

Developing ecosystem objectives
*the link between issues and
management*



Developing ecosystem objectives *stages in the process*

1. The activity (or ecosystem) needing management is identified and described
2. Issues identified, justified and described - from a range of sources: science / governance/ stakeholders. Important to retain objectivity, no bias. Lateral thinking - consider a “shopping list” approach of potential issues. Review Ecosystem Services via MEA approach.
3. Implicated ecosystems and linkages are identified and described
4. Issues ranked based on criteria viz. impact, risk, likelihood, realism, etc.

Developing ecosystem objectives

5. Broad overall objectives identified (for region if transnational). Need not be for the entire ecosystem(s) as a whole. Includes biological and socio-economic aspects. Stated as environmental quality objectives EQAs. Time frame?
6. Operational objectives identified – at national or local level if necessary. Recognition of prevailing governance, mainstreaming: national plans of action
7. Indicators defined; measurable. Explicit vs target and threshold.
8. Scientific information assessed and improved
9. Baseline information established and/or assessed
10. Monitoring system in place – including spatial and temporal scale & availability of sustainable funding

Land Based Sources and activities – WIOLab

Four key areas of concern identified in TDA process

1. *Physical alteration and destruction of habitats*
2. *Water and sediment quality degeneration due to pollution; and*
3. *Alterations of freshwater flow and sediments from rivers*
4. *Governance*

Global Vision/ Objective defined and agreed on:

“People of the region prospering from a healthy Western Indian Ocean”

Specific global objectives for each issue defined:

1. *Critical coastal habitats will be protected, restored and managed for sustainable use;*
2. *Water quality will meet international standards; and*
3. *River flows will be wisely and sustainably managed.*
4. *Strengthening governance and awareness*

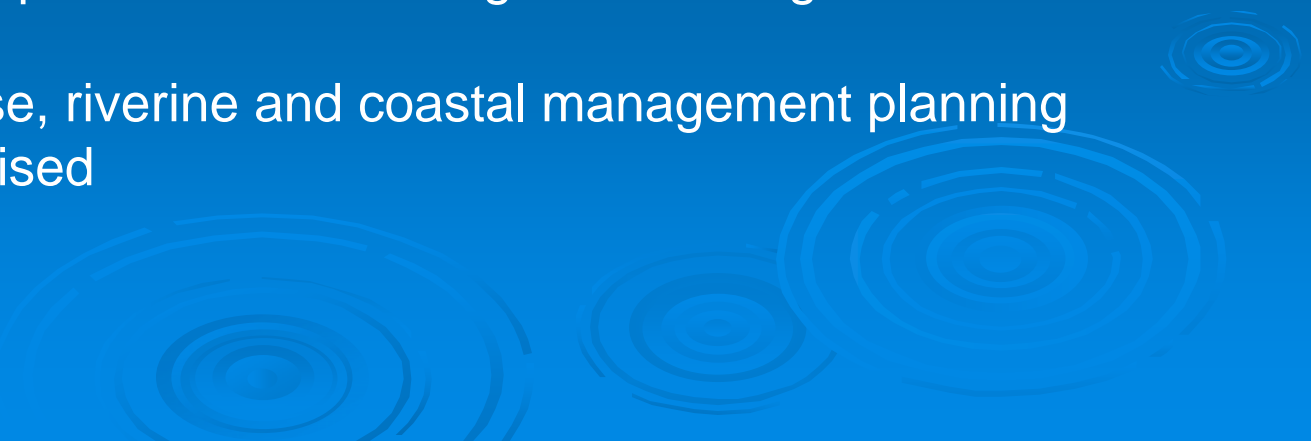
Operational objectives developed for each:

Mainstreaming via Nairobi Convention and National Action Plans

PADH

1. Guidelines and incentives to encourage compliance with best practices in critical habitat protection established
 2. Coastal zoning based on economic, social and environmental considerations implemented
 3. Critical habitat management plans in place in all countries
 4. A regional monitoring and evaluation plan established for critical habitats
 5. Regional information management undertaken effectively
 6. ICZM legislation in place in all countries
 7. National legislation to improve management of bilateral and regional issues strengthened
 8. Awareness of the importance of critical habitats raised significantly
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Water Quality

1. Effluent discharge standards harmonised
 2. Marine water standards developed and harmonised
 3. Framework for municipal wastewater management developed
 4. Collection, treatment and disposal of effluents undertaken in accordance with harmonised standards
 5. Cleaner production technologies encouraged
 6. Land use, riverine and coastal management planning harmonised
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River Flow

1. Awareness of EFA as a tool for wise river basin management raised
2. Capacity for applying EFA increased amongst key stakeholders
3. EFA conducted in river basin management in selected basins
4. Methodologies agreed upon and tools developed for coherent application of EFA findings in both freshwater and coastal management
5. Links formally established between shared watercourse institutions and the Nairobi Convention Secretariat
6. National freshwater and coastal zone management frameworks fully integrated

Governance

1. Public awareness of importance of good marine and coastal management raised
2. A regional activity centre to support and monitor transboundary issues established
3. National ratification, domestication and implementation of regional and international instruments promoted
4. Regional legal framework updated and harmonised with multilateral environmental agreements
5. An implementation framework for SEA and EIA established and implemented
6. Regional economic and trade organisations engaged with

OMP - approach

Identify goals and objectives

Engage all stakeholders

Set rules

Agree on targets

Provide options

Agree on actions

Examples...



Mozambique draft linefish management approaches

Socio-economic indicators	Fishery/species indicators	Ecosystem indicators
Significant change in current number of linefish operators, reflected in license issues and IDPPE surveys	change in total landings >20% over past four year average	Incidental mortality of vulnerable species (fish and other taxa) increasing
Significant decline in quality and availability of fish for human consumption	Average size less than size at 50% maturity	Discarded by-catch high and/or increasing (> 10%)
Significant decline in fisher catch rates	CPUE declined by > 50% over historic trend = $F > F_{(MSY)}$	Fishing activity damaging critical habitats such as coral reef, seagrass and mangrove forests.
Loss in diversity of fishers and fishery types	Spawner biomass declined to below 25% threshold	Boat operations harmful, e.g. anchor damage, fuel leaks, launch site impact, disturbance to mammals, turtle mortality, etc.
Reduced levels of employment in fisheries sector	Significant (>75%) decrease in target species of total catch	Discarded gear damage. Fishing line, waste discards, plastic, etc
Conflict with other fishery types or with neighbouring communities that have specific access rights	Fishing Mortality $F >$ than Natural Mortality M for any given species.	Bait usage of vulnerable or non-sustainable resources. E.g. digging for worms, damage to reefs in collecting.
Significantly greater searching/travel time	Significant (>50%) decrease in endemic species component of total catch	Optimal use of catch – e.g. no shark finning
“Indicators to be developed”		Boat construction – e.g. use of mangroves and other wood for vessels and gear.
Stakeholder survey reports > 75% respondents rating stocks overfished		

Thank you

