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# **A Guide to implementation of MPA for conservation of Aquatic Biodiversity and Ecosystems in Africa - Lessons and Best Practices from South and Eastern Regions of Africa**



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## I. Context:

The African Continent is adjacent to some of the highly productive marine ecosystems that include the seven African Large Marine Ecosystems (LMEs): viz., Agulhas Current LME, Benguela Current LME, Guinea Current LME, Canary current LME, Mediterranean Sea LME, Red Sea LME and Somali Current LME. These African marine ecosystems inhabit living and non-living resources; however, the unsustainable exploitation of these resources is threatening the biodiversity, resources and environmental sustainability. Several factors are responsible for the threats to aquatic biodiversity in these marine ecosystems; overexploitation of living species, pollutions from several sources (land-based municipal and agricultural activities), dumping of toxic wastes, mining activities, gas exploration, tourism development etc. Consequently, important aquatic resources are becoming increasingly susceptible to both natural and artificial environmental changes. Thus, conservation strategies to protect and conserve aquatic life are necessary to maintain the balance of nature and support the availability of resources for future generations.

### ***1.1. Marine Protected Areas***

They are effective tools for conservation and protection of vulnerable living resources in aquatic ecosystems. There are few known established MPAs in Africa's (e.g. South Africa, Mozambique, Tanzania) aquatic ecosystems as this is a technical challenge on concept, establishment and governance of marine protected areas (MPAs). They have been set up to protect vulnerable life-history stages of living aquatic species and ecosystems, to conserve aquatic biodiversity and minimize extinction risk, to re-establish or restore ecosystem integrity, depleted species and to enhance the productivity of fish and other living aquatic populations. They have also proved useful in terms of providing a public focus for marine conservation. Increasingly, they have been adapted to protect wide-ranging marine populations.

### ***1.2. MPA Governance Management systems***

In practice there is a wide range of management systems of MPAs. They include MPAs which are:

- Set up under customary tenure (e.g. in the Pacific Region; VELONDRIAKE MPA,



- Madagascar);
- Managed on a voluntary basis (e.g. Helford voluntary marine conservation area, St. Abbs & Eyemouth voluntary marine reserve, and Lamlash Bay in the UK);
  - Developed and operated by the private sector (e.g. Chumbe, Zanzibar, Tanzania; NOSY ANTISOHA MPA, Madagascar);
  - Based and run by a local community (e.g. Philippine fishing villages); LMMAs in Madagascar
  - Set up and operated under collaborative management systems (e.g. Inuit communities in Canada; co-managed MPAs in Zanzibar);
  - Run by Government Agencies.

In Mauritius, the MPAs are managed by the Ministry of Blue Economy, Marine Resources, Fisheries and Shipping (Fisheries Division).

In South Africa, after decades of institutional arrangements reforms, the Department of Environment, Forestry and Fisheries (DEFF) is now the legally mandated management authority for all MPAs.

In the Eastern and Southern Region, the MPAs are usually managed by the government or co-managed, including the communities.

In Kenya, the MPAs are usually managed by the Government (Kenya Wildlife Service/ Kenya Forest Service). No co-management system was set up at their gazettement; therefore, conflicts can appear between KWS and the communities. Like in Diani-Chale Marine National Reserve where active management of the MPA failed because of intense conflict between the KWS and local communities over benefit sharing.

In Tanzania mainland, MPAs are basically managed by Government (marine parks and reserves unit -MPRU) in collaboration with local communities and other key stakeholders. They are two main different categories: marine parks and marine reserves. Marine Parks are multiple use areas, where people are allowed to remain and can conduct their normal activities provided they comply with existing regulations. Marine Reserves are no-take areas where extractive use of resources is strictly prohibited.



In Zanzibar, all the MPAs are comanaged (apart in Chumbe Island where it's privately managed). For example, in Pemba Channel Conservation Area, management is carried out through collaboration with the community, with Village Fishing Committees/Shehia Fishermen's Committees (VFCs/SFCs) playing a significant role at ground level.

In Mozambique, most of the MPAs are managed by the Government. But PPP (Public Private Partnerships) have been set up in some MPAs – like recently in Bazaruto Archipelago where a Convention has been signed with African Parks Network for the management of the MPA.

In Madagascar, the management system is complex and unclear. There is no one organisation recognized as a formal management entity. The MPAs are usually collaboratively managed by the Government (Madagascar National Parks) with associations, conservation NGOs, and communities.

## 2. Classification of the existing MPAs in AU-MS and Regional levels according to IUCN categories for Marine Protected Areas (MPAs)

According to IUCN, Protected Areas are divided into six types, depending on their objectives:

**Category I** – Protected area managed mainly for science or wilderness protection (Strict Nature Reserve/Wilderness Area);

**Category II** – Protected area managed mainly for ecosystem protection and recreation (National Park);

**Category III** – Protected area managed mainly for conservation of specific natural features (Natural Monument);

**Category IV** – Protected area managed mainly for conservation through management intervention (Habitat/Species Management Area);



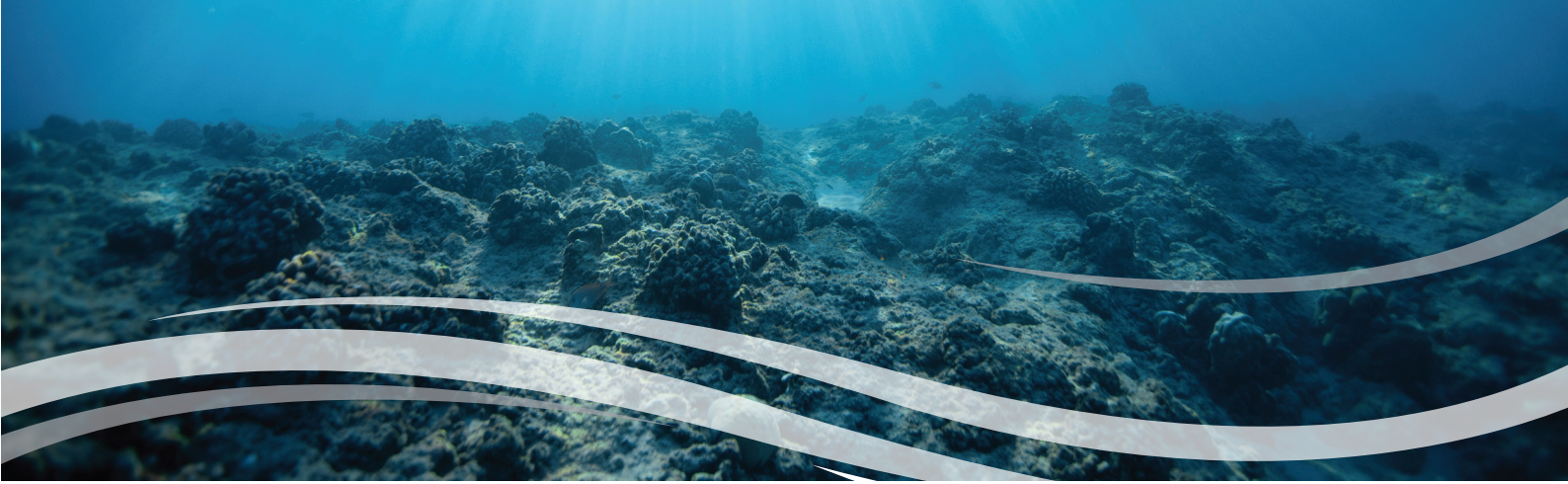
**Category V** – Protected area managed mainly for landscape/seascape conservation and recreation (Protected Landscape/ Seascape);

**Category VI** – Protected area managed mainly for the sustainable use of natural ecosystems (Managed Resource Protected Area).

### 2.1. **MPAs with endemic biodiversity hotspots**

- **The Dugong (*Dugong dugong*)** - The dugong is considered endangered (classified as vulnerable by IUCN) in Eastern Africa with the last remaining viable population (>300) found in the Bazaruto Archipelago and Cabo de São Sebastião in Mozambique. It is believed that a small population might still exist near the Kenyan border at Mbaya/ Kigomeni. In Kenya, it is believed that dugongs may now remain only in very small numbers in the Lamu-Kiunga Region
- **The Giant Manta rays (*Mobula birostris*)** - The oceanic manta ray is considered to be endangered by the International Union for Conservation of Nature's (IUCN's) Red List of Endangered Species because its population has decreased drastically over the last twenty years due to overfishing. Rays occur in Mozambique MPAs and the proposed Transboundary Conservation Area (TBCA), including Manta ray, Manta alfredi.
- **The humpback whale** - They are present in the Western Indian Ocean, along the East Coast from Mozambique to South Africa (in KwaZulu-Natal from the South Africa-Mozambique border in the north to Cape St Lucia South coast (ISIMANGALISO MPA). They were also observed in HLULEKA or in DWESA-CWEBE. They are present in the different islands of the Indian Ocean: Reunion Island, Mayotte, Comoros, Madagascar in the Western coast (Nosy Be) and in the Eastern one (Sainte Marie).
- **The Madagascan endemic big-headed turtle** - *Erymnochelys madagascariensis* is found in Menabe Antimena Protected Area, Madagascar.
- **Seabirds** - Important Bird Areas – IBA - are numerous in the Region – like in Zanzibar where all the MPAs are essential spots for birds. Among them, we find: *Nectarinia olivacea granti* and, *Cercotrichas quadrivirgata greenwayi*,





Tauraco fischeri zanzibaricus, Andropadus virens zanzibaricus and Nectarinia veroxii zanzibarica. In Madagascar, we find some aquatic birds living in mangroves: Anas bernieri (EN), Haliaeetus vociferoides (CR), Ardea humbloti (EN), Threskiornis bernieri (EN). ADDO ELEPHANT NATIONAL PARK MPA, in South Africa, is crucial for seabirds breeding.

- **Some endemic reef fish species (sparids)**
  - Present in some MPAs like in HLULEKA or in DWESA-CWEBE
- **The Coelacanth** - One of the most notable fish in the Region is the coelacanth, Latimeria chalumnae. Western Indian Ocean (WIO) Region; East and West coasts of the Mozambique Channel; the steep volcanic slopes of Comoros; areas off the Northern Mozambique coastline; and off the coast of Northern South Africa, and Pemba Channel canyons around Tanga.
- **The whale sharks** - They are found in many areas with surface Seawater temperatures of 18–30°C and range across the entire Indian Ocean, as well as in the waters of the proposed transboundary conservation area (TBCA).
- **The Coconut crab (Birgus latro)** -

Endemic to the lower Mpunguti Island, on islands across the Indian Ocean, mainland Madagascar, Zanzibar and areas around Chumbe Island, CHICOP leads a research and monitoring programme specific on the coconut crab.

## 2.2. **Lessons learnt and best practices in the management of identified MPAs within AU-MS and transboundary MPAs**

### • **Strategic Adaptive Management (SAM) in Kenya and Tanzania**

Adaptive management has been put forward as a way of managing natural resources through “learning-by-doing”. The goal is to learn from experience and constantly improve marine protected area (MPA) management practices over time. This requires ongoing monitoring of MPA systems to assess progress towards management targets and objectives.

### • **Sustainable funding mechanism in Kenya and Tanzania**

Management effectiveness will improve in all MPAs over time when and if concerted financial support is guaranteed. Kenya Wildlife Service (KWS) received



funding from the World Bank and the Global Environment Facility (GEF), through the Kenya Coast Development Project (KCDP) that supported MPA infrastructural development. This was after the first Management Effectiveness Tracking Tool (METT) assessment revealed major shortfalls in MPA inputs. The KCDP funding supported improvement of tourism infrastructure and MPA equipment (boats, mooring buoys etc.). In addition, the Western Indian Ocean Marine Science Association (WIOMSA) also funded KWS who manages MPAs to enhance their adaptive capacity.

In Tanzania, the increase in management effectiveness has been paralleled by major donor investment, through worldwide fund for nature (WWF), international union for conservation of nature (IUCN), the World Bank and several bilateral. Funding through WWF alone to Kenya, Tanzania and Mozambique has increased from \$18,000 in 1992 to the current investment of over \$1,500,000 per annum. Management effectiveness in Tanzanian

MPAs has increased from essentially zero at the beginning of the 1990s, to the current situation where most sites have staffing and budgets (supported by donor funding) and some have management plans. Its therefore important to consider the allocation of dedicated, secure and adequate budgets needs to be prioritized for MPA management.

- ***Evolution in terms of size: from larger MPAs to transboundary ones***

This change has an effect on the management effectiveness. Marine protected areas (MPAs) range in size from small (e.g. 0.15km<sup>2</sup>) to large (e.g. 1522km<sup>2</sup>). The proposed transboundary conservation area (TBCA) between Kenya and Tanzania provides an opportunity to enhance cooperation between two neighbouring states that share common environments, from both a biophysical, socioeconomic and cultural perspective in the coastal areas near the border between the two Countries.

- ***The peace parks***

The idea was and remains compelling:



an opportunity to think beyond political boundaries to accommodate gene pools, water flow, wildlife movement and the propagation of plant species; an opportunity to unlock Regional economic development, share the conservation of biodiversity and promote Regional peace and stability by demonstrating the benefits of cooperation. In the years since, it has been the political will of leaders in Southern Africa, and the efforts of an organisation set up to champion the peace parks concept, that has seen the vision of peace parks taking shape on the subcontinent.

The concept of the Region's peace parks is as glorious as it is audacious: vast conservation areas that straddle National borders, of sufficient extent to incorporate entire biomes; of sufficient integrity to restore the ancient patterns of diverse ecological communities, and of sufficient vision to reconnect the shared cultures of tribal peoples, dislocated when colonial rulers arbitrarily imposed Africa's borders and cut through some 190 culture groups ([www.peaceparks.org](http://www.peaceparks.org)).

- **Zoning**

Well enforced no-take sites can have a positive impact on reef fish.

The no-take MPAs of Chumbe (Zanzibar) and Kisite (Kenya) have larger fish and a high diversity of fish species (sometimes 3.5 times more biomass) than reefs that were being fished off Dar es Salaam and in Tanga Region.

Zoning is one of the most important issues facing most MPAs and is usually the best way to reconcile an array of different uses of an MPA.

- **Communities' involvement and livelihood development**

Wherever the different local stakeholders have been involved from the beginning of the MPA implementation, the impacts are positive on marine conservation and development.

Indeed, they are part of the process and thus, there are ready to work together with the Government and the conservation staff of the MPA to contribute to the marine conservation. They contribute to



the zoning plan to define the different use in the MPA; they are ready to move from their traditional fishing activities to other alternative livelihoods.

Communities in Kenya are benefiting from employment opportunities generated by tourism related to the MPAs (e.g. providing boat services, managing tourist attractions such as boardwalks)

In Mozambique, an estimated 25% of local communities benefit from the tourism generated by Bazaruto Archipelago Marine Park and, at several of the new MPAs in the Country, systems are being set up to ensure that some of the revenue generated goes directly to community development projects. Similar schemes are in place or being established at community-managed and privately operated MPAs on Zanzibar, and are planned or in place for the Government sites on the mainland of Tanzania.

- **Privately managed MPA** - the case of CHICOP in Zanzibar: model of financially and ecologically sustained park management.

Chumbe Island Coral Park Ltd. (CHICOP) is an award-winning private nature reserve that was developed from 1991 for the conservation and sustainable management of uninhabited Chumbe Island off Zanzibar.

The reserve includes a fully protected Coral Reef Sanctuary and Forest Reserve that harbour rare wildlife, a Visitor and Education centre, a small eco-lodge, nature walks and historical monuments. All buildings and operations are based on state-of-the-art eco-technology aiming at zero impact on the environment (rainwater catchment, photovoltaic energy and solar water heating, composting toilets, vegetative greywater filtration etc.).

The overall aim of CHICOP is to create a model of financially and ecologically sustainable park management, where ecotourism supports conservation, research and comprehensive Environmental Education programs for local schools and other benefits for local people.

In 2011, Chumbe Island became the first Global Ecosphere Retreat (GER) certified Long-Run Destination through the Jochen



Zeitz Foundation which means that Chumbe strives for the highest standards in sustainability through the balance of conservation and commerce, whilst fostering community development and cultural stewardship.

Chumbe's sustainable management and promotion of key ecosystem services for the region has since been recognized on many levels, including being mentioned in the UN Secretary General's Report to the General Assembly on protection of coral reefs for sustainable livelihoods and development, which states: "A noted example for PES (Payment for Ecosystem Services) within the context of coral reefs habitat is the private, non-profit Chumbe Island Coral Park Ltd (CHICOP) in Tanzania (2012).

**Community-involvement:** Rather than sourcing products and services from abroad like many large-scale resorts in Zanzibar, Chumbe works with local craftsmen, artisans, fisher, and other workers to supply furniture, art, yogurt, soaps and other products and services for the island. Sourcing products and services locally both support the local economy and help garner

community support for our environmental conservation projects.

**Research & monitoring:** The research programs have been designed to be fully sustainable, to provide useful information to support the protection and management of the reserve, and to identify early warnings of stress.

The following projects are being conducted: coral reef monitoring, seagrass monitoring, sea surface temperature logging, coral reef monitoring.

### **2.3. Goods and services provided by the existing select MPAs in AU-MS and Regional levels**

The goods and services provided by MPAs include:

- Human food
- Medicines

The example of Kiunga Marine National Reserve in Kenya – where the local coastal communities rely on small-scale agriculture and honey-harvesting; former hunter-gatherers, they still collect edible and medicinal plants from the Dodori and Boni Reserves. The MPA can support the honey production and



conservation of medicinal plants.

- Carbon sequestration

The ecosystem service of carbon sequestration, understood as the process of capture and long-term storage of atmospheric carbon dioxide has been recognized for its contribution to climate change mitigation. The capacity of sequestering (capturing and storing) organic carbon is a regulating service, provided mainly by mangroves and seagrasses that gains importance as alternatives for mitigating global warming. Enhancing MPAs' blue carbon potential could be a key contributor to drawing down carbon and could provide many additional benefits to the marine environment and human society, such as rebuilding biodiversity and sustaining food production.

- Storm protection
- Provision of fisheries

*2.3.1. For fisheries, MPAs generally provide the following basic benefits:*

- Support for stock management, including: Protection of specific life stages (such as nursery grounds);

- Protection of critical functions (feeding grounds, spawning grounds); Provision of spill over of an exploited species; and Provision of dispersion centres for supply of larvae to a fishery
- improved socio-economic outcomes for local communities
- support for fishery stability, and ecological offsets, trade-offs for ecosystem impacts, and better understanding of impacts and options
- Scientific research
- Ecotourism activities, recreation
- Cultural services - The services are both: economic and ecological. Among the other ecological related services, it includes climate, diseases, temperature regulation. The MPAs also support services such as beach formation and nutrient cycling.

*2.3.2. Focus on the ecological services in Madagascar:*

Importance of Ecosystem Services in Madagascar: The people of Madagascar, particularly its rural and poorer populations, are highly dependent on natural resources and have a strong relation to nature and



environment (Kiefer et al. 2010). Natural ecosystems play a key role in food security, by providing wild sources of food (fisheries,). Mangroves are particularly important for making fishing traps, canoes, processing prawn and fish catch, and for domestic use including fencing, housing, and fuel for cooking. They also provide nurseries and hatcheries for fish. There is mounting evidence that mangroves may provide protection from storm surges generated by cyclones, the frequency and intensity of which are projected to increase in the future under climate change. Coral reefs provide critical sources of food and income that can help coastal populations cope with climate impacts. Madagascar 's biodiversity and natural beauty is its largest draw for tourists, providing aesthetic and recreational values for the tourists themselves as well as a large portion of the country 's overall economic activity.

A study on Key Ecosystem Services in Madagascar shows the services providing by MPAs:

- **Provisioning:** Food e.g Commercial Fisheries and Small-Scale Fisheries

- **Regulating:** Disaster Risk Reduction and Climate Adaptation

Number of People Vulnerable to Climate Change-Driven Increases in Storm Surges that are Potentially Protected by Mangroves. 63 Key Biological Areas (KBAs) of the study contain mangroves that are within 2 km of people that are considered vulnerable to storm surges, based on historical cyclone events. This analysis uses historical occurrence of cyclones as a proxy for future risk, and assumes that proximity to mangroves provides some protection.

Among the other services provided include:

- Ecotourism – especially in National Parks where the number of visitors is higher (Nosy be and its satellite islands)
- Cultural/Spiritual Values
- Coastal and marine KBAs provide commercial fisheries, as well as mangrove and coral reef ecosystems that protect coastal areas from storms and support small-scale fisheries.

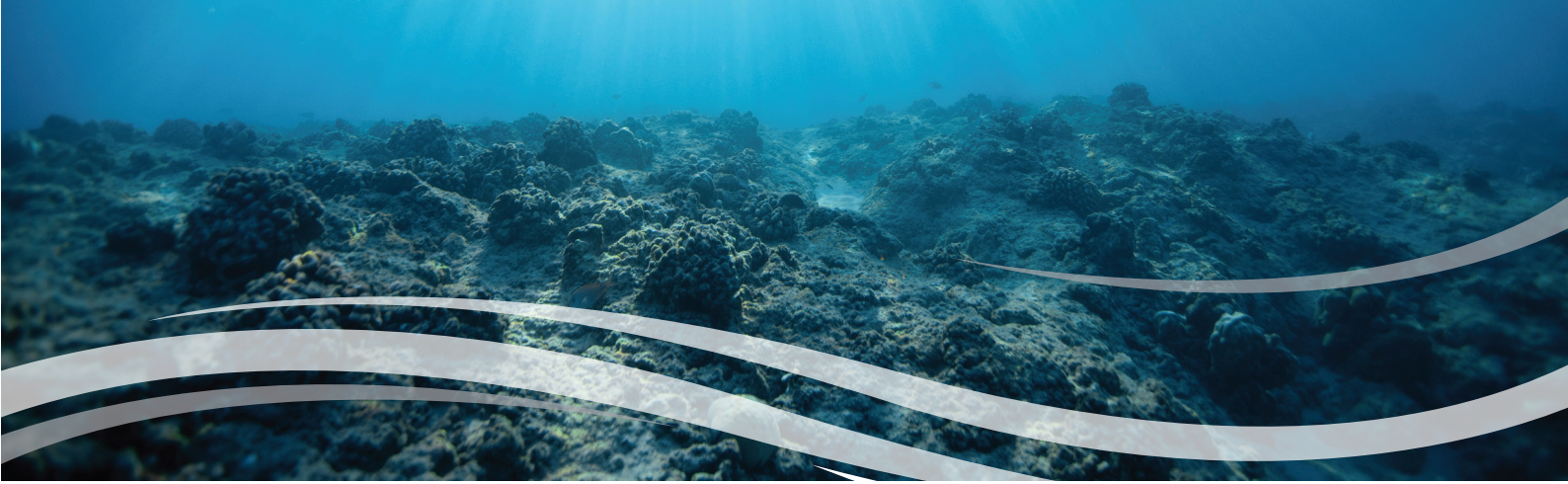


### 3. Strengths, Weaknesses, Opportunities and Threats analysis including institutional capacity for the management of MPAs in AU MS that need to be addressed

SWOT analysis is obviously quite different from one Country to another, it's also different from one MPA to another. Below is a summary of the SWOT analysis with threats being a significant element for attention as is the case for MPAs in Eastern Africa.

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Important Bird Areas (IBA),</li> <li>• Important Marine Mammals Areas (IMMA),</li> <li>• Man and Biosphere (MAB),</li> <li>• Rich and diverse biodiversity,</li> <li>• Home of International Union for Conservation of Nature (IUCN) red-listed species,</li> <li>• Dedicated workforce with good reputation,</li> <li>• Strong Legal Framework</li> </ul>	<ul style="list-style-type: none"> <li>• Low financial support,</li> <li>• Low workforce,</li> <li>• Weak linkages with the county Government,</li> <li>• Little staff training,</li> <li>• Little use of technology</li> <li>• Insufficient monitoring of the MPA's ecological and cultural aspects</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Robust Government Policies,</li> <li>• National and International goodwill,</li> <li>• Diverse wildlife species and habitats,</li> <li>• Investments in training,</li> <li>• Research and education,</li> <li>• Collaboration with other stakeholders,</li> <li>• Presence of the development partner to invest on fisheries and marine resources,</li> <li>• Presence of large water body resources with high fisheries and marine resources potentials,</li> </ul>	<ul style="list-style-type: none"> <li>• Poaching,</li> <li>• Encroachments,</li> <li>• Coastal development and urbanization,</li> <li>• Pollution,</li> <li>• Increase in population,</li> <li>• Climate change (sea level rise, etc),</li> <li>• Destructive exploitation (destructive gears &amp; methods),</li> <li>• Use of illegal and/or destructive fishing gear</li> <li>• Overfishing,</li> <li>• High poverty levels,</li> <li>• Illiteracy among local communities,</li> <li>• Resource use conflicts,</li> <li>• Terrorism,</li> <li>• Resource over exploitation</li> </ul>





**3.1. Guidelines on mechanisms and priority actions for intervention for strengthening implementation and effective governance of identified MPAs for the conservation of aquatic biodiversity in AU member states both at National, Regional and transboundary levels.**

- Work on Management plan for each MPA. For instance, Mombasa MPA in Kenya has none, though it's one of the MPAs in Kenya where there is the most important human pressure.
- Establish guidelines for all the marine users: divers (not supposed to touch underwater), boat users (for waste management), snorkelers (not supposed to feed fish),
- Establish guidelines for whale and dolphin watching
- Establish guidelines for strategic adaptive management
- To review the institutional framework on MPA management in Kenya:
- provide technical trainings to the staff working on MPAs
- To conduct specific assessments in each MPA: water sports, diving, etc

- To set up specific research and monitoring programmes

**3.2. Intervention for management effectiveness of the MPAs:**

- Support organizations working at the Regional level like Western Indian Ocean Marine Science Association (WIOMSA) to:
  - i. Improve their training programmes - The technical staff working on MPA are not well trained and well qualified to manage effectively the MPAs.
  - ii. Reform the institutional frameworks
  - iii. Support organisations, associations, NGOs working on alternative livelihood programmes
  - iv. Support the Locally Managed Marine Areas (LMMAs)

Locally Managed Marine Areas (LMMAs), are characterized by local communities taking a lead in the conservation and sustainable use of marine resources, which is essential for the long-term social and economic well-



being of communities. More than 200 already exist in Madagascar whereas in Kenya, the concept is still relatively new but with prospects of picking up in the near future. The project's support should be directed to all the organizations working on this concept for the LMMAs to be largely extended all over the Region and effectively managed.

- v. Support the establishment of large scale marine protected areas (MPAs) and transboundary initiatives e.g.
  - a. The Transfrontier Conservation Area (TFCA) between Mozambique and South Africa. The Ponta do Ouro-Kosi Bay Transfrontier Conservation Area between Mozambique and South Africa was established in June 2000, it integrates the Ponta do Ouro Partial Marine Reserve and the iSimangaliso Wetland Park. It forms part of the larger Lubombo TFCA, which encompasses a complex system of conservation areas between Mozambique, South Africa and Swaziland.
  - b. The Transboundary Conservation Area (TBCA) between Kenya and Tanzania. The proposed site extends from the

Northern boundary of Diani-Chale in Kenya to Southern boundary of Mkinga District in Tanzania, just north of the Tanga Coelacanth Marine Park. The TBCA includes;

In Tanzania:

- 4 marine reserves, established in 2010
- At least 3 Community Managed Marine Areas established during the Tanga Coastal Zone Management Programme

Adjacent to the TBCA:

- Pemba Conservation Area
- Tanga Coelacanth Marine Park gazetted 2009

In Kenya

- 2 marine reserves
- 1 marine park
- Network of community-conserved areas in Shimoni, Majoreni and Vanga
- Adjacent to the TBCA:
- Mombasa marine park

The area has been recognized by International Agencies such as the Worldwide Fund for nature (WWF) and the Convention for Biological Diversity (CBD) as a biologically



significant area deserving special conservation attention, and have the support from International Organizations such as the Peace Park Foundation and WCS.

The transboundary MPA initiative between Kenya and Tanzania is coordinated by Tanzania Marine Parks and Reserves Unit (MRPU) & Kenya wildlife service (KWS).

The project's support towards this initiative should be directed towards meeting its objectives:

- Develop a collaborative management framework for the Transboundary Conservation Area (TBCA) with a mutually determined and agreed upon implementation mechanism.
- Conducting a socio-ecological inventory of the natural assets in the area and identify current drivers of change and emerging threats including the impacts of COVID-19 on Marine Protected Area (MPA)/natural resource management and associated community livelihoods.
- Strengthening capacity for restoring ecosystem health and conserving

biodiversity at the local, National and trans-boundary level to enhance ecological and socio-economic resilience and thus build back better especially after the COVID-19 disruptions.

- Supporting the Tanzania and Kenyan Governments achieve their protected areas target under sustainable development goal 14.5 (10% of Exclusive Economic Zone (EEZ)) and progress towards the 30% under the Global Biodiversity Framework (GBF).
- Strengthening sustainable Blue Economy opportunities (which includes sustaining healthy coastal and marine ecosystems, catalyzing sustainable fisheries management, and addressing pollution reduction of both nutrients and marine plastics).



#### 4. Best practices that need to be undertaken in the management of transboundary MPAs by AU MS at Regional levels.

- Support Research and monitoring programmes at the large scale
  - Develop additional and alternative Livelihoods for communities
  - Develop ecotourism projects as a tool for conservation and development
  - Encourage private investments in tourism businesses - to develop tourism businesses with a high-quality standard, attracting upper-class visitors ready to pay more for conservation and development
  - Increase the park entry fee which is quite low (< 10 USD in Kenya and Tanzania) and it's directly transferred to the National treasury (apart from KIUNGA MARINE NATIONAL RESERVE in Kenya, where 50% is reinvested in conservation programmes).
  - Return and re-invest a percentage of the MPA entry fee and dedicate it to conservation programmes. Part of the entry fee could be kept for development projects, by so doing, ecotourism would enable the MPA to be more financially sustainable.
- Underwater trails - The concept is to discover the marine biodiversity along an underwater trail while snorkelling. The key species are marked with a sign underwater, thus enabling the visitors to discover an ecosystem and to learn about it. Local guides usually guide small groups of visitors underwater.



- Important Bird Areas (IBAs) – Such areas are found in the MPAs. Bird watching should be developed with the MPAs. Specific products could be designed to attract bird watchers either naturalist people or photographers.
- Eco-museums and ecotourism offices - They are very rare in the Region, at least, in the Countries visited and from the results of the online interviews. Ecotourism houses and eco-museums are the starting point to any trip around marine biodiversity. They give all the information required on marine life and the communities in its surroundings to visitors. Additionally, they



are places to highlight the local culture, the traditional way of life, the handicraft. The project should therefore support NGOs or other organisations working on ecotourism development locally – like Fanamby in Madagascar supporting ecotourism programmes all over the Country; and Blue Ventures working on marine conservation programmes and ecotourism development all along the coast of the Indian Ocean.

- Support the development of other Alternative livelihoods (ALs) - These include; development of Aquaculture and fish farming, development of Mariculture, Seaweed farming, other income generating activities (IGAs).
- Enhance stakeholder and community participation the marine protected areas (MPA) management – an example is the locally managed marine area (LMMA) in Madagascar and also use co-management plan between the Governments & communities as a model whereby stakeholders are involved from the beginning through a participatory process to define all together the zoning areas



## 5. Conclusion

Marine protected areas (MPAs) still face lots of threat and weakness to achieve their goals in terms of conservation. In South-Eastern Region of Africa, institutional frameworks are formalized; however, they are very far from being sustainably managed – apart from rare examples like in Chumbe Island where a partnership has been signed with CHICOP a private society. The revenue generated from tourism enables the MPA to be sustained and the results in conservation are significant.

MPAs need to enhance stakeholder and community participation in the MPA management, strengthen Law enforcement, develop tourism and alternative livelihoods for communities, develop infrastructure to support tourism and community projects, re-establish MPA boundaries, train the staff, equip the technical and administrative staff, etc. Financial and technical constraints are huge compared to demands, thus long-term financial partners can amicably solve this challenge.

Locally managed marine areas (LMMAs) are very good initiatives and allow all the local stakeholders to be involved in the conservation of their marine environment.

The size of the MPAs established is also increasing from 1km<sup>2</sup> to more than 100 000km<sup>2</sup> - which could be an effective strategy for sustaining target species within MPA boundaries. MPAs networks through transboundary MPAs initiatives are also promising.

Organizational support towards MPAs should focus on:

- Encouraging the initiatives to establish MPAs network in Western Indian Ocean (WIO), especially the transboundary conservation area (TBCA) which is in process between Kenya and Tanzania and led by Wildlife Conservation Society (WCS) and Western Indian Ocean Marine Science Association (WIOMSA).
- Encouraging monitoring and research in each MPA, specific assessments on marine biodiversity and recreation activities to avoid conflicts between users



- Creating a platform with shared data on MPAs for the managers to be able to talk together and to improve their management effectiveness
- Developing capacity-building of all stakeholders working in and around the MPA. IBAR could support WIOMSA in creating a regional marine school for all the stakeholders of the WIO Region and enhance their technical capacities. The school could organize seminars, trainings, site visits and learning exchanges. The training modules would have to be theoretical and practical to be the most efficient.
- Encouraging the Regional partners working on livelihoods and community-based projects for a minimum of 5 years. The main issues with the financial support are their length, the funds and the technical assistance that the communities need are usually too short to be efficient.

conservation partners should therefore support all the active Regional stakeholders and organizations ready to conserve the marine environment in the Western Indian Ocean (WIO) Region.

Local Non-governmental Organization (NGOs) in Kenya have developed very good initiatives with the local communities but they have stopped implementing their conservation activities because of a lack of financial support. AU-IBAR and other aquatic biodiversity



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