

Community Vulnerability Assessments to inform Adaptation Planning: Insights from Southern Africa

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Outline

- Vulnerability assessments – for whom, to what, what purpose, what scale?
- Why do community-level Vulnerability Assessments?
- Overview of Community Rapid Vulnerability Assessment Tool
- Adaptation strategies identified
- Linking local knowledge and science
- Using community VAs to inform adaptation planning
- Vertical and Horizontal integration
- Key messages

Considerations - Vulnerability Assessments

1. Who are /what is (most) vulnerable ?

- country, sectors, ecosystem, community

2. Vulnerable to what?

- General Climate change
- Specific – shoreline erosion, new regulations
- What is the vulnerability context and how CC exacerbates this vulnerability?



3. Why do a Vulnerability Assessment?

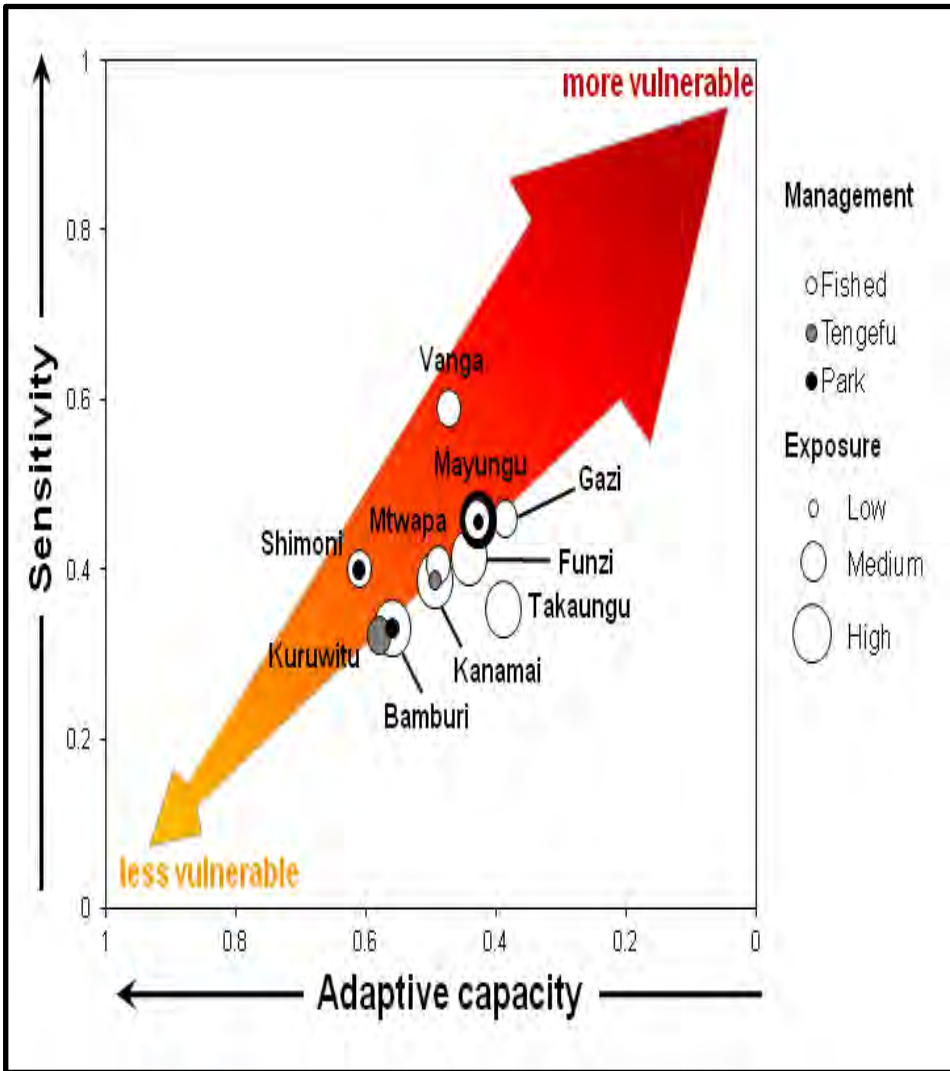
- To reduce vulnerability
- To improve targeting and effectiveness of **adaptation** actions and strategies

Why do Community-level VAs

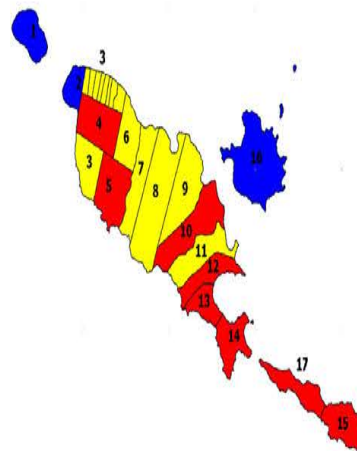
- CC is a global phenomenon – its effects often experienced at local levels
- Increased risk and uncertainty of CC creates challenges for livelihoods and impedes development
- Understanding vulnerability at the local level is imperative for effective adaptation planning
- Incorporating local and indigenous knowledge is imperative for effective adaptation planning
- Failure to do so may lead to adaptation actions that are ineffective and even maladaptive



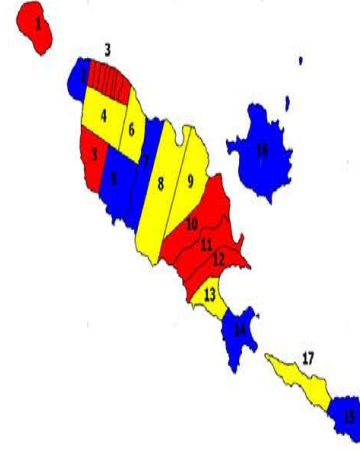
A socio-ecological approach to VA in coastal communities



Fisheries Vulnerability



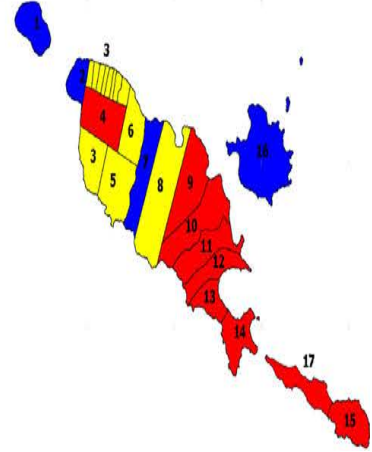
Reef Ecosystem Vulnerability



Socioeconomic Vulnerability



Overall Vulnerability



Socio-ecological vulnerability of coral reef fishery systems to climatic shocks , Kenya
Cinner et al., 2013, FAO Circular No 1082

Mamaug et al., 2013, Fish and Fisheries

Community-level VA : Aims

- To develop and apply a rapid, community socio-ecological vulnerability assessment focusing on understanding the effects of climate change on coastal communities in BCLME
- Explore what adaptation strategies and adaptive capacity required to reduce vulnerability

Collaborated with Serge Raemaekers, UCT and Abalobi
Work Supported by FAO



Features of a Community-level VAs

- Hear community voices and explore community knowledge
- Learn about threats and stressors?
- Observations and experiences?
- What perceptions of change ?
- How are they coping/adapting?
- What adaptation strategies are feasible and appropriate ?
- What support needed to act?

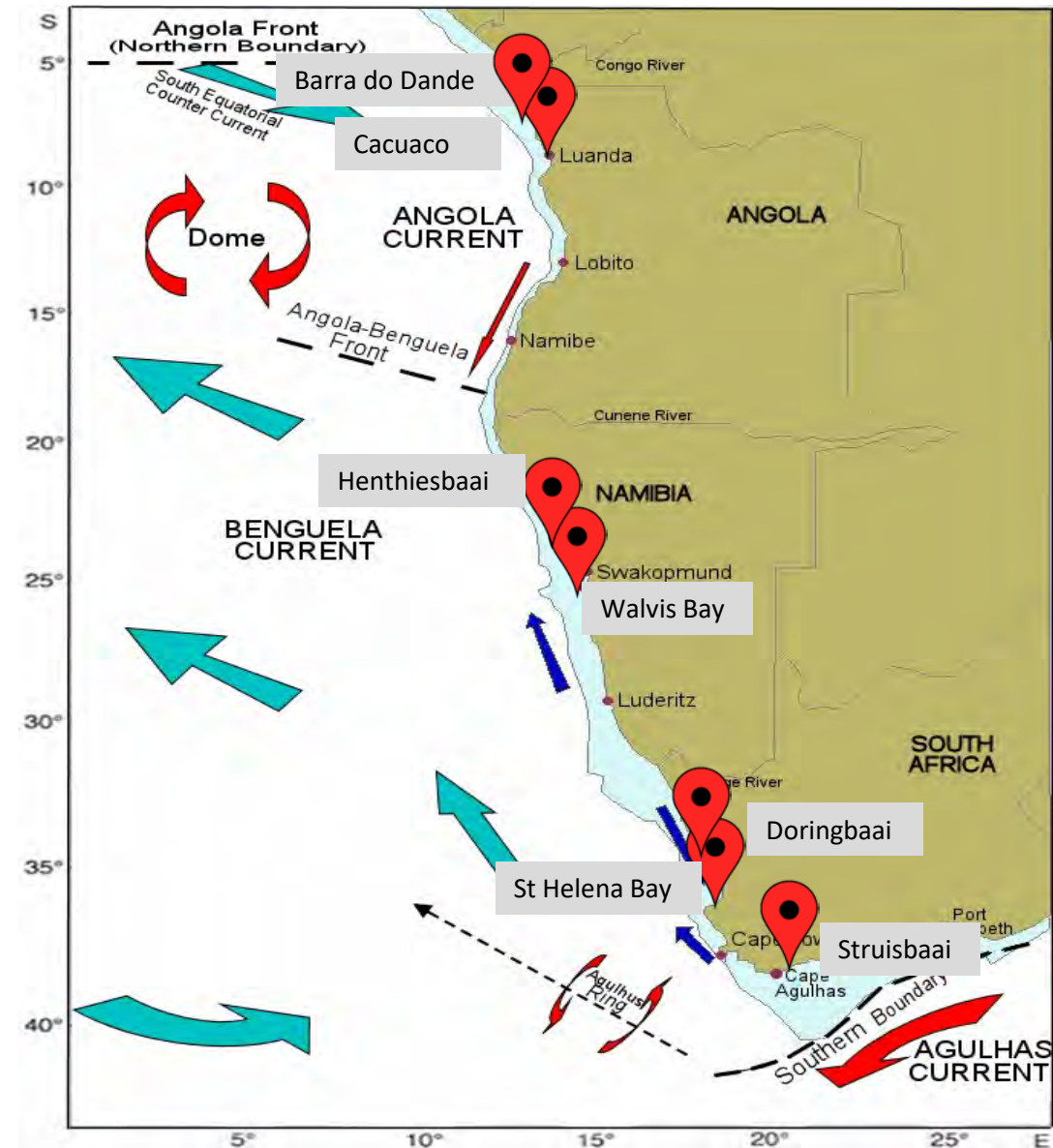


Small-scale Fishers of BCLME

- Are socially, economically marginalized
- Livelihoods depend on natural resources **already fragile or stressed**
- **Climate change is an added stressor**

Approach

- Consultative with BCLME stakeholders
- Work with local partners (NGOs, co-ops)
- Draw on local knowledge & perceptions
- Applied RVA in 8 coastal communities
- Trained over 50 participants in RVA



Community-level Rapid Vulnerability Assessment Process

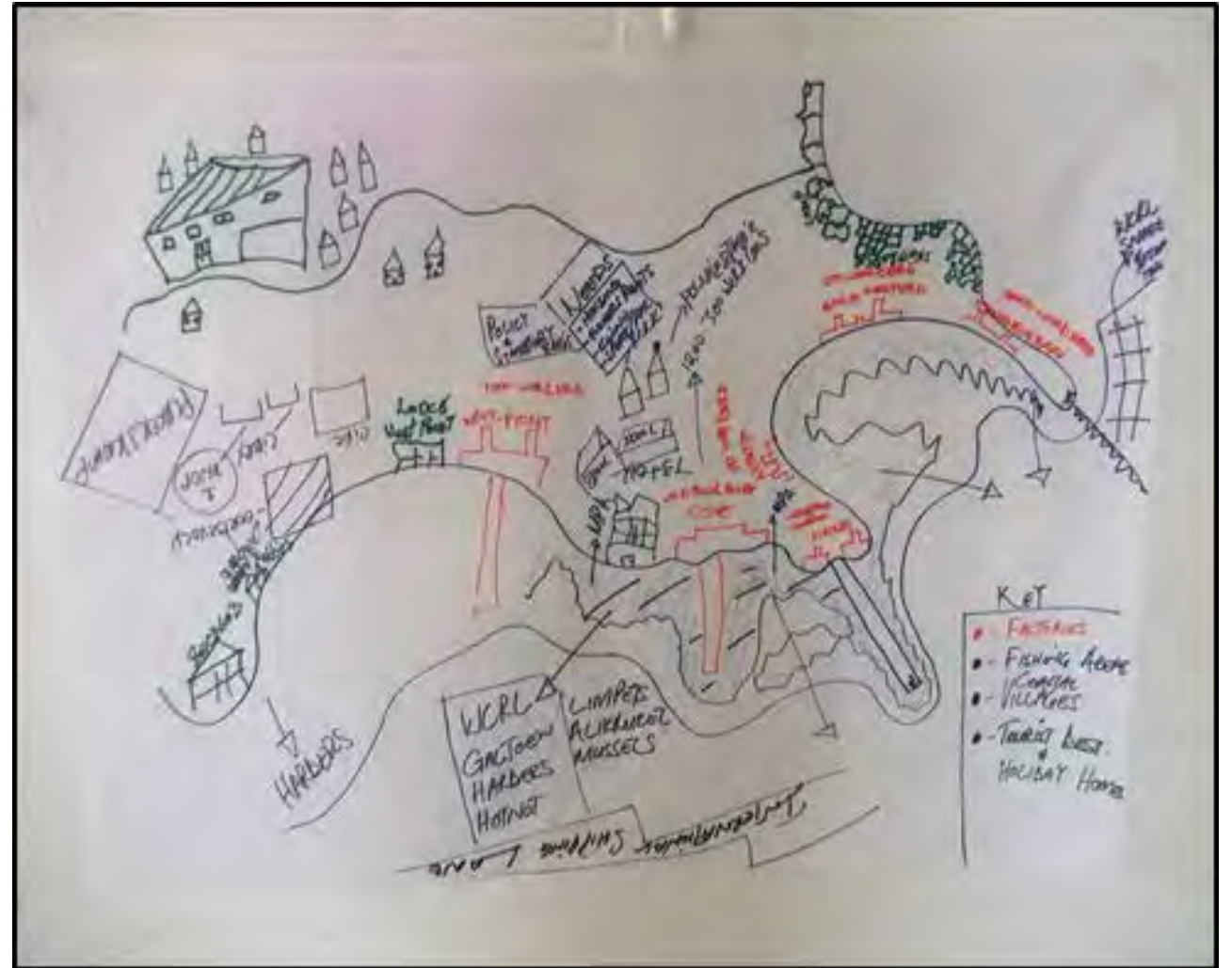
- **PHASE ONE The RVA Workshop Process**
- STEP ONE Introductions, objectives and expectations
- STEP TWO Mapping the local community level socio-ecological system
- STEP THREE Identifying key threats and stressors to livelihoods
- STEP FOUR Exploring environmental stressors and changing env. conditions
- STEP FIVE Identifying impacts and underlying causes linked to environmental stressors and changes
- STEP SIX Developing a time line of key environmental events and changes
- STEP SEVEN Identifying institutional arrangements , governance partners and relationships
- STEP EIGHT Identifying current coping mechanisms and potential adaptation strategies
- **PHASE TWO Community-based Adaptation Planning Process**

RVA Workshop process



Village mapping exercise

- Identify the resources, assets and attributes
e.g. fish, factory, harbour, hotel, beaches
- Learn about how fishers value and perceive their environment



Identifying Stressors and Threats

Environmental

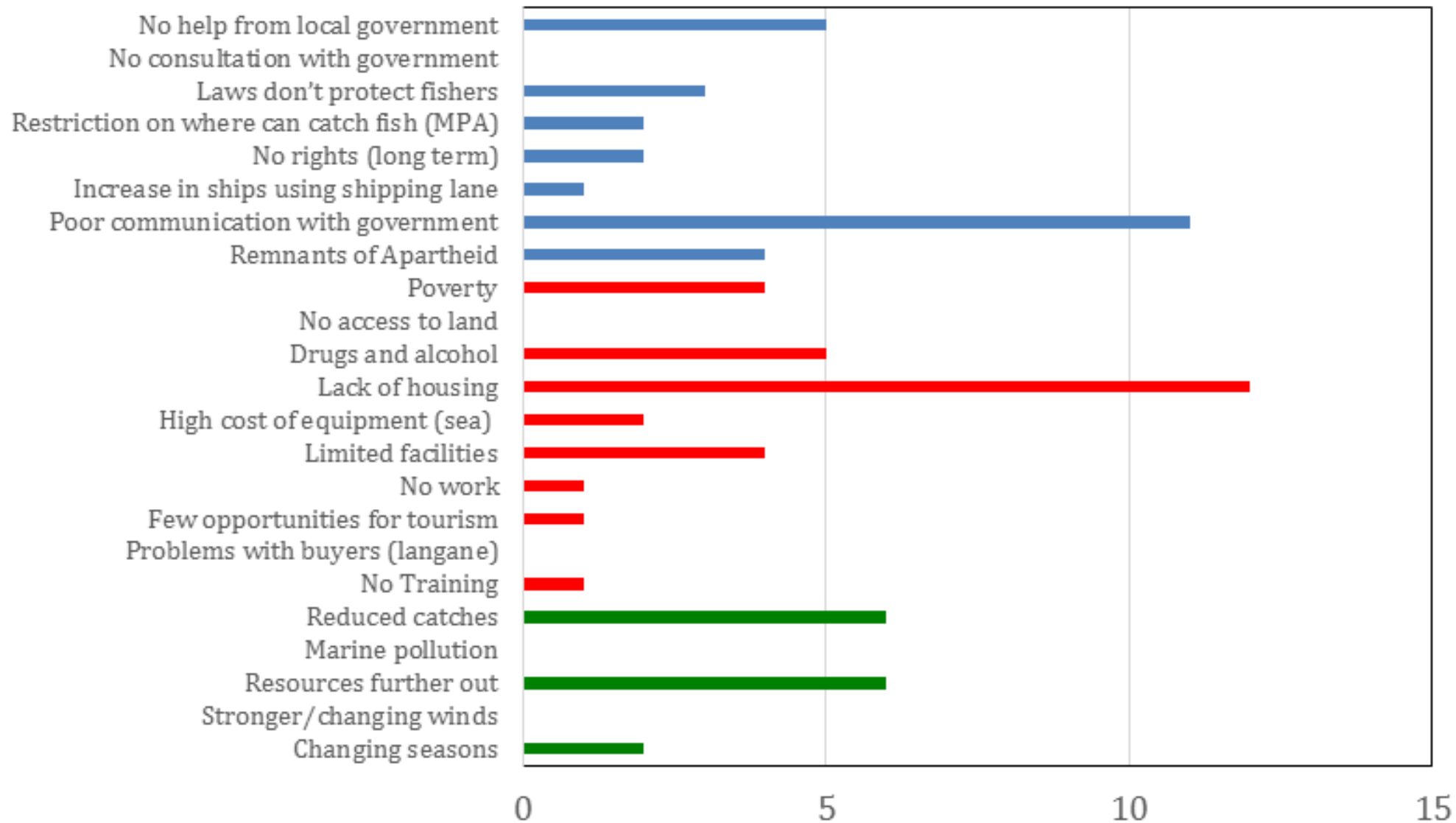
Socio-Economic

Management/Gov



ENV.	SOCIO-ECONOMIC	MANAGEMENT
<p>OMPPO/uma kufikufi /wupyu/outalala</p> <p>WIND/WEAVER (COOL) WAVE (WAA)</p> <p>LESS FISH/FISH FAR AWAY Eeshi dapumba f dili kokute</p> <p>SMALL FISH Eeshi dishana molutu</p> <p>NO BAIT EXPENSIVE Bait diversity (worms)</p> <p>POLLUTION Undava</p>	<p>ALCOHOL DRUGS CRIME Ombuluma</p> <p>NO JOBS Kopena Olonga</p> <p>NO EDUCATION Oshana elonga</p> <p>BAD PRICE FOR FISH/MARKET Undado yeeshi oishama/fii Popena cenata de kulandifila</p> <p>TRANSPORT /GEAR nyendifo FINANCING Oshimabwa</p> <p>NO INFO ON VARIABLE MARINE RESOURCES Kopena vashile vashimabwa kuty vashimabwa kuty dilla</p>	<p>ORGANISATION</p> <p>SIZE BAG LIMIT OF PERMIT BAIT + FISH</p> <p>NO SALE WITH PERMIT (Individual)</p> <p>ORGANISATION CAN BE BETTER</p> <p>BAD COMMUNICATION WITH GOVT.</p> <p>PROTECTED AREA</p> <p>NO STRUCTURES IN OTHER PLACES</p>

Stressors as identified in St Helena



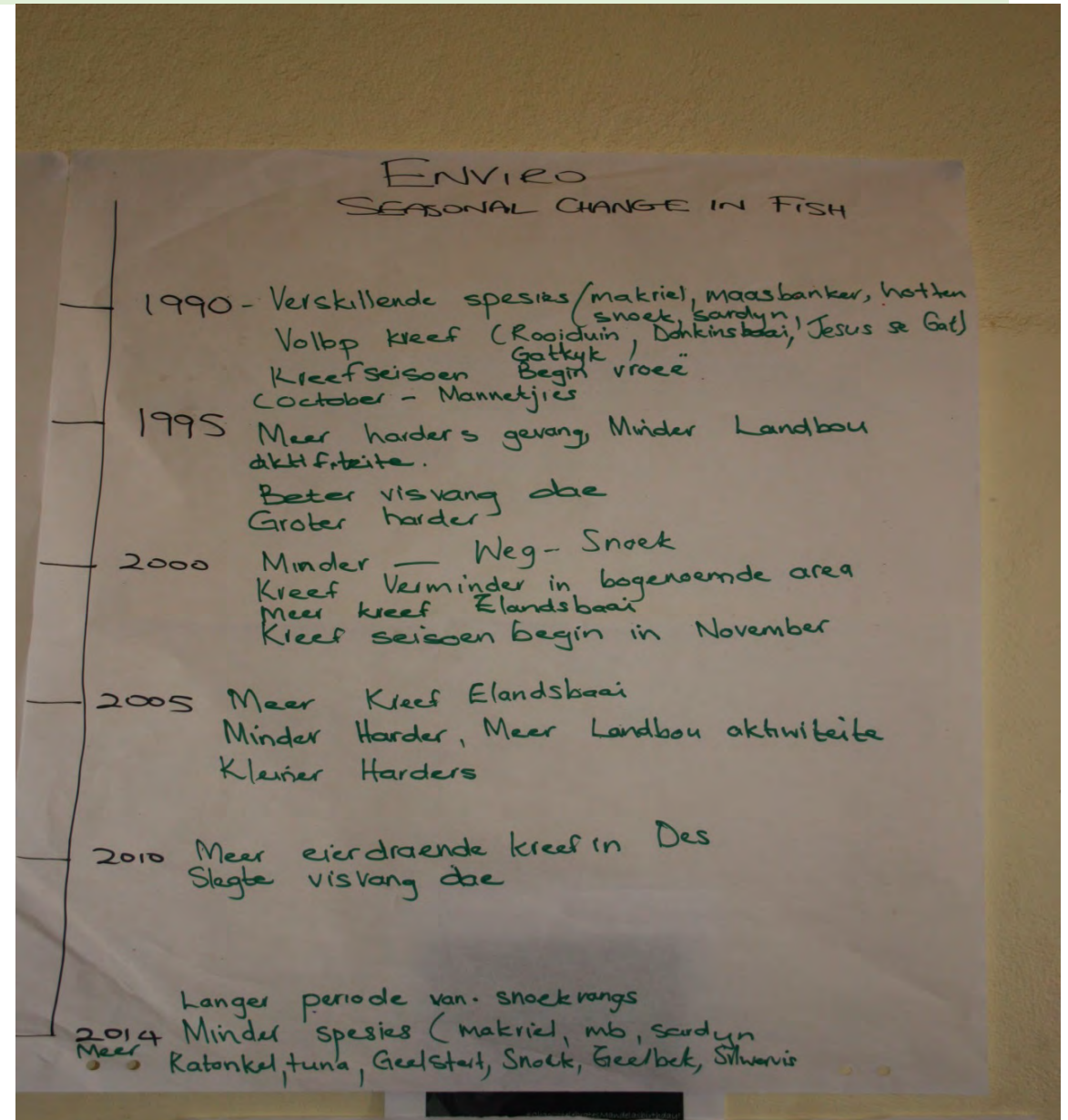
Key events and changing environmental conditions

Events :

- Major red tide events
- Major WCRL walkouts
- Big storms - beach erosion

Changes observed:

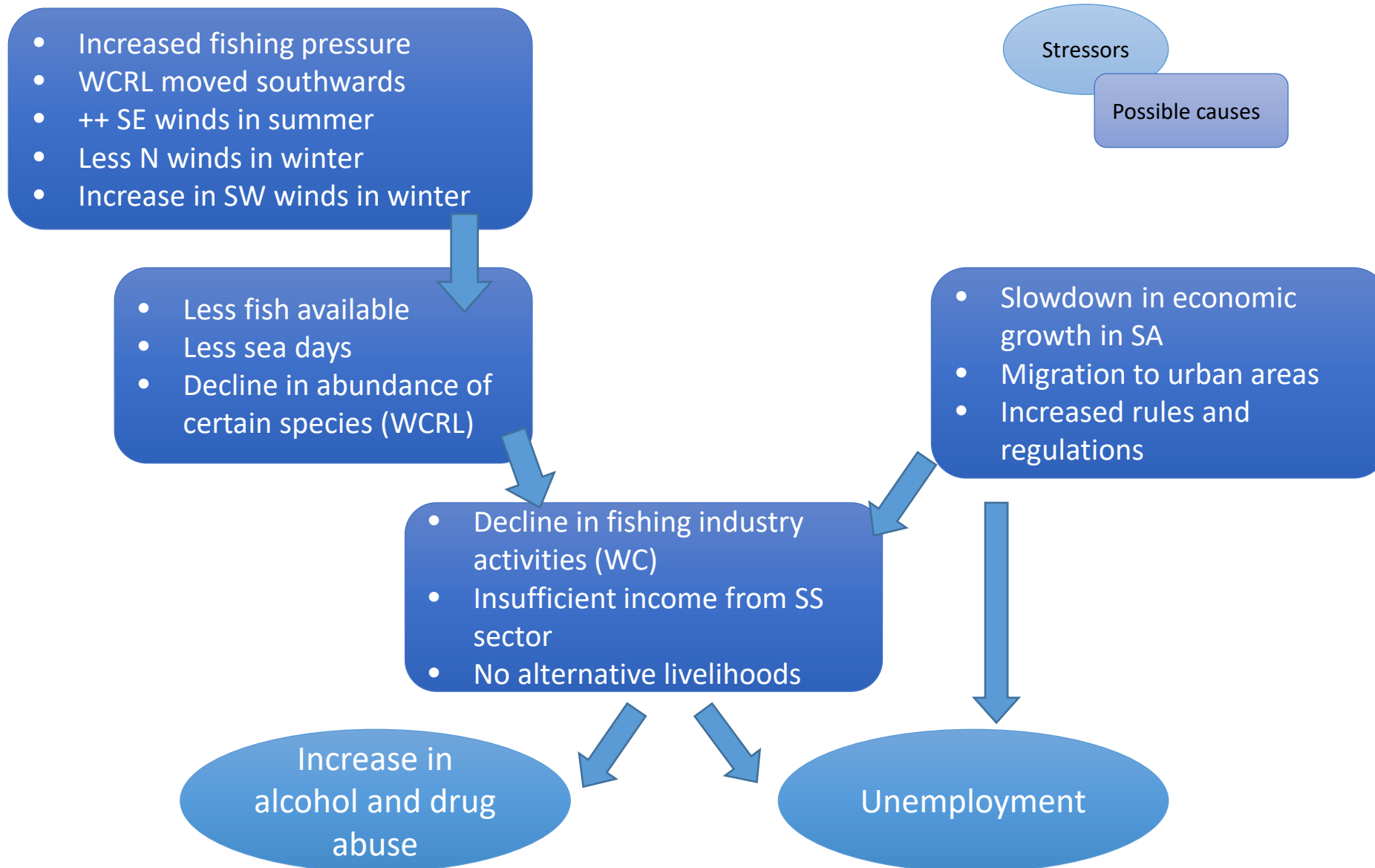
- South easterly wind starts to blow much later in the year
- North west wind no longer signals the arrival of snoek
- Since 1990's WC rock lobster no longer abundant on west coast - moved south

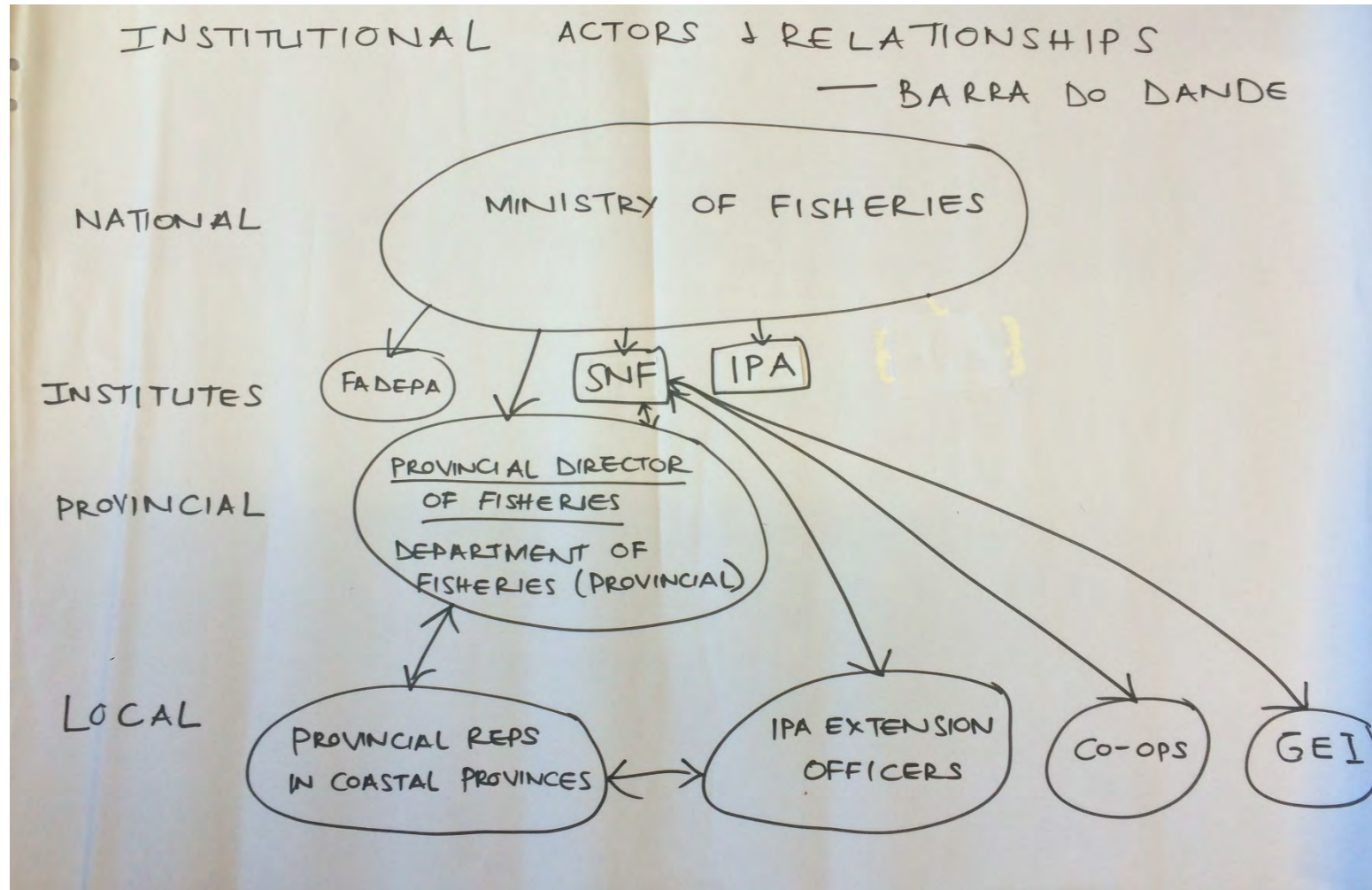


Impacts associated with changing environmental conditions/events

<i>Stressor</i>	<i>Impacts</i>	<i>High/Medium /low</i>	<i>What do you think caused the these env changes?</i>
Seasons changing	Uncertainty - cant plan. Lower quality with season change (snoek). Fewer days at sea	High	Its nature. Sea conditions better further out – could be due to global warming.
Catches reduced	Less money. Less work opportunities. Break down of social fabric (drugs alcohol etc). More petrol needed. Fewer days at sea	High	Trawlers catch the food of the snoek (pelagics) trawlers come in closer - catch sardine and anchovy in closed lobster area.
Resources further out	Quality of fish decreases gets “pap” . More petrol = higher costs and expenses. Fishers die at sea (safety).	High	Industry boats fishing inshore area. Tankers in bay. Maybe changing seasons and shifts of resources as result of global warming.

Impact Pathways - links between Stressors





Institutional actors and relationships – Barra do Dande, Angola

Coping mechanisms

Feedback from St Helena workshop

- After red tide we ate anything - seabirds
- “Poach” in the Protected Area
- Sold boats and crew for commercials
- Organised amongst ourselves share info

These are short term/ survivalist strategies and don't provide a sustainable solution.



Adaptation Strategies and Actions

<i>What strategies are working/ could work</i>	<i>What support do you need?</i>	<i>Support from whom?</i>
Local level organisations (fisher co-ops, associations)	Improve financial skills, improve networking, collaboration between co-ops for marketing	NGOs and researchers for skills training, DAFF, DTI
Access to internet for weather forecasts - sharing information	Need early warning system radios for ship to shore comms , Local centre for fishers	Fisheries Dept, IPA Barro do Dande
Supplementary livelihoods (eg tourism)	Explore/develop fish farming (guidelines for abalone, mussels) access markets, whale watching	Fisheries Dept, fishers, Dept Tourism, local gov, tertiary institutions, Dept EA, DEADP

Strategies - Immediate – Medium term – Long term
 Phase 1 – implemented some “immediate” adaptation actions
 Skills training, exchange visits to co-ops, **Abalobi app**

Strategies - Immediate – medium term – long term



ABALOBI

TRANSFORMATION OF THE SMALL-SCALE
FISHERIES SECTOR

”

Linking fishers' observations and perceptions to available science

- Available science conducted at different temporal and spatial scales
- Fisher knowledge based on experiences of change in local fishing grounds
- Evidence of correlation across these knowledge systems
- Value of local fisher knowledge
 - can provide early indication of change
 - can complement available science
 - can suggest areas requiring research
 - help guide the questions to analyse data



Case Study	Experience and perceptions of Fishers to CC	Species specific changes Identified by fishers	Scientific: Climate variability and change	Species specific Scientific knowledge
<p>Doringbaai and St Helena</p>	<p>Unexpected sea conditions ++ SE winds in Summer</p> <p>Winters milder but longer Dominated by SW winds Less N wind SW current stronger and warmer</p> <p>Overall observation: Winters less predictable - N wind used to blow for days, now may blow for a day followed by S winds. N wind no longer signals arrival of snoek Less distinct fishing seasons</p>	<p>Changes in availability of fish (some new/gone)</p> <p>Warmer SW current brings more S coast species – yellowtail, geelbek and yellowfin.</p> <p>WCRL moved southwards</p> <p>Red tide in 1990's – led to ++ declines on WCRL</p> <p>At DB, berried females move inshore earlier in season</p>	<p>Cooling inshore waters ++upwelling variability Dominant SE winds summer - start later</p> <p>Warming of offshore waters due to warmer Agulhus current and leakage into Benguela</p> <p>Increased upwelling in S system result in ++ in abundance of plankton - ++ frequency of harmful algal blooms</p> <p>Decline in oxygen levels below the thermocline in south - St Helena Bay</p>	<p>Shifts in sardine from west to east of Cape Agulhus (1985 -2005)</p> <p>Decrease in abundance of WCRL on west coast</p> <p>++ in abundance of WCRL on south coast - a regime shift due to favourable environ conditions</p> <p>Increase in frequency of algal blooms</p>

Using RVA for Adaptation Planning

- RVA provides a rapid appraisal of vulnerability, of communities to climate change
- Bottom-up - provides information for grounded adaptation strategies – lends legitimacy
- Allows for triangulation with other knowledges – available science
- A social learning process and is empowering

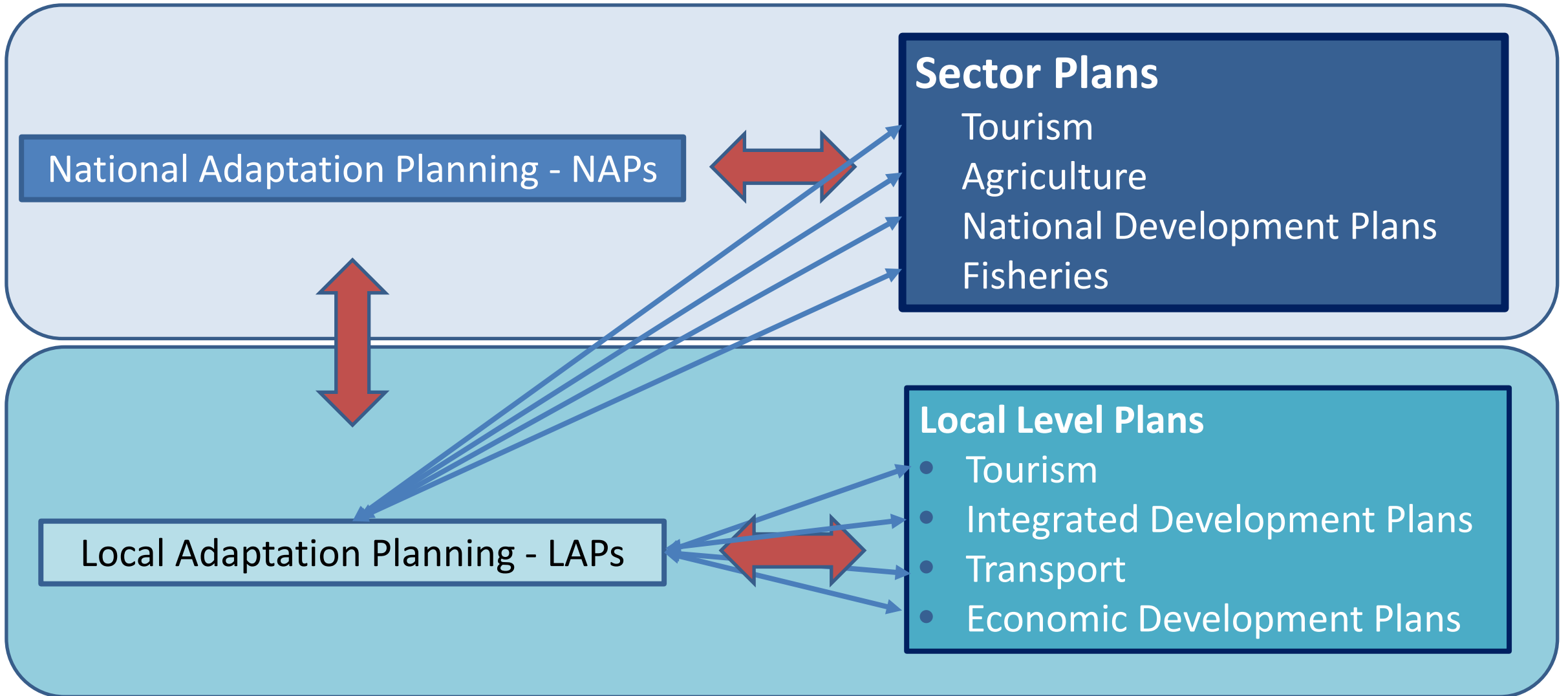


Phase 2: Community Adaptation Planning Process

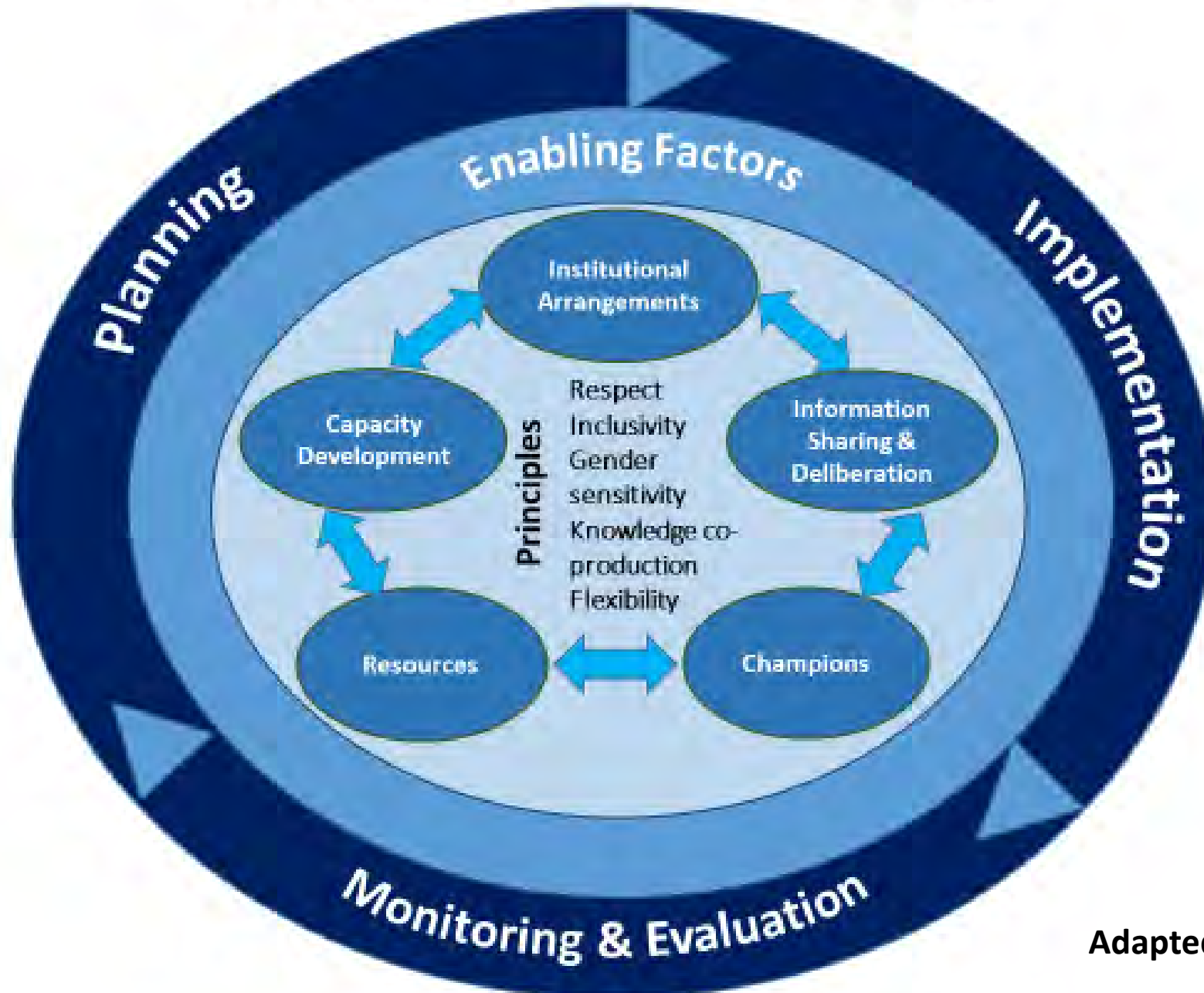
- Fleshing out the strategies identified by communities
 - feasibility, appropriateness, resources etc
- What are short, medium and long term?
- What information or action needed?
- Who can assist? Govt, private, researchers
- Who will approach them?
- What resources required? From where?
- Slow processes – set backs, changing priorities, but also improvements



Adaptation - vertical and horizontal integration



Vertical Integration in NAP Process



Adapted from ISSD, 2017

Key messages

- Need to be clear about the focus of VAs – and why we are doing them?
- Community knowledge and perceptions can inform locally appropriate APs
- Need collaboration – across disciplines, sectors, govt, researchers, communities
- Bring different knowledges together – aim for co-production of knowledge
- Adaptation planning and implementation is an ongoing iterative process - at community level it needs champions and community input
- Going forward - focus on improving vertical and horizontal integration
- Enabling factors - local champions, resources, capacity development, Institutional arrangements, sharing knowledge
- Be guided by a principles – respect, inclusivity, gender sensitivity, collaboration, co-production of knowledge and flexibility

Training Manual and Guidelines

for Conducting Community-level Rapid
Vulnerability Assessments (RVA)

*'Enhancing Climate Change Resilience in the Benguela
Current Fisheries System'*



- **FAO and BCC**
- **Government representatives in all three countries**
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