

Qualitative vulnerability assessment: Case of coastal fishing households, Tanzania

PaCFA Workshop

Assessing climate change vulnerability in fisheries and aquaculture:
available methodologies and their relevance for the sector
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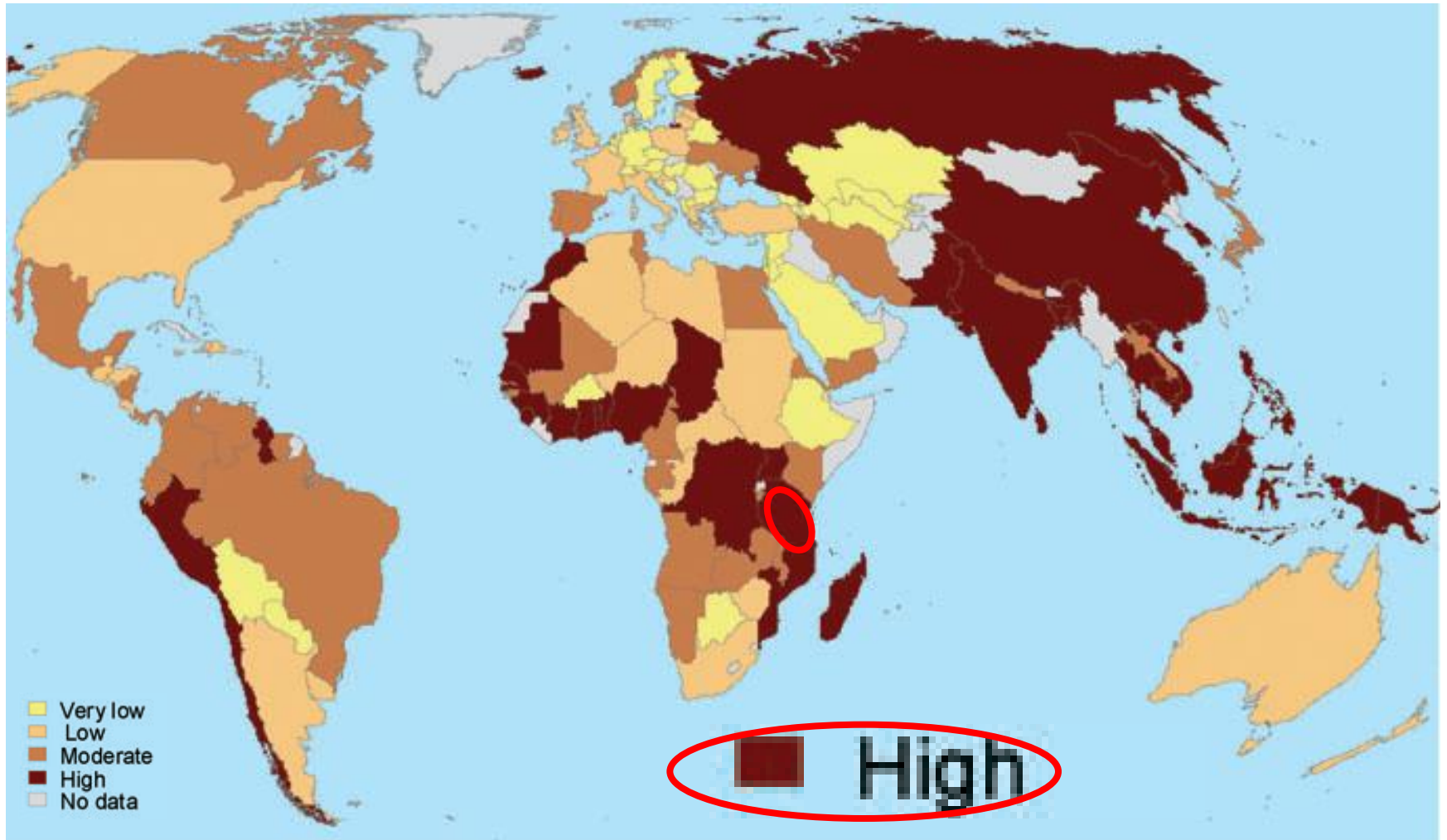
In this presentation.....

- Background
- Project profile
- Why vulnerability assessment?
- Methodology
- Findings and implications for adaptation actions
- Conclusion

Background

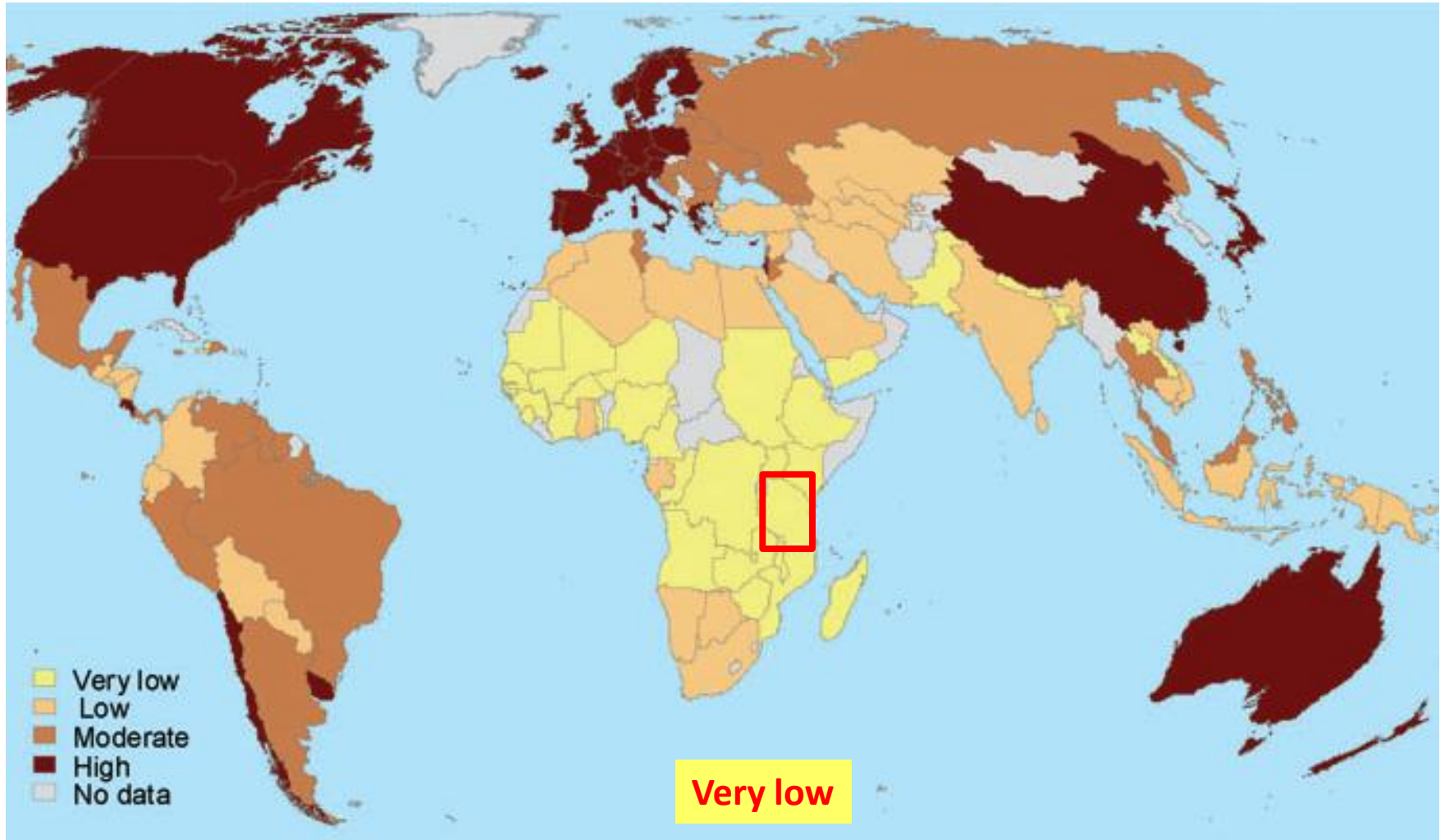
- Different societies, populations and components of social-ecological systems are vulnerable to climate change
- Discussion: couched in terms of **potential for and limits to building adaptive capacity** and enhancing **resilience**
- World's poor, many in tropical countries are the most vulnerable

Fisheries sensitivity



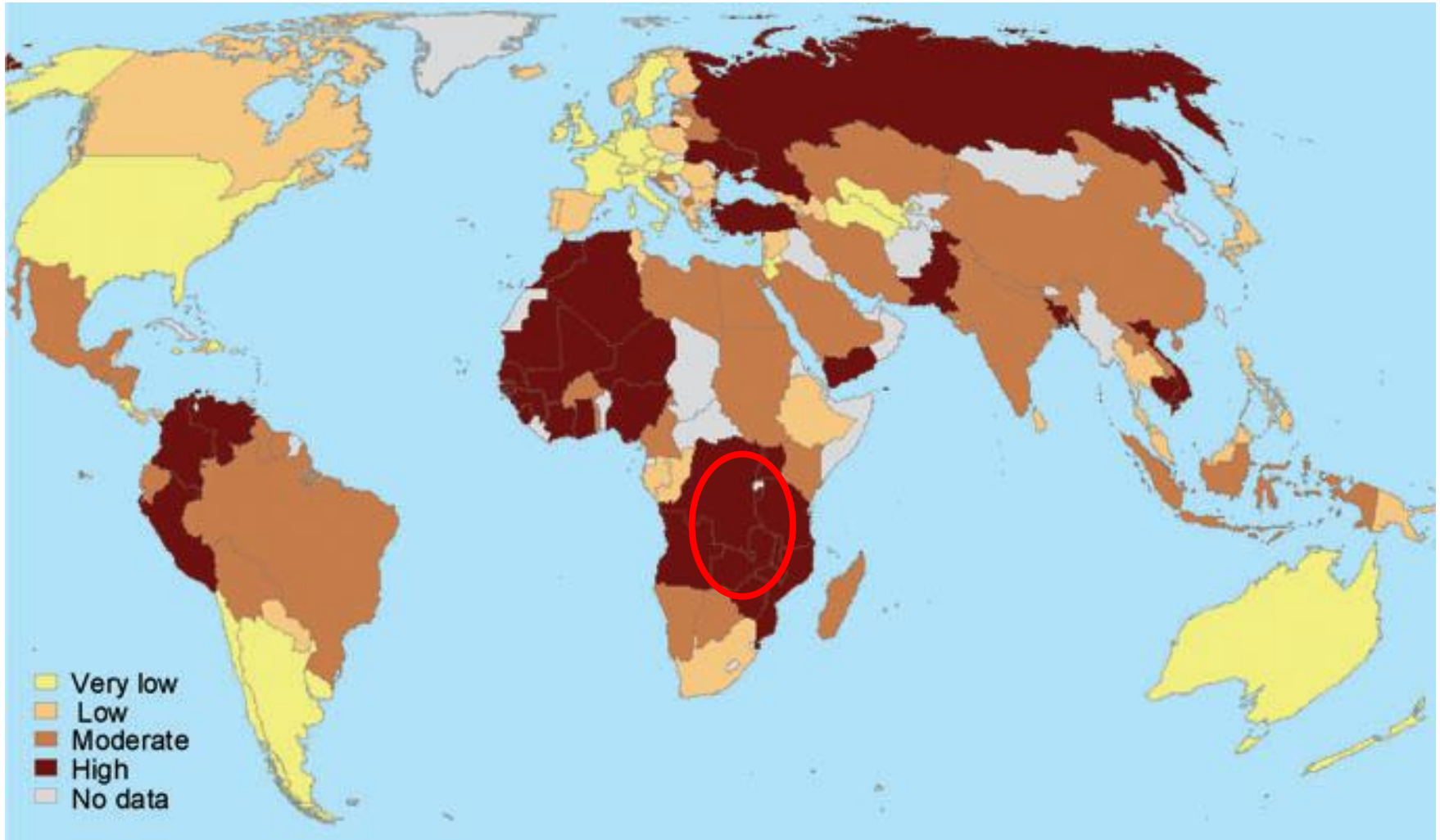
Source: Allison et al. (2009)

Adaptive capacity



Source: Allison et al. (2009)

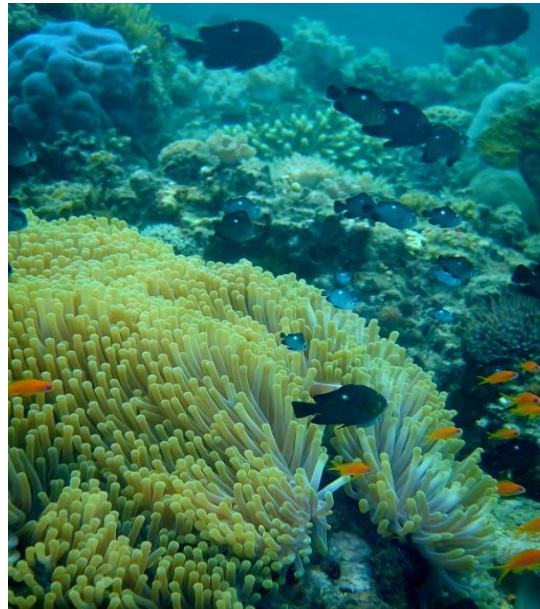
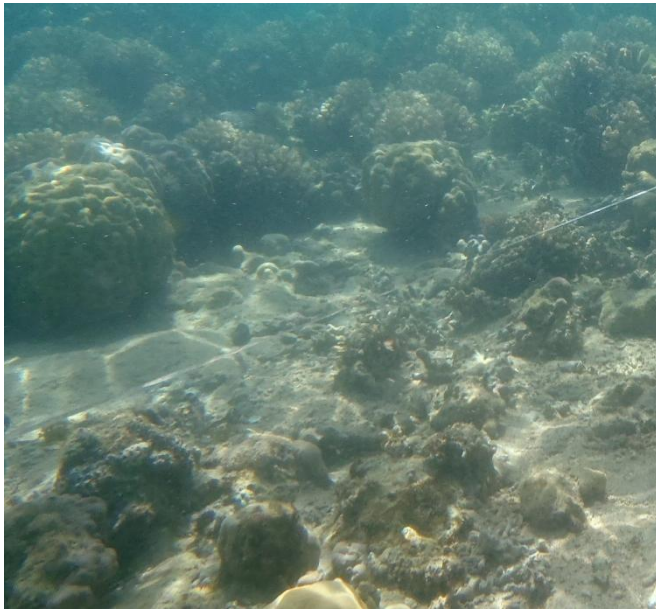
Vulnerability



Source: Allison et al. (2009)

Project profile

“Relating changes in reef-associated fisheries and livelihoods in coastal villages of southern Tanzania: Lessons for adaptation to climate change?”



Project area

Location	In Mtwara region, southern Tanzania-bordering Mozambique in the south, and the Indian Ocean in the east
Area	3,597 km ²
Wards (<i>kata</i>)	18
Villages (<i>vijiji</i>)	118
Population size	204,480 (in 2012)
Population density	53 people/km ²
Health facilities	2 health centres and 28 dispensaries
Burden of diseases	Communicable (e.g. diarrhoea), maternal, pre-natal and nutritional causes account for over 82%
Infant mortality	126/1000 births
Under -5 mortality	112/1000

Source: Mtwara district council (2013)

Households	2080
Fishing households	60-80% of households
Population	10,302
Sub-villages	8
Rural/Urban	Rural, ca. 50 km from Mtwara town
Characteristics	Site in low-lying area exposed to tidal and storm floods
Infrastructure	Graded road
Main livelihood	Fishing, farming, small scale business, piece labour
Environmental degradation	Degraded coral reefs, coastal erosion, deforestation
Development	Gas project and tourism
Conservation	Inside MBREMP
Education	2 primary, and 1 secondary schools
Health	1 dispensary
Social groups	Several mosques, 1 church, political affiliations,

Msimbati village









Why vulnerability assessment?

- Study village(s) are significant due to the nature of threats they face, and their increasing social-economic importance
- Rapid social, economic and environmental change
- In particular:
 - Problems of degradation of marine resources
 - Land grabbing? (natural gas exploration/tourism)
- Erratic weather
 - Strong winds
 - Storm surges
 - Drought
 - Floods

But.....

- Lack of climate related detailed socio-ecological data
- Climate models are largely uninformative at local scale
- National vulnerability and adaptation assessment (Mwandosya et al. 1998)
- Anticipated impacts:
 - » Sea-level rise
 - » Coastal erosion
 - » Increased sea surface temperature
 - » Coral bleaching
 - » Inundation of low lying coastal areas/intrusion of sea water in shallow water wells
 - » Extreme weather events
 - » Fish and fisheries
 - » Aquaculture activities

Methodological approach

- Vulnerability is **variously defined and demonstrated** (see e.g. Adger 2006; Eakin and Luers 2006; Füssel 2006)
- African contexts.....??A conceptual need to capture:
 - The changing nature of risks
 - Factors influencing exposure to risks
 - Human capacity to respond
 - Why differences in experiencing negative outcomes from risks
- Need to move beyond assessments of vulnerability based on linear relationships to consider **why** people are affected by and cannot cope with stressors

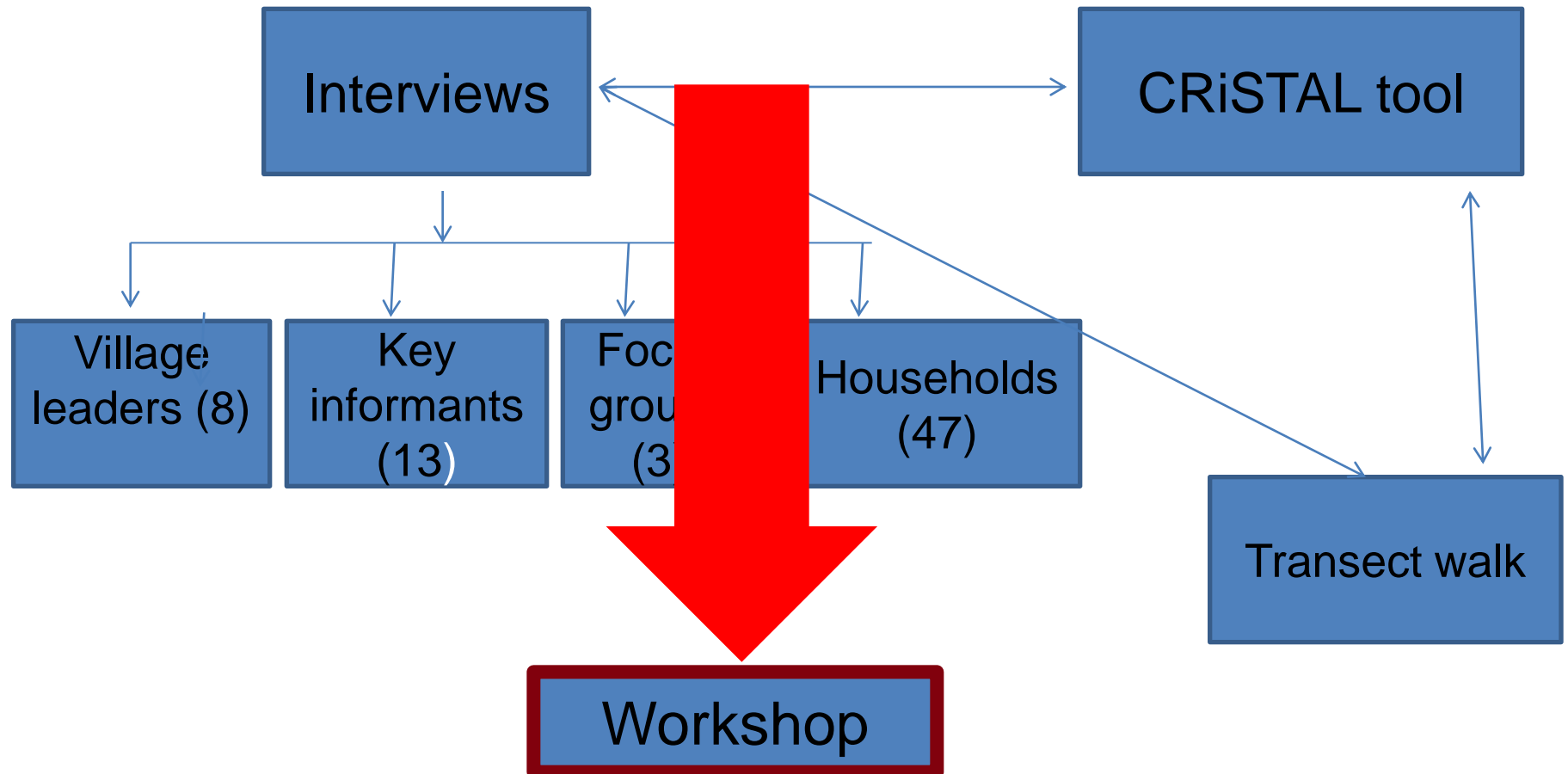
Methodological approach

- Concepts and practical methods sound enough to withstand scientific scrutiny?
- Tanzanian context:
 - Climate change and vulnerability: colloquial terms
 - Better understood as prediposition to be hurt should an event beyond a certain threshold of magnitude occur and impact...



Data collection

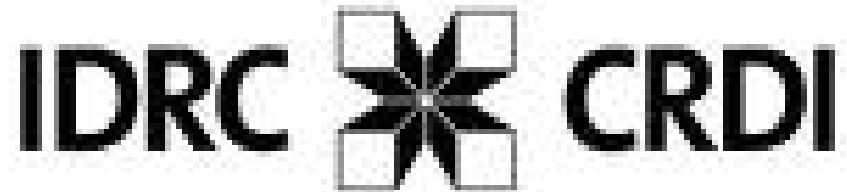
Participatory Rural Appraisal

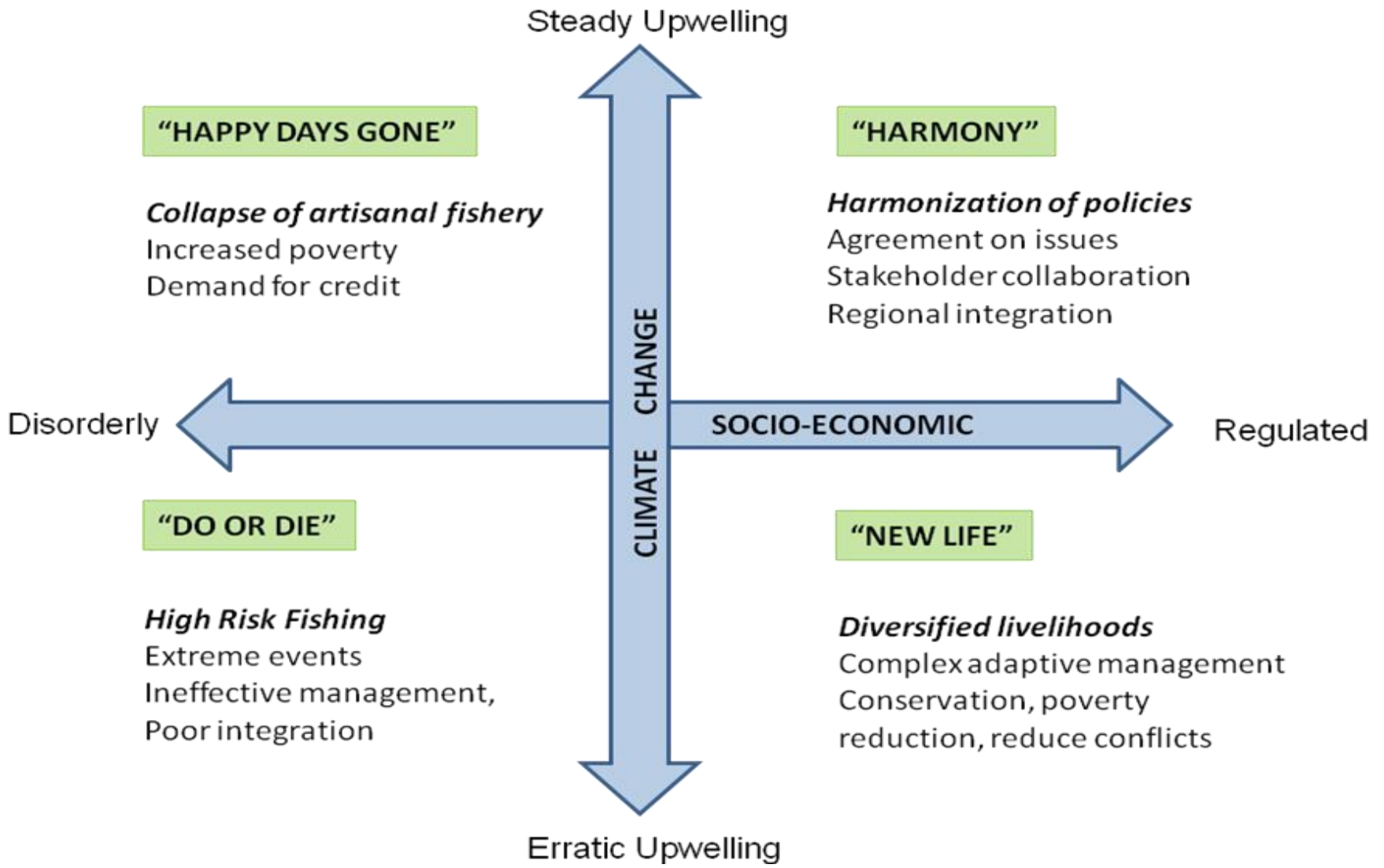




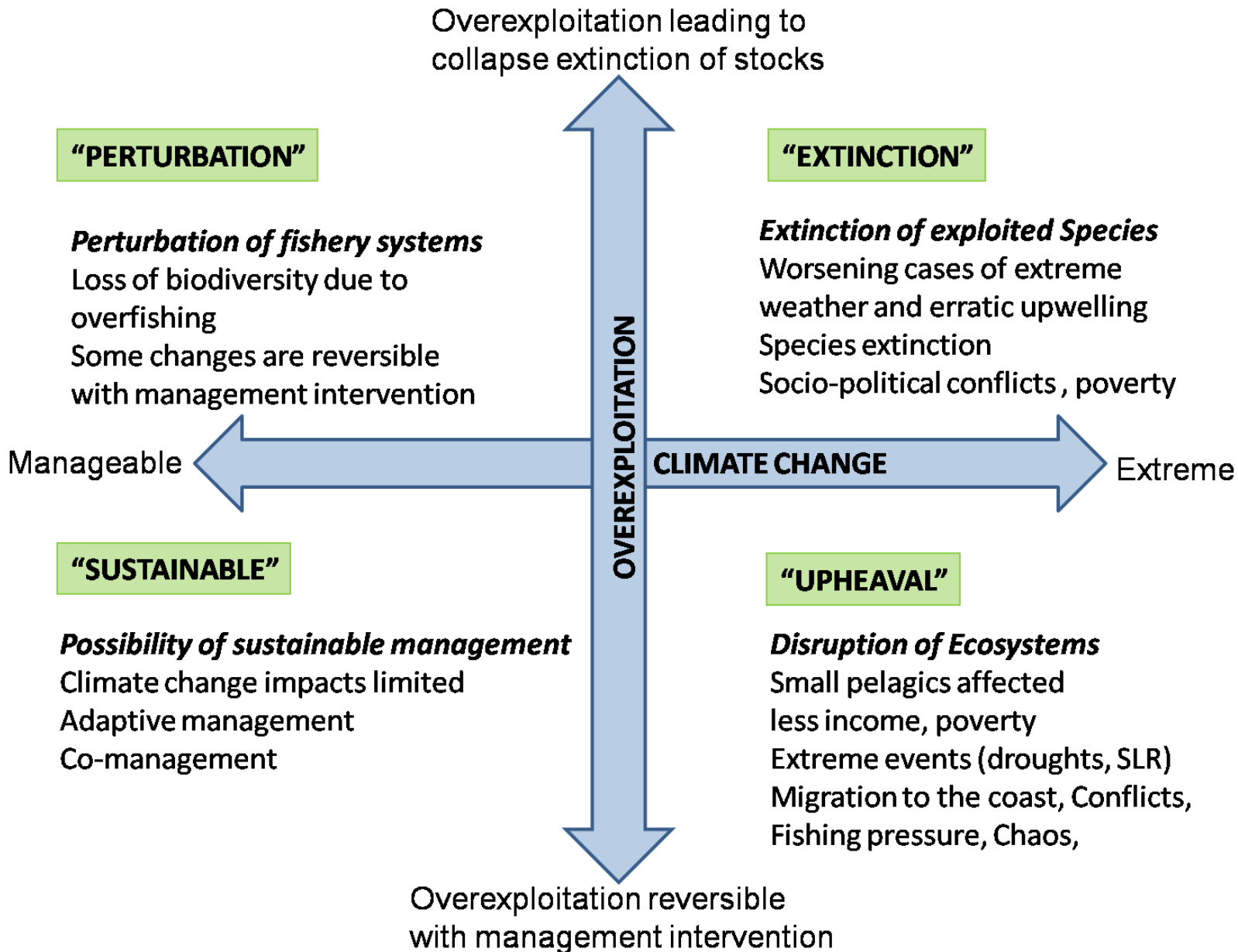
Participatory mapping

Envisioning 2050: Climate Change, Aquaculture and Fisheries in West Africa





Ghana scenarios



Mauritania scenarios

Findings



Implications on adaptation actions

- Need for a differentiated adaptation strategy
- Can vulnerability be aggregated to characterize fishing households/community overall susceptibility to several distinct hazards?
- How can vulnerability be assessed in advance of a devastating event?



Conclusion

- With appropriate PRA exercises and local knowledge, it is possible to conduct vulnerability assessment and identify adaptation options
- Importance of micro-level vulnerability assessment at the village level
- Need to integrate bottom-up approaches with top-down

Thank you for your attention!!

