
Add heat to employee wellness	5.0	EWS	4.9	Handheld fans	5.0
Personal water bottle/Camelbak	4.9	Water dispensers	4.8	Personal water bottle/Camelbak	5.0
Awning on windows/doors	4.8	Add heat to employee wellness	4.7	Add heat to employee wellness	5.0
Advocate teamwork	4.6	Education/peer support	4.6	Awning on windows/doors	5.0
Trees, shades, chairs outside	4.6	Advocate teamwork	4.5	Trees, shades, chairs outside	4.9
Education/peer support	4.6	Trees, shades, chairs outside	4.5	Education/peer support	4.9
Early start	4.3	Reflective roof paint	4.5	Early start	4.7
Handheld fans	4.0	Handheld fans	4.4	Advocate teamwork	4.6
Reflective roof paint	3.8	Early start	4.3	Aircon control	4.6
Aircon control	3.8	Mist bottles	4.3	Reflective roof paint	4.5
Mist bottles	3.8	Aircon control	4.1	Mist bottles	4.3

Highest priority: CPD training on heat, Early Warning Systems, water dispensers in facilities

Lowest priority: Reflective roof paint, aircon control, mist bottles

# Interventions at Household and Community Levels

## Key interventions identified

Personal	Household	Community
Sunglasses	Big umbrellas	Plant trees
	Hang water under the tree- for cold water	Build shelters with verandas
	Fans	Consistent water supply (three large jojo tanks in every street)
	Small windows + mosquito nets (safety)	CPF protection (if windows are to be installed and opened)
	Solar Panels (flexible- to be removed at night)	Electricity
	Curtains inside the shack and on top of the roof	Public swimming pool
		Painting roofs
		Hats and masks for children when playing outside (avoid germs from dumping sites)

## Priority interventions

5	4	3	2
Painting the Roofs white	Verandas (not everyone can afford) and they can increase crime	Trees can take long to grow	Masks and Hats for Kids (due to numerous dump sites )
Water tanks and storage (JoJo tanks in each street)	Big Umbrellas for street vendors as they use shacks which are too hot		
Windows need to be small to prevent thieves from getting inside(mosquito nets needed in summer			
Flexible solar panels to be removed at night for safety			

# Interventions at Health Systems and Policy Levels

## Final List of Priority Interventions

Intervention	Priority
Provide training to health officials on heat-health	22.5
Leveraging existing platforms to share messages in relation to heat (eg radio slots)	22.5
Facility assessments - office of the health standards compliance. Address elements of measuring heat in facilities	22.5
Operational plans at facility (incl heat monitoring)	22.5
Practical interventions for HCWs. Cool off rooms, cool water in their wards, shading for patients	22.5
Reflective paint on roofs of health facilities	22.5
Convey good news or positive messaging related to water - communicate the results of the water and safety to drink it	22.5
Review uniform policy (Lighter uniform for HCW) cool uniforms	19.5

## Individual and Household



## Community



## Facility



# VISION OF SUCCESS

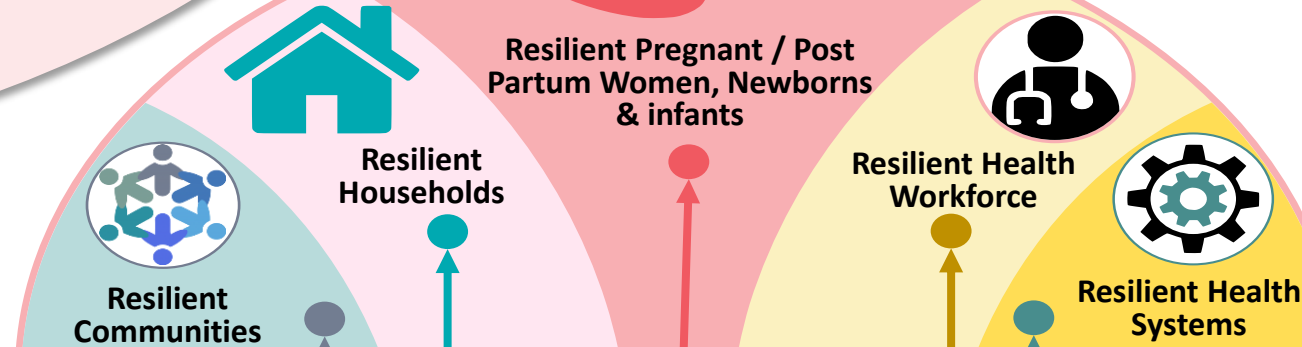
Optimizing heat health adaptation to improve the health and wellbeing of pregnant & postpartum women, infants & HCWs in the context of extreme heat

# THEORY OF CHANGE

Pregnant and Post Partum Women, Newborns & Infants and HCW

## Key Assumptions:

- Funding availability
- Multi-sectoral collaboration to support initiatives
- Community Heat health champions will be accepted in communities



OUTPUTS

Effective Community engagement and practices that promote heat health  
Improved Infrastructure and community systems/ resources that support climate resilience

Increased awareness and adoption of practices that improve heat health  
Structural improvement in homes that support heat health  
Improved access to Water  
Increased access to heat resilient housing

Personal Knowledge, Attitudes and Practices (KAP) that enhance climate resilience  
Increased awareness on adaptation strategies  
Increased access to information about heat health  
Increased access to tools/ resources needed to cope with heat

Increased capacity to deliver Quality programs  
Improved physical and mental health and wellbeing of health workers  
Increased access to training on health by HHS  
Increased access to resources that foster adaptations in behaviours towards resilience

Climate Informed & well- resourced health Programs  
Supportive and effective Leadership and Governance  
Effective risk monitoring; emergency preparedness and management  
Increased access to resources that promote heat adaptation behaviours by clients and staff

INTERVENTIONS

- Identify Community Heat Health Champions
- Cooling vests for Heat Health Champions
- Heat health Educational talks to PPW
- Heat Health IEC materials developed and disseminated;
  - Accessible Climate Information hubs
- Peer support groups on heat health related issues
- Planting trees within the community and homes
  - Engage the CoT to adopt the tree-planting as part of the municipality policy
- Cool reflective roof home painting

- Provide umbrella hats
- Provide solar-powered handheld fans and desktop aircon with humidifier
- Provide portable solar panel for charging devices
- Provide & promote personal water bottles

- OHS plans include heat monitoring
- Cooling filtered water available for PPWs and HCWs
- Heat-health training
- Provide and promote personal water bottles
- Provide and install water filters

- Install energy efficient air conditioners at MNCH units
- Roof insulation at MNCH units
- Cool roof paint at HFs
- Plant trees outside HFs

# Lessons Learnt

- Pre-planning is essential
- Data needs to inform co-design
- Translation of research results: simplify the science
- Risk of leaving out critical stakeholders including philanthropists
- Needed to manage power dynamics:
  - Women vs Household Heads;
  - Healthcare Workers vs Health Officials
- Assumptions of what beneficiaries deem as important, practical and achievable
- Systems are complex and interrelated – cannot solve all

# Next Steps

Implementation of  
the interventions –  
Logframe and  
Indicators

Evaluation of the  
interventions

# Thank you and acknowledgements

