Urban Livelihoods, Protection of the Environment and adaptation to climate change in African cities

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Outline

- Context of climate change
- Cities in Africa and Climate Change
- Impacts and Responses
- Examples
- What to adapt and how to?

Africa a diverse continent

Popularity of cities in Africa is based on what they don't have rather than what they do have

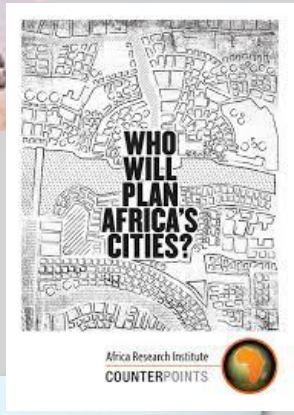
Africa is not,

..one country,

..one culture,

.. an ecosystem,

A continent known for what it is not rather than what it is

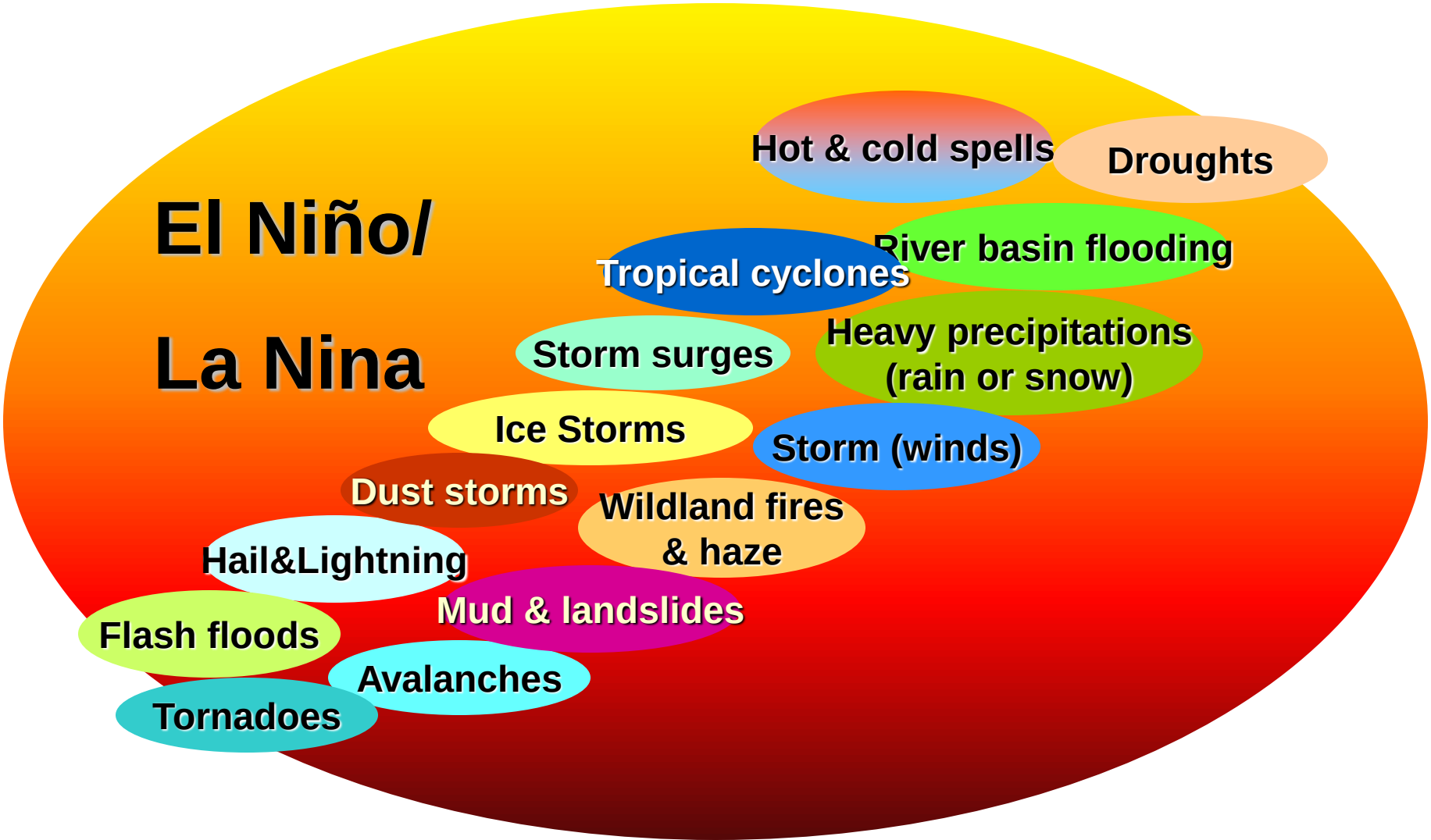


Climate Change in African context

- Many other pressures to globe and global society:
  - Population growth 7 billion people over 50% urban
  - Urbanization (opportunity or challenge?)
  - Environmental pressures
  - Political conflicts
  - Gross inequality, poverty, unequal power
- Conflict over solutions to climate change; geotechnical engineering, GHG mitigation, Adaptation,
- Institutional and governance change as a response to climate change

Climate Extremes and Impacts

Climate change adding another dimension and or worsening already grim situation!!



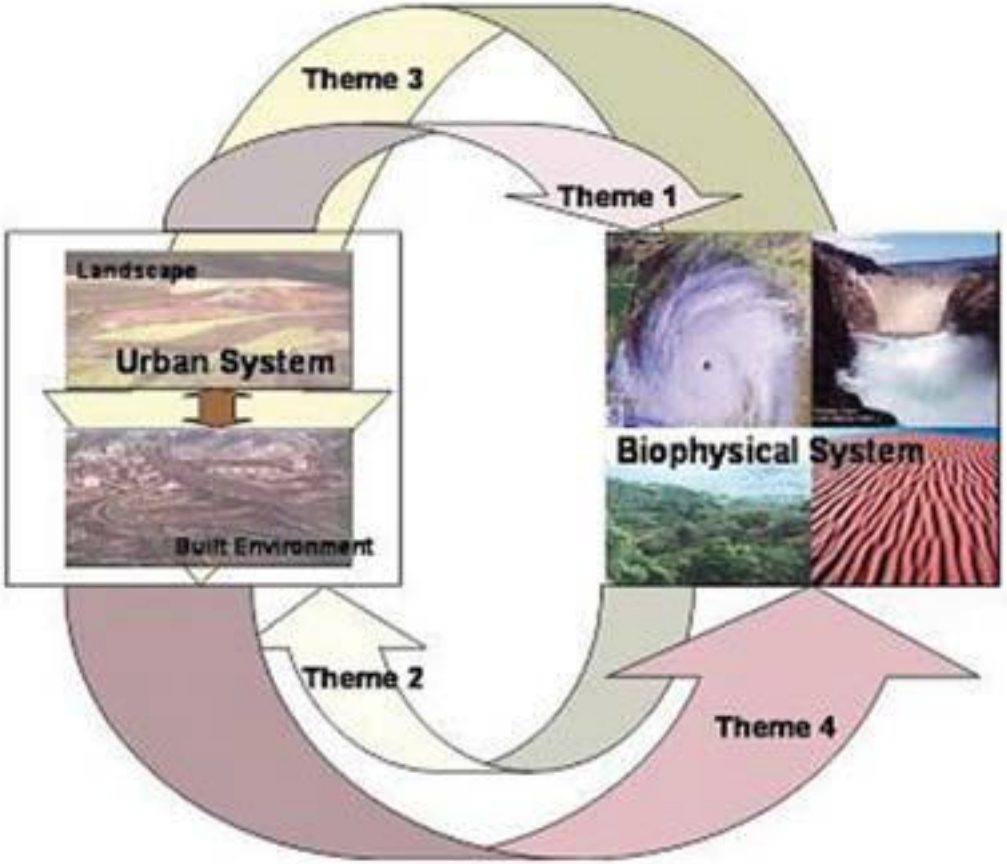
Combinations of shocks & trends

- Changes in Rain seasons and intensity
  - Floods more common or affecting settlements
- Dry seasons longer, drier
- Temperature extremes more frequent
  - Heat waves; cold shocks
- Wild fires more likely
- Greater variability, unpredictability

Cities and climate change

- Cities are responsible for 75% of GHG emissions and the bulk of the GHG are related to energy use

- Although not explicitly mentioned cities will play a leading role in the proposed energy mix to mitigate climate change
  2012 SRREN



Urbanization on the wheels in Africa

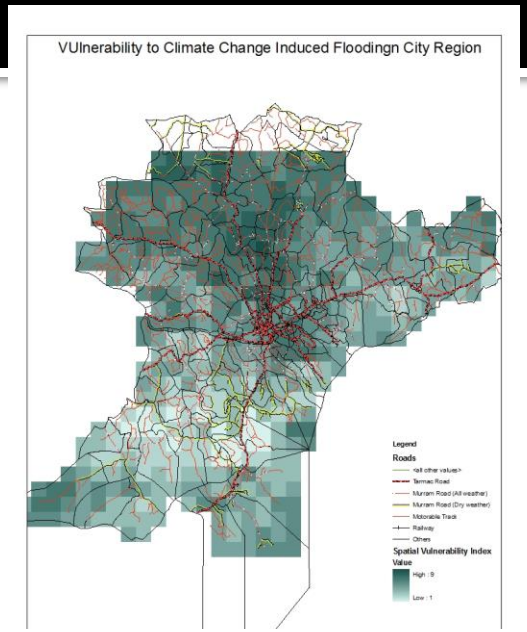
1. Africa is arguably leading the ‘second wave’ of urbanization
2. Cities are growing fast
3. New cities yet to be built
4. Future Urban Africa will need to take the Low carbon path while addressing social economic inequalities

Is urbanization in Africa Sustainable?

- Increasing vulnerability to climate change impacts
- Urbanizing of poverty, inequalities
- Increasing disasters some of which are climate related
- Municipal and societal cost of no-action or inadequate action

Responses to climate change impacts

- Urban Greening, Co-benefits; livelihoods, CO_2 sequestration
- Building and construction industry adaptation, construction materials, cooling of houses in hot season. Co-benefits; low energy intense housing, reduced emissions
- Adapted Infrastructure, improved infrastructure, hard adaptation, decentralized utilities, co-benefits; low energy use



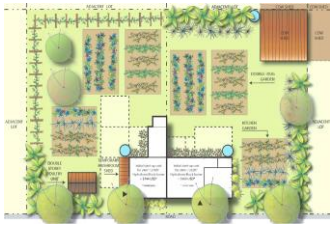
Spatial Vulnerability Index
Value
High : 9
Low : 1

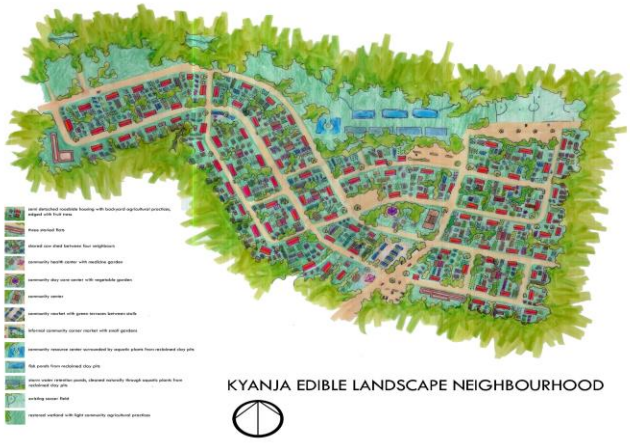
Vulnerability Assessments

Climate Action Plans

Detail the concept

Allow creativity





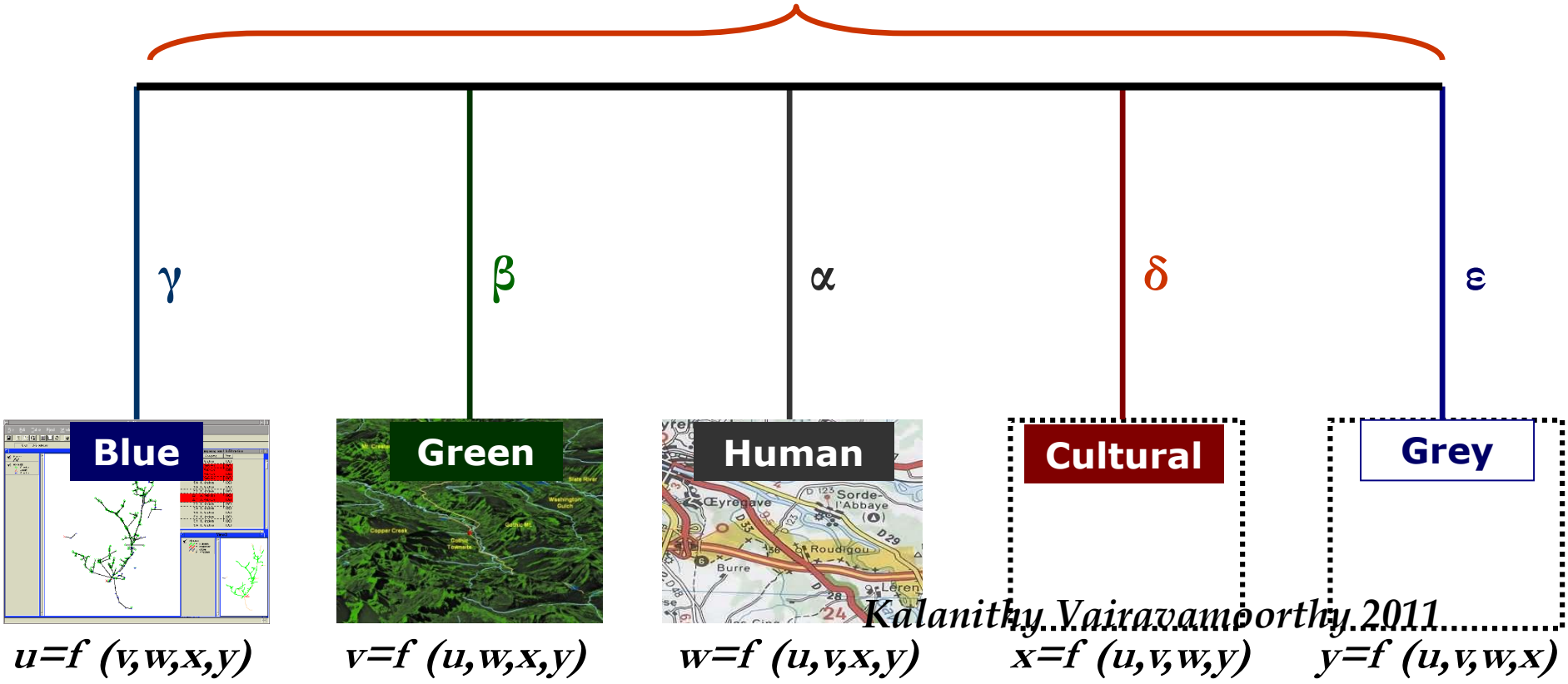
Key to considerations of the responses

- Creates Opportunities for the urban population
- Scalable from micro-meso-city-region levels
- Possibilities for Sectoral Integration
- Transformative to enable leapfrogging to sustainability

New challenges – New Thinking

- Multi-objective urban planning (what should drive the urban plan?)

$$Z = (\gamma.u + \beta.v + \alpha.w + \delta.x + \varepsilon.y)$$



Kalanithy Vairavamoorthy 2011

Urban Natural Assets for Africa: Rivers for Life

ICLEI Local Governments for Sustainability

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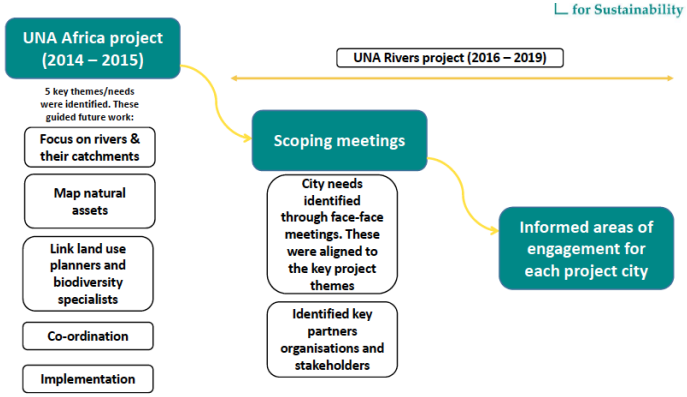
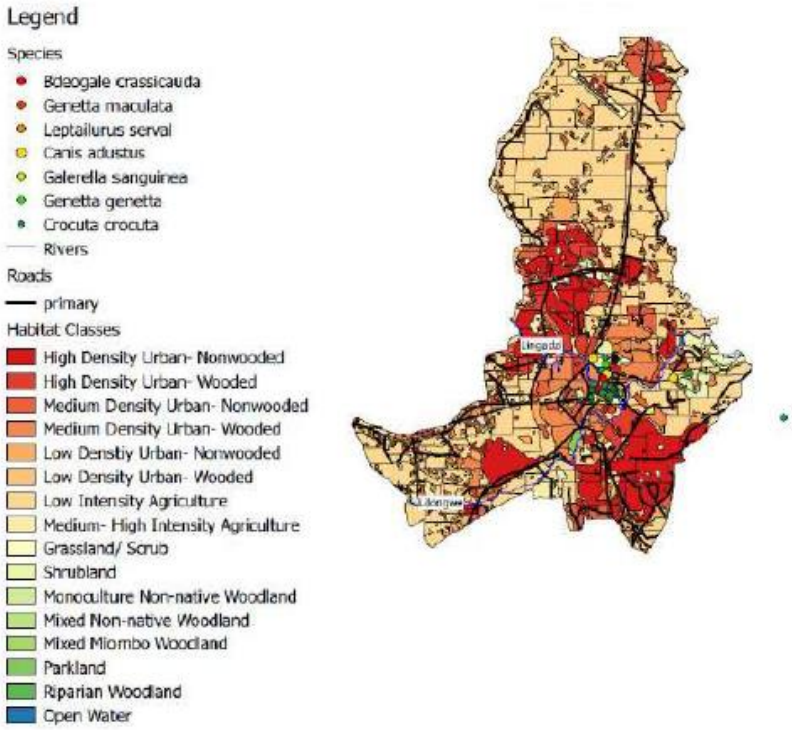
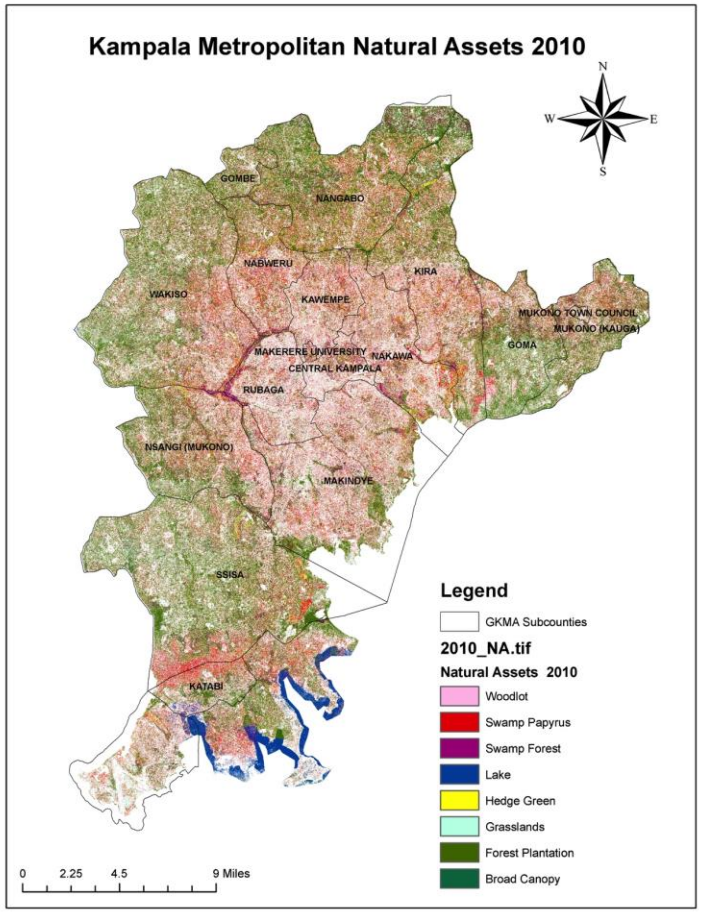


Natural Assets Kampala and Lilongwe



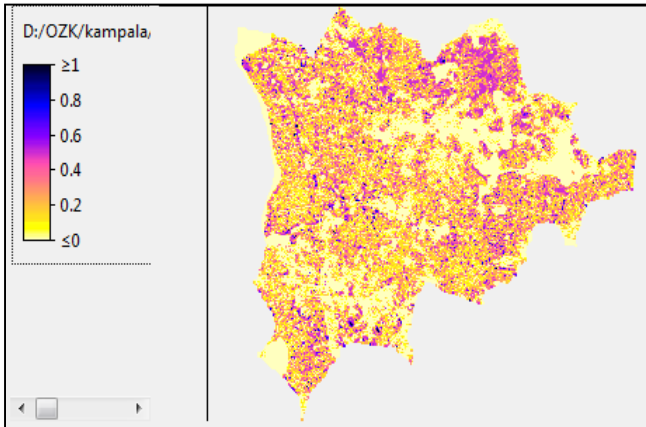


Urban Natural Assets for Africa: Rivers for Life

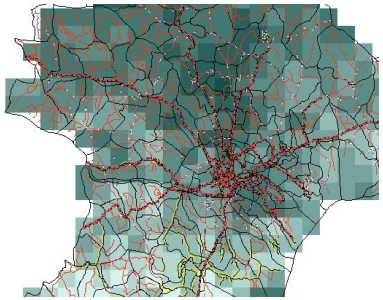
ICLEI Local Governments for Sustainability

Scaling adaptation solutions for resilience

- **Sustainable Urban Drainage Design Principles (SuDS) Solutions**
  - **Plot level SuDS**
  - **Flood risk reduction from neighborhood to catchment scale**
  - **City-regional scale**



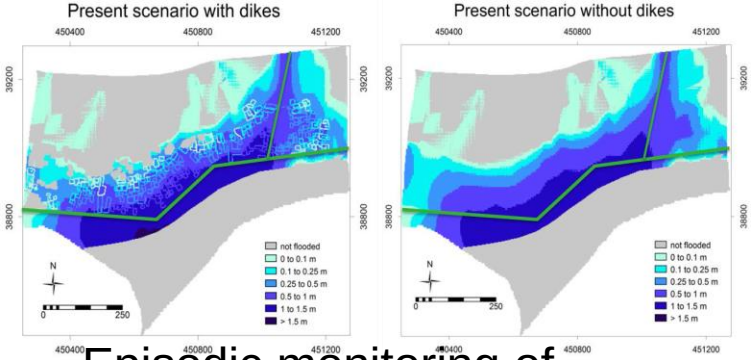
Data and knowledge crucial

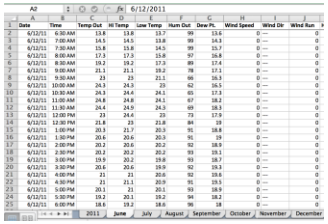


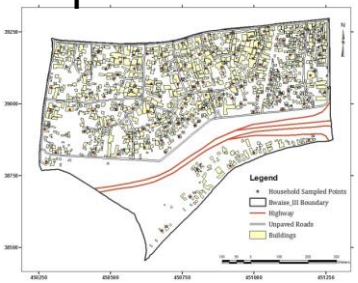
Scenarios, planning for preparedness

Spatial analysis and vulnerability Assessments

Multi-level system for data capture







Episodic monitoring of Disasters and Loss Data

Peril and Hazard Classification

HABITAT UNIVERSITIES

KCCA
KAMPALA CAPITAL CITY AUTHORITY
For a better City

ITS

Caveates

- Knowledge-based or evidence informed decision making
- Analyzing trade-offs, benefits and co-benefits
- Competencies; conceptual, managerial and sustenance
- Innovative financing
- Disruptive technologies
- Local communities taking action (inclusive)
  - Institutions starting to take action
  - Institutionalizing solutions (incentivized regulations)

Washington 16th
September 2017

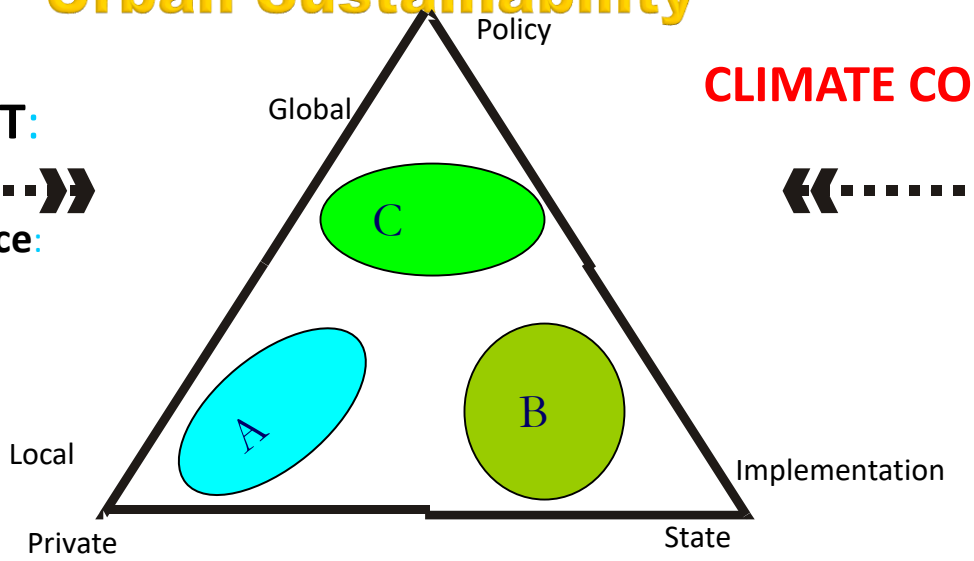
Concluding remarks

Integrating DRR, SD and Climate Change for Urban Sustainability

Resilience space

DEVELOPMENT:

Urban resilience:



CLIMATE CONVENTION:

Additionality

ACTORS:

Risk management

Sustainable livelihoods

Sustainable infrastructure

A: Low carbon infrastructure

B: Green building and economy

C: Distal city relations

- Thank you!