Enhancing Climate Change Resilience in the Benguela Current Fisheries System

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Annual Science Forum
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The Presentation

• Climatic trends in the BCLME
• The GEF/BCC/FAO project ‘Enhancing Climate Change Resilience in the Benguela Current Fisheries System’
• Some complementary projects
• What are the benefits?
Global Hotspots of Climate Change: Top 10% rate of change 1950-1999 (Hobday&Pecl 2013)
Projected Global SST Trends
RCP8.5 scenario

NEMO (2000–2050) SST linear trend

Courtesy E. Popova, National Oceanography Centre, Southampton
Annual and decadal averaged SST for the southern Benguela (RCP8.5 scenario)

Courtesy E. Popova, National Oceanography Centre, Southampton
Climate Change Risks & Impacts
(from Hampton, 2011 & Nansclim results)

1. The BCLME is naturally highly variable and complex
2. Since early 1990s has been a warming of waters of Angolan subtropical area and northern Benguela, also of southern Benguela off Namaqualand, with a southwards shift of the South Atlantic High Pressure Cell;
3. Long-term increases in zooplankton in the s. and n. Benguela, with shift in dominance towards smaller-species;
4. Fishing and climate variability and change are important drivers of long-term ecosystem change;
5. It appears that the northern Benguela, particularly the pelagic system, may be less resilient to environmental perturbations than the southern Benguela;
6. Have been significant shifts in species’ distributions in recent decades with marked socio-economic impacts; boundary conditions and distributions of the major resources are expected to change in the future;
7. The possibility of unprecedented and harmful changes in the ecosystem in response to global climate change some time in the future cannot be excluded.
GEF Project Summary

**Project Title:** Enhancing Climate Change Resilience in the Benguela Current Fisheries System

**Project Timeframe:** 5 years (+/- 2015-2019)

**Project budget (LDCF/SCCF):** US$ 4,725,000

**Project co-financing:** US$ 14,650,000
(Angola, Namibia, South Africa, etc)

**Implementing Agency:** FAO

**Executing Agency:** BCC
Objective:

To build resilience and reduce vulnerability of the Benguela Current marine fisheries systems to climate change through strengthened adaptive capacity and implementation of participatory and integrated adaptive strategies in order to ensure food and livelihood security.
GEF Project Components

1. Integrating fisheries climate change considerations into i) fisheries policies and planning and ii) into broader inter-sectoral policies and programmes

2. Piloting of improved climate-resilient fisheries practices

3. Awareness creation, capacity building and promotion of improved climate-resilient fisheries practices

4. Monitoring and Evaluation
# Fisheries to be Included in Project

<table>
<thead>
<tr>
<th></th>
<th>Angola</th>
<th>Namibia</th>
<th>South Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small-scale/artisanal</td>
<td>Artisanal, country-wide</td>
<td>Not a priority</td>
<td>West Coast small-scale (rock lobster+linefish)</td>
</tr>
<tr>
<td>Commercial</td>
<td>Semi-industrial, country-wide</td>
<td>To be prioritized through VA</td>
<td>Small pelagic, West and south coasts.</td>
</tr>
<tr>
<td>Mariculture</td>
<td>√</td>
<td>To be decided</td>
<td>√</td>
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Some Additional Technical Activities and Considerations

• Anticipated that alternative livelihoods will be an important option for adaptation, including mariculture where feasible;
• Need to integrate local/community adaptation plans into national management plans;
• Potential role of spatial management including MPAs will be considered, with assessments of implications climate change;
• Need for effective systems for advance warning systems – Angola artisanal fisheries.
Current Status

• Project document submitted by FAO to GEF on Monday 13 October.

• Any additional changes should be agreed and finalized within about 3 weeks.

• Should be launched within coming months.
FAO/BCC Project: Community socio-ecological vulnerability assessments in the Benguela Current Large Marine Ecosystem

- Funded by Govt of Norway through FAO climate change project;
- Duration: May – December 2014
Overview of project

• ‘Conduct Community-level Socio-ecological vulnerability assessments’
  – Develop methodology/framework and methods – for likely application in GEF project
  – Pilot and fine-tune through case study work
  – Focus on small-scale fisheries systems and explore vulnerability to climate induced changes and variability
  – Recommend CC-specific adaptation strategies to be piloted through GEF project
  – Consider capacity development of BCLME stakeholders
  – Empowerment of local fisher groups
  – Case studies in each country being discussed with partners, including SSF organizations.
Global learning for local solutions: Reducing vulnerability of marine-dependent coastal communities: GULLS

- Funding through Belmont Forum and G8 Research Councils Initiative on Multilateral Research Funding (coordinated national funding)
- Involves partners in 9 different countries: Australia, Brazil, India, Madagascar, Mozambique, New Zealand, South Africa, UK and USA.
- Focuses on 5 ‘hotspots’: SE Australia, Brazil, India, Mozambique Channel and southern Benguela.
- Led by South Africa.
GULLS Core Activities in Each of the Hotspots

Phase 1

– Using a common VA framework in participatory mode, determine the vulnerability of coastal peoples with regard to climate-related marine food security (underway in s. Benguela);

– Exchange visits and training to develop skills and train early career researchers for the in-country work.

Phase 2

– Develop and apply predictive, integrated frameworks and models to help to develop future scenarios and adaptation options (Atlantis model for s. Benguela).

– Develop and disseminate education and communication tools, a vulnerability assessment framework, and options for adaptation and transformation within coastal communities.
Elements of a Vulnerability Assessment (based on IPCC framework)

Physico-ecological
- Ecological Exposure
- Ecological Sensitivity/Resilience
- Potential Ecological Impacts
- Ecological Vulnerability
- Future Nansclim II?
- GULLS.xls: Benguela
- GEF Project + FAO/BCC Vulnerability project

Socio-economic
- Social Exposure
- Socio-economic Sensitivity
- Potential Socio-economic Impacts
- Adaptive Capacity
- Social - Ecological Vulnerability
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Future Nansclim II?
GULLS/Benguela
GEF Project/FAO/BCC
Vulnerability project

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Benefits to the BCLME of the Suite of Climate Change Projects

• Development of a proactive approach to adapting to climate change and variability in the region;
• Catalyse greater political attention to importance of small-scale/artisanal fisheries and fishing communities and support for reducing their vulnerability;
• Raise the profile and priority of the fisheries sector in multi-sectoral planning and management;
• Encourage and facilitate a long-term strategic approach to fisheries management and use;
• Encourage good linkages between natural and human sciences and between resource management and human development;
• Increase stakeholder and public awareness of climate change and its impacts.