1st RWANDA CLIMATE SCIENCE SYMPOSIUM 2025

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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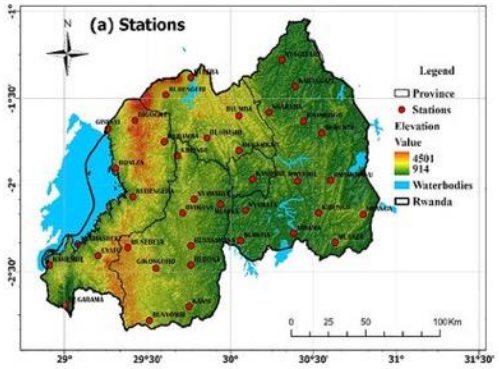
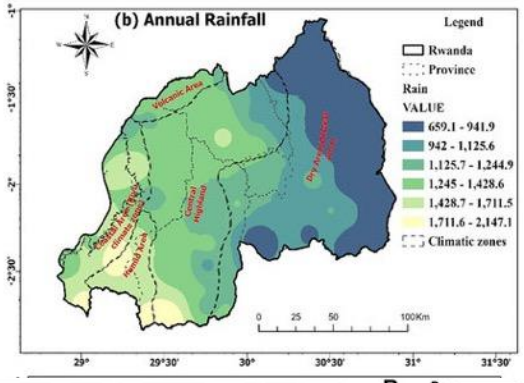
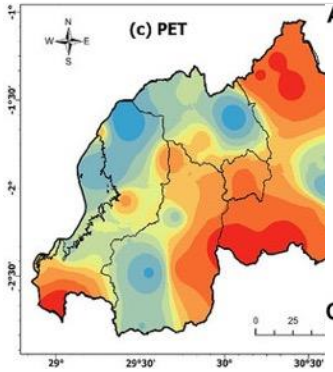
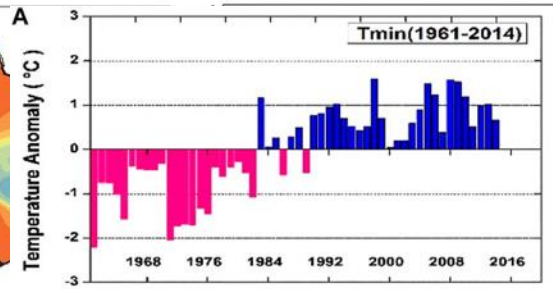
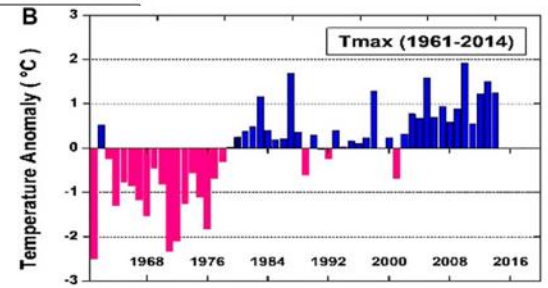
PlanAdapt
Creating a Climate for Change

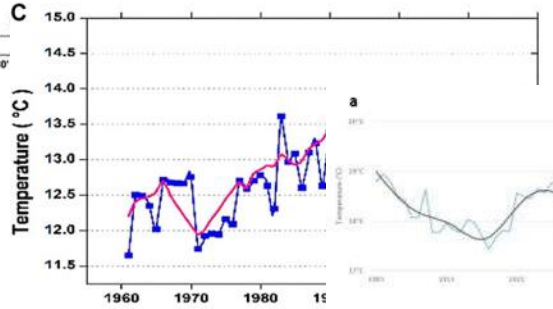

(a) Stations
Legend
Province
Stations
Elevation
Value
4501
914
Waterbodies
Rwanda
0 25 50 100Km

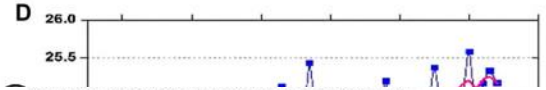

(b) Annual Rainfall
Legend
Rwanda
Province
Rain
VALUE
659.1 - 941.9
942 - 1,125.6
1,125.7 - 1,244.9
1,245 - 1,428.6
1,428.7 - 1,711.5
1,711.6 - 2,147.1
Climatic zones
Volcanic Area
Congo Nile Crest
Central Highlands
Eastern Savanna
0 25 50 100Km

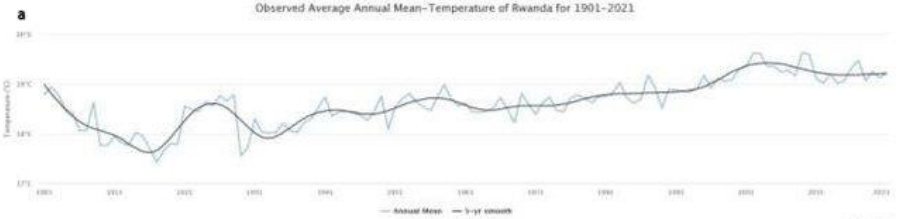

(c) PET
0 25

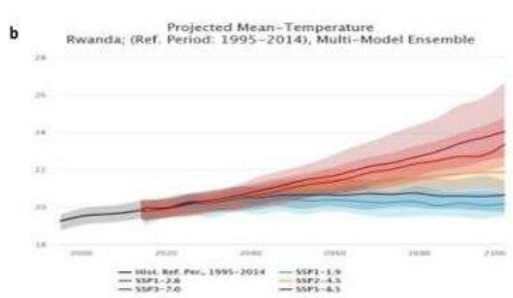

A
Tmin(1961-2014)
Temperature Anomaly (°C)
1968 1976 1984 1992 2000 2008 2016

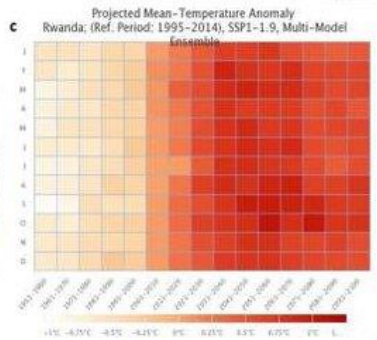

B
Tmax (1961-2014)
Temperature Anomaly (°C)
1968 1976 1984 1992 2000 2008 2016


C
Temperature (°C)
1960 1970 1980


D


a
Observed Average Annual Mean-Temperature of Rwanda for 1901-2021


b
Projected Mean-Temperature
Rwanda; (Ref. Period: 1995-2014), Multi-Model Ensemble


c
Projected Mean-Temperature Anomaly
Rwanda; (Ref. Period: 1995-2014), SSP1-1.9, Multi-Model Ensemble

Climate Risks and Impacts …

respond

transfer

be(come) resilient

cope with

minimise

adapt

avert

accept

avoid

protect against

adjust

anticipate

prepare for

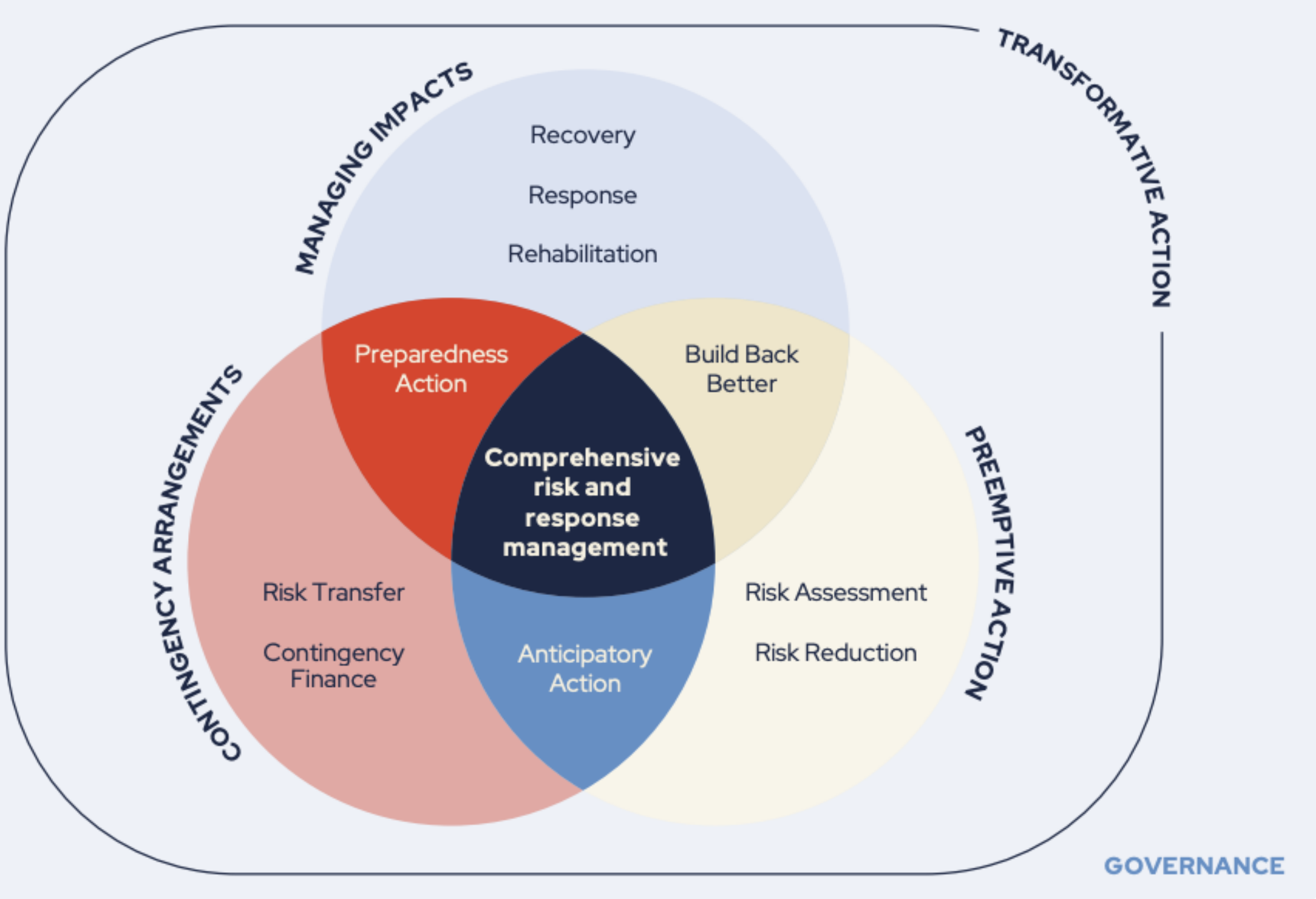
tolerate

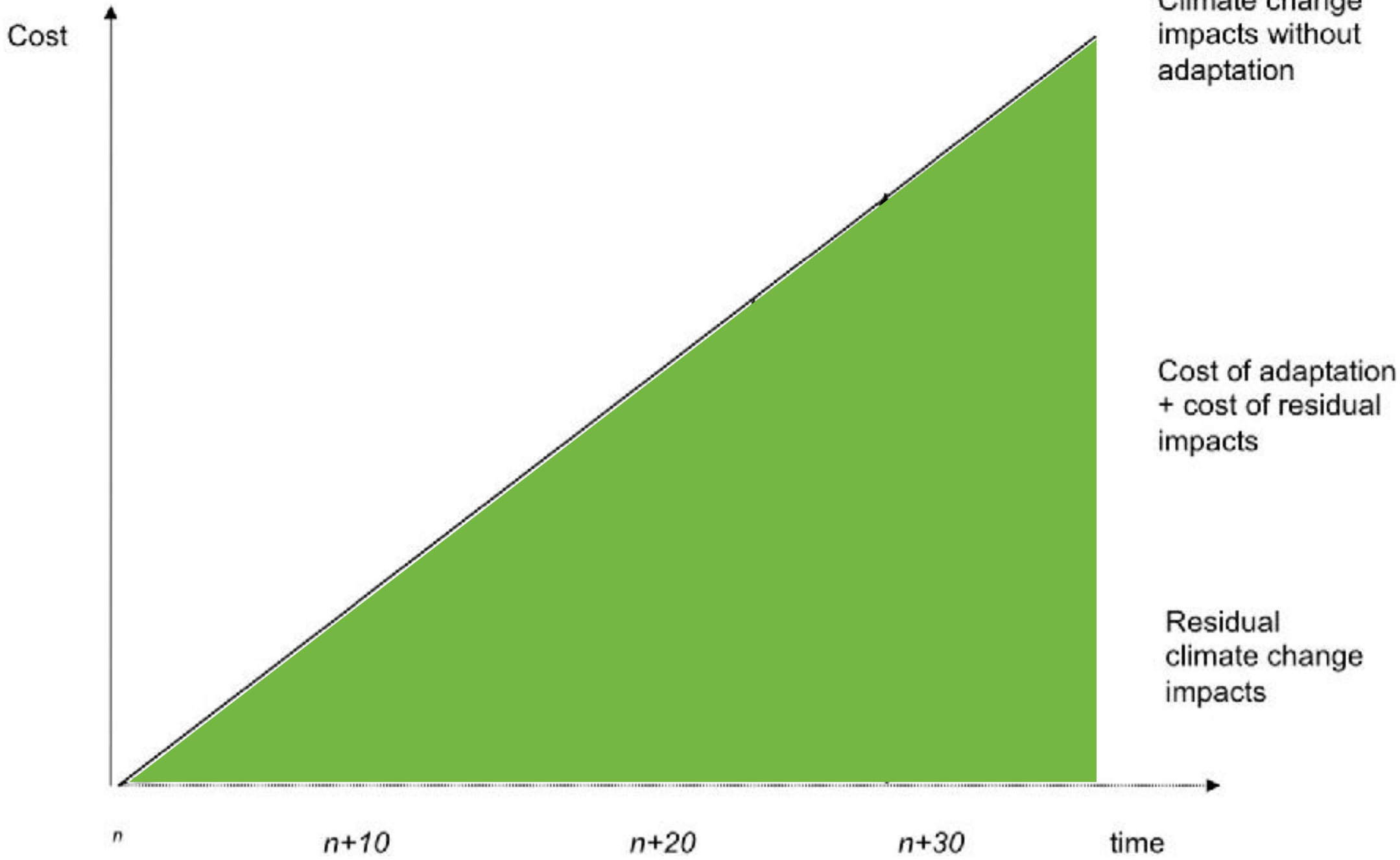
mitigate

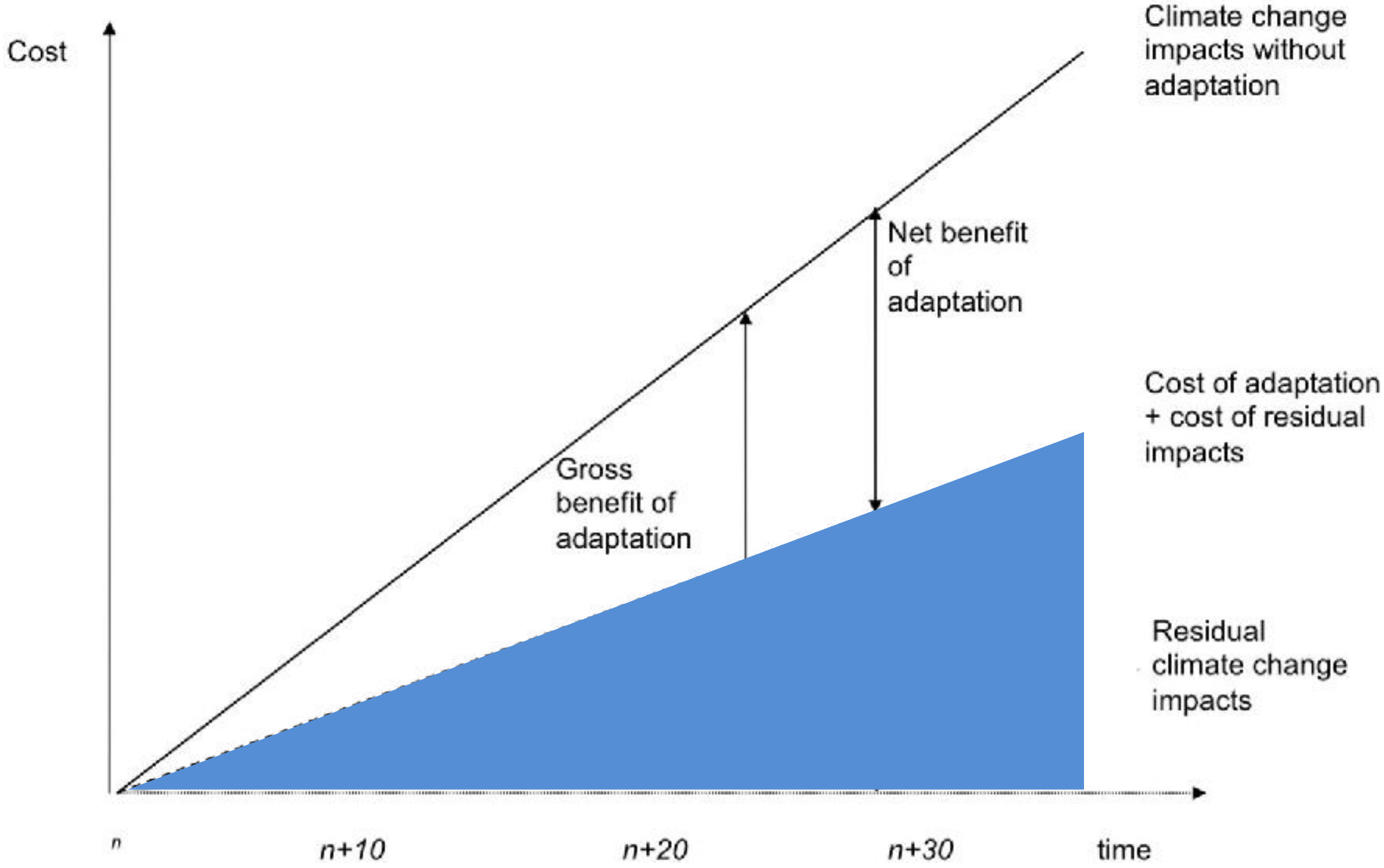
manage

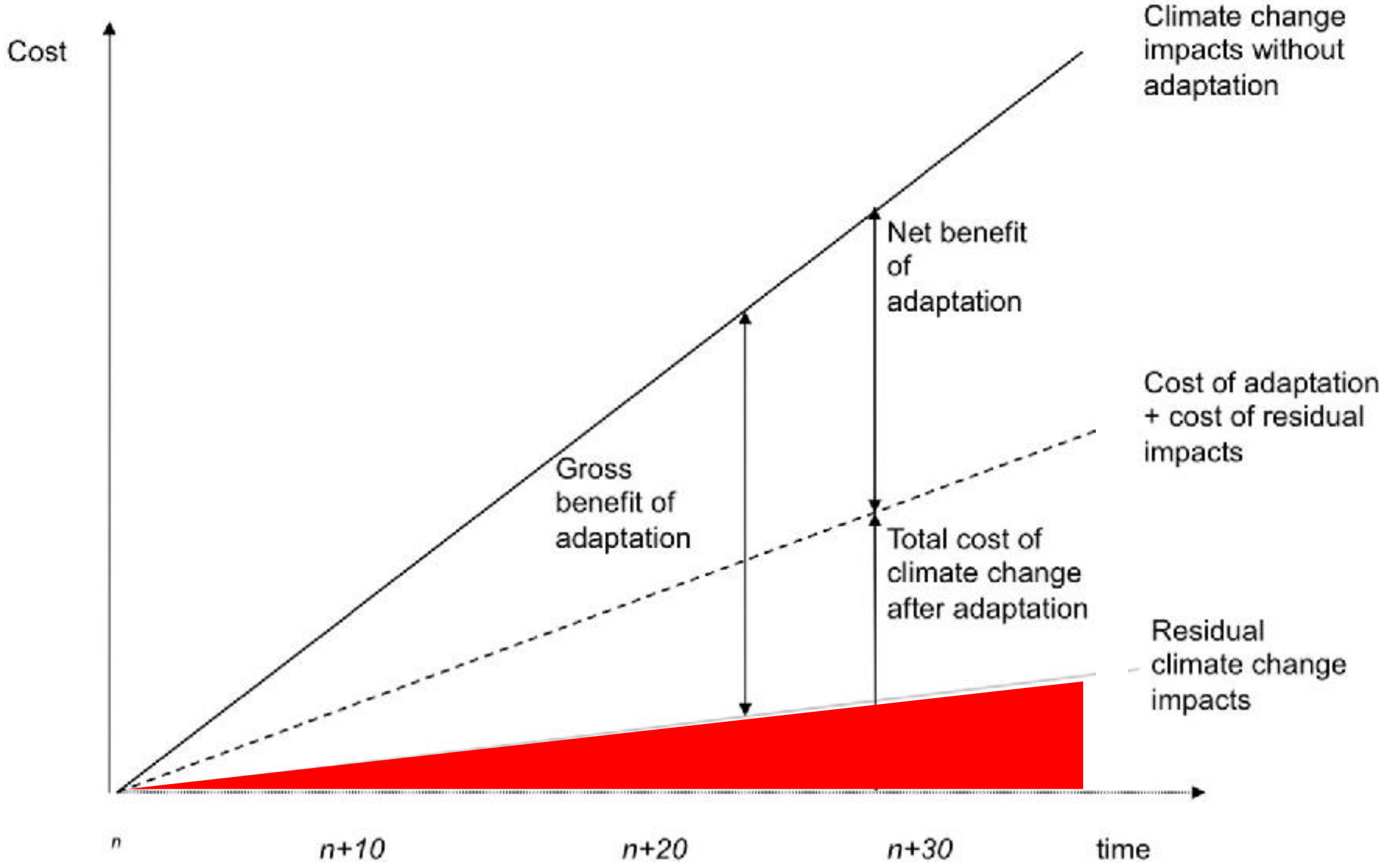
reduce

assess


MANAGING IMPACTS
TRANSFORMATIVE ACTION
CONTINGENCY ARRANGEMENTS
PREEMPTIVE ACTION
Recovery
Response
Rehabilitation
Preparedness Action
Build Back Better
Comprehensive risk and response management
Risk Transfer
Contingency Finance
Anticipatory Action
Risk Assessment
Risk Reduction
GOVERNANCE


Cost
Climate change impacts without adaptation
Cost of adaptation + cost of residual impacts
Residual climate change impacts
n
n+10
n+20
n+30
time


Cost
Climate change impacts without adaptation
Net benefit of adaptation
Gross benefit of adaptation
Cost of adaptation + cost of residual impacts
Residual climate change impacts
n
n+10
n+20
n+30
time


Cost
Climate change impacts without adaptation
Net benefit of adaptation
Cost of adaptation + cost of residual impacts
Gross benefit of adaptation
Total cost of climate change after adaptation
Residual climate change impacts
n
n+10
n+20
n+30
time

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?

Public Health

Which ‘Adaptation’ Questions Does Climate Information Help to Answer?

Is flooding likely to inundate sanitation facilities?

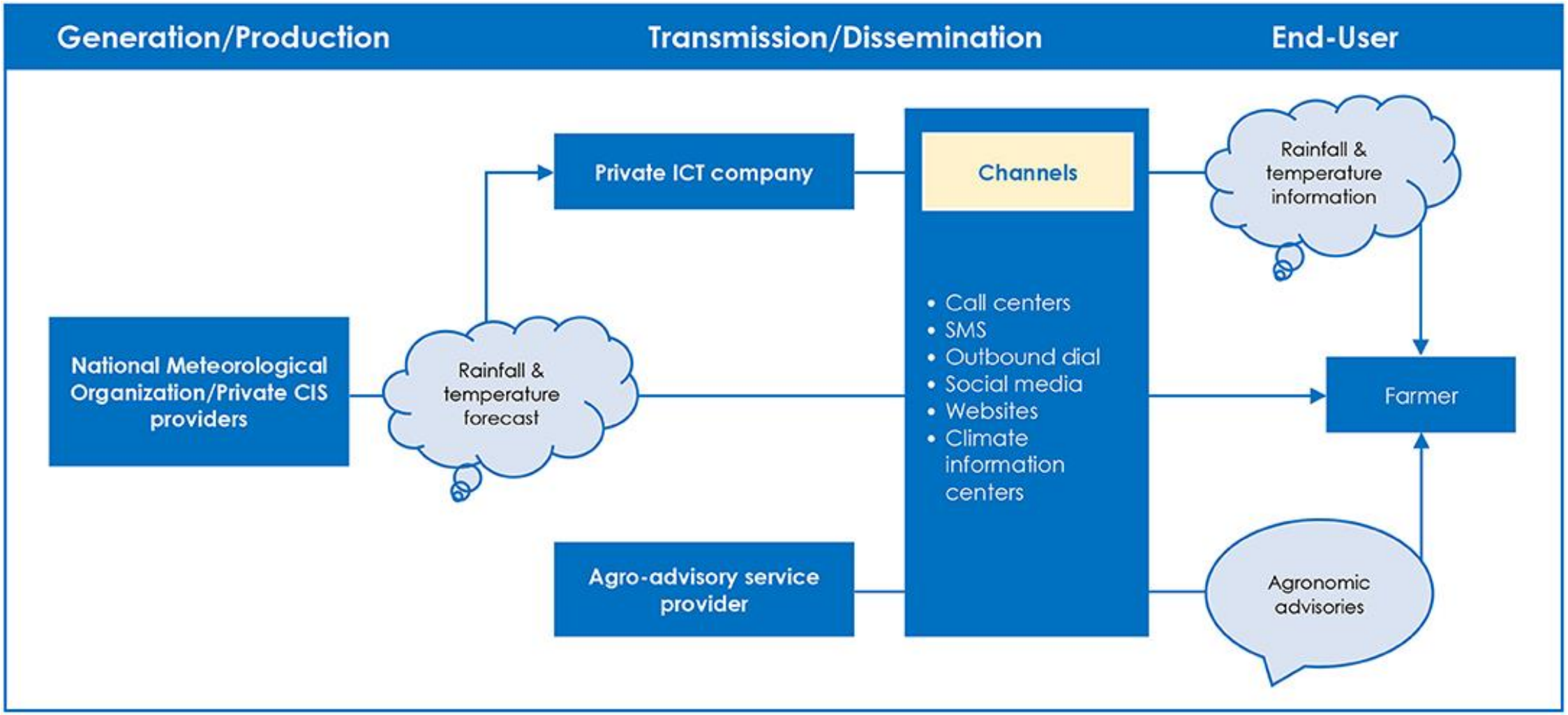
Are higher temperatures likely to increase the risk of hazardous algal blooms?

Is prolonged drought likely to increase water treatment costs?

Water & Sanitation

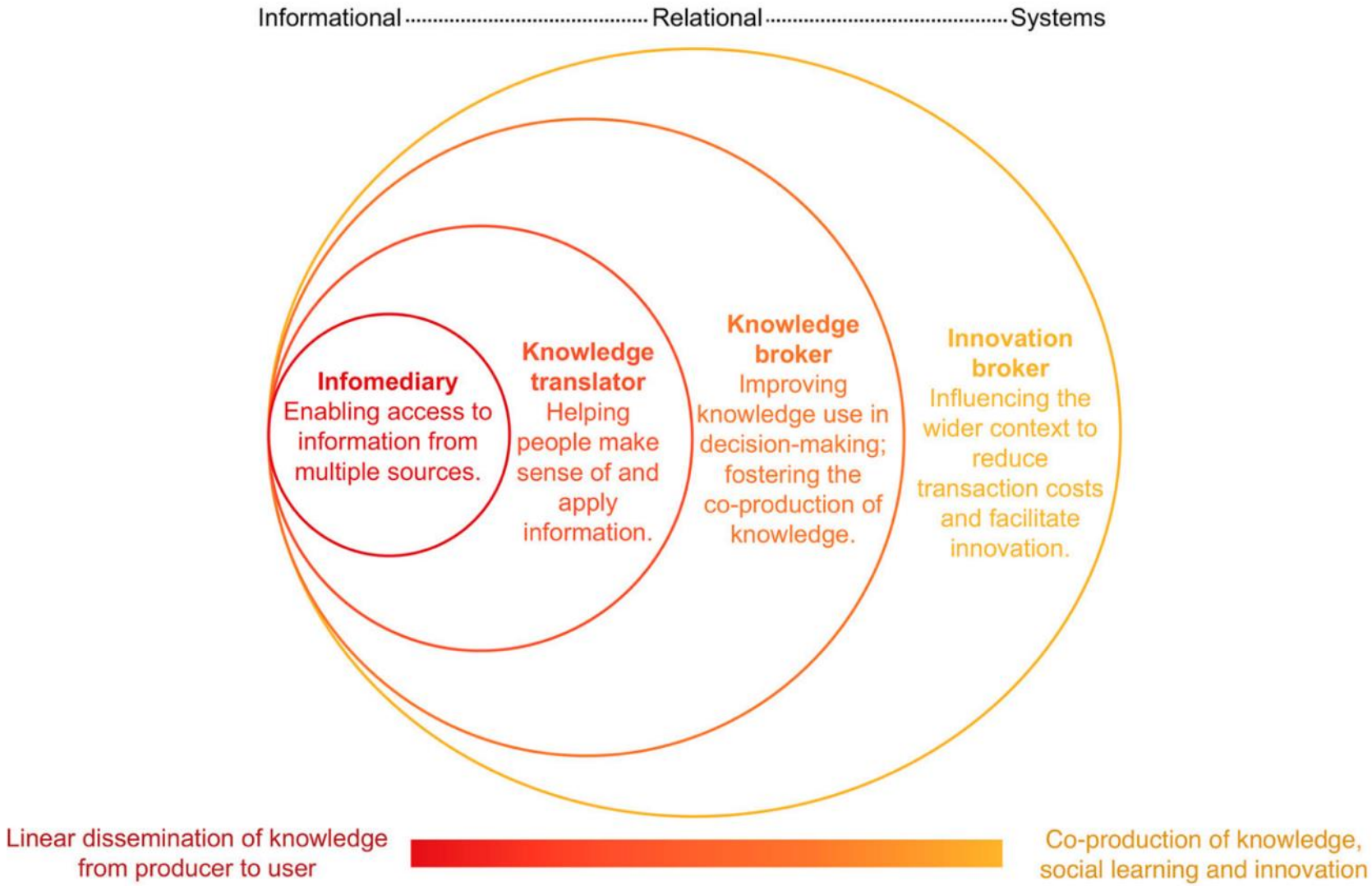
Climate Adaptation Knowledge Brokering in Rwanda

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

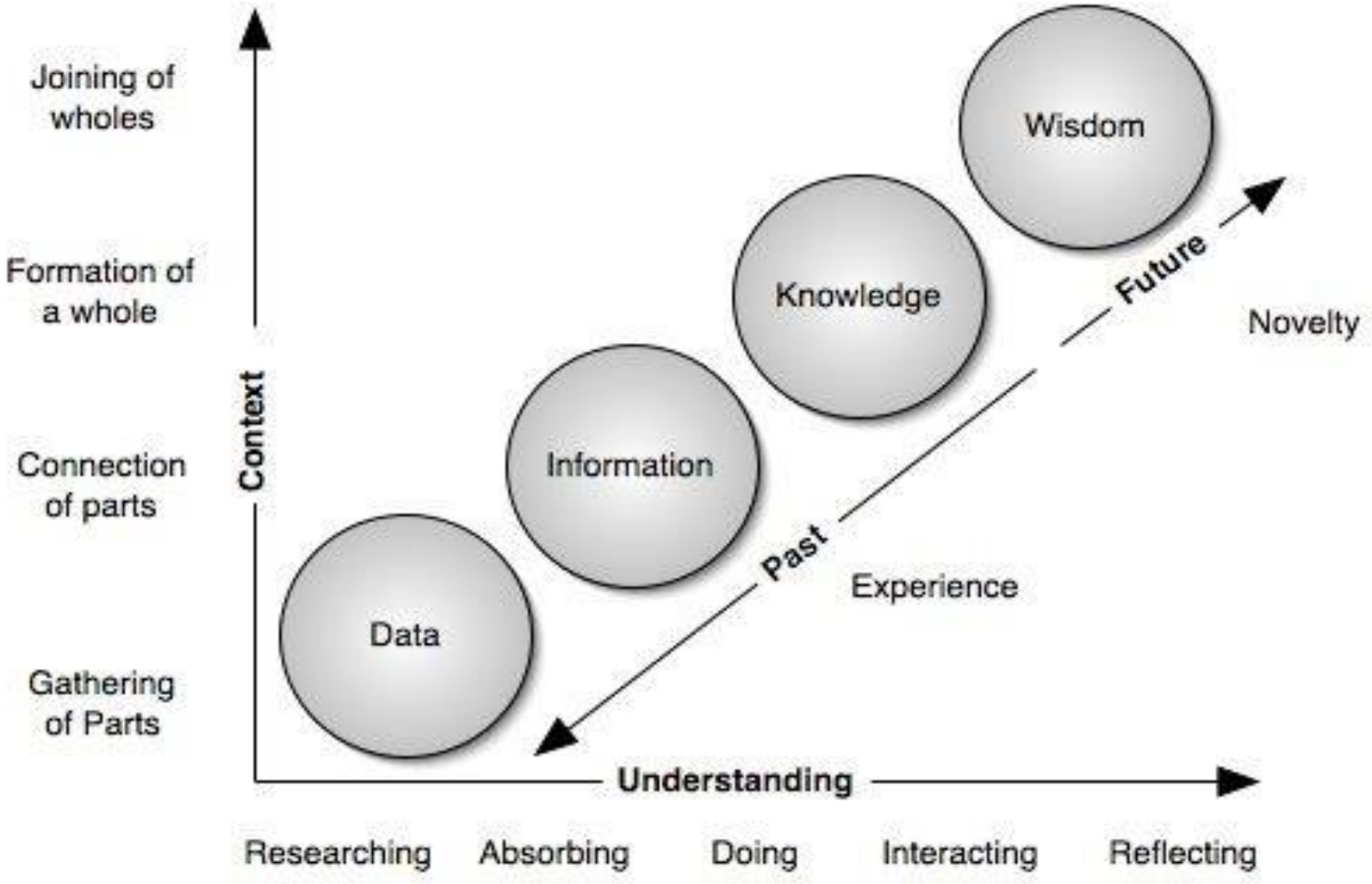


Existing linear model of CIS production in Ghana

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

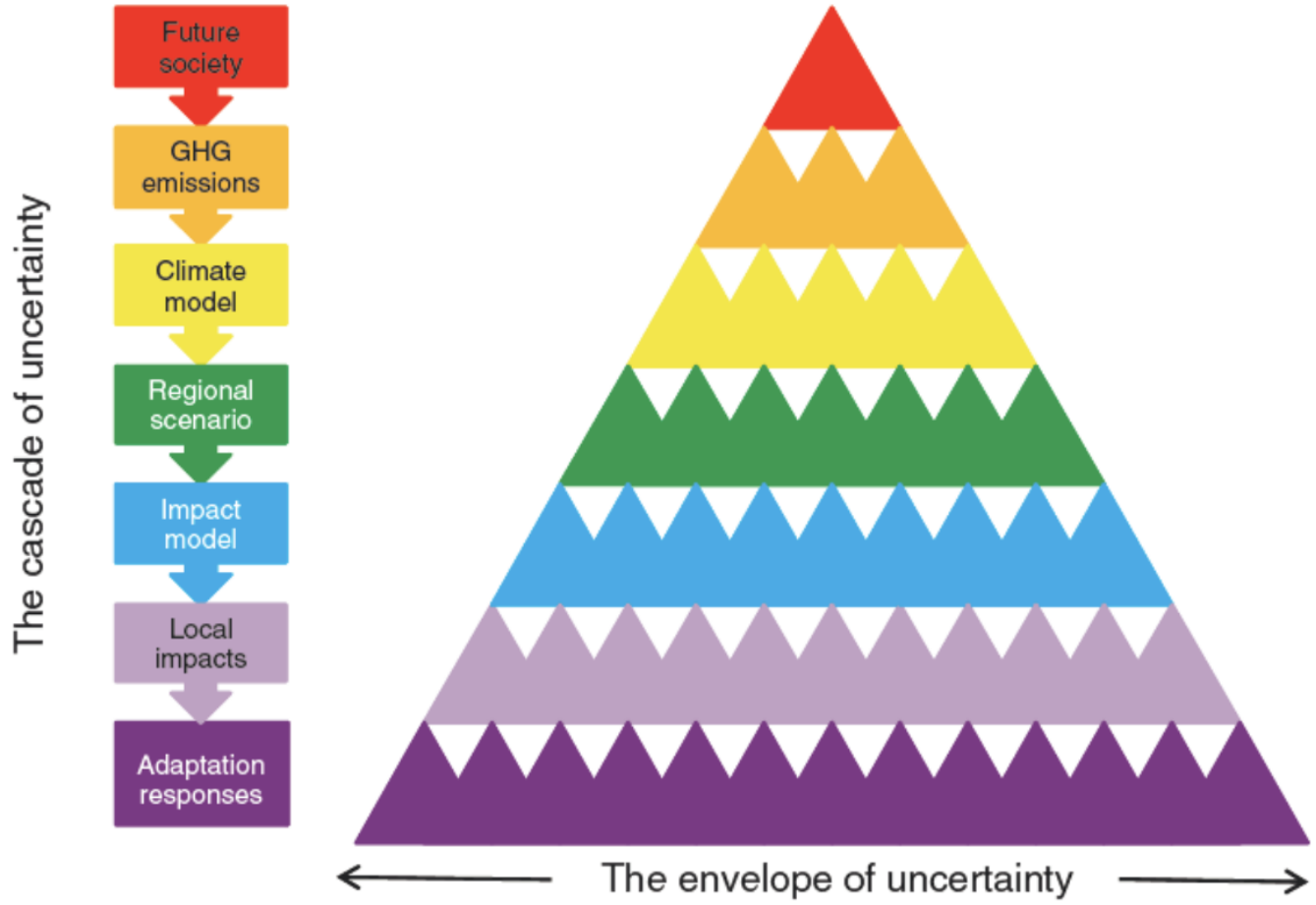
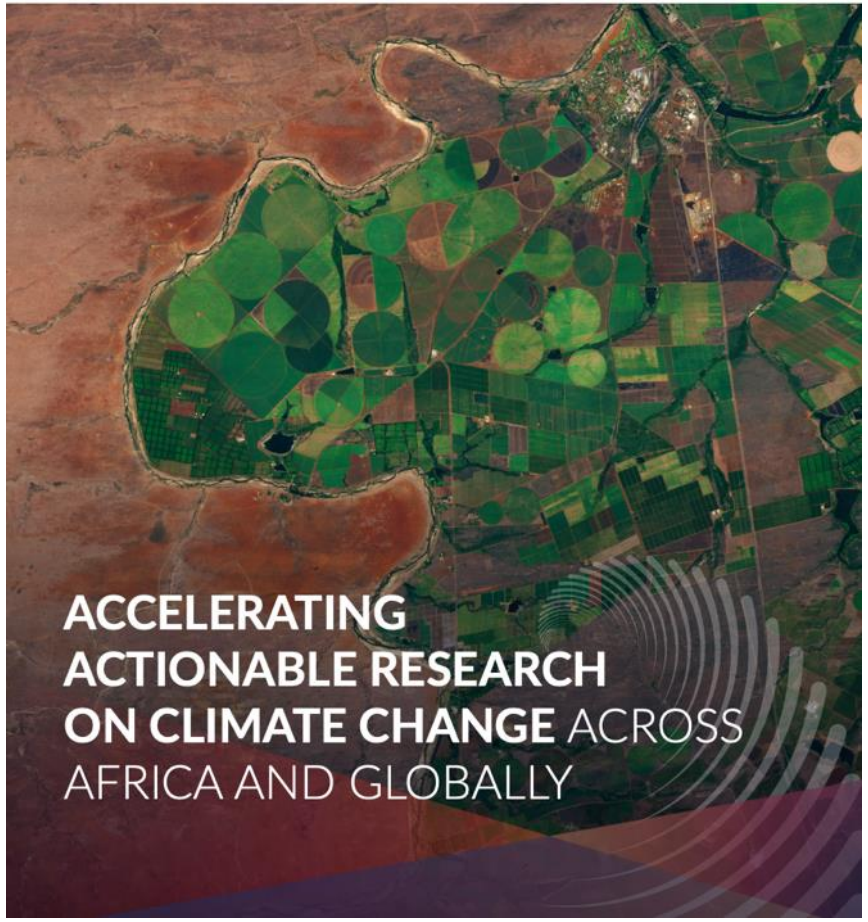


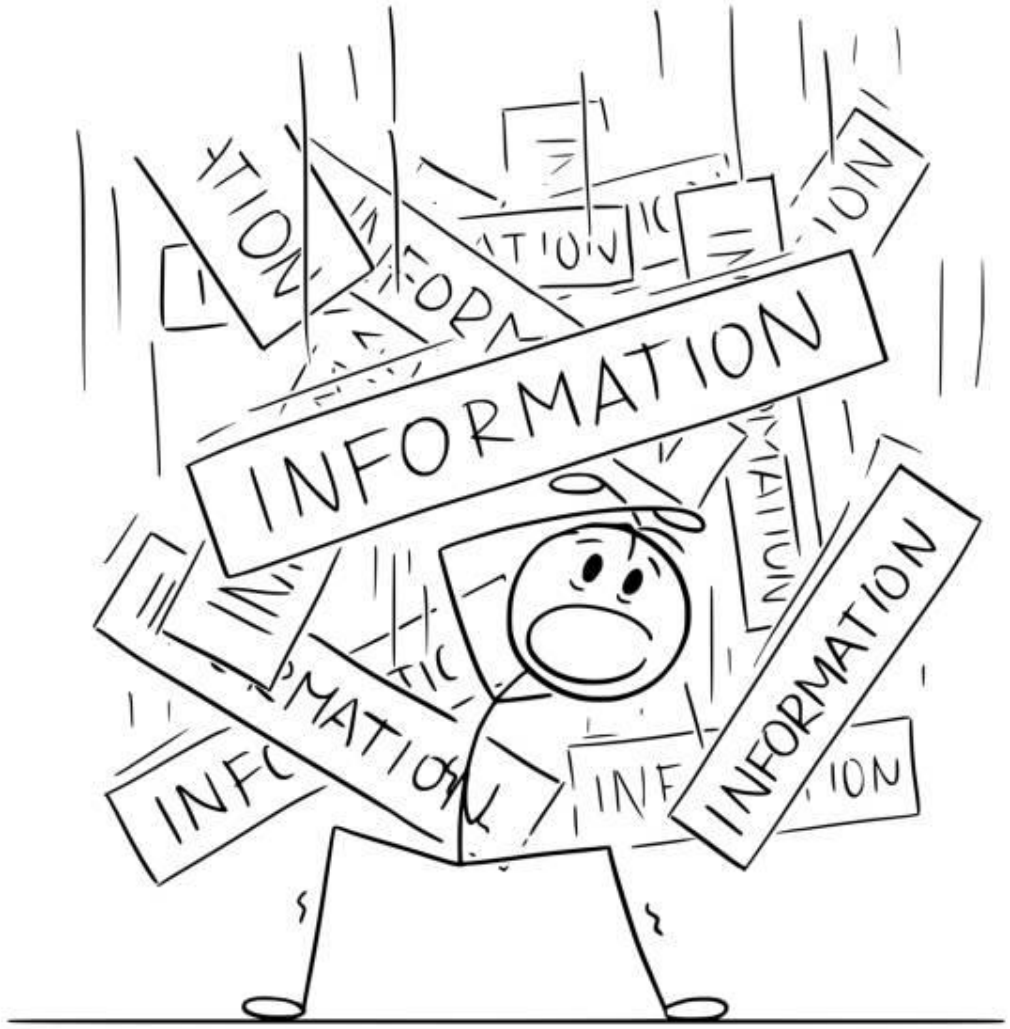
Figure 1: *The cascade of uncertainty from Wilby & Dessai (2010, Weather), illustrating the growth of the envelope of uncertainty from various sources going from future society to adaptation response.*

Selecting … climate information

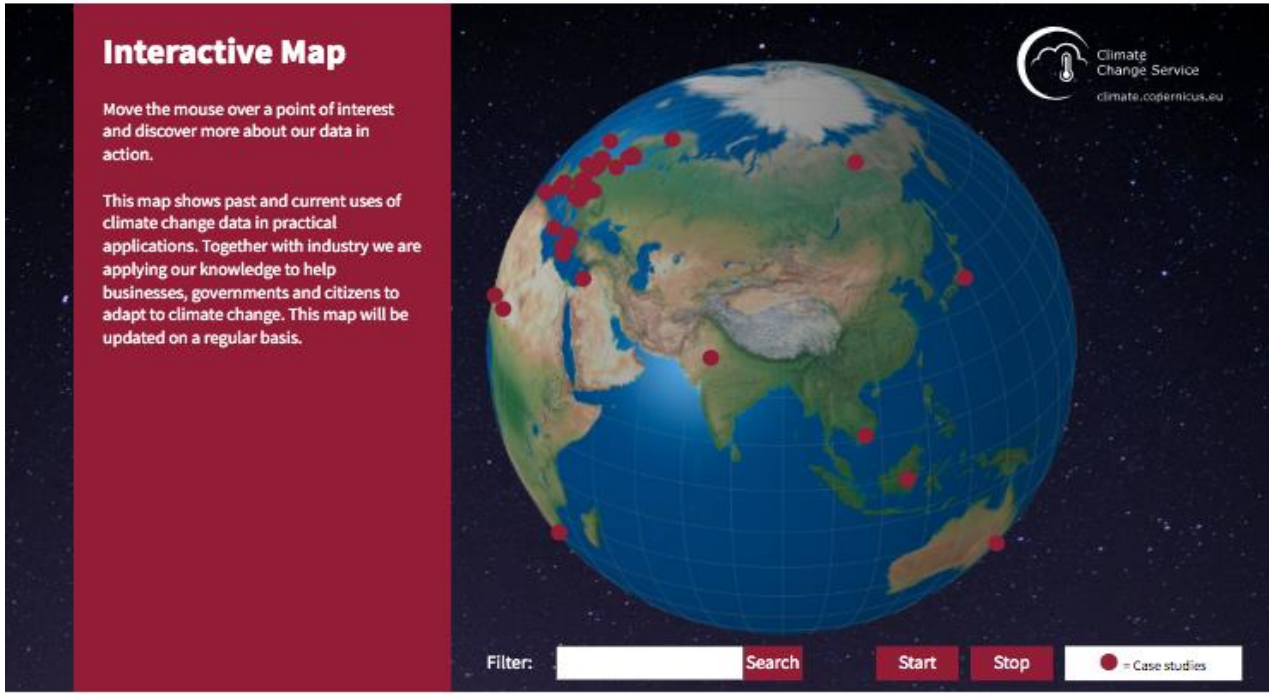
Synthesising … climate information

ASCEND
African Synthesis Centre for Climate Change, Environment and Development

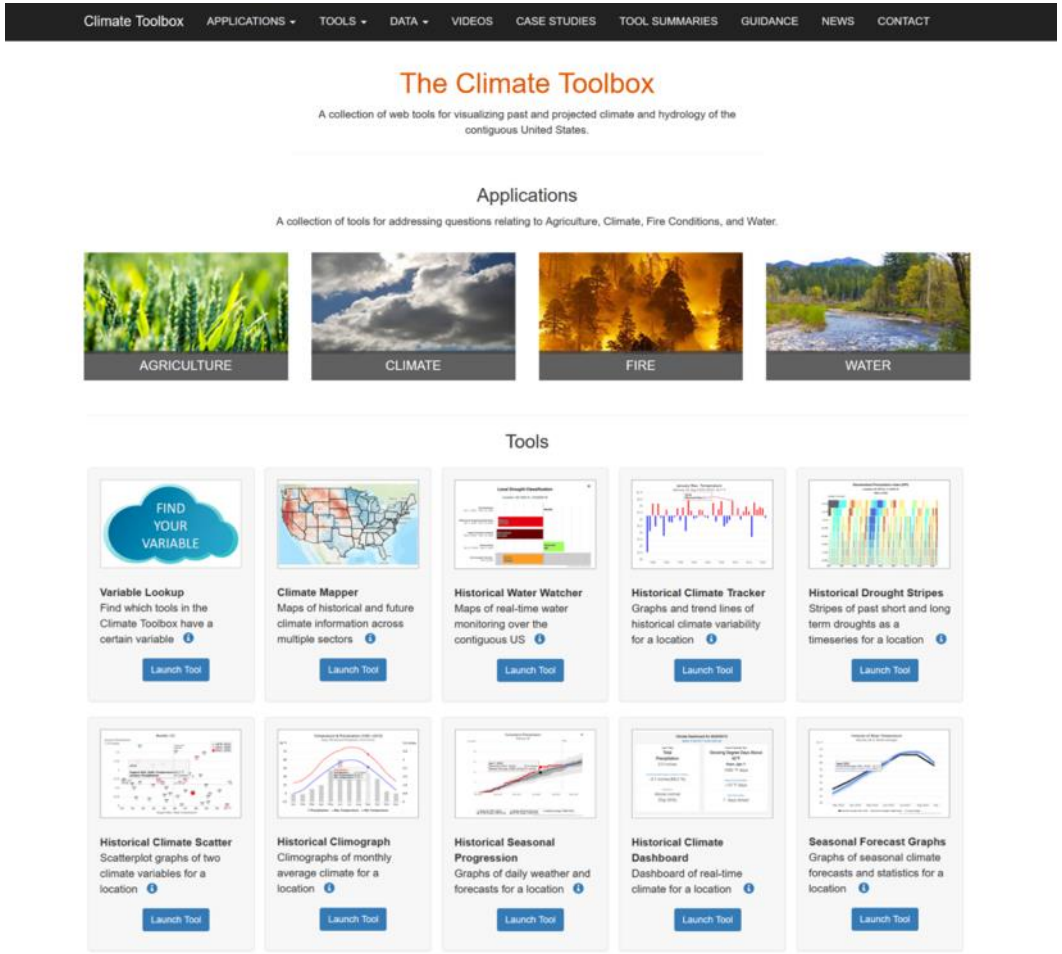




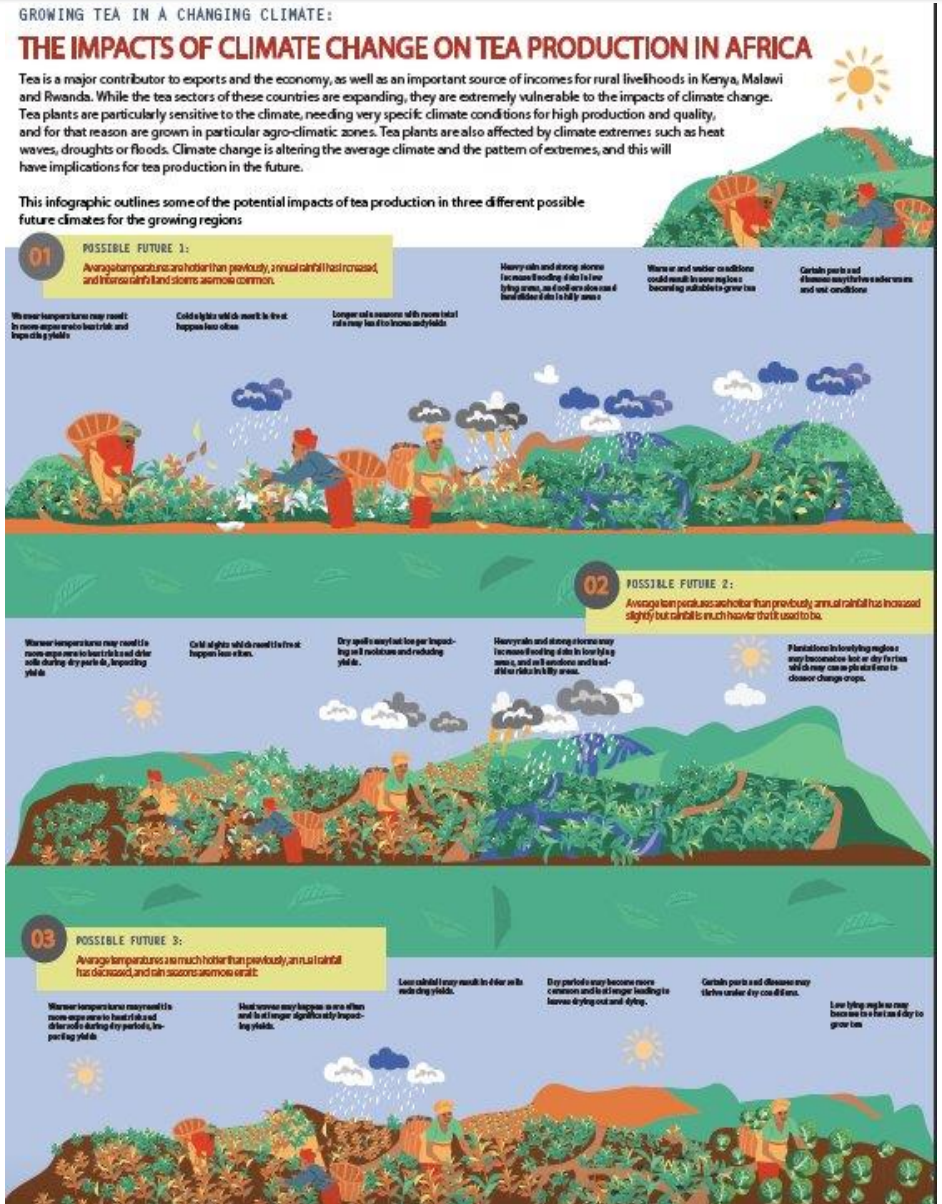
Filtering … climate information



Copernicus Climate Change Service (C3S) Case Studies



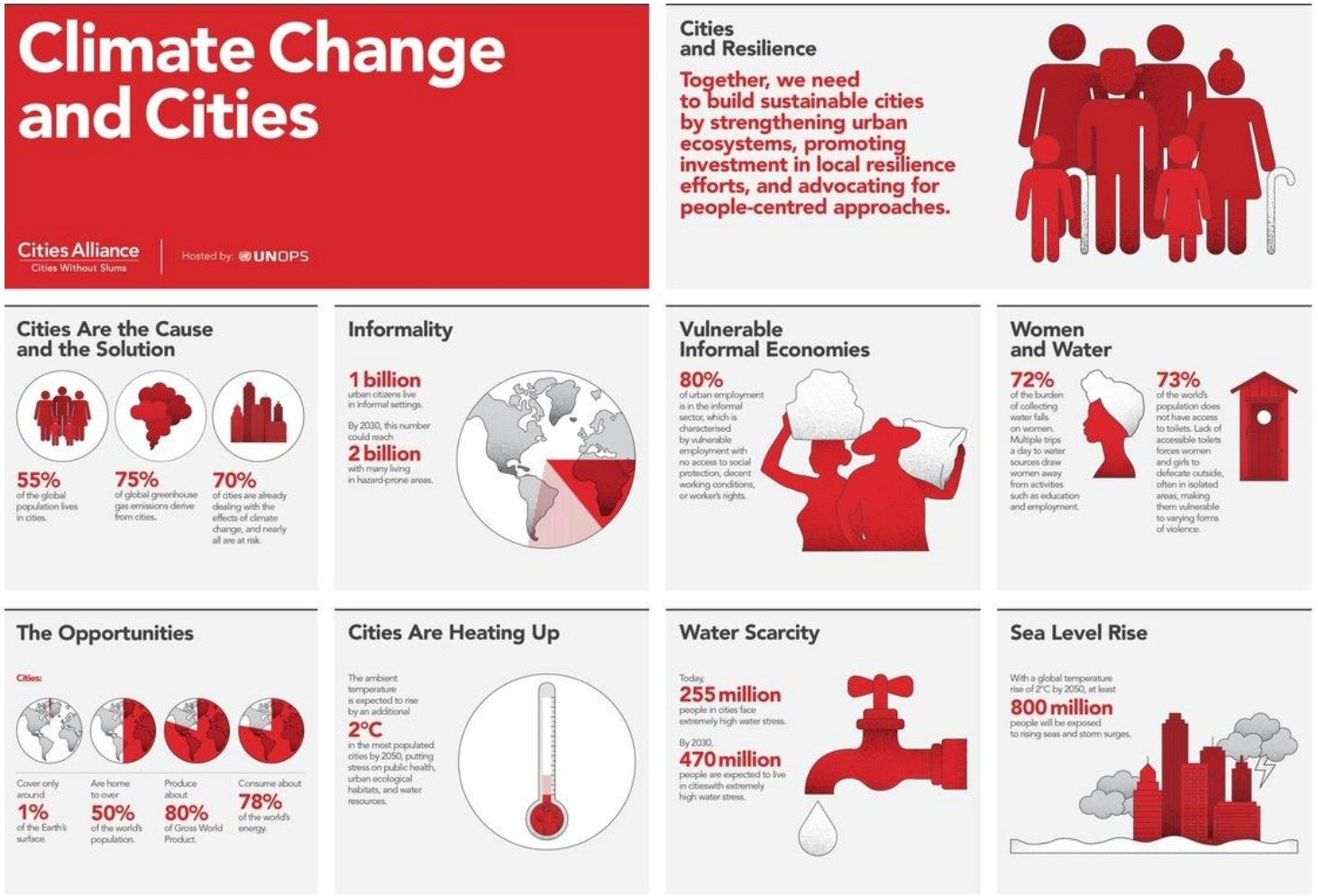
Visualising … climate information



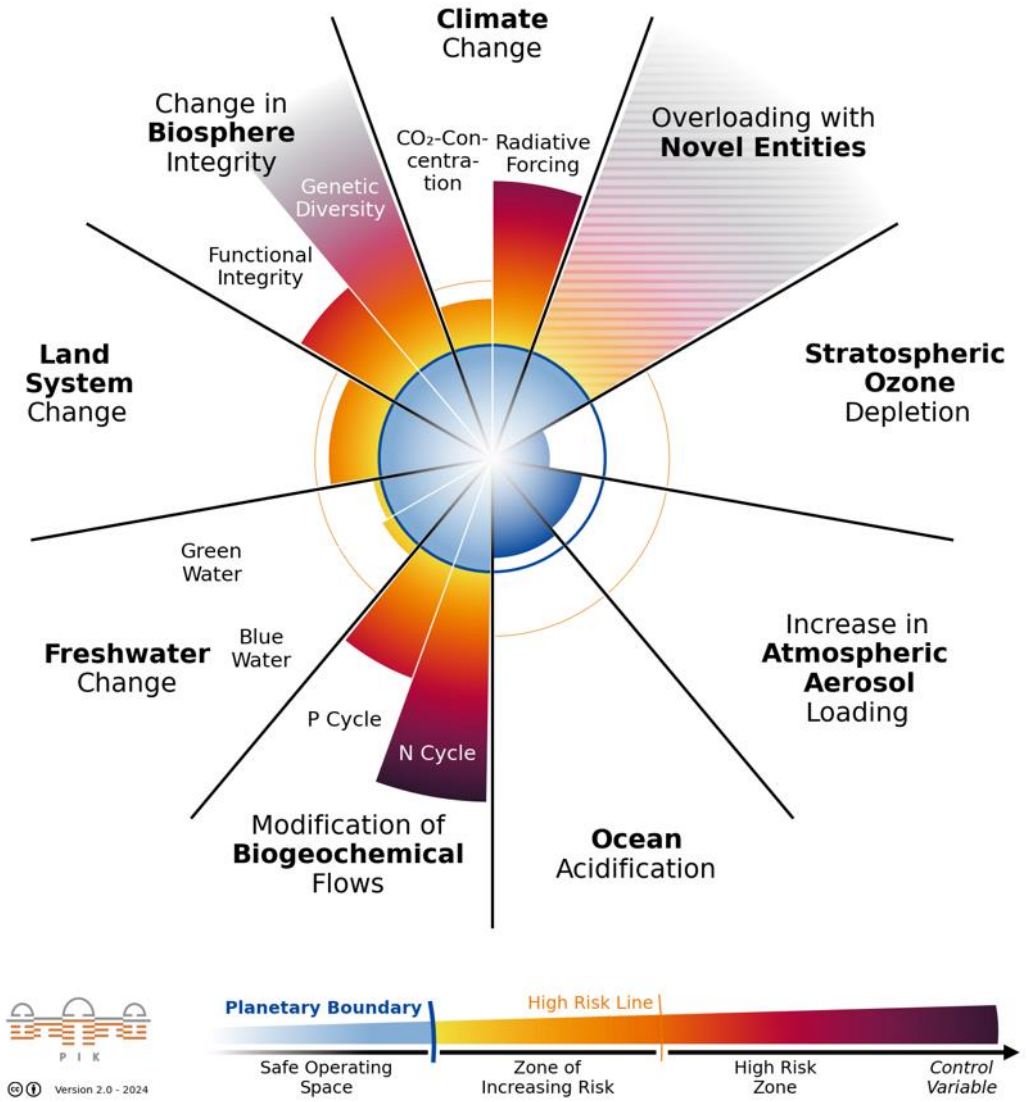
Infographic:

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

Simplify → annotate → visualise … climate information

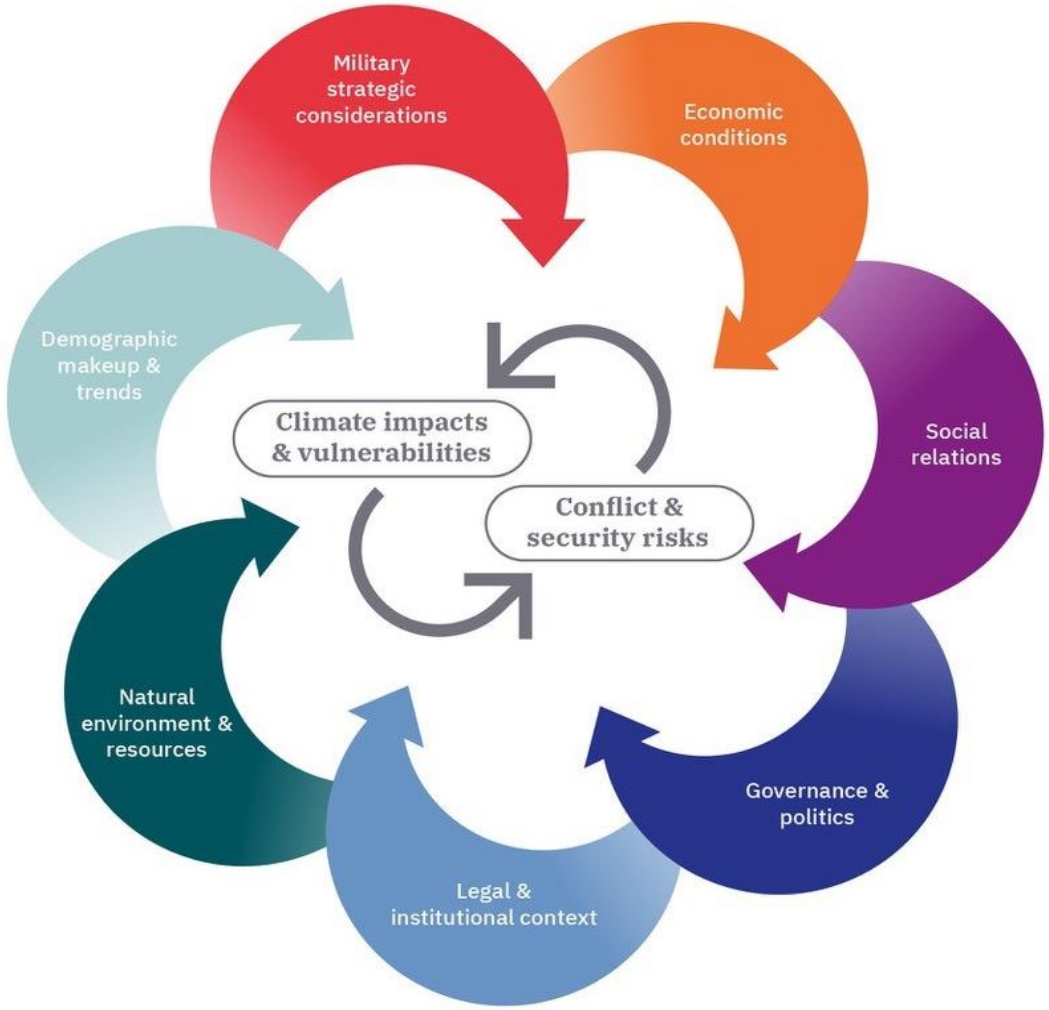


Simplify → annotate → visualise … climate information



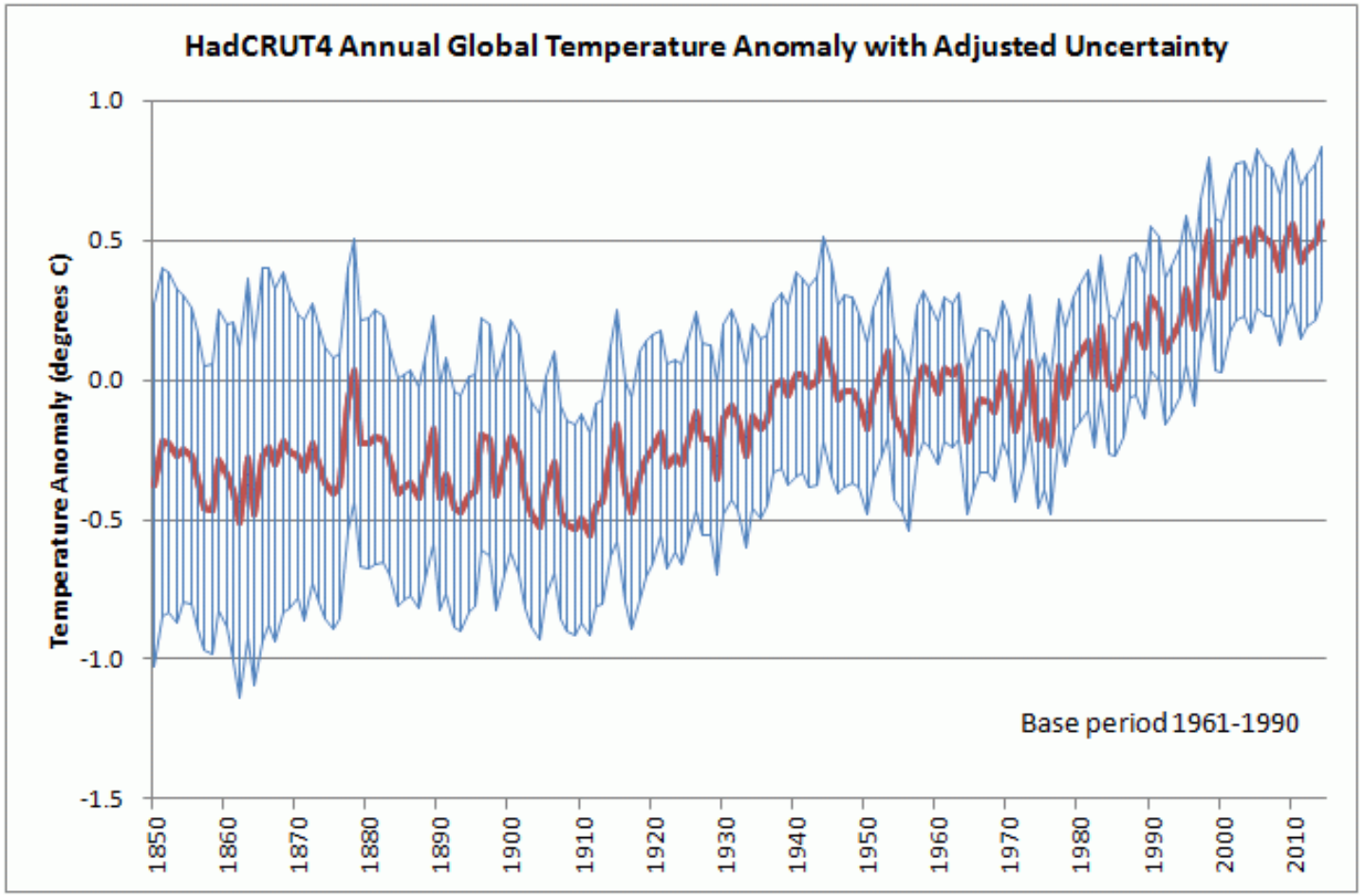
Colourblind-friendly visualization

Contextualizing … climate information



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

Communicating … climate information



uncertainty or confidence intervals

PlanAdapt
Creating a Climate for Change

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!

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Rugando Kimihurura
Kigali, Rwanda

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Building and sustaining climate adaptation capacity and competencies in Rwanda!

Please contact us at info@plan-adapt.org