

1st

RWANDA CLIMATE SCIENCE SYMPOSIUM 2025

Advancing Research And Networking

Climate Adaptation Knowledge Brokering in Rwanda

What Does it Take to
Contextualise, Make Sense of,
Visualise or Prepare Climate
Information for Usage?

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Ministry of Environment

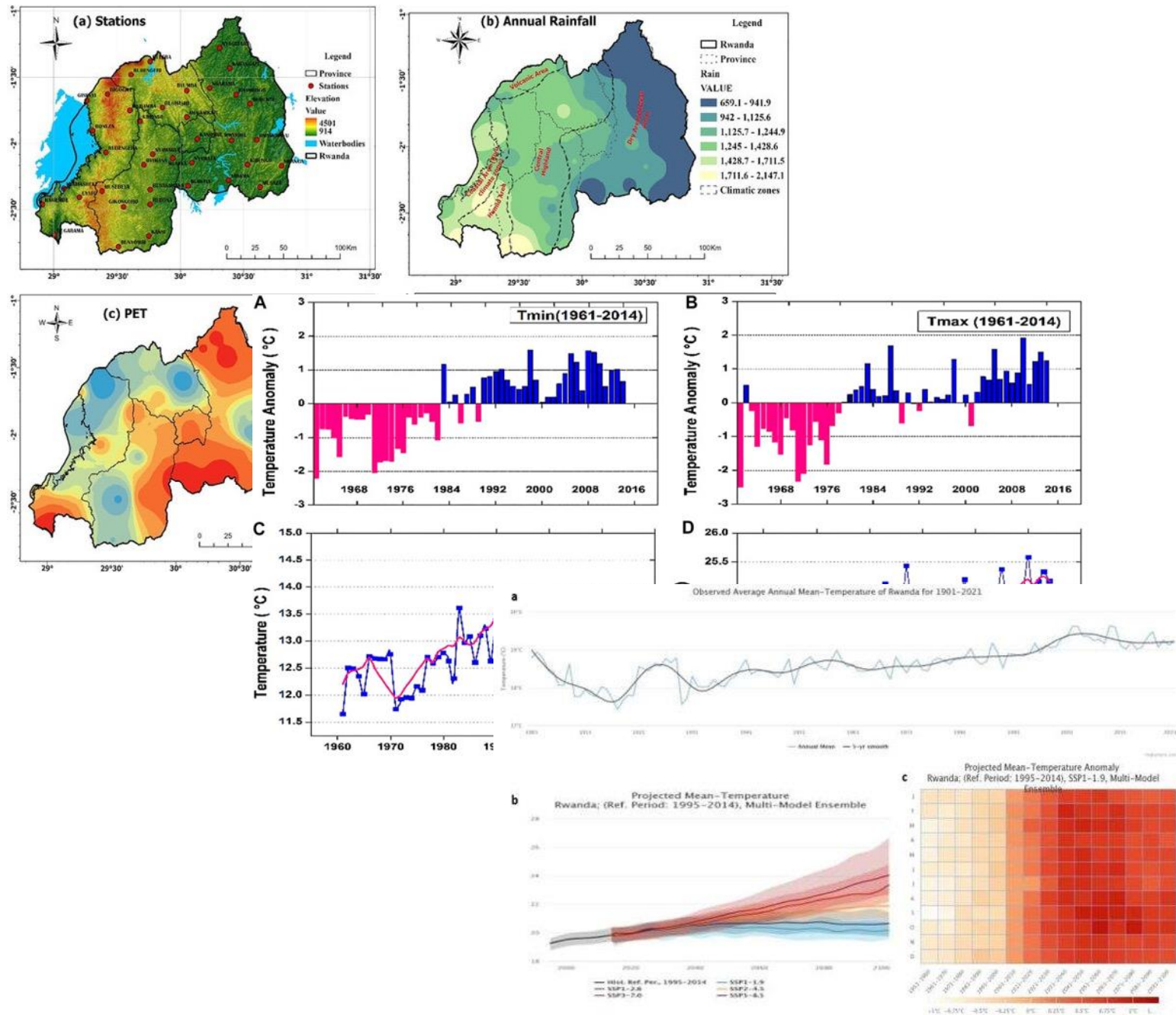


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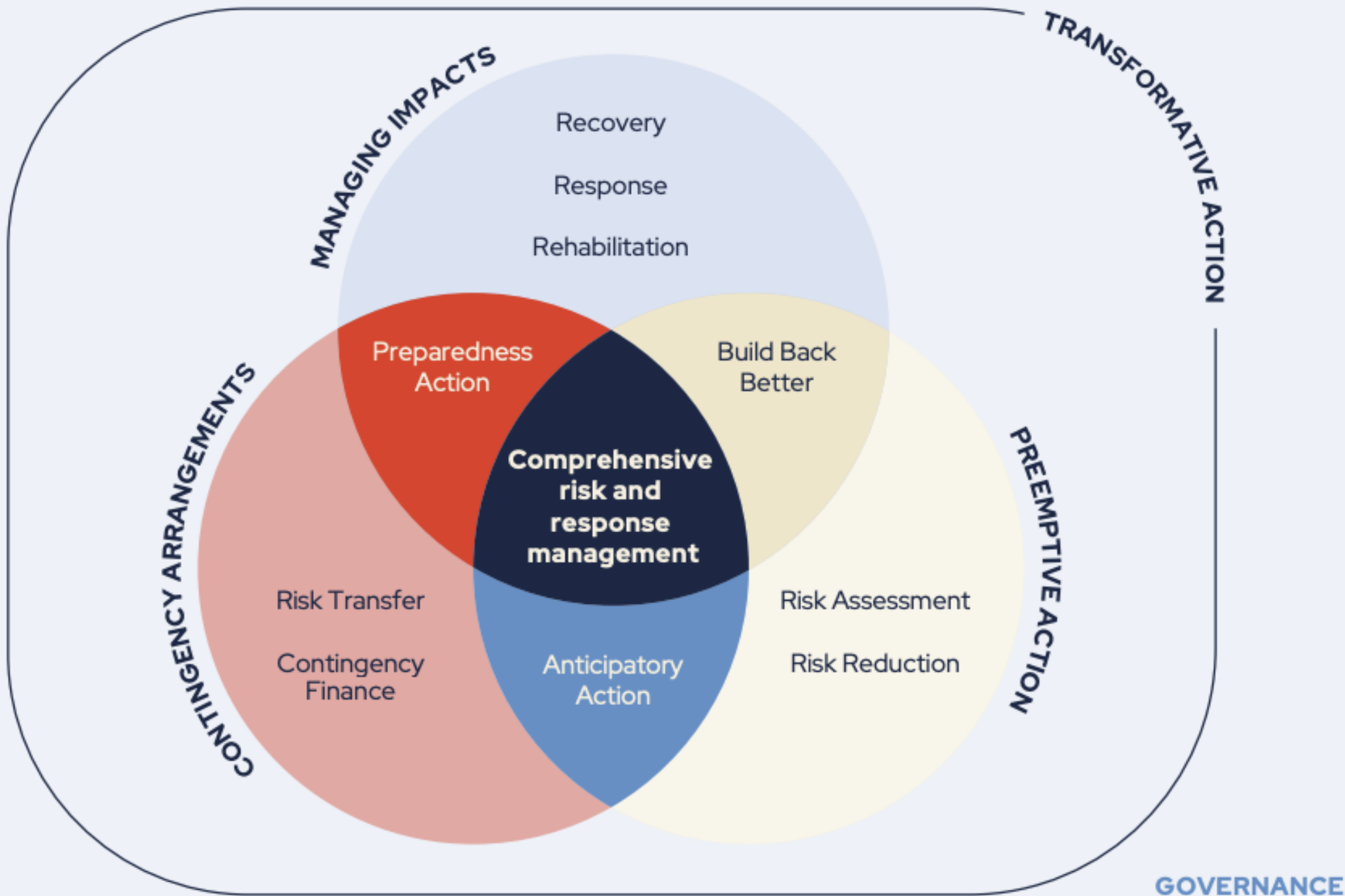
AIMS African Institute for
Mathematical Sciences
RESEARCH & INNOVATION

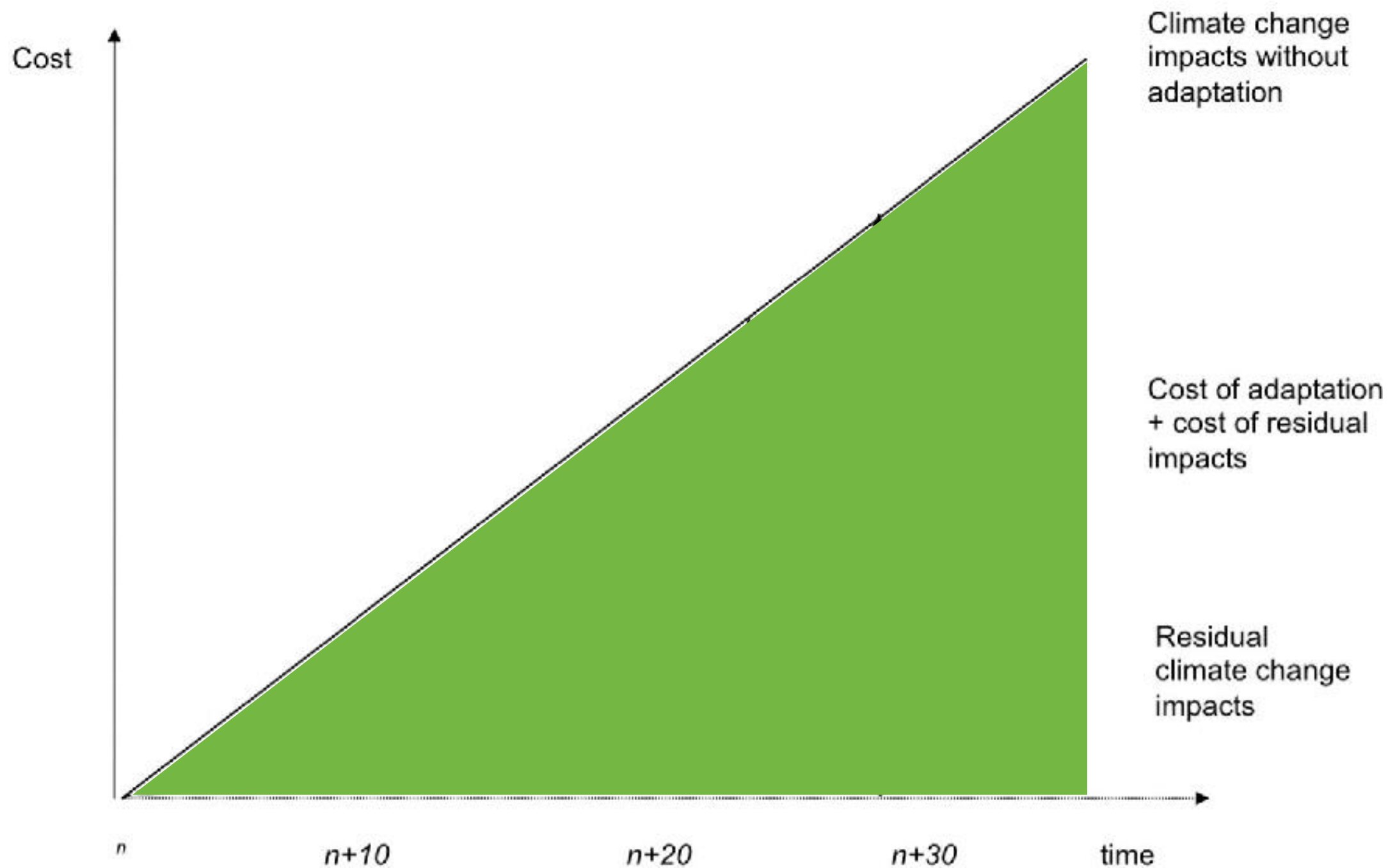


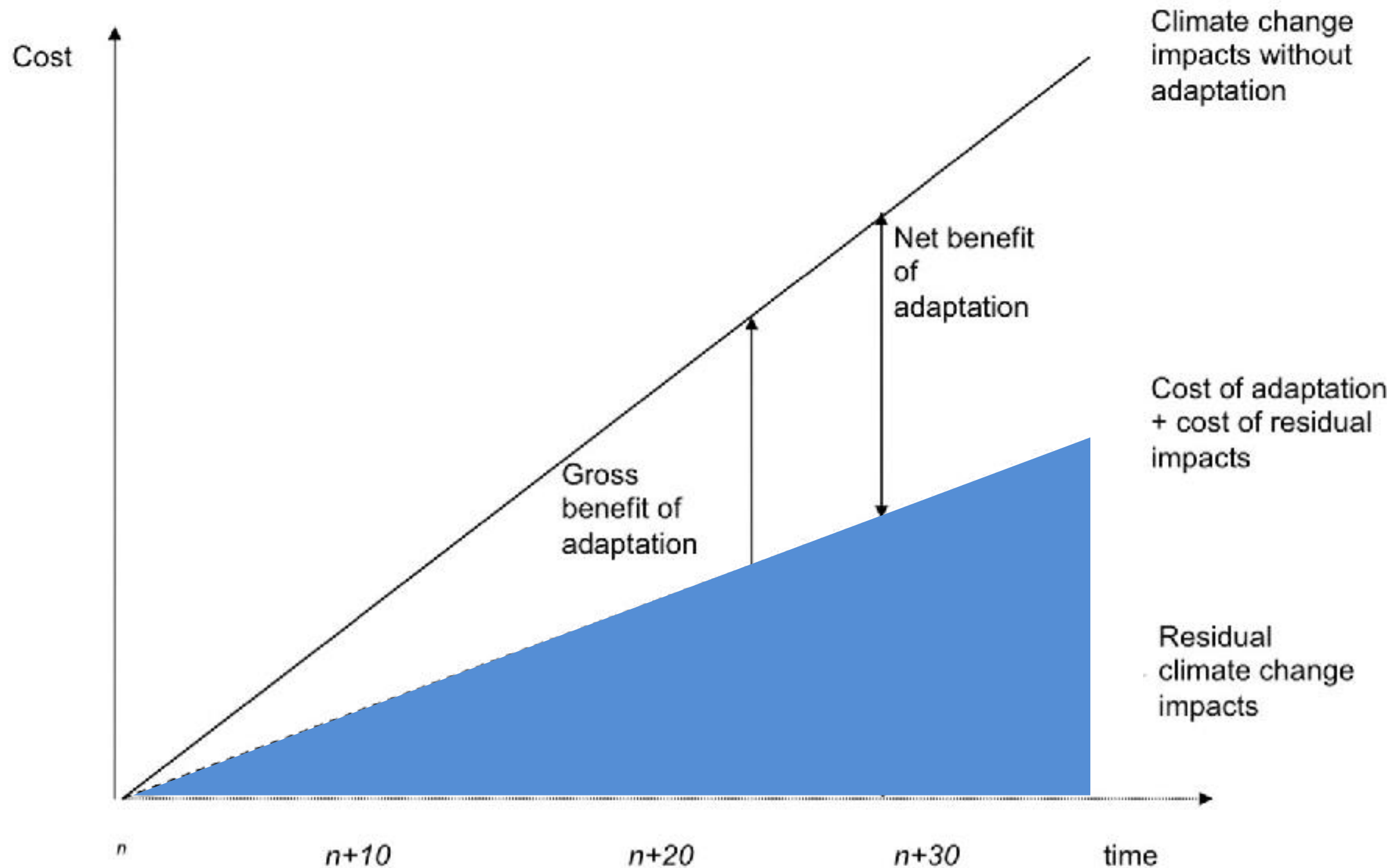


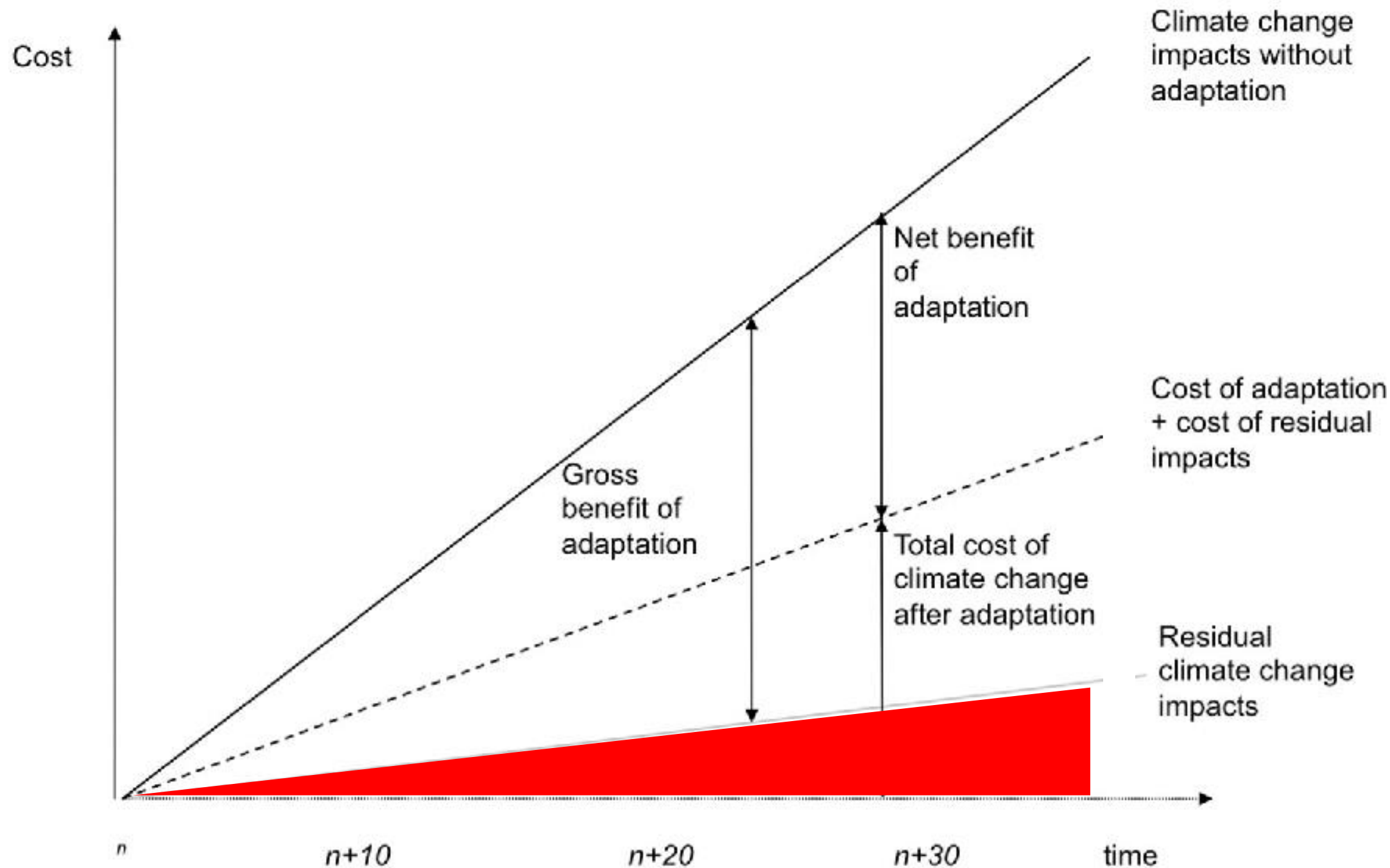
Climate Risks and Impacts ...











Adaptation Benefits

Economic Benefits:

- avoid losses:
- minimize damage to infrastructure, assets, and livelihoods, leading to substantial economic savings.

Enhanced Productivity:

- maintain or increase their productivity.

Innovation and Growth:

- spur innovation and create new economic opportunities.

Local Economic Benefits:

- improve local economies by creating jobs, supporting businesses, and boosting local investment.

Adaptation Benefits

Social Benefits/ Improved Well-being :

- protect vulnerable populations from the impacts of climate change, such as extreme heat, droughts, and floods.
- improve the quality of life for individuals and communities.

Increased Resilience:

- develop the capacity to anticipate and respond to climate change effectively, strengthening their resilience.

Enhanced Public Health:

- improved air quality, access to clean water, and reduced vulnerability to heat waves can lead to significant improvements in public health.

Adaptation Benefits

Environmental Benefits:

- reduced environmental damage, i.e. minimize the impact of climate change on ecosystems and biodiversity.

Improved Ecosystem Services:

- enhance the vital services ecosystems provide, such as clean water, air, and soil.

Which 'Adaptation' Questions Does Climate Information Help to Answer?

Which crop variety/ seeds to use/ select?

When to plant/ sow/ harvest?

How to avoid rain-induced soil erosion?

Transitioning to a new cultivar?



Agriculture

Which 'Adaptation' Questions Does Climate Information Help to Answer?

To what extent will climate change impact food safety, for example through changes in exposure to aflatoxins?

How significantly may flooding affect the incidence of waterborne disease through decreases in water quality (e.g., via sewer overflows)?

To what extent will health monitoring, surveillance, and data collection activities be affected by extreme weather events?



Which 'Adaptation' Questions Does Climate Information Help to Answer?

Is flooding likely to inundate sanitation facilities?

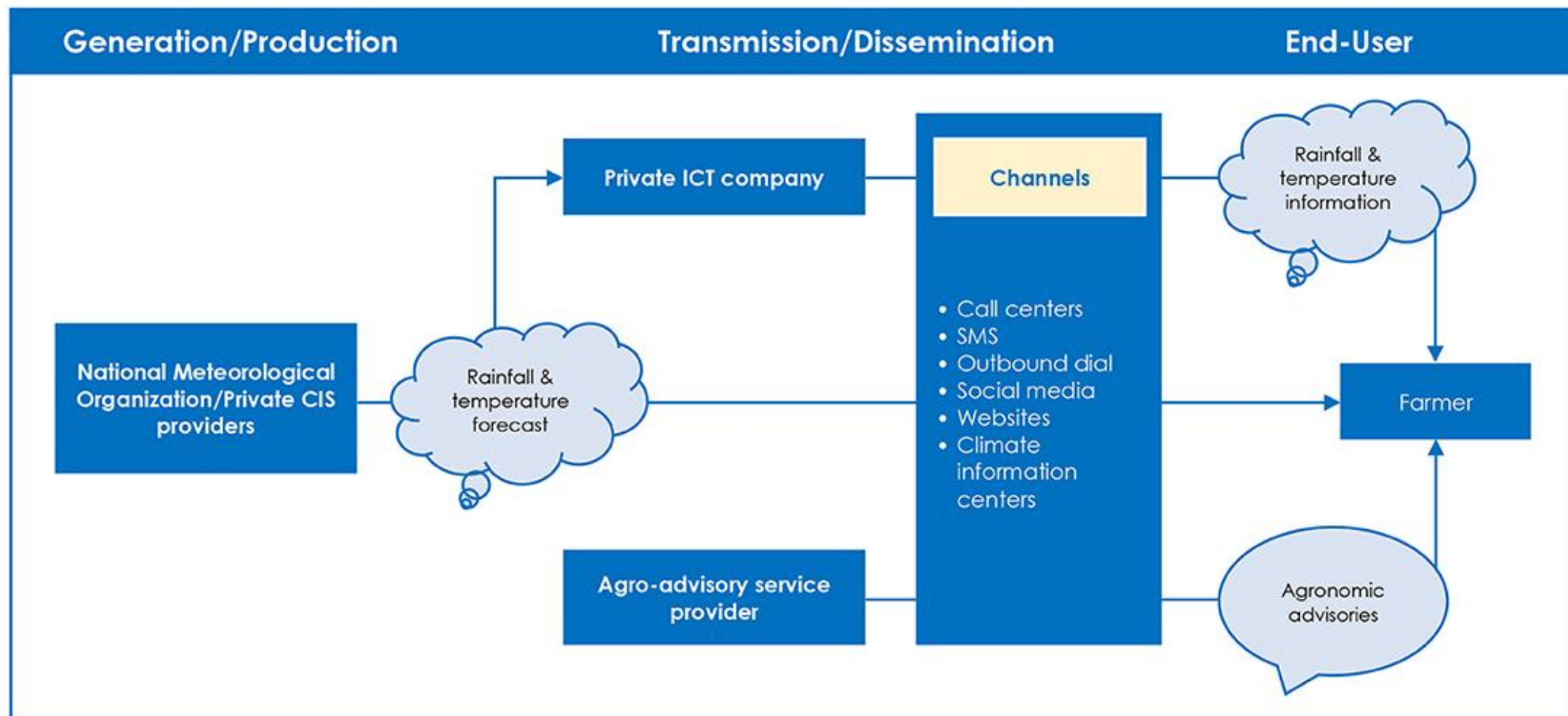
Are higher temperatures likely to increase the risk of hazardous algal blooms?

Is prolonged drought likely to increase water treatment costs?



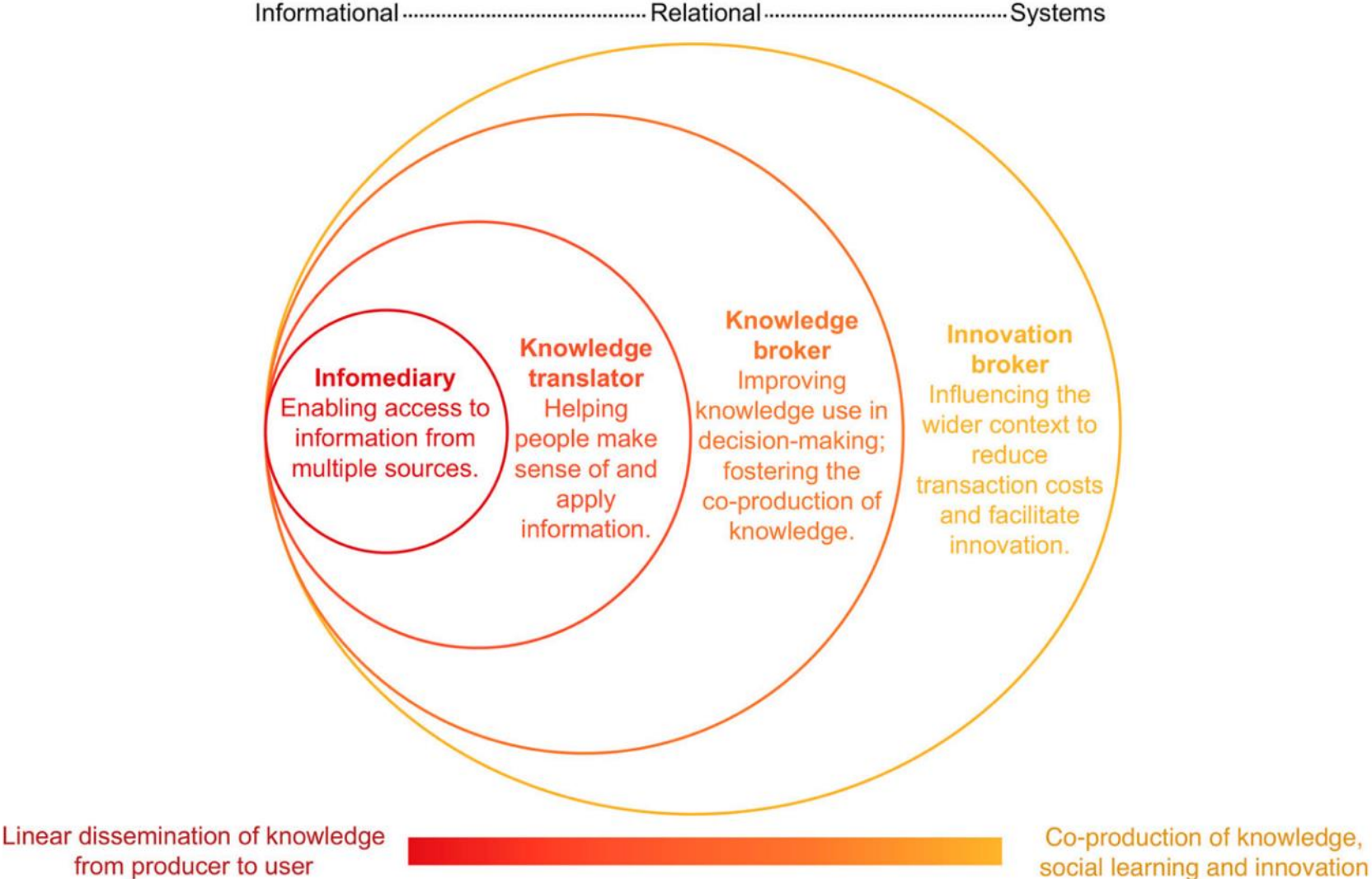
Climate Adaptation Knowledge Brokering in Rwanda

**What Does it Take to Contextualise,
Make Sense of, Visualise or Prepare
Climate Information for Usage?**

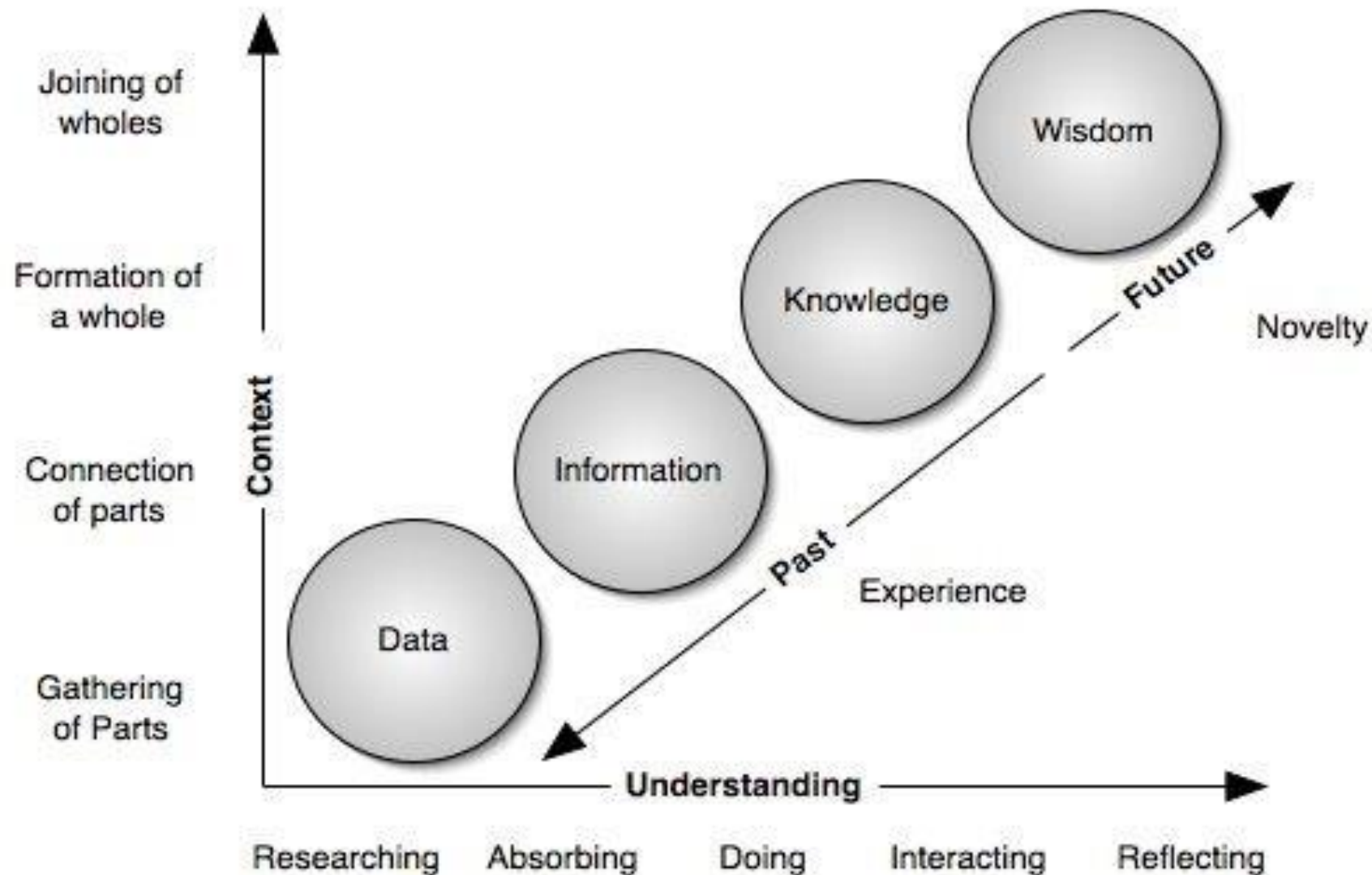


Existing linear model of CIS production in Ghana

Knowledge Brokering Spectrum



Making sense of... climate data & information



Making sense of... climate information



**Participatory Scenario Planning for co producing
user based climate services**

Interpreting... climate information

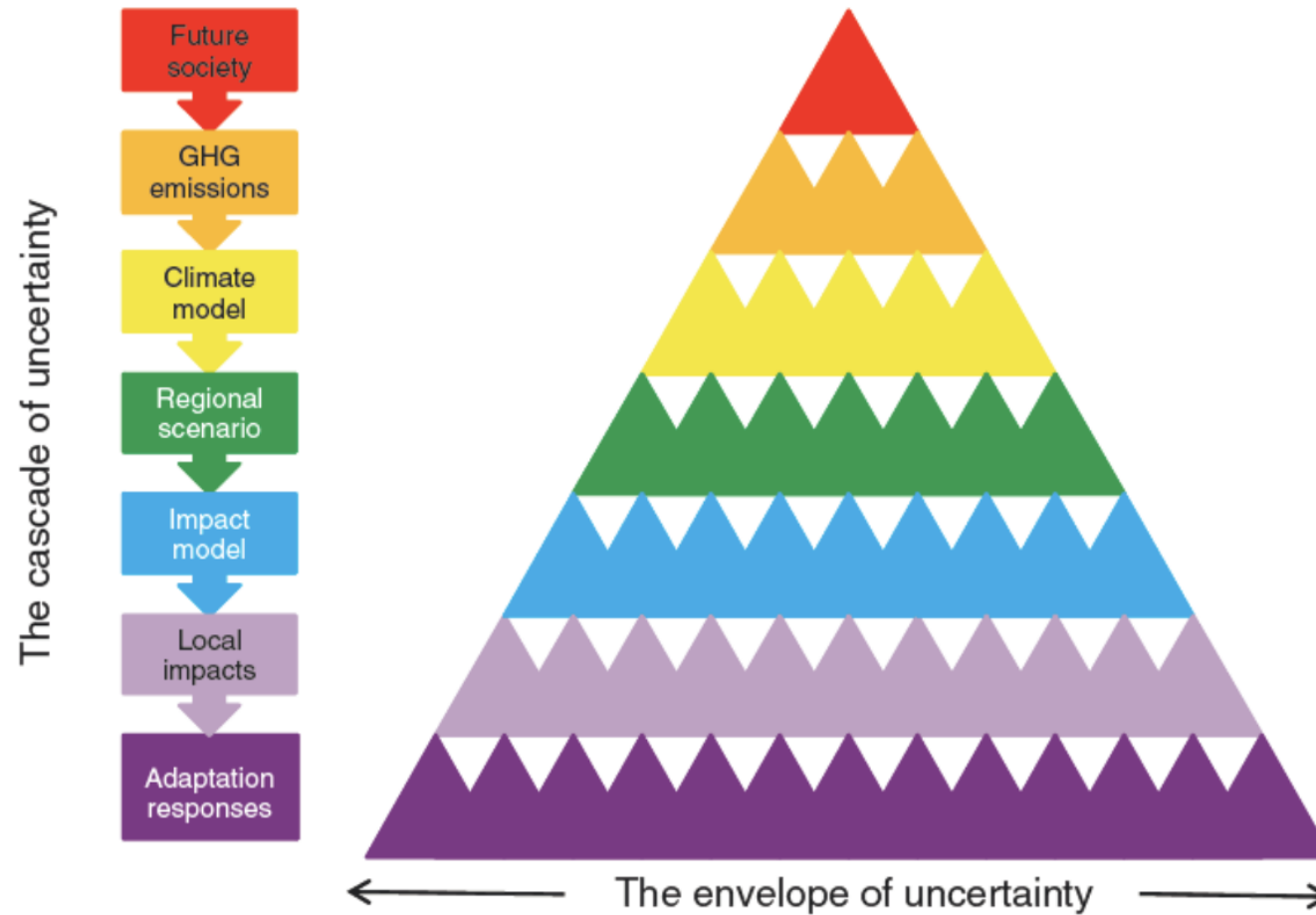


Figure 1: The cascade of uncertainty from *Wilby & Dessai (2010, Weather)*, illustrating the growth of the envelope of uncertainty from various sources going from future society to adaptation response.

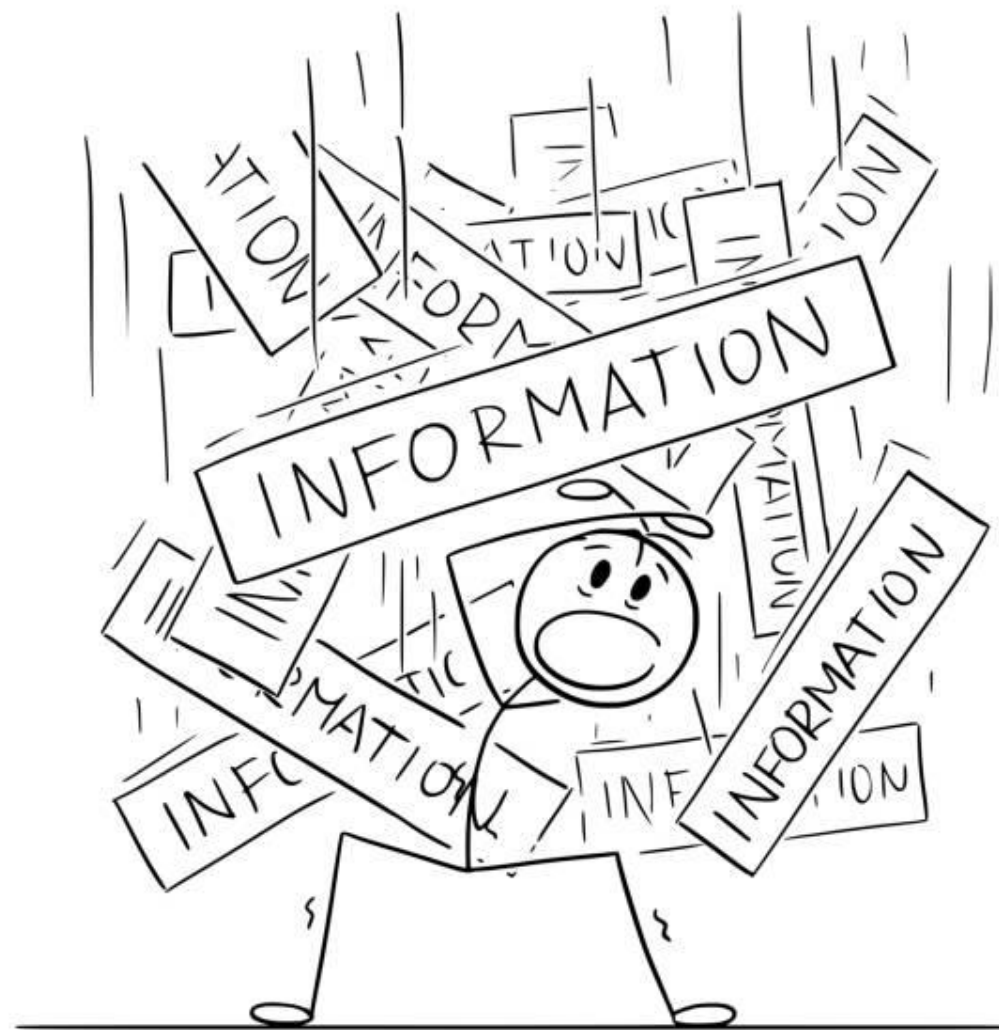
Selecting ... climate information



Synthesising ... climate information



African Synthesis Centre for Climate Change,
Environment and Development




Filtering ... climate information


Interactive Map

Move the mouse over a point of interest and discover more about our data in action.

This map shows past and current uses of climate change data in practical applications. Together with industry we are applying our knowledge to help businesses, governments and citizens to adapt to climate change. This map will be updated on a regular basis.



Filter:

 = Case studies

Climate Toolbox APPLICATIONS TOOLS DATA VIDEOS CASE STUDIES TOOL SUMMARIES GUIDANCE NEWS CONTACT


The Climate Toolbox

A collection of web tools for visualizing past and projected climate and hydrology of the contiguous United States.


Applications

A collection of tools for addressing questions relating to Agriculture, Climate, Fire Conditions, and Water.


Tools




Variable Lookup
Find which tools in the Climate Toolbox have a certain variable.



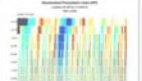
Climate Mapper
Maps of historical and future climate information across multiple sectors.




Historical Water Watcher
Maps of real-time water monitoring over the contiguous US.




Historical Climate Tracker
Graphs and trend lines of historical climate variability for a location.




Historical Drought Stripes
Stripes of past short and long term droughts as a timeseries for a location.




Historical Climate Scatter
Scatterplot graphs of two climate variables for a location.




Historical Climograph
Climographs of monthly average climate for a location.



Historical Seasonal Progression
Graphs of daily weather and forecasts for a location.



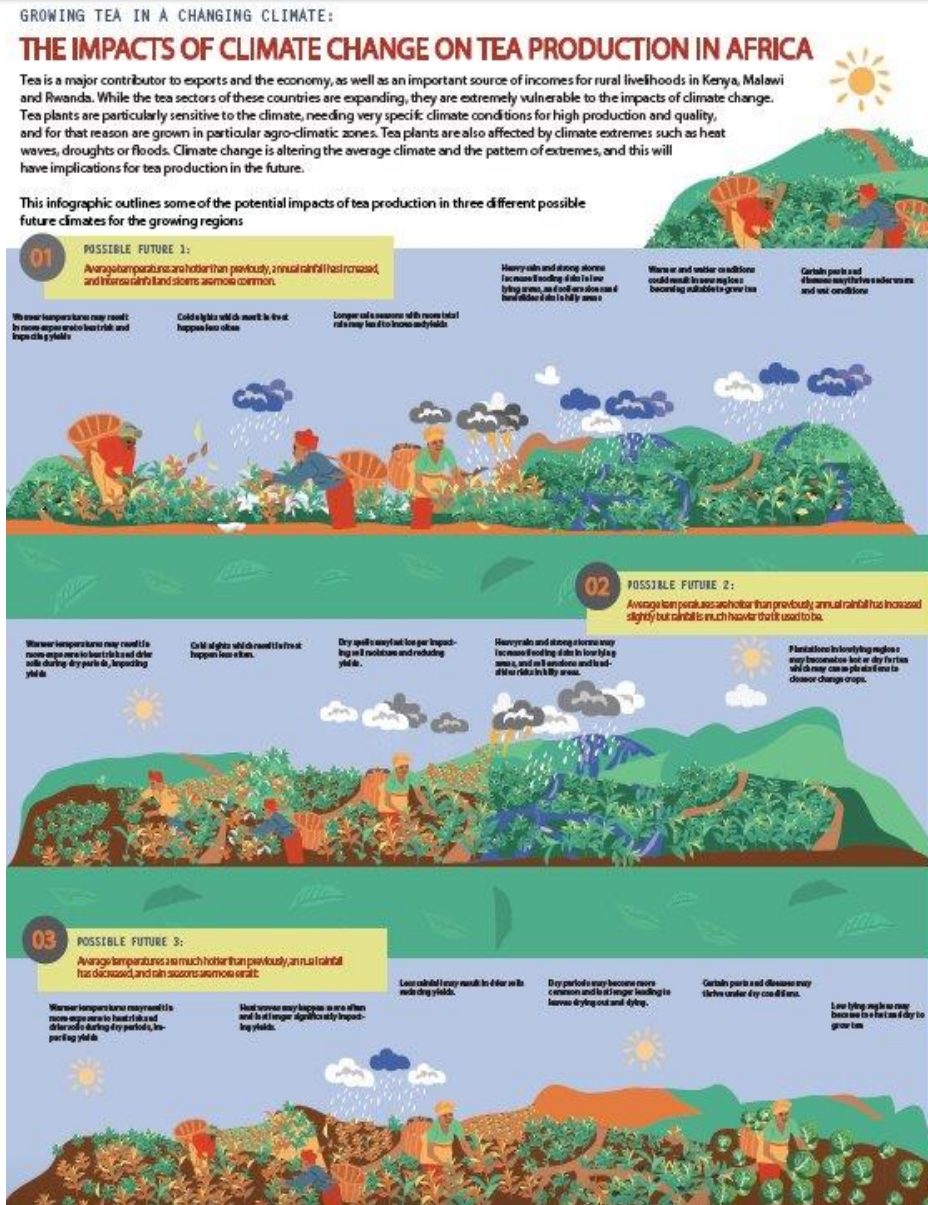
Historical Climate Dashboard
Dashboard of real-time climate for a location.



Seasonal Forecast Graphs
Graphs of seasonal climate forecasts and statistics for a location.

Copernicus Climate Change Service (C3S) Case Studies

Visualising ... climate information



Infographic:

The Impacts Of Climate Change On Tea Production In Africa (FCFA)

Simplify → annotate → visualise ... climate information

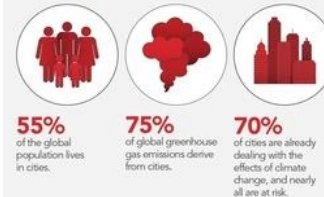


Climate Change and Cities

Cities Alliance
Cities Without Slums

Hosted by: UNOPS

Cities Are the Cause and the Solution



The Opportunities



Informality

1 billion urban citizens live in informal settings.

By 2030, this number could reach **2 billion** with many living in hazard-prone areas.



Cities Are Heating Up

The ambient temperature is expected to rise by an additional **2°C** in the most populated cities by 2050, putting stress on public health, urban ecological habitats, and water resources.



Cities and Resilience

Together, we need to build sustainable cities by strengthening urban ecosystems, promoting investment in local resilience efforts, and advocating for people-centred approaches.



Vulnerable Informal Economies

80% of urban employment is in the informal sector, which is characterised by vulnerable employment with no access to social protection, decent working conditions, or workers' rights.



Women and Water

72% of the burden of collecting water falls on women. Multiple trips a day to water sources draw women away from activities such as education and employment.



73% of the world's population does not have access to toilets. Lack of accessible toilets forces women and girls to defecate outside, often in isolated areas, making them vulnerable to varying forms of violence.



Water Scarcity

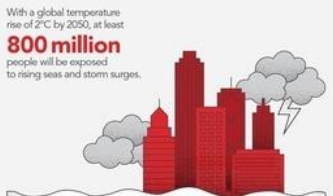
Today, **255 million** people in cities face extremely high water stress.

By 2030, **470 million** people are expected to live in cities with extremely high water stress.

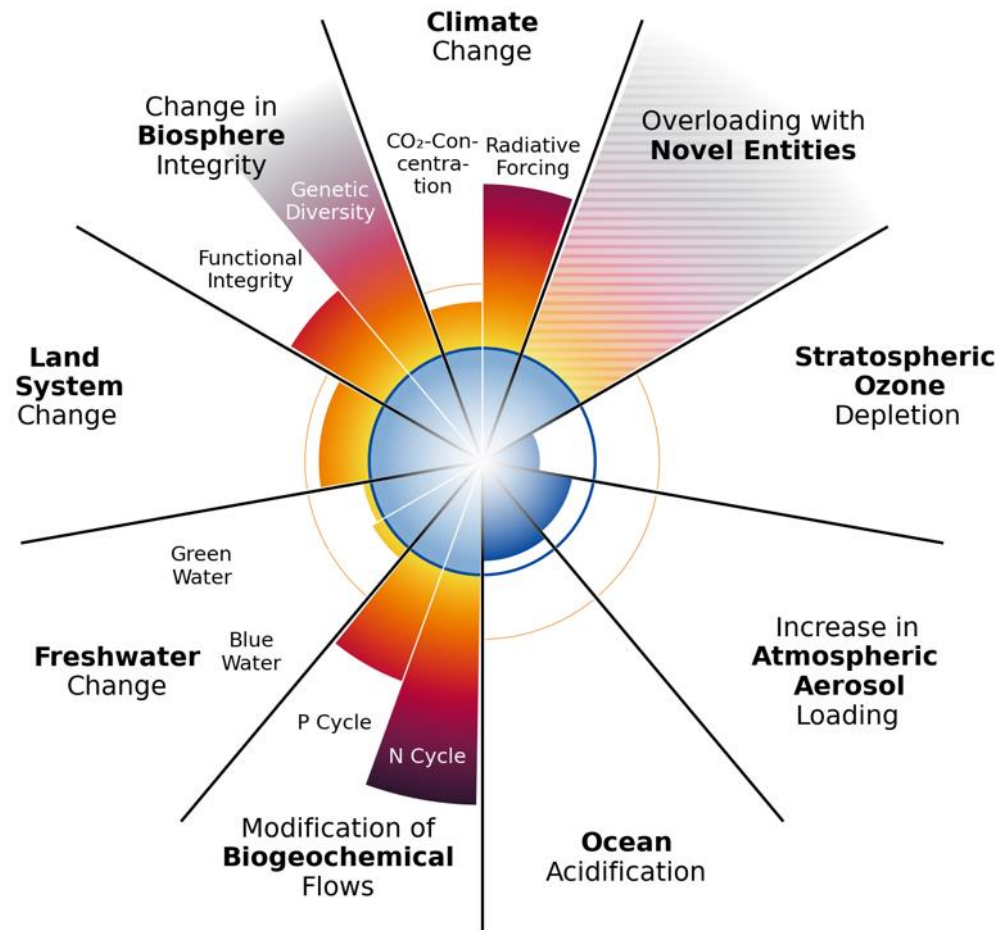


Sea Level Rise

With a global temperature rise of 2°C by 2050, at least **800 million** people will be exposed to rising seas and storm surges.



Simplify → annotate → visualise ... climate information



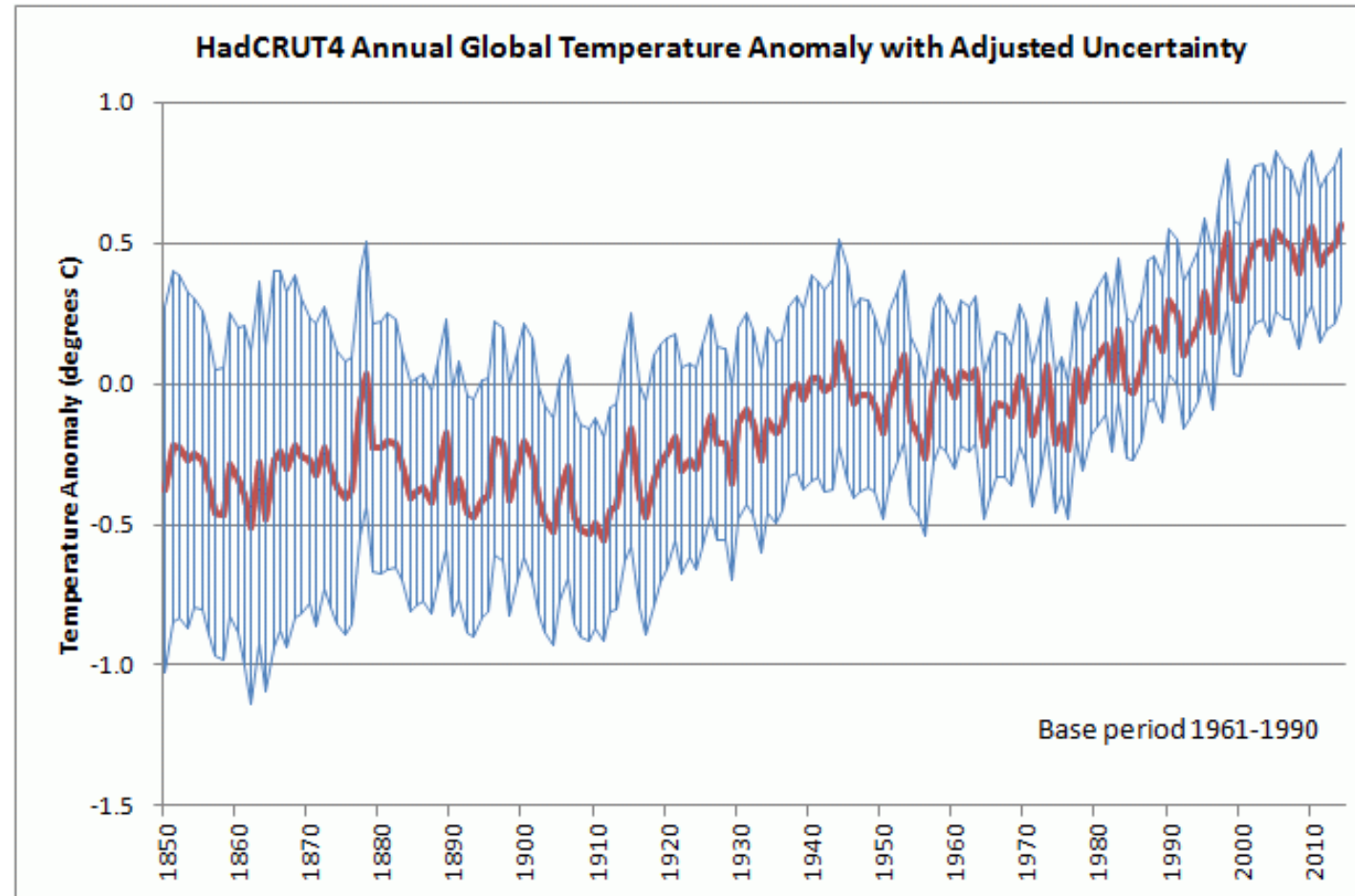
Colourblind-friendly
visualization

Contextualizing ... climate information



Context factors shape climate-security dynamics (Detges and Foong, 2023)

Communicating ... climate information



uncertainty or confidence intervals

Shaping Rwanda's Next Generation of Climate Adaptation Professionals and Climate Risk Managers

Climate Adaptation Research & Consulting Rwanda
a PlanAdapt Affiliate

Our Expertise



Framing the Decision Context,
Engaging Stakeholders



Assessing, Valuating and Making
Sense of Climate Risk



Shaping Planning and Business
Processes



Monitoring, Evaluating and
Learning From Adaptation Action



Knowledge Brokering, Bridging
between Theory and Practice



Researching New Frontiers for
Effective Implementation



Training, Building Capacity,
Shaping Mindsets



Assessing Financing Options and
Mobilising Resources



Designing and Delivering
Impactful Climate Services

Climate Risk Can Be Managed!

Homegrown solutions by Rwandan climate adaptation knowledge brokers for Rwandans that struggle with the negative impacts of climate change and climate injustice

Based at Westerwelle Startup Haus Kigali
4th floor Fairview Building KG 622 Street
Rugando Kimihurura
Kigali, Rwanda

www.plan-adapt.org/rwanda

Organically growing and embedded in a global network of climate adaptation experts under the roof of PlanAdapt

Building and sustaining climate adaptation capacity and competencies in Rwanda!

Please contact us at info@plan-adapt.org