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**\*Abstract:**  
This project addresses knowledge, resource, capacity and networking gaps on the theme: 'Strengthening urban governments in planning adaptation.'  
The main objective of this project is to develop an adaptation framework for managing the increased risk to African local government and their communities due to climate change impact. The ultimate beneficiaries of this project will be African local governments and their communities. The guiding and well-tested ICLEI principle of locally designed and owned projects for the global common good, specifically in a developing world context, will be applied throughout project design, inception and delivery.

Additionally, the research will test the theory that the most vulnerable living and working in different geographical, climatic and ecosystem zones will be impacted differently and as such, will require a different set of actions to be taken. Potential commonalities will be sought towards regional participatory learning and wider applicability. The five urban centres chosen for this study, based on selection criteria, include: Cape Town, South Africa, Dar es Salaam, Tanzania; Maputo, Mozambique; Windhoek, Namibia; and Port St. Louis, Mauritius.

Through a participatory process, this project will carry out a desk-top study, long-term, multi-discipline, multi-sectoral stakeholder platforms in five Southern African cities comprising of academics, communities and the local government in order to facilitate knowledge-sharing, promote proactive climate adaptation and resource opportunities available for African cities, develop five tailor-made Adaptation Frameworks and explore regional applicability. A network of stakeholders within each urban centre will be established, feeding into a larger regional network of local authorities and partners in Sub-Saharan Africa, and globally through existing ICLEI global (e.g. the ICLEI Cities for Climate Protection programme), ICLEI Africa and UCLG-A members and networks, ensuring global best practice, roll-out, and long-term sustainability.

**Key words:** Adaptation, Africa, Climate Change, Local Governments, Participatory Action Research, Policy.

# *A Five-City Network to Pioneer Climate Adaptation through Participatory Research and Local Action*




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## Risk Concept:

**Sub-Saharan African Cities:**  
A Five-City Network to Pioneer Climate Adaptation  
through Participatory Research and Local Action

**Risk Concept**



The composite image includes three photographs of coastal erosion: a rocky beach with waves, a beach with a large pile of debris, and a sandy beach with a large pile of rocks. The map of Africa shows five yellow dots indicating the locations of the five-city network.

**ICLEI** Local  
Governments  
for Sustainability

**CITIES ADAPT**

**Adaptation**  
IDRC \* CRDI DFID

- Risk = probability \* insult (cost)
  - Risk = impact \* outrage
  - We all manage risk every day – are rational?
- 
- Physical
  - Biological
  - Institutional
  - Social
  - Economic uncertainty
  - “Concentrations” of risks
  - Systemic risk



**In the context of climate change, risk and uncertainty interact- neither outcome nor probabilities are known**

- Lags between cause and impact; response and reduction of risk – no evolutionary precedents.
- Requires high levels of collaboration
- Is defined by uncertainty
- Non-linear impacts – tipping point about which we know little
- Requires deep lifestyle changes that perceived to be punitive
- We are in a recession – mobilising collaboration and investment in the short term is difficult



## “Risk of what”

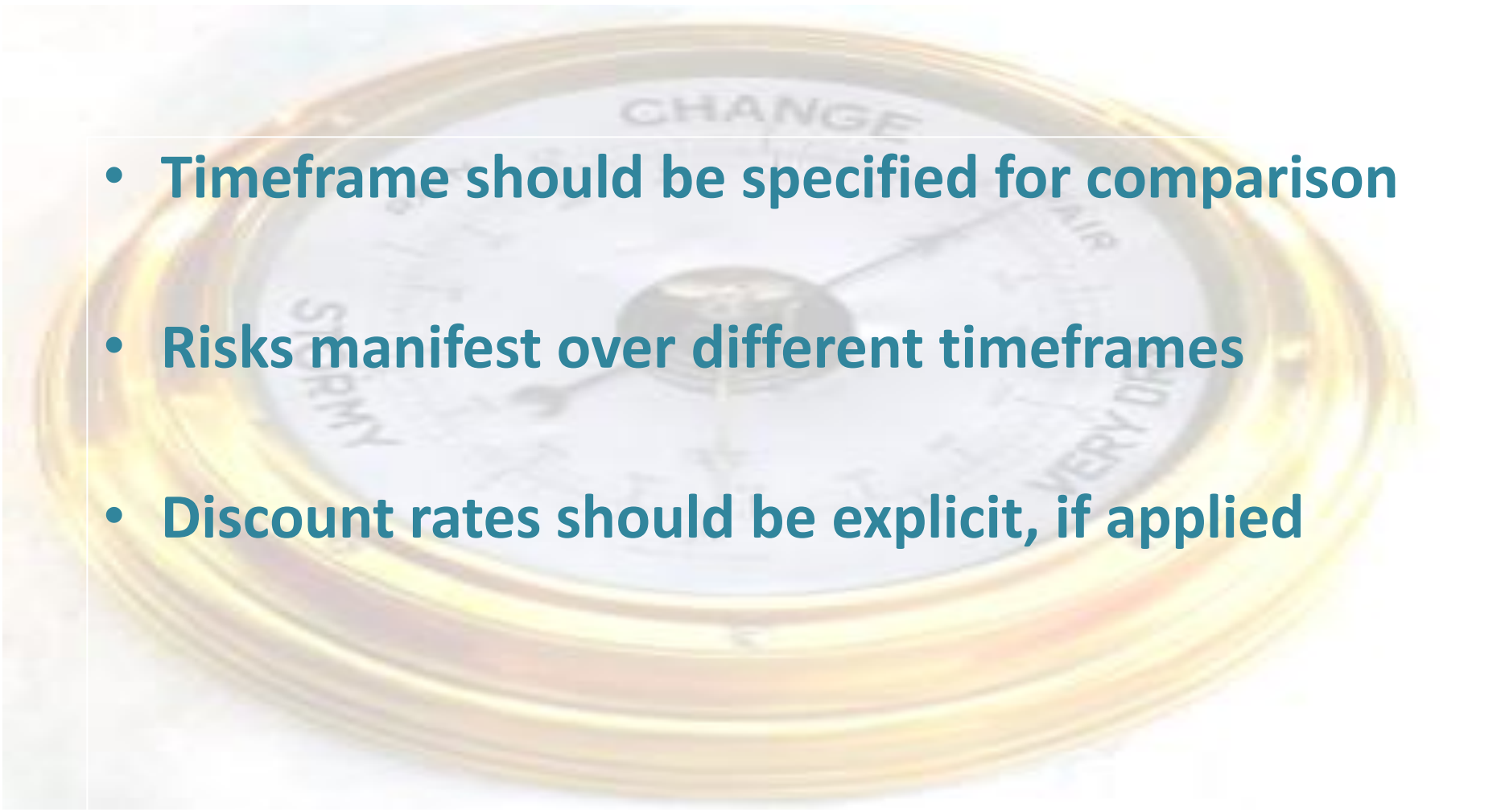
- **Need to specify what the threat is**
- **“Total climate risk” includes direct and indirect impacts**
  - **Physical**
  - **Biological**
  - **Institutional**
  - **Social**
  - **Economic uncertainty**



## “Risk to whom”

- Risk is subjective
- As a rule, poor people are more risk averse than affluent people
- Environmental risks are significant and impact upon human risk
- Removing ecological buffers increases exposure to climate risk
- Assessments need to be clear on whose behalf they are evaluating risk

## “Risk when”

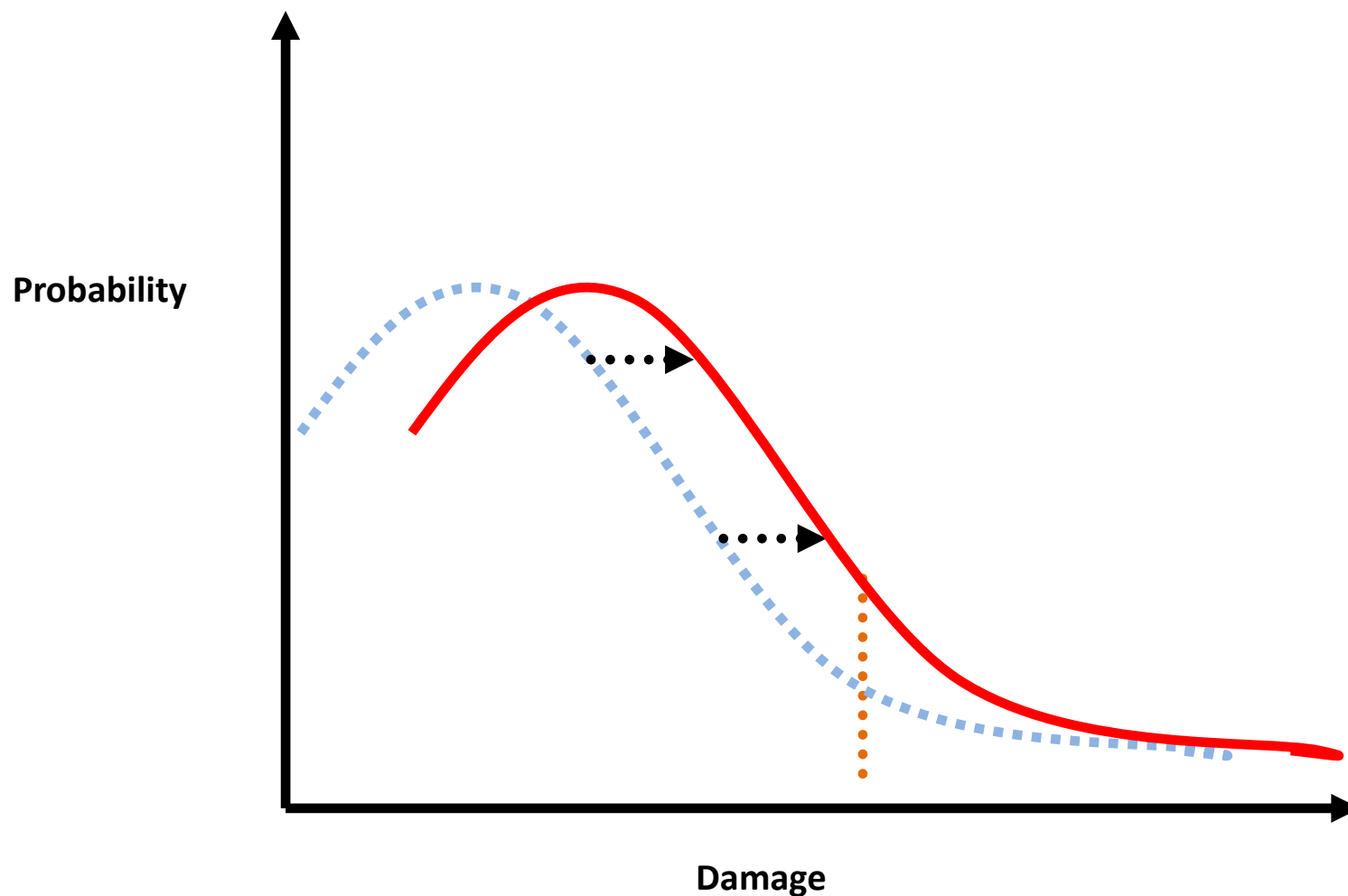
- 
- Timeframe should be specified for comparison
  - Risks manifest over different timeframes
  - Discount rates should be explicit, if applied



# Climate Risk = Probability \* insult

- “Additionality” is a useful concept but analytically intractable
- The process of quantification can be useful in raising awareness and building capacity

# Climate change alters frequency & intensity of damage



## Managing risk

- Aim is risk reduction
- Markets for risk exist (insurance), but also fail
- Deal with systemic risk at its origins where possible
- Avoid regressive risk transfers - which are not risk reduction
- Avoid making it worse – maladaptation
- Recognise “coping”
- Goal is acceptable risk – good enough, not perfect

## So what for cities??????

- Assessing climate change risk can be useful in planning with a wide number of people & institutions
- Assessing risk forces acknowledgment of uncertainty
- Can be useful in identifying threats and marshalling resources
- Assessment process can build important capacity and awareness.

- Assessment leads to systemic solutions

Good assessments recognises

- how unusual and serious climate change is
- direct and indirect impacts
- How to plan when the past is no-longer a good proxy for the future.....

# Cost benefit analysis

– as a climate adaptation support tool



## Climate adaptation as an economic concern

“Climate adaptation is thus an urgent priority for the custodians of national and local economies, such as finance ministers and mayors. Such decision-makers ask: What is the potential climate-related loss to our economies and societies over the coming decades? How much of that loss can we avert, with what measures? What investment will be required to fund those measures – and will the benefits of that investment outweigh the costs?”

Economics of Climate Adaptation Working Group, (2010) a partnership between the Global Environment Facility, McKinsey & Company, Swiss Re, the Rockefeller Foundation, ClimateWorks Foundation, the European Commission, and Standard Chartered Bank.



## **CBA as an effective decision support tool**

- Need a money based metric to support decisions and make difficult trade-offs - not everything is “win-win”
- Economic case for action can support political case
- We know enough to develop plausible scenarios on which to base decision making.
- Link climate change to existing programmes and projects.
- The conceptual understanding of how decision support relates to climate change adaptation is a prerequisite for meaningful analysis and buy-in

## To be credible in a developing country context.....

CBA needs to

- Deal with complexity of urban systems (including interdependent social and ecosystems)
- Deal with uncertainty
- Deal with equity.
- Be reasonably consistent, replicable
- Be demand driven (prioritise real needs \$ & cents...what are people dependent on)
- Be commensurate with implementation capacity

## The CBA process

- Develop a view (or views/ scenarios) on the future
- Identify impacts if no adaptation
- Identify adaptation options – projects and programmes
- Declare the time horizon over which analysis takes place
- Define the geographical area over which analysis takes place – e.g. the city or municipality

## Estimating costs

- Based on the cost implementing an adaptation option
- Should include “opportunity cost” of the money spent – what does not happen because of expenditure
- Needs to factor in the time value of money – use discount rates judiciously
- Consider how much of the cost is “additional” to what would have been spent without climate change.



## Estimating benefits

- “Benefits” are the avoided costs that comes from effective adaptation
- Difficult to know the counterfactual
- Difficult to know how effective adaptation will be/ was
- Difficult to value ecosystems goods and services
- “Benefit” need not be monetary



Isotopic and conventional methods for quantifying evapotranspiration in the maize field

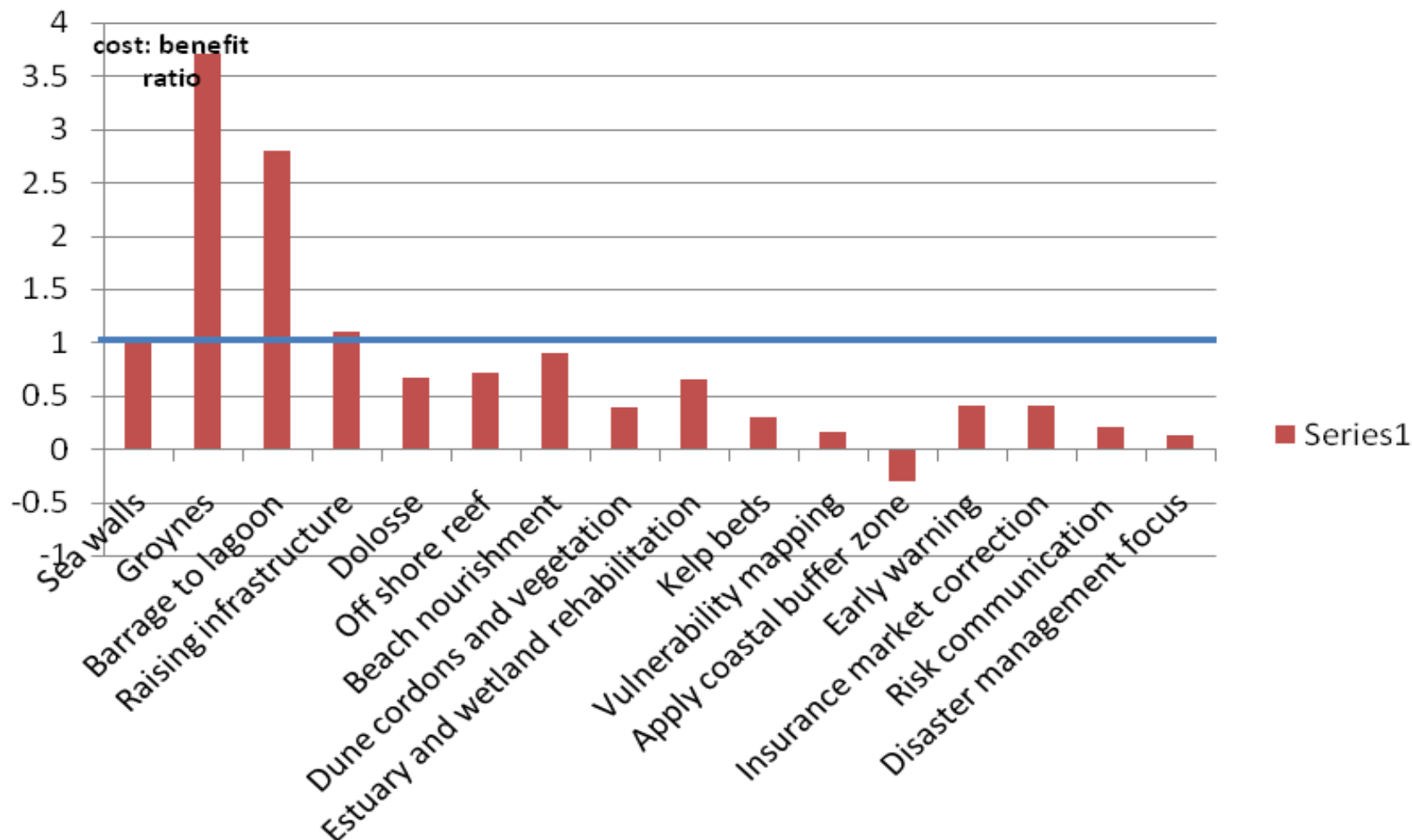
## Cost benefit ratios



- By comparing costs and benefits it is possible to rank options
- Sound inference from CBA needs to be aware of the critique



# Cost benefit analysis (Cape Town)



- Can produce artificially precise and mis-represent the need to gauge with deep uncertainty
- Insufficient acknowledgment of ecological damage and role of ecological buffers in adaptation
- Easy to ignore indirect impacts
- The use of discount rates introduced significant subjectivity
- How to ring-fence impacts/ costs over time and space.
- CBA tends to treat impacts and adaptation options as discrete
- Creates the impression that if you spend the money the problem will go away

**ANY QUESTIONS?**

