National consultations to strengthen knowledge on environmental pressures across borders in Kenya

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National consultations to strengthen knowledge on environmental pressures across borders in Kenya

Wednesday 14th October 2020
Dr. Jacqueline Uku (IOC-UNESCO Consultant)

Bio

- IOC-UNESCO National Consultant on Environmental Pressures
- Profession: Marine Researcher
- Experience: PhD in Plant Physiology, Blue Economy, Community Development, MSP Coordinator for Kenya
Objectives

1) Discuss environmental pressures, cumulative impacts in Kenya

2) Exchange good practices, lessons learnt and decision support tools to tackle environmental challenges associated to the implementation of marine spatial planning in Africa
Agenda

09:00 – 10:00
Introduction & Opening
Recap of Day 1

10:00 – 11:00
Session on Decision Support Tools

11:00 – 11:30
Q & A
Recommendations
Closing
Gabriel A. Juma
KMFRI

Bio

- Has served as an Intern at Kenya Maine and Fisheries Research Institute.
- Bachelors and Masters Degree in Environmental Science from Chuka University
- Post Graduate Diploma in Oceanography from Alfred Wegner Institute – Germany
- Research focus on seagrass ecology and blue carbon assessment
- Currently a co-lead in Ocean Literacy Working Group under the Early Career Ocean professionals and is involved in the planning of the Ocean Decade Launch in Berlin next year.
Payment for Ecosystem Services

Workshop on Environmental Pressures, Cumulative Impacts and Tools to Support Decision-making in the Kenyan Marine Spatial Planning Process

14-15th October, 2020

Gabriel Akoko Juma - MSc
Kenya Marine and Fisheries Research Institute
Coastal ecosystems connectivity & impacts of human activities on ecosystem services

Socio-economic changes for coastal population

Habitat destruction

Decreased storm buffering & inc. coastal erosion

Loss of mangroves and seagrass

Inc. sedimentation & nutrient input

Decreased storm buffering

Loss of coral reef habitats

Decreased fisheries, tourism & storm buffering

Silvestry et al. 2010; Modified
PES Concept

PES occur when beneficiary makes direct or indirect payment to the provider of the services. The idea is that whoever preserves or maintains an ecosystem service is paid for doing so.
Ecosystem Services

Supporting
- Soil formation
- Biodiversity
- Primary production
- Habitat

Provisioning
- Food and fiber
- Wood
- Clean Water
- Medicinals

Regulating
- Climate Regulation
- Pollination of crops
- Store carbon
- Control flooding

Cultural
- Inspiration
- Recreation
- Education
- Aesthetic
Requirements for PES

For all PES, the buyer must be identified, the market conditions understood (including any conditionalities) and the service provider legally and institutionally recognized.

Scales of PES Schemes

- International e.g. REDD+
- National e.g. ESP. Program in the UK
- Local/neighborhood
Opportunities and challenges for PES schemes in Kenya

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Challenges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government support</td>
<td>Benefit sharing</td>
</tr>
<tr>
<td>Good science (easy to do good scientific baseline studies)</td>
<td>Explaining the concept to the community</td>
</tr>
<tr>
<td>Partners to act as intermediaries between buyers and sellers</td>
<td>Community ownership of the project</td>
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<tr>
<td>Strong relevant policy and legal framework</td>
<td></td>
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</tbody>
</table>
Example of working PES Schemes in Kenya

- Mikoko Pamoja Mangrove Carbon Project
- Gazi Women Mangrove Boardwalk Project
- Vanga Blue Forest Project
- Mida Creek Community Project
- Bundling Seagrass into Carbon Offset Scheme in Mikoko Pamoja & VBF
Linking PES to Marine Spatial Planning

In the process of PES development and implementation, a number of processes towards MSP are covered;

• Mapping of the marine resources and project sites
• Baseline surveys including biodiversity assessments
• Community and other stakeholder consultation

Both PES Schemes and MSPs aim at coordinated and sustainable used of ocean resources.
Summary

Assess more PES schemes options & sustainability of the projects

Community involvement as key stakeholders

Are threatened hence the need for good planning and management

Enhances ecosystem conservation & community livelihood improvement

Community participation

Is a step towards conservation through informed and coordinated utilization of ocean resources
Thank You
Nyaga Kanyange (COMRED)

Bio

- Co-director, COMRED
- MSc. in Ecological Marine Management and BSc. in Fisheries
- Manager of the project ‘Provision of Strategic Support to UNDP for Shimoni-Vanga Seascape Community Development Projects, 2018-2021
- Fisheries specialist in development of fisheries management Plans in Kenya
- Senior blue economy consultant (fisheries, livelihoods and environment)
Is co-management a panacea for environmental pressures?
Introduction

Co-management defined

“the sharing of power and responsibility between government and local resource users” (Berkes et al., 1991)

Key words

• Power
• Responsibility
• Shared resource

Note: This definition fits well with the modern resource governance systems where resources are considered ‘open’, contrary to closed traditional systems.
Case Example: Shimoni-Vanga Seascape
Case Example: Shimoni-Vanga Seascape

• Covers a coastline distance of about 60 km including Wasini Island
• A biodiversity ‘hotspot’-hosts the famous Kisite-Mpunguti MPR
• A total of 13 community groups working with key government agencies and other stakeholders to implement projects
• A seascape-wide multi-stakeholder forum meets every quarter to discuss matters arising within their seascapes
• New and existing activities are guided by among others a joint co-management plan and a seascape strategy, developed through a concerted effort between the Government of Kenya and GEF-SGP and COMRED as the strategic partner
Environmental Pressures in the Co-management Area

- Illegal, Unreported and Unregulated fishing (IUU) both within Small Scale Fisheries and the High Seas. A threat to sustainability of fisheries

- Sedimentation from two main rivers (Umba and Ramisi)

- Infrastructure development-Roads, rail, port, etc.
Environmental Pressures in the Co-management Area

• Pollution, especially plastics and other buoyant trash

• Climate change—mainly coastal erosion due to sea level rise, bleaching, etc.

• Oil and gas exploration
Key Lessons Learnt

1. Social networks and personal relations make it difficult for communities to enforce their own by-laws thus a 2nd independent tier of enforcement not associated with these social circles is necessary
Key Lessons Learnt

2. Community-level monitoring is important for alerting stakeholders on pertinent changes to the resource as soon as they occur.
Key Lessons Learnt

3. A multi-sectoral forum for discussing and addressing issues as they arise is important-this can be scaped to different levels, e.g. MSP

4. Cross-boarder challenges are best addressed by concerned countries in a round table!

5. Communities need a long-term empowerment with a trusted partner in tackling environmental challenges

6. It takes time and heavy investments to build requisite capacity of the communities in co-management
Considerations for MSP

• The different stakeholders in the area and their interests

• Recognition of traditional forms of resource management and how they fit in within the larger MSP framework, e.g. LMMAs, CCAs, etc.

• Spatial allocation of fishing areas alongside other activities is needed to dispel the fear that MSP will mask Small Scale Fisheries
Considerations for MSP

• Land-seas nexus is necessary to capture upstream activities as well as coastal cities

• There is need for bilateral arrangements across boarders to accommodate mutual interests
The End

Thank you for your attention!

For further discussions: nyagak@comred.or.ke, nyagak@gmail.com

Website: www.comred.or.ke
Arafa Salim Baya
BIDII NA KAZI
WOMEN GROUP

Bio
- Certificate in Tourism development
- Presidential Award winner 2010_HCS Sustainable Tourism
- Certificate in general Agriculture
- Diploma in Community Development
- Diploma in County Government and Management
- First Lady Award winner 2017 in Forest Conservation
Environmental Pressures

1. Habitat Loss due to
   - Sea level rise at Mida Creek
   - Sea Erosion
   - Agriculture

2. Population expansion

3. Tourism
Lessons learnt in management of these Environmental Pressures

1. That women and youth have a big role in environmental conservation
2. That it is possible to combat climate change through community mobilization
3. That human activity is detrimental to environment
4. Communities with proper awareness can protect their environment
What an MSP process should consider

1. The unique marine resources within an ecological zone:
   - Cultural
   - Natural
   - Flora and fauna

2. The sustainable use by local communities of the marine resources within
   - Tourism
   - Fishing
   - Leisure
   - Research
   - Resource use management

3. How communities within which marine resources have been interacting, utilizing these resources.
   - International trading

4. The climatic factors affecting the area

5. Community access to the marine zone
Dr. Juliet Karisa
KMFRI

Bio
- PhD in Biodiversity
- MPhil in Fisheries Management
- BSc in Fisheries and Aquatic Science
Interrelationship of MSP to spatial patterns of coral reefs

15th October 2020
Importance of coral reefs

The Value of Coral Reefs

Coral reefs have a value of $9.9 trillion USD globally and are relied upon by at least 500 million people.

- **Coastal Protection**: Coral reefs reduce wave energy by 97% before hitting the shore.
- **Tourism**: 70 million trips are supported by coral reefs annually.
- **Medicine**: More than half of all new cancer drug research focuses on marine organisms.
- **Biodiversity**: Coral reefs cover 7% of the Earth’s surface but are home to 25% of all marine fish species.
- **Food Production**: Well-managed reefs produce 5-10 tons of fish/acre/year.
Coral reef decline

Healthy reef
Coral cover: High
Structural complexity: High

Degraded reef
Coral cover: Low
Structural complexity: Low

Phase-shift
Environmental pressures to coral reefs

1) Climate change
   - Large-scale coral bleaching and mortality events.

2) Sedimentation
   - Smothers and kill corals

3) Pollution
   - Hinders proper growth and development of corals
   - Stimulates growth of unwanted algae
1. Climate change and coral bleaching

- Mass coral bleaching event in 1998
  - some sites lost 100% coral cover
- Subsequent but less intense mass bleaching events – 2010, 2016
- Recovery has been slow
2. Sedimentation
3. Pollution
Lessons learnt in management of pressures

- MPAs were established with the objective to protect and conserve biodiversity and ecological balance of marine ecosystems including coral reefs.

- However, during the mass coral bleaching in 1998, MPAs were not spared to bleaching and there was similar coral mortality across all reefs regardless of protection.

<table>
<thead>
<tr>
<th>MPA</th>
<th>Designation</th>
<th>Size (km²)</th>
<th>IUCN Category</th>
<th>Year established</th>
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<tbody>
<tr>
<td>Kiunga</td>
<td>MR &amp; MaBR</td>
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<td>VI</td>
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<td>Malindi Marine Park</td>
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<td>Diani</td>
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<td>75</td>
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<td>1978</td>
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<tr>
<td>Mpunguti</td>
<td>NR</td>
<td>11</td>
<td>VI</td>
<td>1978</td>
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</table>

MR-Marine Reserve, MP- Marine Park, MaBR-Man and Biosphere Reserve, NR-National Reserve
Lessons learnt in management of pressures
An example of Watamu and Malindi Marine park

- Pollution/Nutrification
- Sedimentation
- Phase-shift

Healthy reef
- Coral cover: High
- Structural complexity: High

Degraded reef
- Coral cover: Low
- Structural complexity: Low
Considerations for MSP process

MPA as a tool for conservation

MSP

usually at the national, regional or state level (a level higher than that of MPAs)

a strategy of MSP, usually at lower spatial levels

MPA

an instrument of MPAs, where its spatial aspects (rules, goals, etc.) are synthesized

zoning

*
Considerations for MSP process

MPA as a tool for conservation

- Global MPA targets - Aichi target 11

1.6% of oceans are under protection

- 10% target for global cover of Marine Protected Areas by 2020
- EEZ (3.5% protected)
- High Seas (0.03% protected)
- Coastal (7.2% protected)
Considerations for MSP process

Towards climate-resilient MPAs

Spatial patterns

1) Marginal reefs in the north
2) Implication on connectivity
3) Potential of an ecological corridor
Considerations for MSP process
Towards climate-resilient MPAs

Spatial patterns
- Resistance and recovery potential
Considerations for MSP process

Towards climate-resilient MPAs

Different geographic zones

Different management levels
Considerations for MSP process
Towards climate-resilient MPAs

Depth
Exposure-oceanic waves
Reef types
Considerations for MSP process -

Local Marine Managed Areas
Cited work

- McClanahan *et al.*
- Obura *et al.*
- Okuku *et al.*
- Kawaka *et al.*
- Karisa *et al.*
- Tuda *et al.*
- Munga *et al.*
- TNC
Thank you
Dr. Adnan Awad
Africa Oceans Strategy Director (TNC)

Bio
- PhD in Marine Biology, University of Cape Town (UCT)
- MSc in Conservation Biology, UCT
- 20+ years working on oceans in Africa
- Previous roles include:
  - International Ocean Institute (IOI)
  - International Maritime Organization (IMO)
  - Global Invasive Species Programme (GISP)
MSP and Environmental Pressures
Adnan Awad, Africa Oceans Strategy Director, TNC
Conservation in a Blue Economy

- Land use
- Tourism
- Oil & Gas
- Mariculture
- Coastal Defence
- Ports & Navigation
- Military Activities
- Culture
- Conservation
- Dredging & Disposal
- Submarine Cables
- Fishing
- Renewable Energy
- Marine Recreation
- Mineral Extraction

Slide: Nicole Schaefer
What impacts coastal and marine biodiversity?

- Extraction & harvest
- Land conversion
- Coastal development
- Nutrient runoff

- Sea Surface temperature
- Acidification
- Sea Level rise
- Extreme events
Key Coastal and Marine Habitats

Coral Reefs

Mangrove Forests

Seagrass Beds

Photo credits (left to right): Jeff Yonover, Mwangi Kiribu, Christopher Mason-Parker
TNC OCEANS SUPPORT

Ocean Protection
- Ocean Planning and Mapping
- Reef Systems
- Coastal Wetlands and Mangroves
- Climate Risk and Resilience
- Ocean Governance
- Sustainable Financing (CTF)

Fisheries and Aquaculture
- FishPath
- Sustainable Aquaculture
- Tuna & IUU

Community-based Conservation
- Livelihoods
- Gender
- Human Rights and Social Safeguards
- CBC Measures
MSP AND ENVIRONMENTAL PRESSURES

• Developing **zones** to manage uses and activities, current and future

• Develop **strategies** to avoid, reduce and minimize environmental degradation in marine waters

• Integrate through planning and zoning **regulations and policy** to address environmental pressures

• For cumulative human impacts, MSP can use an **ecosystem-based management** (EBM) framework to address impacts and threats

• MSP alone cannot address some environmental pressures (e.g. climate change related)
Marine spatial plans: from the coastline to the EEZ boundary

ICZM includes both terrestrial and marine ecosystem components - usually specified from a distance inland and offshore from the coastline.

A ICZM process framework can address environmental pressures that originate on land.

The policy scope for ICZM will usually include land-use development agencies and many sectors not typically involved in MSP:
- E.g. agriculture, storm and wastewater, pollution control, urban and housing development.
Thank you!

adnan.awad@tnc.org
Questions and discussion
Thanks to National Partners

MINISTRY OF AGRICULTURE, LIVESTOCK, FISHERIES AND COOPERATIVES
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