



**Lessons
Learned from
Vulnerability
Assessments
for Ecosystem-
based
Adaptation for
terrestrial,
marine and
coastal regions:
The CI
experience**

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**CONSERVATION
INTERNATIONAL**





Overview

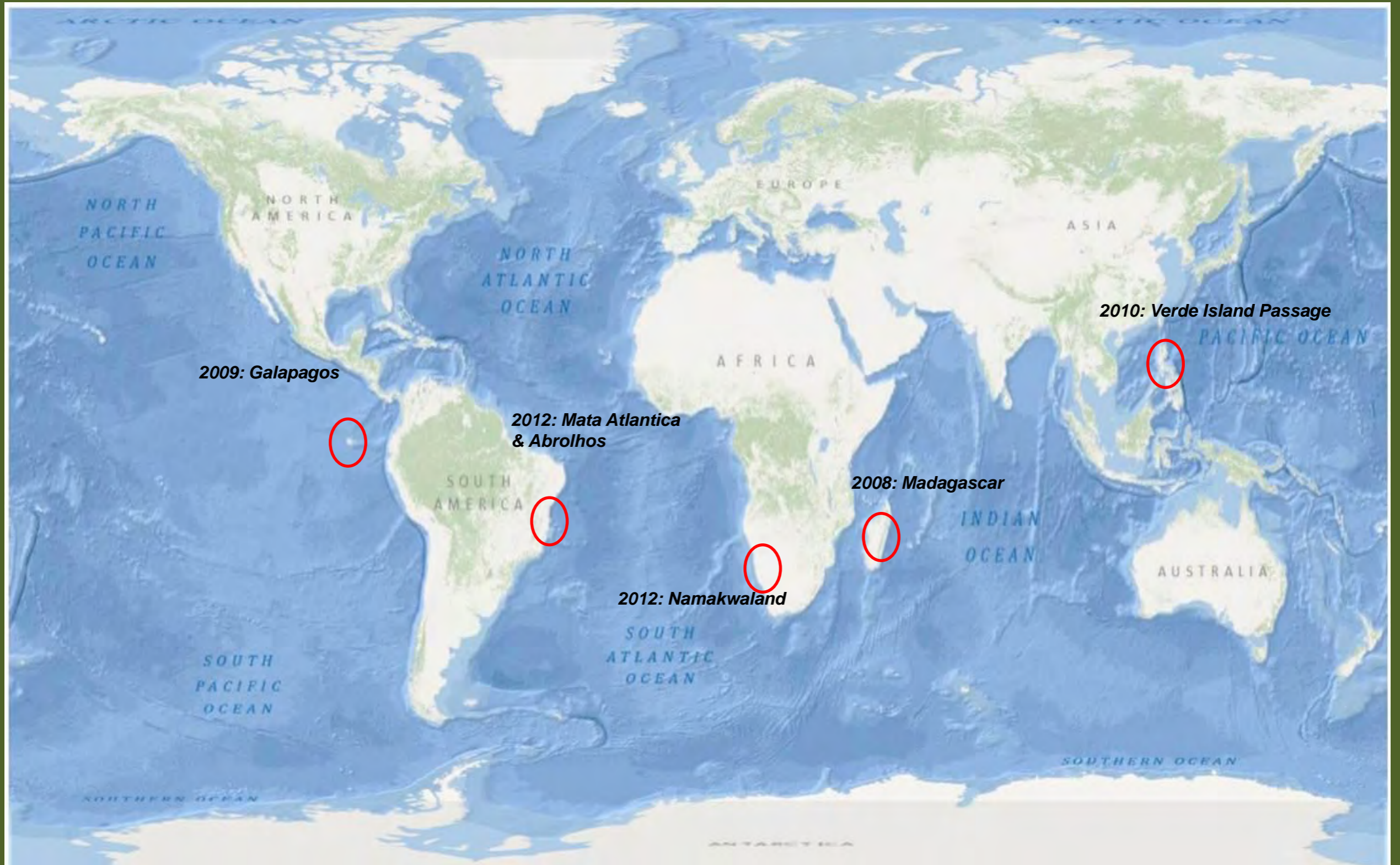
- CI Experience with EbA – the South Africa example
- VA Approach
- Lessons Learned
 - Scale & Uncertainty
 - Non-Climate Vulnerabilities

How we frame EbA

Adaptation refers to and addresses: Climate Change impacts. Adaptation through EbA, therefore will include:

- 1) Assessing and confronting the impacts of **climate change on ecosystems, biodiversity, and species** themselves – and how we can manage resources and ecosystems taking these impacts into account;
- 2) Assessing and confronting the impacts of climate change on **ecosystem services** that vulnerable communities rely on for their wellbeing, livelihood, and development;
 - Focus on water (wetlands, springs)
 - Erosion control
 - Grazing services
- 3) Assessing, considering, and prioritizing **ecosystem-based measures** to mitigate the negative impacts of climate change on these ecosystems and their services
 - Agroforestry
 - Wetland, mangrove restoration





2009: Galapagos

**2012: Mata Atlantica
& Abrolhos**

2012: Namakwaland

2008: Madagascar

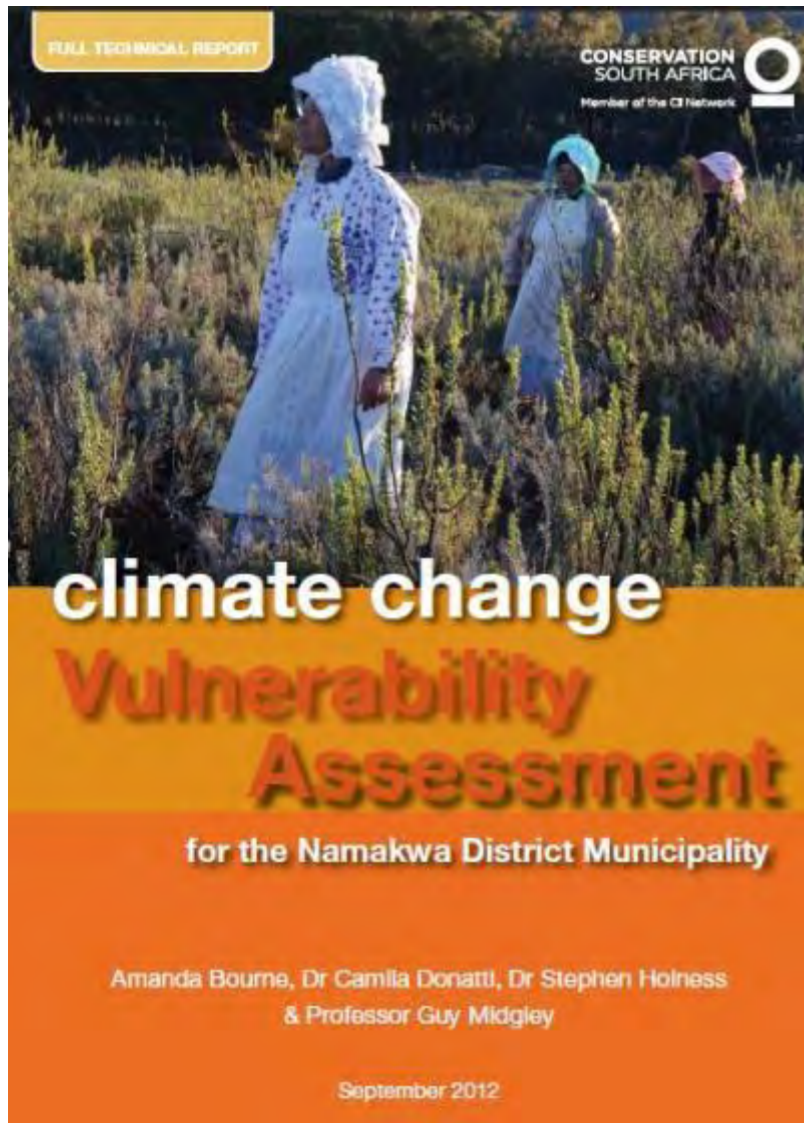
2010: Verde Island Passage



CI's EbA Pilots

- 3 country climate change adaptation study in SA, Brazil, and the Philippines
- Aim: to test the effectiveness and cost-effectiveness of EbA as an adaptation strategy
- Outcomes:
 1. Complete a Climate Change Vulnerability Assessment
 2. Design and implement EbA research trials and pilot projects in two sites per country
 3. Test the effectiveness and cost-effectiveness of the EbA methods for delivering CC adaptation
 4. Amplify results into local and national policy, planning, and resource allocation
 5. Use lessons to inform international policy

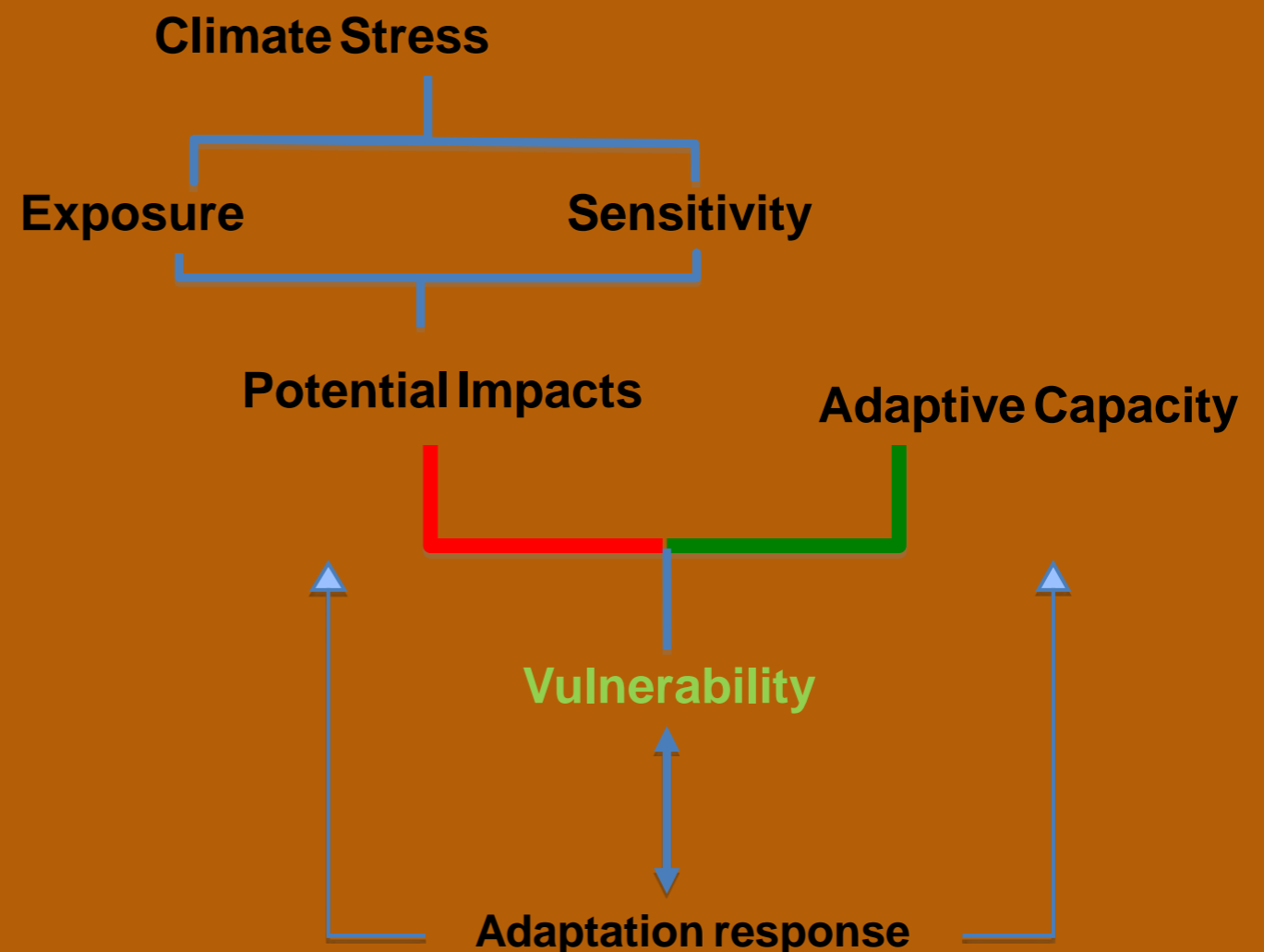
An integrated programme



Vulnerability Assessment

Aim:

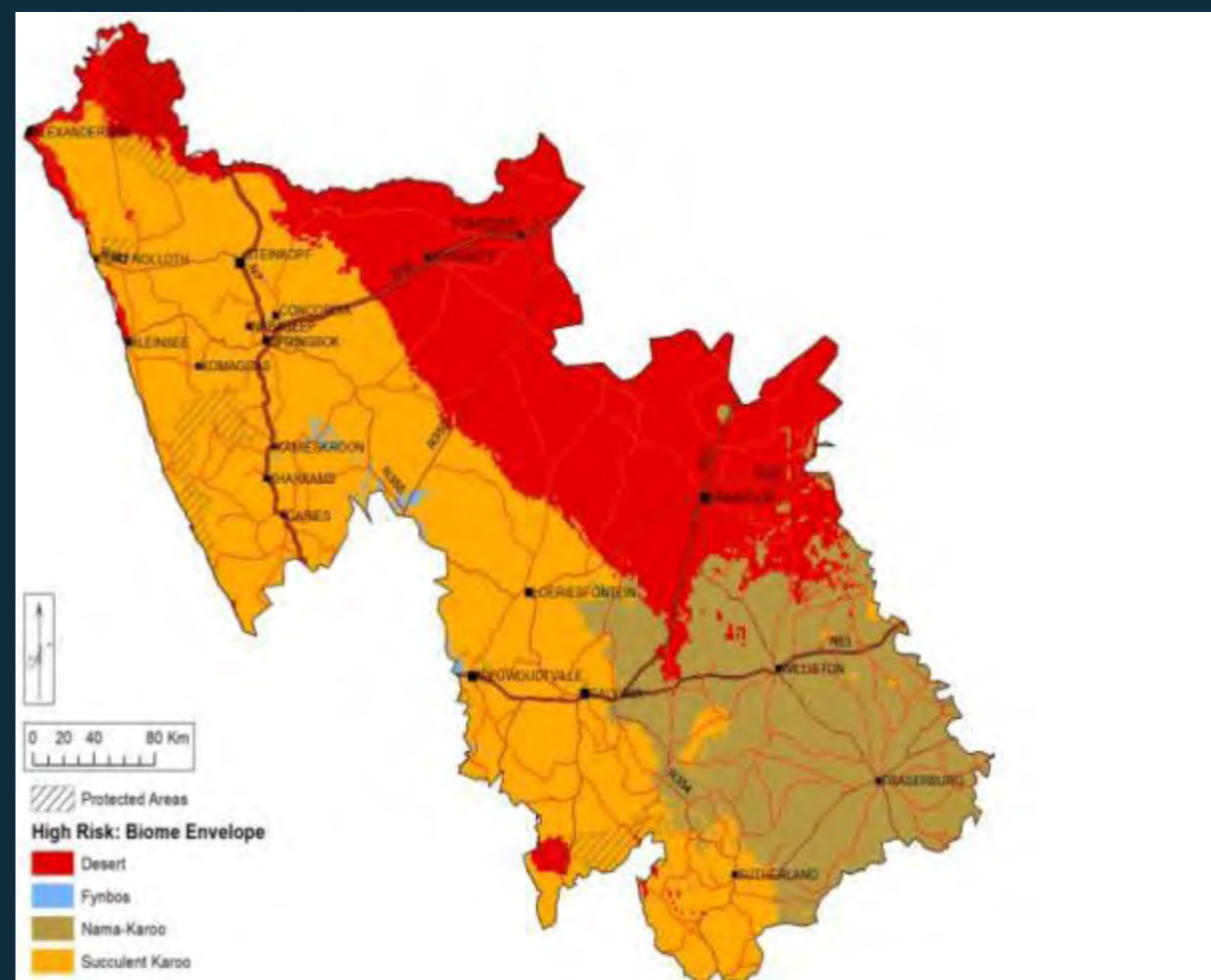
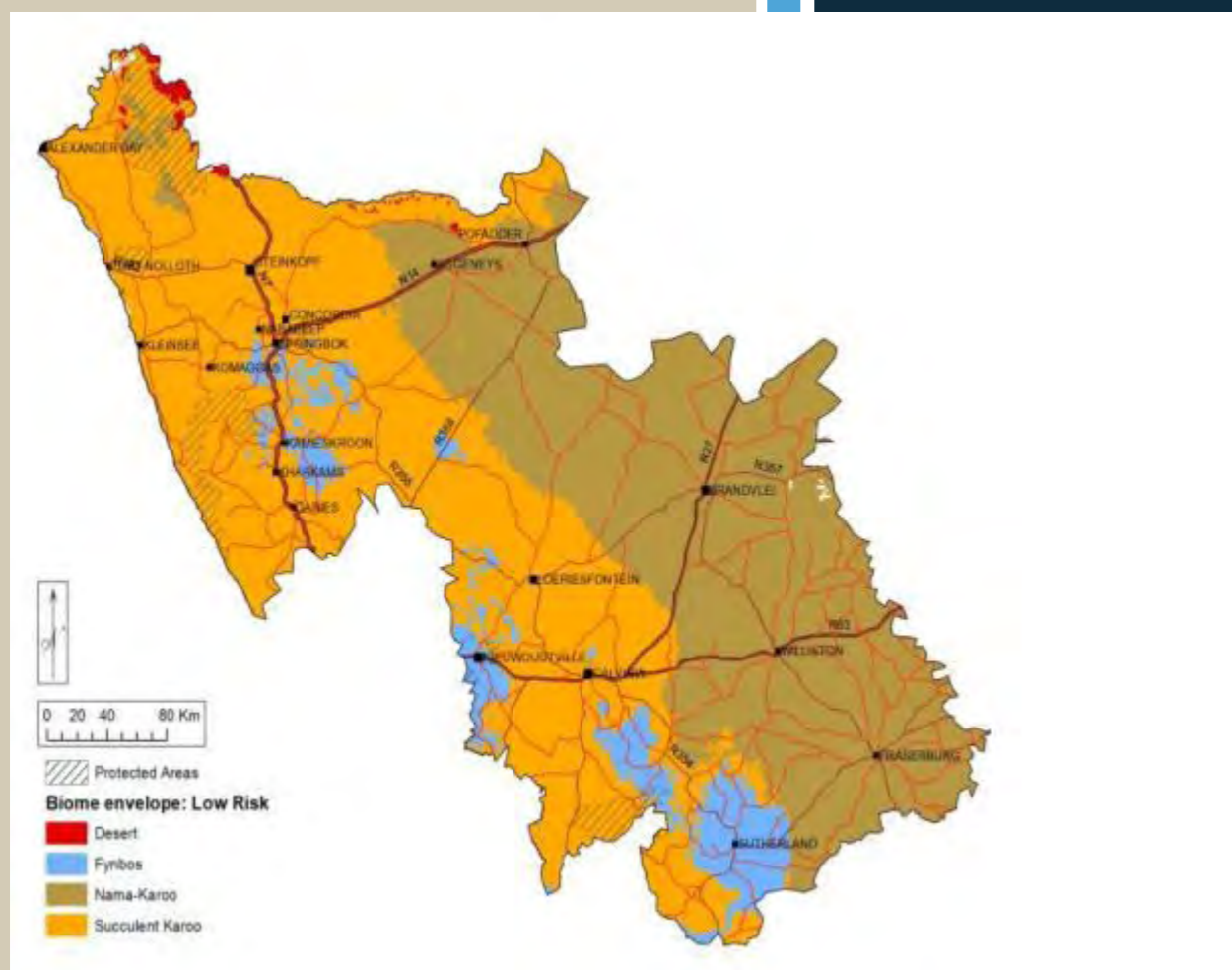
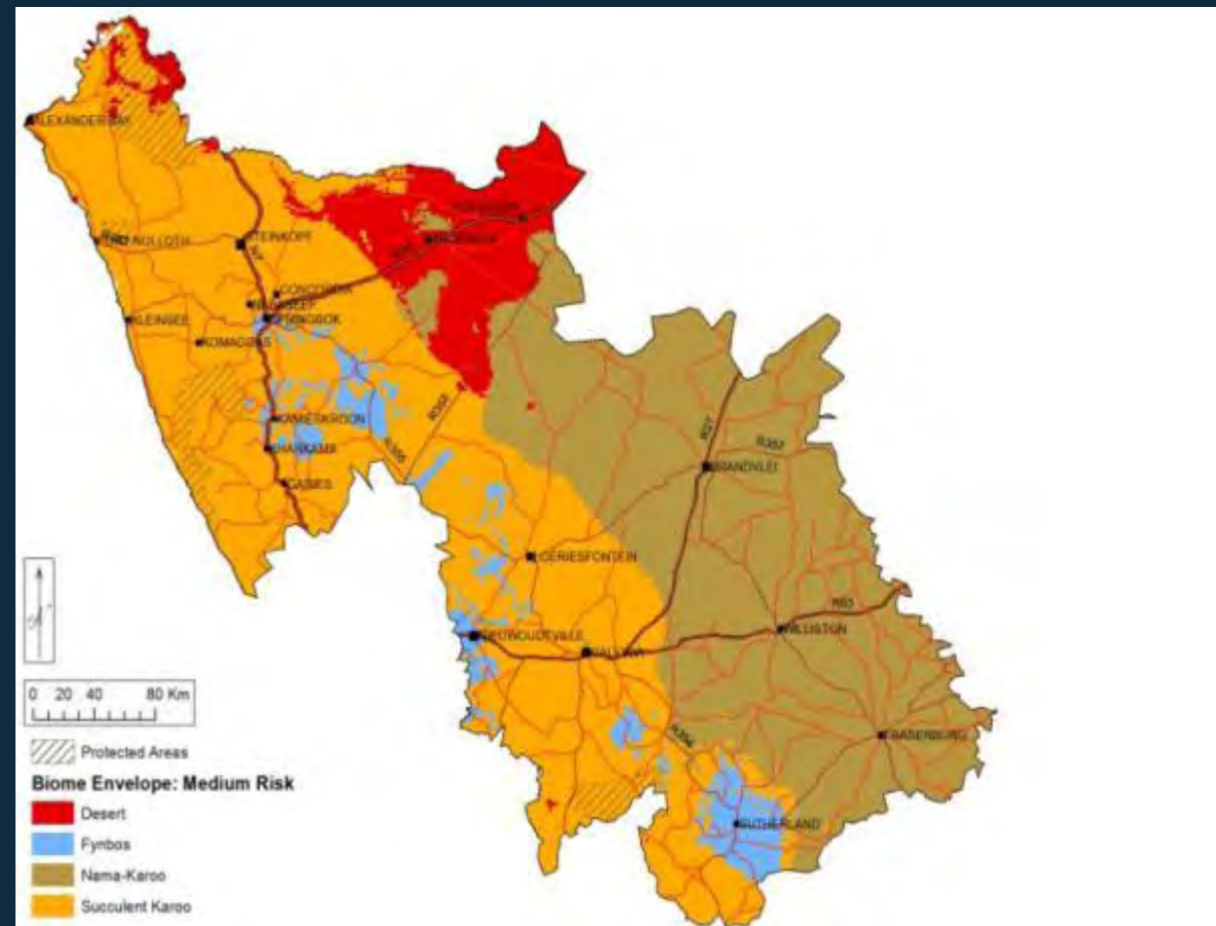
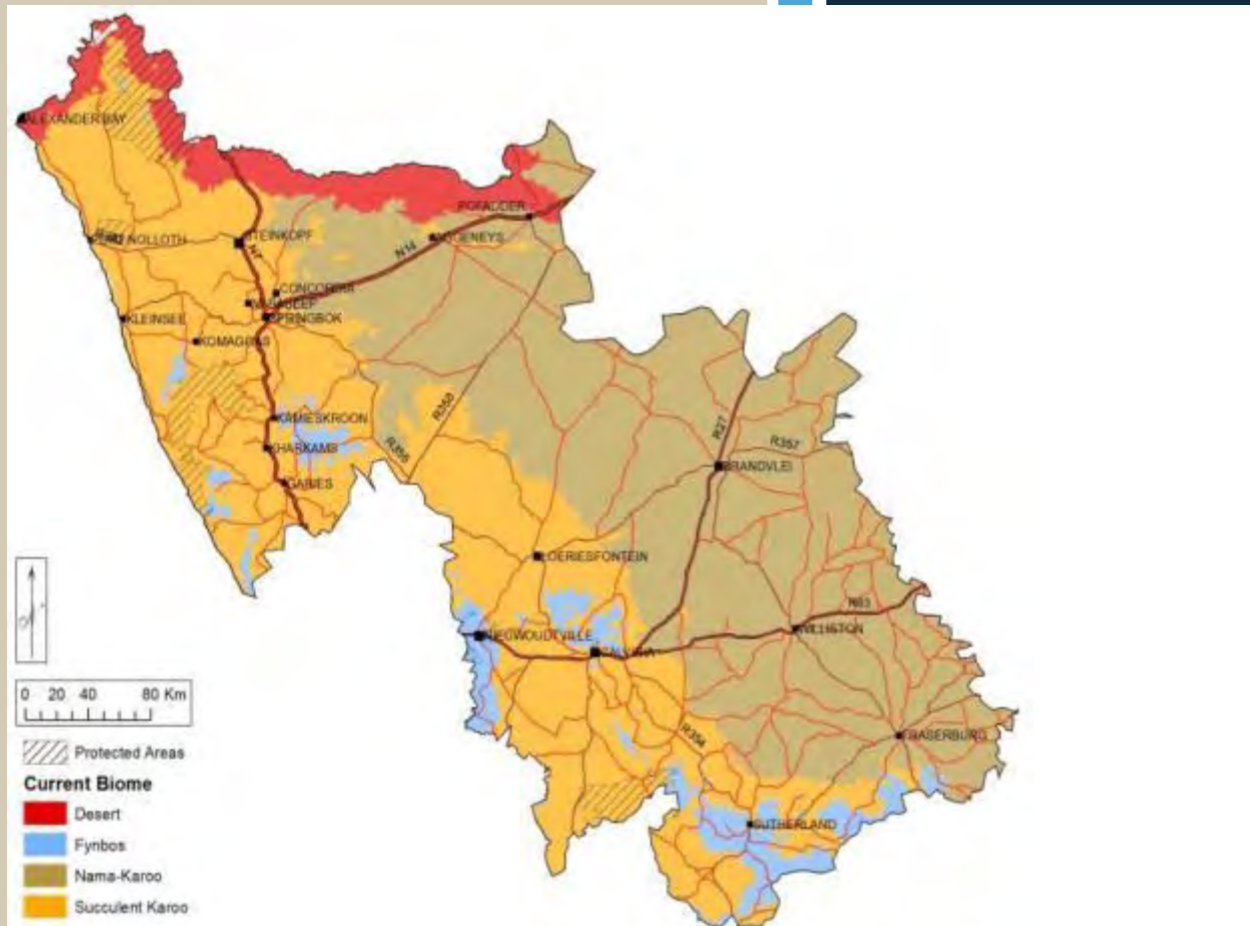
- 1) Determine level of threat from climate change and prioritise sites and actions for most effective EbA response by using available research and resources
- 2) To produce a useful summary document and set of communications materials that we and our partners can use as a planning tool



VA Approach

- Vulnerability already exists and will be exacerbated by climate change
- Scientifically sound assessment of climate change impacts as context
- Focus on known current socio-economic , institutional and ecosystem vulnerability
- Integrate these with climate scenarios so that the climate science shows future impacts and is useful for policy makers and decision-making
- Assess vulnerability for ecological, institutional, socio-economic and overall climate change
- Integrate all information to prioritize EbA areas
- Recommendations focus on increasing systemic resilience and ecosystem services maintained and restored
- Demonstration projects focus on building resilience through livelihoods diversification and restoration and land management activities.





Ecological Vulnerability

Parameter	Indicator	Value
Exposure		5
	Changes in Rainfall	5
	Changes in Temperature	5
Sensitivity		3.25
	Endemism	4
	Succulent Karoo Biome	2
	Nama Karoo Biome	3
	Fynbos Biome	4
Adaptive Capacity		3.3
	Succulent Karoo Biome	3
	Nama Karoo Biome	3
	Fynbos Biome	3
Vulnerability Index		3.85

Institutional Vulnerability

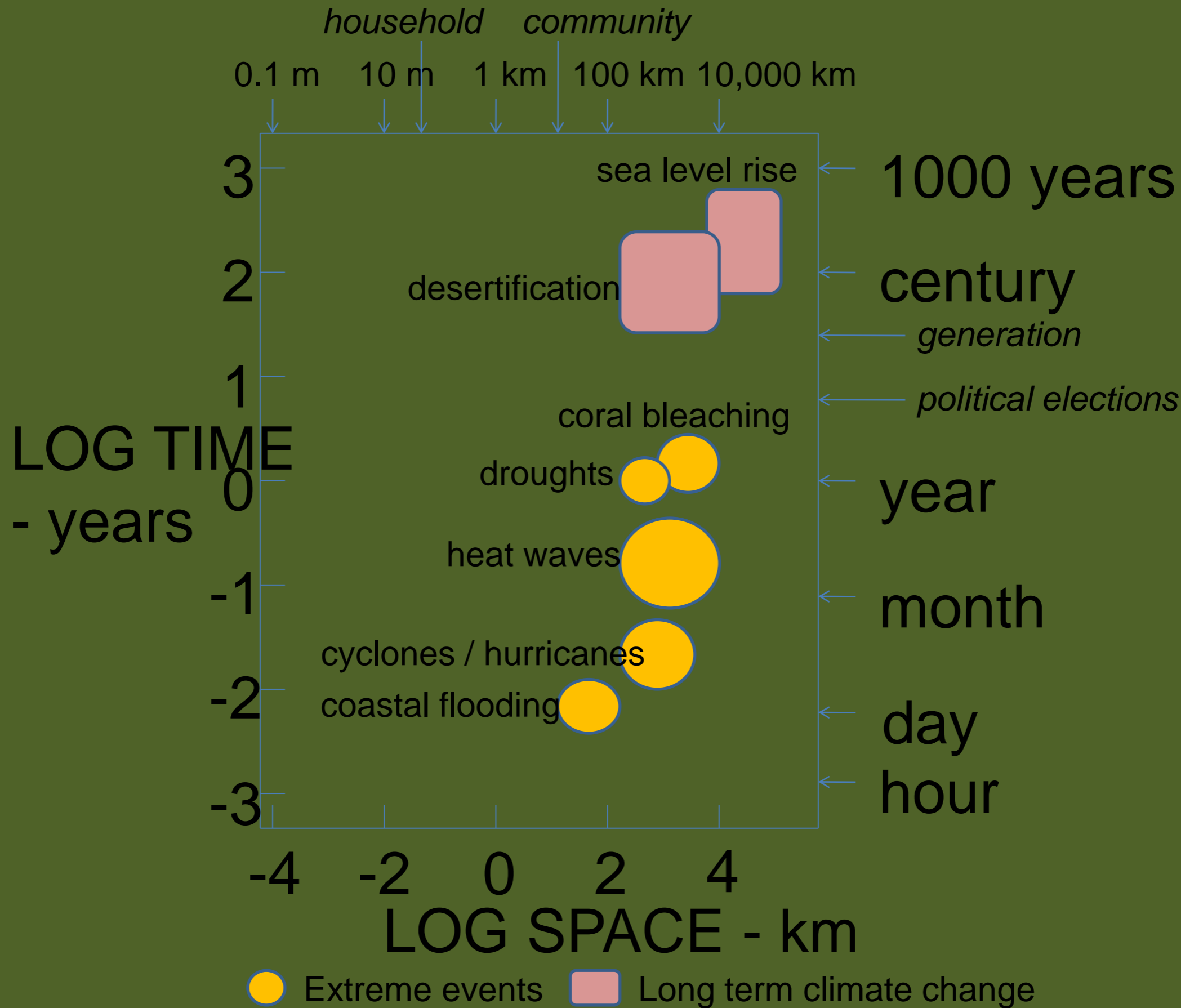
Indicator	Value
Climate change related programmes and stakeholder participation <ul style="list-style-type: none"> Community and stakeholder organisations Participation in decision making 	2
Enabling legislation to support climate change adaptation <ul style="list-style-type: none"> Management body Formal and informal networks supporting climate change adaptation Management plans and frameworks Enabling legislation Resource allocations Implementation and compliance 	3
Governance and leadership <ul style="list-style-type: none"> Effective community level leadership and organisation Community based climate change response Capacity for implementation Climate Change leadership in government Climate change leadership in local institutions 	4
Vulnerability Index	3

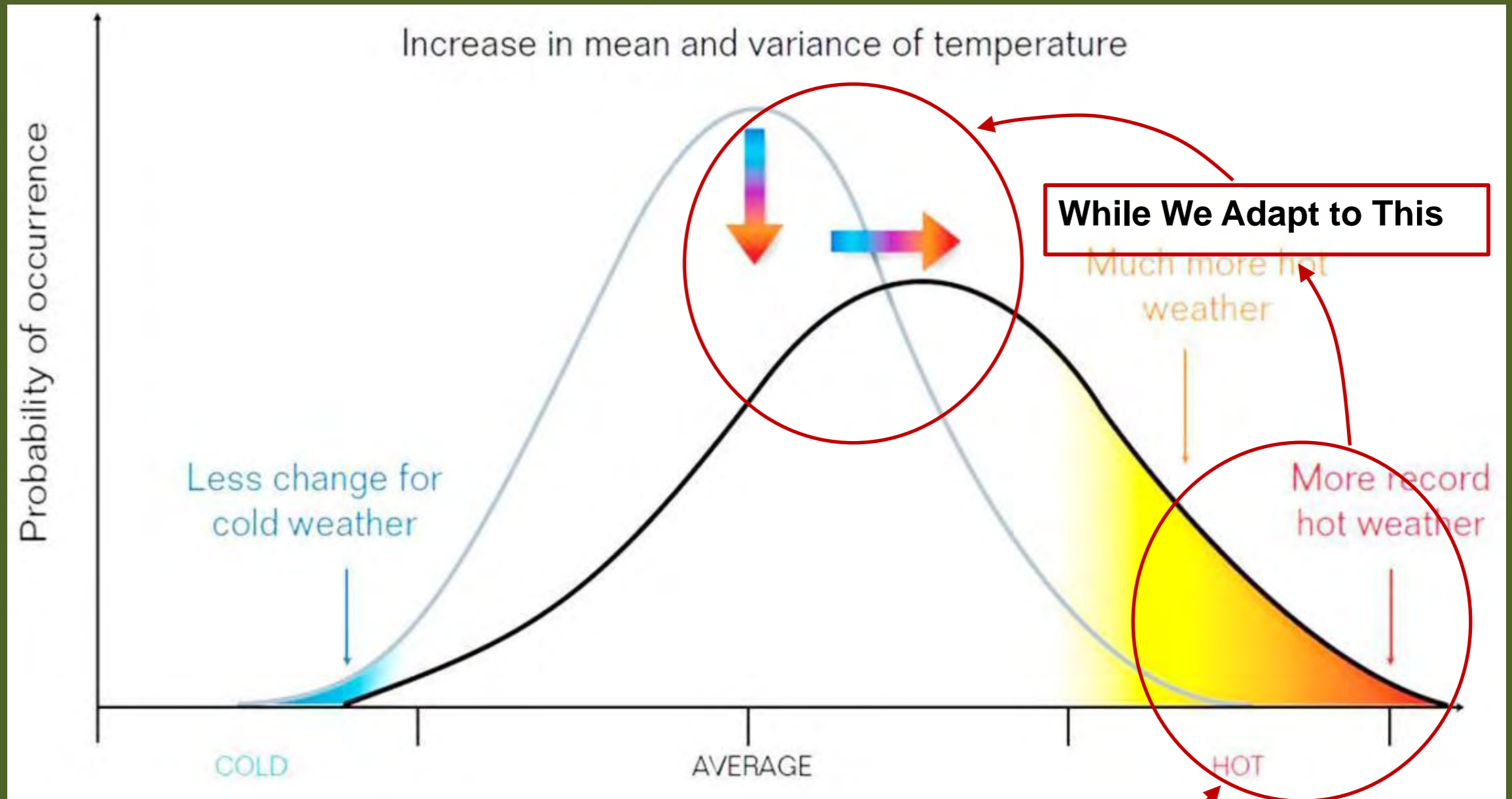
Socio- Economic Vulnerability

Parameter	Indicator	Value
Exposure		3.6
	Population Density	3
	Water Utilisation	4
	Ecological Vulnerability	3.85
Sensitivity		3.6
	Access to Services	3.3
	Dependence on Natural Resources	4.5
	Perception of threat	3
Adaptive Capacity		4.3
	Livelihood Diversity	4
	Income	5
	Education	4
Vulnerability Index		3.8

Overall Climate Change Vulnerability = 3.5 Medium-high

Ecological Vulnerability	3.85
Socio-economic Vulnerability	3.8
Institutional Vulnerability	3
Overall Vulnerability Index	3.5

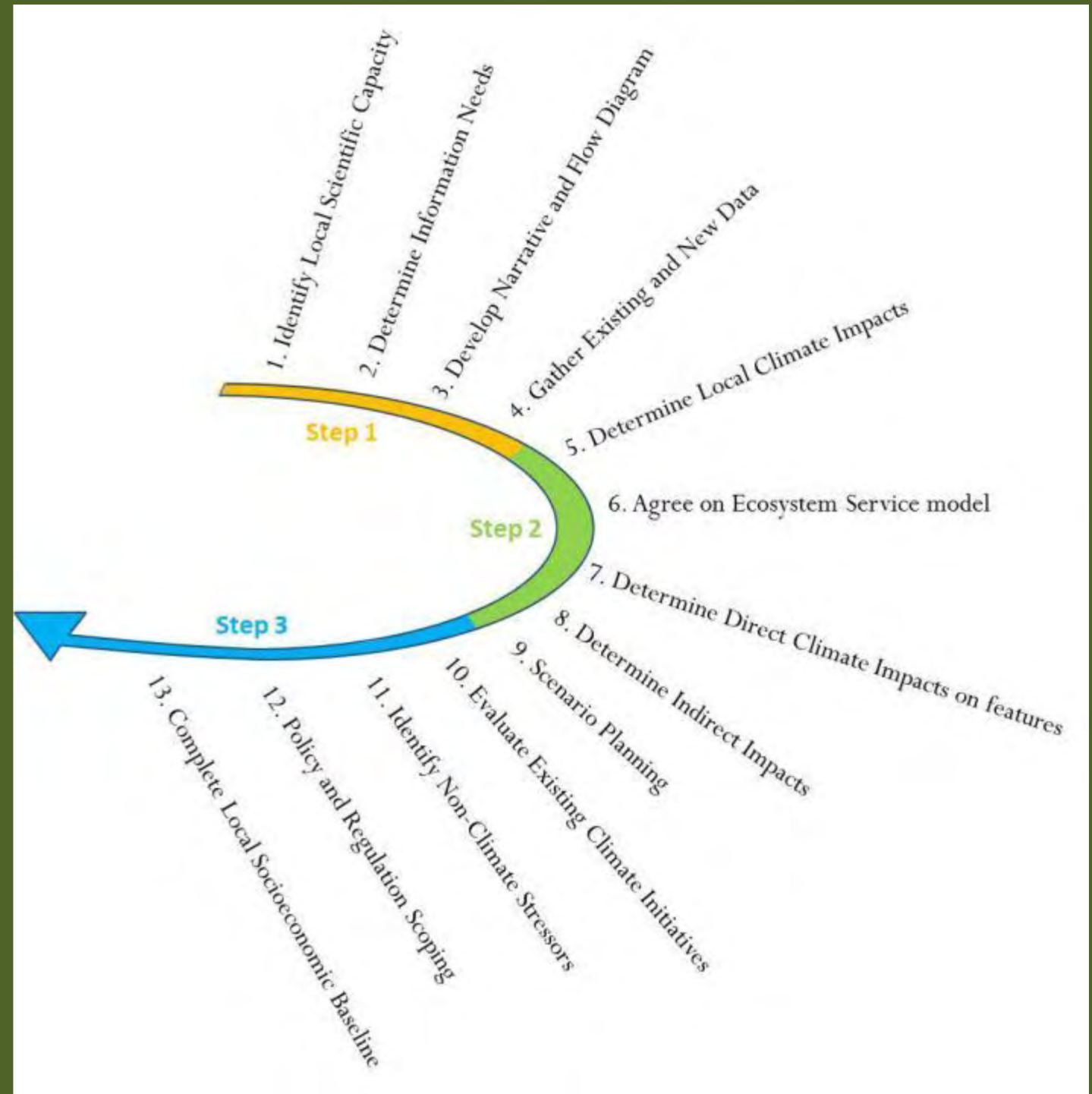




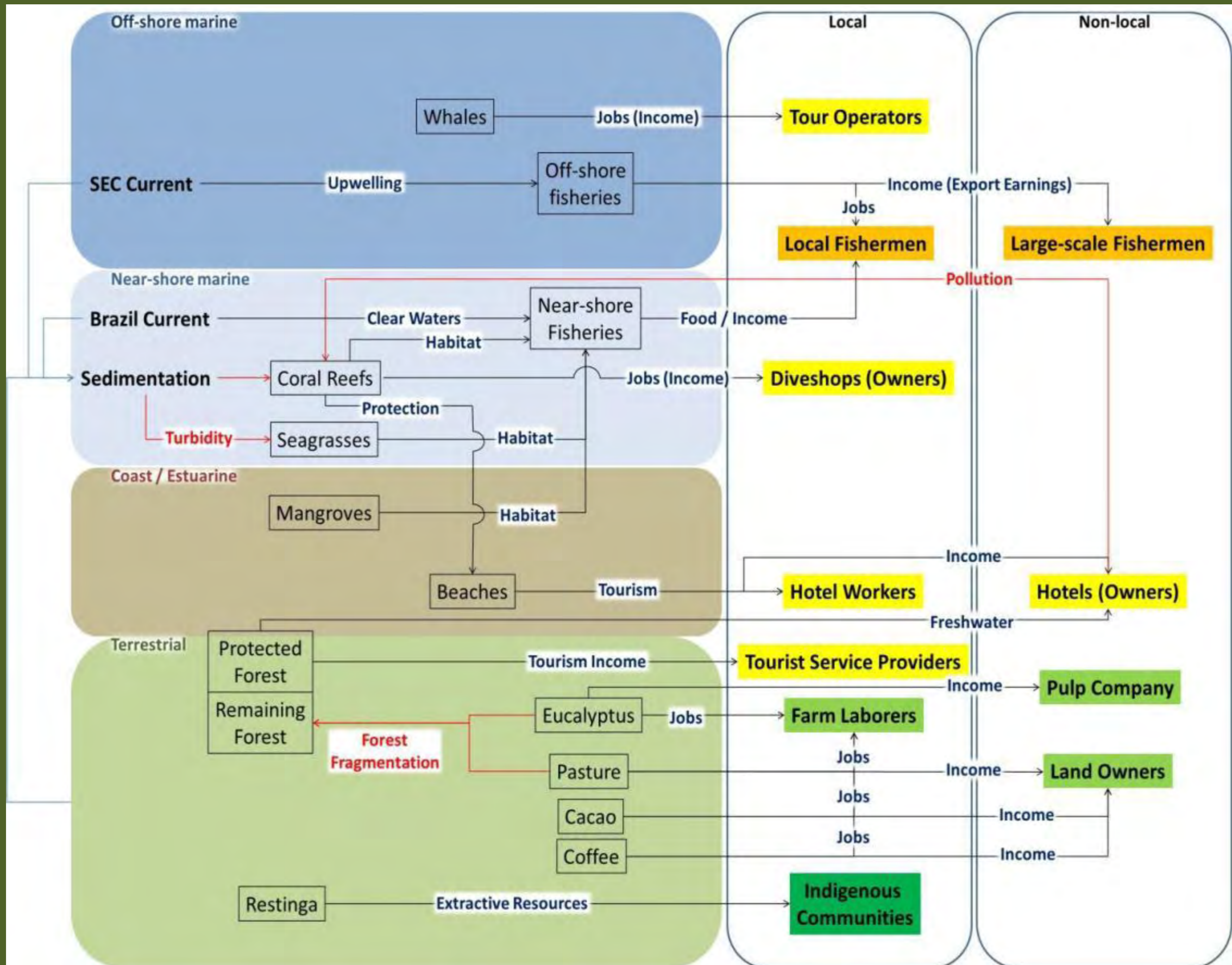
STEP I: Large-Scale
Background Assessment

STEP II: Develop
Vulnerability Scenarios

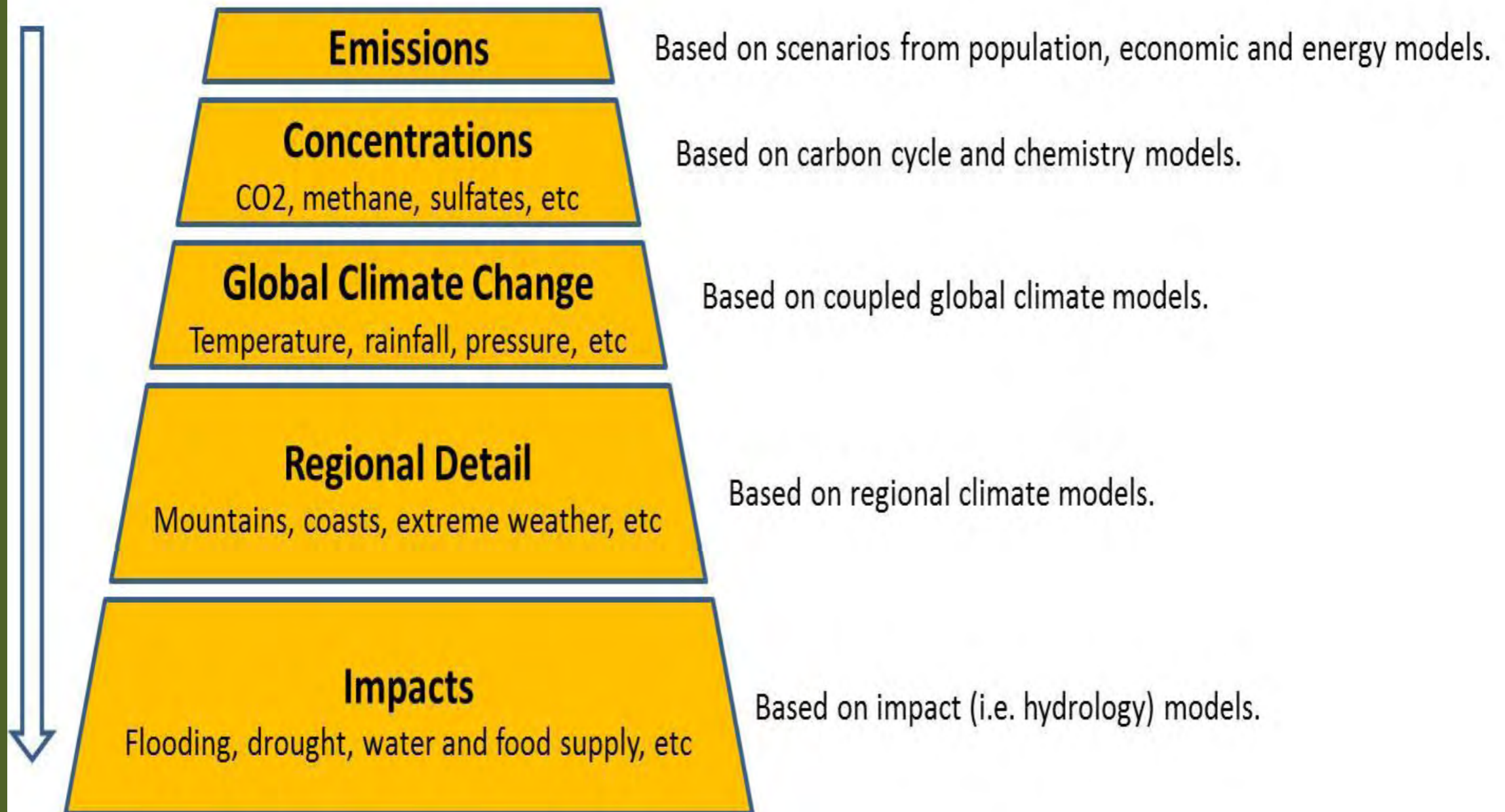
Detailed Analysis of
Priority Areas



1. Brazil: Atlantic Forest and Abrolhos Socio-Ecological System



Cascading Uncertainty in Models



Source: L. M. Alves, 2012



Brazil: Atlantic Forest and Abrolhos Scenarios

- Brazil Current, Benthic Production, and Fisheries
- Beaches and Coastal Infrastructure
- Freshwater Squeeze
- Ridge to Reef Impacts
- Forest Fragmentation, Fire, and Ecosystem Services

Philippines: Non-climate stressors

“Vulnerability does not fall from the sky”

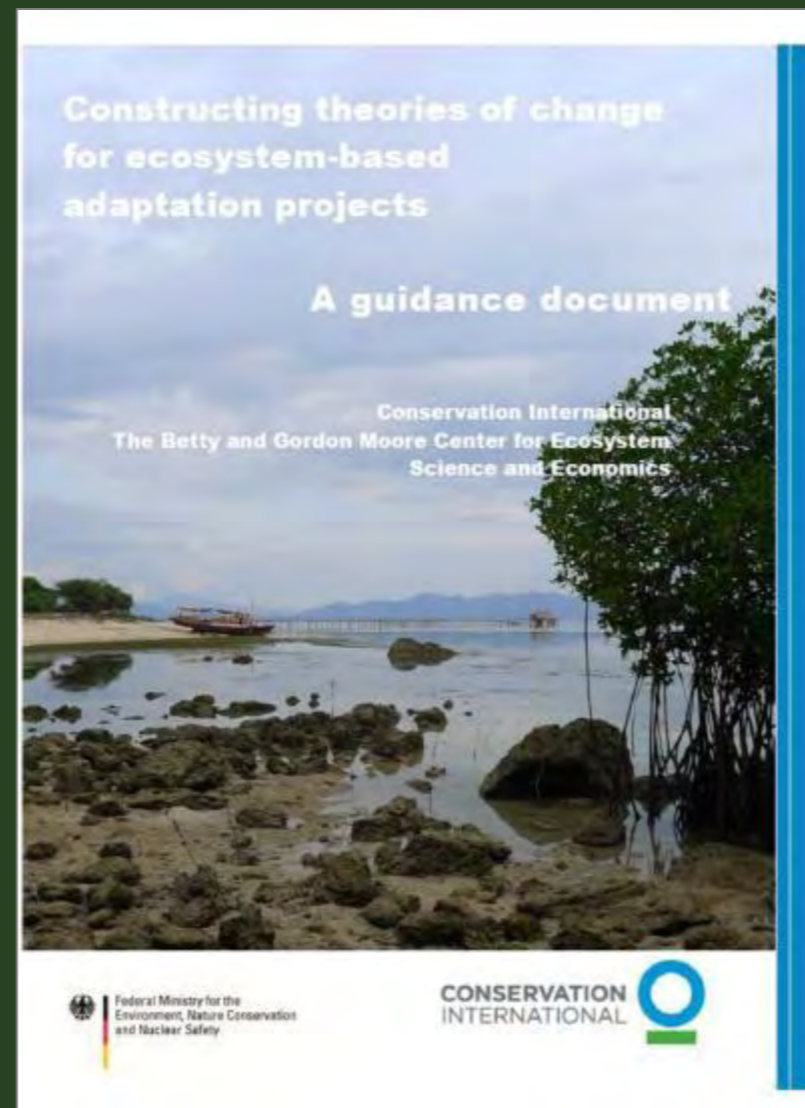
(J. Ribot, 2010)

- Complete assessment of non-climate stressors to find out which is greater.
- Examples of Sea Level Rise and Coastal Vulnerability in the Philippines

CI Producing a Series of Guidance Documents

Climate Change Vulnerability Assessment Guidelines

**Guidelines for Geographic Priority Setting:
Ecosystem-based Adaptation for Human Well-Being**



EbA options at the District Level

- Protect existing intact areas that fall in EbA priority areas
- Restore degraded land for the provision of ecosystem services:
 - Restore wetlands
 - Restore river corridors
 - Restore degraded land – re-vegetation and erosion control measures
- Design and implement land management plans for grazing and fodder production
- Stewardship approach- agreements with landowners
- Develop an impacts monitoring system
- Diversify nature-based livelihoods- green enterprise development
- Integrate EbA concerns into local government planning across relevant sectors- policy support
- Set targets- develop adaptation plan using toolkit

Next steps:

- Develop an adaptation plan with the district- using a toolkit developed by National Department of Environment (“lets respond”) which aligns with National and Northern Cape climate change Response Strategies
- Plan will provide short, medium long term goals, roles, budgets etc
- Short term plan is to link EbA approaches into the Integrated Development Plan- already started
- Plans for cost-effectiveness studies looking at rangeland and wetland rehabilitation as EbAs



- Thank you!
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