

REPORT

TECHNICAL SUPPORT TO PROJECT PREPARATION: ASSESSMENT OF POTENTIAL ROLE OF MARINE PROTECTED AREAS IN SWIOFISH TANZANIA PROJECT

David Meyers, PhD

Consultant, World Bank

CONTENTS

I. Objective of the Assessment.....	2
II. Introduction	2
A. Biological Background.....	2
B. Economic Values	3
III. Assessment of Marine Protected Areas Issues, Challenges, and Opportunities	5
A. Zanzibar	5
1. General Structure of MPA Management	5
2. Opportunities for SWIOFISH	9
3. Challenges and Recommendations.....	10
B. Mainland Tanzania.....	14
1. General Structure of MPA Management	14
2. Opportunities for SWIOFISH	19
3. Challenges and Recommendations.....	20
IV. Works Cited.....	23
V. Appendices.....	24
Appendix A. Financial Cost / Revenue Projections for MMAs	24
Appendix B. Terms of Reference for Technical Support to Project Preparation	29

I. OBJECTIVE OF THE ASSESSMENT

The objective of the assignment is to: 1) assess the potential role of marine conservation areas (MCAs) and marine parks in Zanzibar and mainland Tanzania respectively in strengthening the management of selected priority fisheries; and 2) outline a proposed program of activities to include in SWIOFish, as appropriate. The complete Terms of Reference are included as an Appendix.

II. INTRODUCTION¹

The United Republic of Tanzania has about 1,424 km of coastline with coastal regional containing nearly three-quarters of Tanzania's industries and over a quarter of the country's population. Coastal people's occupations include artisanal and commercial fishing, gathering marine resources such as sea cucumbers, cowries, cockles and other mollusks, seaweed farming, terrestrial crop farming, industrial production, livestock farming and small-scale mining.

The marine and coastal ecosystems include coral reefs, seagrass beds, mangroves, estuaries and wetlands, and coastal forests. These habitats support high biodiversity and are attracting a growing number of tourists. A well-managed coastal environment also provides for stable conditions for ports, maritime commerce and offshore natural gas and oil extraction. It has been estimated that coast contributes about one-third of the country's Gross Domestic Product (GDP).

A. BIOLOGICAL BACKGROUND

Coral reefs are common along much of the Tanzanian marine waters covering more than two-thirds of the coastline and forming barrier reefs interrupted only near major rivers. The total area covered by coral reefs is estimated at 3,580 km² and these areas are dominated by about 150 species of scleractinian corals (Spalding, Ravilious, & Green, 2001). The variable topography of the reef structure creates numerous microhabitats that support a high diversity of flora and fauna. Coral reefs provide shelter, feeding, breeding and nursery grounds for a great variety of invertebrates and fishes. As well, coral reefs protect the coast from strong wave action and thus help to prevent shoreline erosion. There are about 350 species of reef fishes (UNEP, 2001) supporting nearly 70% of the artisanal marine fish production in Tanzania. Virtually all of the demersal fish harvested and shells for curio trade are from coral reefs. Coral reefs are as well one of the most important tourist attractions in Tanzania, bringing foreign currency into the country. At the same time, due to the uniqueness, complexity and high biodiversity of coral reefs they have significant educational and scientific value.

The extent of coverage of seagrasses and seaweed has not yet been established in Tanzania but they are clearly widely distributed from high intertidal to shallow subtidal sheltered areas. There are about 12 species of seagrass in Tanzania. Seagrass beds are highly productive and serve many ecological functions including the provision of useful habitats for breeding, feeding and shelter to a variety of aquatic animals. Some key species that depend on seagrass include endangered species of sea turtles and

¹ The Introduction to this report is adapted from Meyers' report on the Marine Legacy Fund for MACEMP (2012).

dugongs. Additional ecological functions of seagrass include filtering sediments and excessive nutrients and providing storm protection to shorelines by dissipating wave energy. Seagrass beds are also being increasingly recognized as essential long term sinks for carbon – greatly assisting with global climate regulation.

There are over 300 species of macroalgae in Tanzania growing in the intertidal and subtidal areas. Economically important red algae (*Euchema*, *Kappaphycus* and *Gracilaria*) are exploited and farmed for export. There are limited uses of seaweeds by local communities with the exception of certain species being used as fish bait in traditional basket traps.

Mangroves cover about 1,155 km² in Tanzania including the 50,000 ha in the Rufiji River Delta – the largest single mangrove forest stand in the Eastern Africa (Whitney, Bayer, Daffa, Mahika, & Tobey, 2003). There are nine species of mangroves in Tanzania. It has been estimated that over 150,000 people are making their living directly from mangrove resources through food (herbs, honey, fodder), income and employment for the local fishing communities who use different mangrove species for building houses, furnishings, boats and boat masts, building fish traps, fuel wood for domestic use and lime production, charcoal, bark for leather tanning and tradition medicine. Some ecological and economic values of mangroves include: 1) the provision of shelter, food and breeding grounds for variety of finfish and shellfish, 2) minimizing siltation of coral reefs by trapping sediments 3) building land through the accumulation of silt and detritus, 4) absorbing pollutants and excessive nutrients washed from the land, and 5) stabilizing the coastline, protecting it from wind and wave erosion.

Brackish water swamps and mudflats occur in large estuaries and delta of major rivers such as Rufiji, Pangani, Ruvuma, Ruvu and Wami. Marshes in estuaries and river deltas are often lined with mangroves forming an ecosystem that supports a variety of aquatic fauna such as commercial and non-commercial fish, crocodiles and hippopotami and avifauna including seabirds, mangrove kingfish, coastal waders and pelicans.

B. ECONOMIC VALUES

The individuals, companies, and segments of society that reap the greatest economic and financial benefits from the marine and coastal environment include the government, the tourism sector, the fisheries sectors, all supporting industries, and the global community. The economic value of the marine and costal environments in Tanzania is high relative to the Country's GDP. This is especially the case for Zanzibar where it has recently been estimated that approximately 70% of Zanzibar's economy is driven by tourism. Although Stone Town and the spice tours are tourist staples, a large number go diving, snorkeling, and make beach excursions (Zanzibar Association of Tourism Investors, 2009). Almost all Zanzibar tourists spend time enjoying the beaches and seascapes. As well, seafood is an important staple for the restaurants and hotels of Zanzibar and provides an important economic activity and source of protein for a large amount of the local population. A recent study of the economic value of marine resources on Zanzibar indicated that with just fishing, tourism and seaweed harvesting, the economic value of the marine environment was 24% of GDP and 77% of investment capital (Lange &

Jiddawi, 2009). On the mainland marine and coastal resources play a relatively smaller economic role yet offer an important area of economic and food production growth in the future.

A useful approach to understanding economic value in natural environments is the emerging concept of the value of “ecosystem services”. These services are divided into provisioning, regulating, cultural and supporting services. Although the marine and coastal environment of Tanzania provides a full range of these ecosystem service benefits, the following categories capture those benefits with the greatest chance of monetization.

Tourism (recreation and ecotourism) falls under the Cultural Services grouping. The beneficiaries of healthy coastal and marine environments include hotel owners, managers, and employees, construction companies (who build tourism infrastructure), taxi owners and drivers, tour operators, vessel owners, transporters, restaurants, tour guides, the educational support structures that provide training, etc. The government also benefits from tourism through levying visa fees, various taxes and fees for construction, employment, and more. The tourists themselves benefit by having experiences that surpass the value that they have paid to have the experiences (this is called consumer surplus). The ecosystems themselves may also benefit if the tourism is conducted in a manner that supports healthy ecosystems and contributes financially to ecosystem conservation.

Direct expenditures from international visitors currently accounts for 5.8% of the Tanzanian economy (23 billion USD) with direct tourism revenue at 1.35 billion USD in 2011 (Tanzania Department of Tourism, 2011). The actual economic impact of tourism is a multiple of this as the jobs created by tourism multiply through the value chain. For Zanzibar in particular, tourism has recently been cited to account for 70% of the economy (see above).

Tourism in mainland Tanzania is largely driven by nature tourism as over 300,000 arrivals were recorded in Ngorongoro Conservation Area alone in 2011 (Ministry of Natural Resources and Tourism, 2011). This represents over 1/3 of all international tourists in only one protected area. A total of over 600,000 non-resident entrances were recorded in the National Parks in the 2010/2011 season (Ministry of Natural Resources and Tourism, 2011) and it has been estimated that over 90% of tourists (North American and European) take part in nature tourism (Tanzania Coastal Management Partnership Support Unit, 2001).

Marine and coastal tourism on the Tanzanian mainland is relatively limited but growing rapidly. Currently Mafia Island is a relatively large draw with over 4500 tourists visiting the Marine Protected Area in 2011 (Mafia Island Marine Park, 2012). Other areas with increasing tourist visitation include the Dar es Salaam Marine Reserves with nearly 20,000 in 2011 (primarily residents), the Tanga region, and the Mtwara region. There are beach hotels scattered along the entire coast of Tanzania but this is a more recent development than land based nature tourism.

The government of Tanzania understands the potential of well-developed and ecologically balanced coastal tourism as outlined in the National Tourism Policy of 1999, the Integrated Tourism Master Plan (in which the coast is described as a priority zone for development and the National Coastal Strategy that seeks to coordinate economic activities along the coast with the aim of improving community livelihoods. One interesting aspect of coastal tourism is that many tour operators offer combined land

based tourism on the mainland, coupled with beach and cultural tourism in Zanzibar. The combination of these two destination types creates enormous value for Tanzania as a tourist destination.

Marine fisheries include a wide range of fish and marine products from deep sea species such as tuna through a great range of finfish, squid, shrimp, other shellfish and marine products in the territorial and near shore waters as well mangroves and estuaries. This wealth of resources could be managed at high levels of productivity for current and future generations. Most reports indicate that these resources are not being adequately managed – especially in the near shore regions. There are multiple direct and indirect causes of this degradation that are covered in other reports. Other reports for SWIOFish cover the economic value of the Tanzanian fisheries.

III. ASSESSMENT OF MARINE PROTECTED AREAS ISSUES, CHALLENGES, AND OPPORTUNITIES

Marine Protected Areas (MPAs) are established and managed for a range of objectives. In Tanzania, all MPAs are multiple use areas with one key objective being improved livelihoods for communities within the MPA. Multiple studies have shown that even with totally protected marine areas, there are positive spillover effects on local fisheries either through the movement of larvae or fish themselves. All of the MPAs of Tanzania have been designed with the idea of co-management – the engagement of the local communities in management decisions concerning the MPA. This section will examine the use of MPAs in Tanzania as a tool for effective direct and co-management of fisheries resources as well as the additional economic, ecological and social benefits they provide.

A. ZANZIBAR

1. GENERAL STRUCTURE OF MPA MANAGEMENT

The MPAs in Zanzibar are classified as Marine Conservation Areas (MCAs) and are designed for comprehensive integration of communities in their decision-making structures. Even the use of the term “Conservation Area” instead of “Protected Area” indicates the multiple-use nature of the reserves. The MACEMP project has supported the expansion of the MCAs on Zanzibar and Table 2 provides the proposed areas for the expanded network. Formal classification awaits Ministerial and parliamentary approval and presidential signature of the new “Marine Conservation Unit Regulations, 2013”.

As can be seen by the tables and maps below, the proposed expansion of the MCA network will cover the large majority of Unguja Island and the entire west coast of Pemba.

The MCAs are managed by the Marine Conservation Unit contained within the Department of Fisheries Development – Zanzibar. A small staff of 3 individuals in Stone Town manages the MCU and each MPA has its own Manager and Staff. Staff includes a combination of government employees and community identified staff responsible for ticket sales and for site monitoring.

Table 1 Current Marine Protected Areas managed by MCU

Protected Area	Area (km ²)
Menai Bay (MBCA)	470
Misali (part of PECCA)	22
Chumbe	1
Mnemba (part of MIMCA)	12
Jozani / Chwaka	50
Ngezi	14.4
Kiwengwa	17.5

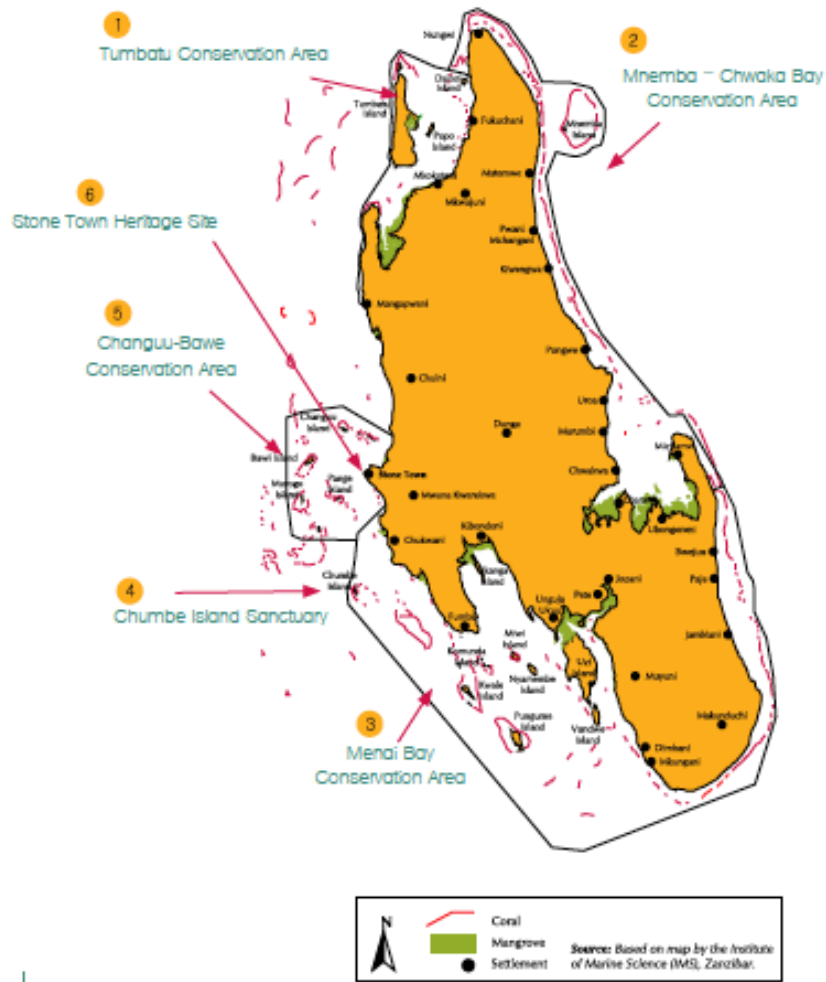


Figure 1 Map of Unguja Island Marine Conservation Areas

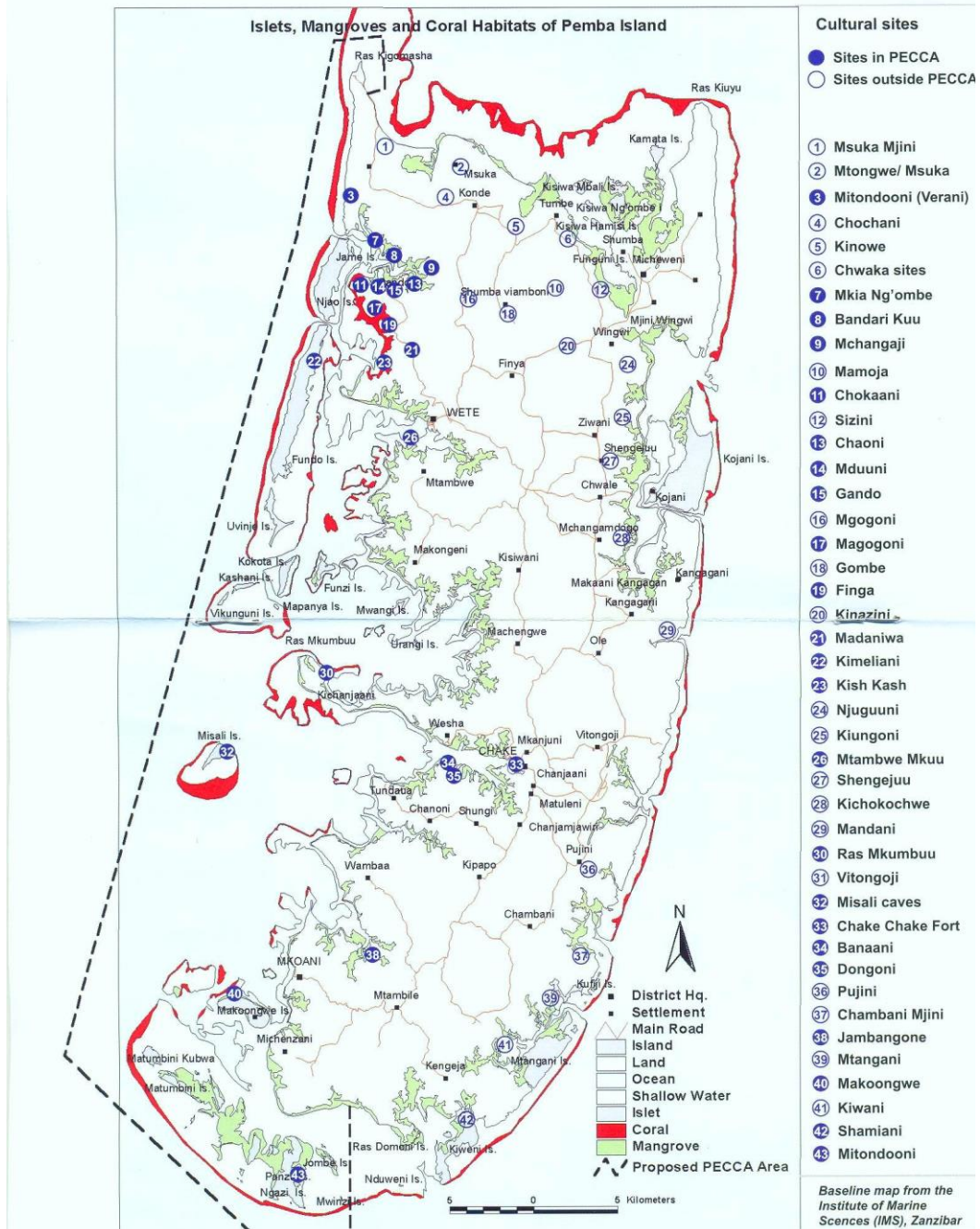


Figure 2 Map of Pemba Channel Conservation Area (PECCA)

Table 2 Proposed Marine Conservation Areas (MCAs) managed by MCU

MCA	Proposed Area (km ²) ²
-----	---

² Proposal awaits Minister's signature as of 11/26/13

Menai Bay Conservation Area (MBCA)	700
Mnemba Island Marine Conservation Area (MIMCA)	290
Pemba Channel Conservation Area (PECCA)	1000
Tumbatu Marine Conservation Area (TUMCA)	133
Chwaka Bay Marine Conservation Area (CHABAMCA)	116
Total	2239

The management approach taken by the MCU with regard to the MCAs is still being developed. MACEMP supported science-based background studies and the preparation of General Management Plans (GMPs) for the primary MCAs – MBCA, MIMCA, and PECCA. The GMPs contain adequate information but the approach to GMP development did not fully integrate the target community partners effectively and many of the Village Fisheries Committees (VFCs and also known as Shehia Fishermen’s Committees, SFCs) were not actively engaged in the GMP process nor have copies of the GMP (see Report on Co-Management). The Reports on Co-Management (Anderson and Mwangamilo, 2013) covers multiple aspects of fisheries co-management for Zanzibar (and the Mainland) and should be seen as a complement to this report.

The Marine Managed Areas in Zanzibar are presented in the table below.

Table 3 The Marine Managed Areas of Zanzibar (currently planned) are generally called Marine Conservation Areas (MCA)

Marine Managed Area	Area (km²)
Menai Bay (MBCA)	470
Misali (part of PECCA)	22
Chumbe	1
Mnemba (part of MIMCA)	12
Jozani / Chwaka	50
Ngezi	14.4
Kiwengwa	17.5

The Marine Conservation Areas on Zanzibar benefit from high levels of tourism to the islands and from the existence of high quality tourism operators that provide daily boat visits to the various sites of the MCAs. Some key tour operators include Safari Blue and One Ocean among others.

Table 4 Zanzibar Conservation Areas Total Visitors

Year	MBCA	MIMCA	PECCA	Total
2004/2005	19,538	22,211	0	41,749
2005/2006	19,204	9,344	2,907	31,455
2006/2007	35,403	27,809	26,511	89,723
2007/2008	37,458	28,662	26,671	92,791
2008/2009	42,203	42,217	19,092	103,512
2009/2010	43,068	17,999	11,768	72,835

2010/2011	35,774	21,687	23,124	80,585
Total	232,648	169,929	110,073	512,650

For Zanzibar, historical growth in visitors also dropped significantly during the 2008 global economic crisis and is only now returning to the levels pre crisis.

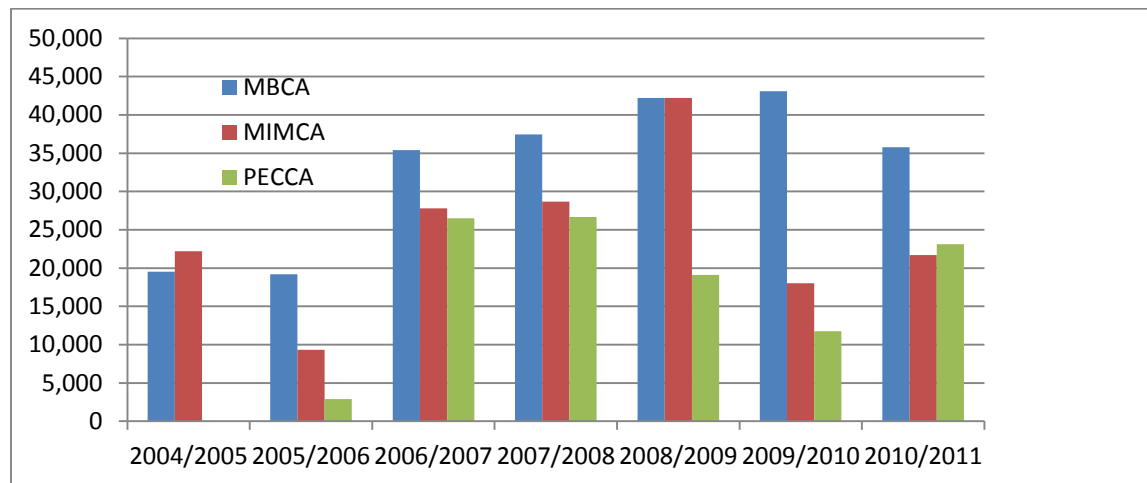


Figure 3 Revenues generated by Zanzibar's Marine Conservation Areas in USD (data from MCU)

Using some limited data from MBCA from July 2010 through February 2011, the average revenue generated per visitor was 3182 TSH. With the price for foreigners at 4500 TSH (effectively \$3USD), this suggests a calculation rate of approximately 70% of the foreign entrance fee price to revenues. From interviews, it appears that a significant number of unofficial boats and guides organize trips to MBCA without paying entrance fees. In fact, MBCA and MIMCA differ significantly in their approach to entrance fee sales with MIMCA focusing monitoring on checking tourist boats for tickets and MBCA focused more on illegal fishing. Both MCAs would benefit from a more balanced and better-financed enforcement regime.

2. OPPORTUNITIES FOR SWIOFISH

The largest opportunity for SWIOFish with regard to the MCAs of Zanzibar is to use the existing MPA legal and management structure combined with global knowledge of effective MPA management tools and techniques to strengthen co-management of the associated fisheries and the capacity of local institutions (village, district, island) to manage the resources upon which they have the most impact. With regard to the SWIOFish priority fisheries for Tanzania, these would include 1) mixed reef fisheries, 2) octopus, and 3) small pelagics for Zanzibar. The structures that could be effectively reinforced include: Village Fishermen's Committees (and Shehia Fishermen's Committees), other Shehia Committees, MCA unit management (managers, staff), the Marine Conservation Unit (see below), and the Department of Fisheries Development (DFD) within which the MCU and MCA units are currently housed.

Village Fishermen’s Committees apparently will be replaced by Shehia Fishermen’s Committees (SFC) according to the Marine Conservation Unit Regulations which are about to be signed. The SFCs can build on the progress of the VFCs.

According to the Co-Management report the following table provides an overview of the current situation with VFCs (SFCs):

Table 5: VFCs / SFCs established under MACEMP³

Island	MPA	Existing prior to MACEMP	Established during MACEMP
Unguja	MBCA	21	10
	MIMCA	4	27
	TUMCA		28
	CHABAMCA		13
Pemba	PECCA		34
	Total	25	112

Although there are a large number of VFCs that have been established under MACEMP, many of these committees have not had ongoing support and will require significant training, mentoring, and guidance from the MCU (see Co-Management report for more information).

3. CHALLENGES AND RECOMMENDATIONS

There are multiple challenges to achieving effective integration of MPAs into sustainable fisheries management in Zanzibar. These challenges can be grouped into 1) knowledge, 2) capacity, 3) stakeholder engagement, and 4) institutional structure.

Knowledge

In terms of knowledge, there is a limit to the availability of information on the status of most of the priority fisheries. Although the data collectors in Zanzibar are financed by the DFD and the data are collected regularly, as the data moves from village to district it is grouped and summarized in such a way that much detailed information is lost from the village level. There is a disconnect between data collection, analysis, and use of the results to the point of which the knowledge that could be generated by the enumerators is not available for adequate use by the decision makers at the local, district, and national levels. There are a wide range of other types of information that would be extremely useful for management decisions in the MCAs including information on village level economics, “farm” budgets, and other economic and social aspects associated with fishing, tourism, and other economic activities in coastal communities. The World Bank consultant team divided up knowledge needs into those that should be collected regularly by the local communities and those that can be collected by specific

³ World Bank Co-Management Report (Anderson and Mwangamilo, 2013)

scientific studies. Leaving out the scientific studies, the local data collection that forms part of the Fisheries Information Management System (FIMS) should be designed and analyzed in such a way as to allow local communities to track their situation in terms of catch volume and size trends; allow effective planning and implementation of registration and licensing fees; and feed into the MCA management planning system to allow larger level management decisions.

It is recommended to establish a VFC (SFC) level FIMS that tracks monthly and annual trends in fisheries catch. This will be essential in showing the communities the value of periodic and permanent no take zones.

Technical Capacity

There are multiple capacity challenges at each level of MCA management. At the Village Fishing Committee level, there is strong engagement and interest in local management activities but the VFCs do not receive adequate support from the MCA management who are both understaffed and inadequately trained. The VFCs have developed bylaws but most of these have not been approved at the district level and as such are not implemented. As well, the association between the bylaws and the MCA rules and management plans need better coordination. The Co-Management report outlines a broad range of recommendations for the VFCs (called SFCs) and implementing these recommendations would greatly improve the capacity of the VFCs to play a meaningful role in managing local aspects of the MCAs. For example the VFCs do not even have copies of the GMPs of the MCAs.

It is recommended to establish a methodology for participatory rural appraisal applied to the fishing communities and train the MCA/MCU staff in its use as a means to increase engagement of VFCs and other village stakeholders in more active management of the near shore fisheries.

The MCA management teams lack capacity to understand and implement the GMP and require more training with regard to collaboration with village level committees (see above). Current MCA management is focused on a very narrow set of objectives – namely checking tourist boats for purchased tickets. While this is an important activity to assure that the tour operators have actually sold and used the tickets they have purchased from the DFD, it is not the primary activity of a normal protected area management team. Normally, a MPA management team is focused on establishing and enforcing the full range of rules under which the MPA is managed – that is: establishing and implementing the General Management Plan. During the elaboration of the GMP, threats to the long term sustainability of the MPA are assessed by a range of stakeholders whose interests are incorporated into the planned activities and regulations. The establishment approval of VFC bylaws can be a strong legal complement within the MCA regulations such that all actors work together to achieve common objectives. This is currently far from the case with the MCAs of Zanzibar.

It is recommended that the MCA management team be significantly reinforced through the engagement of community “animators” whose role it will be to assure that the VFCs are integrally involved with the GMP elaboration, VFC Bylaws are in harmony with the GMP, and that the VFCs are functioning and communicating effectively with their communities, local government authorities, and the MCA management.

It is also recommended that the MCA be reinforced with additional staff for a range of other activities such as patrolling no take zones, managing the FIMS at the local level, and promoting community tourism activities (see below).

The MCA management teams remain too focused on collecting tickets from tourists. The MCU Regulations clearly state that the MCA team has a key role in enforcing the regulations and rules of the MCA. Historically the enforcement role has been applied differently within different MCAs with each MCA Manager focusing on their interest. The current relationship between the MCA and the Monitoring, Control and Surveillance (MCS) of the DFD lacks clarity and is totally dependent on the Department of Fisheries Development to assign tasks and resolve questions and conflicts. This structure is prone to high levels of inefficiency and delays in responding to illegal activities.

It is recommended that the MCU is reinforced to become a strong, technically capable management entity to harmonize the activities of MCA Managers in all of Zanzibar's MCAs and greatly assist with the enforcement of MCA, Fisheries, and other relevant regulations and laws.

The Marine Conservation Unit (MCU) is significantly understaffed and does not have the capacity necessary to oversee the management of the MCAs under its jurisdiction. There are several reasons for the lack of adequate staffing levels and capacity at the MCU. First, as a unit under the DFD, it is 100% reliant on the budgeting process of the DFD to receive its financing from the government. Secondly, the economic importance of the MCU is perhaps more closely tied to its potential impacts on the tourism sector – specifically maintaining vital coral reef and beach habitats that attract thousands of tourists annually. As stated previously, the tourism sector accounts for approximately one third of Zanzibar's GDP. Because the MCU is not independent and is retained under the DFD, it is seen by government decision makers as only a tool for fisheries management and less as a vital institution to maintain Zanzibar's economic vitality in the long term. It has been estimated that the MCAs generated approximately \$170,000 US in 2011 from tourist entrance fees (see Table 8). Because the MCU has an excellent source of financing through tourist entrance fees, its independence to use that money appropriately would be enhanced through the establishment of an independent MCU and a "Marine Legacy Fund for Zanzibar" as proposed in the 2012 report from David Meyers.

It is recommended that the Marine Legacy Fund of Zanzibar be established as an independent Conservation Trust Fund for protected areas management in Zanzibar as recommended by the report "The Marine Legacy Funds of Tanzania" (Meyers, 2012)

Another trend that maintains low capacity at the MCU is the poor use of external consultants as a means of developing internal capacity. During MACEMP, national and international consultants were engaged for specific tasks. However, the DFD and the MCU did not fully benefit from this expertise and although they supported the activities of the consultants, they did not engage with them in a way that would have built local capacity. As such, many of the excellent technical reports on MCA biodiversity, management, and other important related issues remain unused documents that sit on shelves. The MCU and MCA managers clearly do not have the technical capacity to understand these documents or carry forward most of their recommendations. Although the lack of engagement with external

consultants may be explained by a cultural reluctance for outside “influence”, this approach is not constructive since many of the issues facing the Zanzibar’s MCAs (and the Mainland’s Parks and Reserves) are issues that have been managed effectively in many nations throughout the world. The knowledge and capacity exists and should be easy to access. The limited capacity of the MCU and MCAs following significant levels of financing through MACEMP suggests that a new approach is necessary for SWIOFish to avoid repeating the same errors.

It is recommended that the SWIOFish program include international-level technical advisory services for protected areas management and sustainable financing.

The Department of Fisheries Development, similar to the MCU, could benefit from increased technical capacity and institutional strengthening. This support should include the District Fisheries Officers (see Capacity Needs Assessment for Zanzibar). Specific recommendations for the DFD are not part of this analysis.

Stakeholder Engagement

Currently the MCU Regulations puts the responsibility of oversight and stakeholder input solely in the hands of the Executive Fishermen’s Committee which is made up of representatives from the SFCs – local fisherman. Although this Committee is an excellent structure for this specific stakeholder group, an expanded executive committee structure could assure broader involvement of stakeholder and increased knowledge in decision making. For example it will be extremely valuable to include the tourist industry – which relies heavily on the quality of the marine environment in Zanzibar including coral reefs, beaches, mangroves (for storm protection), and the coastal fisheries for providing their clients with fresh seafood – as part of an expanded executive (or advisory) committee. Other important partners for the elaboration and monitoring of GMPs could include the IMS, local NGOs and other civil society groups, private sector groups such as the Chamber of Commerce, among others.

It is recommended that the MCU increase the engagement of other stakeholders in the elaboration, review and acceptance of General Management Plans beyond the Fisherman’s Executive Committees. Alternatively, the Fisherman’s Executive Committee could be renamed and include a more broad range of stakeholders.

Institutional Structure

The proposed structure suggested in the MCU Regulations include the establishment of a Fisherman’s Executive Committee (at the MCA level) made up of the chairman of each SFC. The Fisherman’s Executive Committee and the SFCs work with the MCA staff and the SFCs to propose and enforce the General Management Plan. Although the MCU Regulations are at the point of approval, there are several changes that could be considered in the management of the MCU and MCAs that would greatly increase their chances of effective management of fisheries and coastal ecosystems.

As the Unit currently stands, it is simply a department of Fisheries. In fact the entire management structure of the MCU is so intertwined with DFD that lines of hierarchy and communication are blurred.

The way the proposed MCU Regulations are presented, the Director of Fisheries Development’s decision-making could become a bottleneck as so many decisions pass through this office. As a quasi-governmental organization – similar to the Tanzania National Parks Authority (TANAPA) or the Marine Parks and Reserves Unit (MPRU) on the Mainland (and most Protected Areas authorities in other countries), a quasi-governmental MCU would be able to hire and retain competent staff, build improved relations with the tourism sector – a major partner – and improve plans for financial sustainability. Although the Ministry of Livestock and Fisheries Development would continue to be the chairman of an MCU Advisory Council (a concept removed from the final draft of the MCU Regulations), it could be the Council itself who hires and fires the Coordinator (who could be called the “Executive Director” or at least “Unit Manager”). Under this scenario, the MCU would be an entity focused on implementation and the Ministry (including the DFD) would focus more on policy, regulations, and law enforcement when the issues bypass the MCU’s competence.

It is recommended that the MCU is converted to a quasi-governmental organization with increased independence from the Department of Fisheries Development – reflecting the diverse set of key stakeholders that the MCU has beyond fisheries.

Another important area of improvement would center on the Shehia Fisherman’s Committees. There are over 130 local Village Fishermen’s Committees established that have received a range of support. These are integral village-level groups that could play a large and effective role in co-management of the MCAs if provided adequate support from the MCU. It is not clear if the VFC would simply become the Shehia Fisherman’s Committees or if a structural change would be required. See the recommendations of the Co-management report for additional suggestions.

B. MAINLAND TANZANIA

1. GENERAL STRUCTURE OF MPA MANAGEMENT

In Mainland Tanzania the MPAs are managed by the Marine Parks and Reserves Unit (MPRU). The MPRU is a government established marine protected areas management organization that exists physically separated from the Department of Fisheries Development but falls under their oversight. It was previously part of the Ministry of Tourism and Natural Resources but moved to the Ministry of Livestock and Fisheries Development. Established through the Marine Parks and Reserves Act of 1994, the MPRU is responsible for establishing and managing the Marine Protected Areas (MPAs) of the mainland. Current proposed legislation would carve out the MPRU as an “Agency” and as such it would achieve quasi-governmental status.

Table 6 MPRU Marine Managed Areas (MMA)

<i>MMA</i>	<i>Area (km²)</i>
Maziwe Island	2.6
Mafia Island Marine Park (MIMP)	822
Mnazi Bay-Ruvuma Estuary Marine Park (MBREMP)	650

Dar es Salaam Marine Reserve System	408
Mafia Island Marine Reserve System (Nyororo, Shungimbili, and Mbarakuni)	21
Tanga Coelacanth Marine Park	552
Tanga Marine Reserves System	36

The Marine Reserve system includes approximately 30 small islands in different areas along the Mainland Tanzania coast. Generally Marine Reserves are no-take zones but the Marine Parks are multiple use areas with no-take zones in their interior.

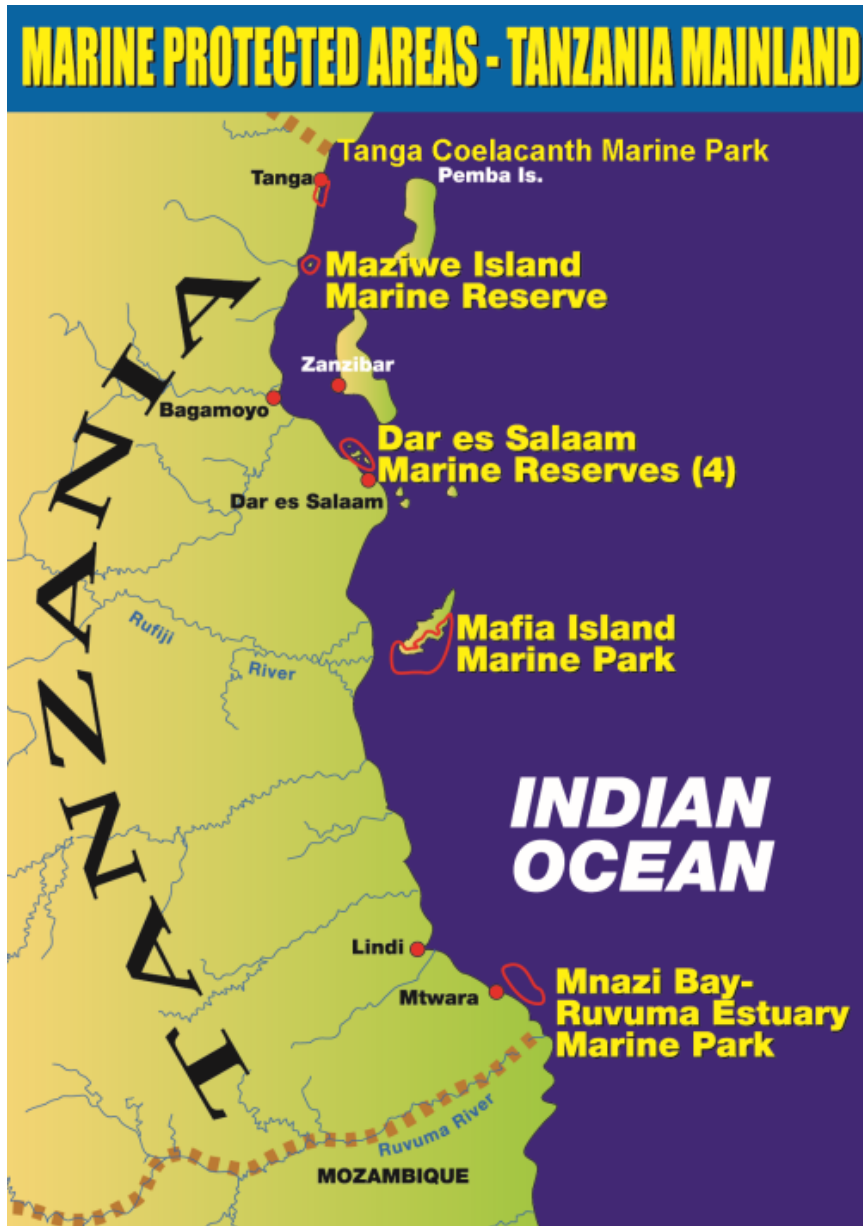


Figure 4 Map of the MPAs of Tanzania Mainland

The MPRU Regulations has established the Conservation and Development Trust Fund (CDTF) - the Marine Parks and Reserves Unit's fund for holding and expending revenues received from the entrance fees and other fees associated with the Tanzania Mainland MPAs. The fund and the MPRU are overseen by a Board of Trustees made up of 10 members including the Secretariat. The Board contains a strong majority of government members and although it does include some private sector representatives, there have been conflicts in the past between private sector representatives and the governmental members of the Board. The CDTF is not managed as a typical Conservation Trust Fund - all of the annual revenues in this revolving fund are spent each year as they are not adequate for the needs of the MPRU. As a Conservation Trust Fund the CDTF lacks certain elements common to most successful CTFs: transparency, good governance, and accountability to stakeholders. The challenge for governance is the fact that the members of the MPRU management are also on the Board of Directors of the CDTF. As such, there is an inherent conflict of interest that could be avoided if there were a greater number of non-government and private sector members on the Board. Without that check on conflict of interest, the CDTF has a very limited ability to secure outside financing from donors or the private sector.

Box 1 Summary of Mafia Island Marine Park (MIMP)

(Jason please edit!)

Mafia Island Marine Park (MIMP) was established in 1995 following the creation of the MPRU as a semi-autonomous marine parks authority with its own Board of Trustees under the Marine Parks and Reserves Act No. 29 of 1994. Community participation has been integral from even before its creation as the communities were part of the drive to create the MPA. WWF has been supporting the MIMP from early in its establishment and provided extensive technical and financial support over the years. WWF currently still supports MIMP through the Rufiji-Mafia-Kilwa Seascape Project (RuMaKi) that started in 2000.

Communities are involved in the management of MIMP and its fisheries resources in various ways. First, they are grouped into Village Liaison Committees (VLCs, similar to Beach Management Units) and each Village Liaison Committee is represented on the MPA advisory council. VLC members are elected by the village and include 8 members. Once elected, they are trained in basic conservation information and in their specific roles in the MPA management. The VLCs have the responsibility to oversee use of fishery resources in the areas of their village. This includes collecting camping and fishing fees from fisherman visiting from outside Mafia Island and outside of MIMP. Fishers from villages inside MIMP have the right to fish but must respect the gear and no-take restrictions. In general the MPA is a multiple use area with certain no-take zones, specified use zones (for people living within the Park) and general use zones (also accessible for people living outside the Park).

Village Liaison Committees are responsible for collecting fees from visiting fishers. These fees are charged per boat and include a 5000 TSH registration fee, 2000 TSH per day or 45,000 TSH per month "camping fees". Depending on the time of year, this could be as many as 50 boats per month scattered at various sites throughout the Park. Visiting fishermen camping and fishing outside the Park also pay license fees to the District Council but these fees are approximately half of those in the Park – showing

the increased value of fishing in the Park. VLCs provide eyes and ears on the ground (and sea) to monitor illegal use of the MIMP but they are supported by regular patrols of the MIMP management team. Dynamite fishing has been largely absent from Mafia Island for many years but is now coming back – not yet in the Park.

Tourist entrance fees in MIMP are \$20 per day per tourist – fees that are very high relative to other marine parks in the world. Mafia Island Marine Park has been receiving approximately 4500 tourists annually and there are multiple hotels and lodges located in and around the Marine Park. Trip Advisor lists 15 Hotels, Lodges and B&Bs on Mafia Island. Tourism revenues are divided between the park management (70%), the villages (20%) and the District Council (10%).

Using detailed data from MIMP the following figure shows a drop in visitors in 2008 and 2009 with revenues rising rapidly following the increase in user fees from \$10 to \$20 and post economic crisis tourist arrivals. Based on this data, visitors stay an average of 3.8 days at MIMP whereas for all other parks and reserves in the entire system, visitors tend to purchase single day entrance fees.

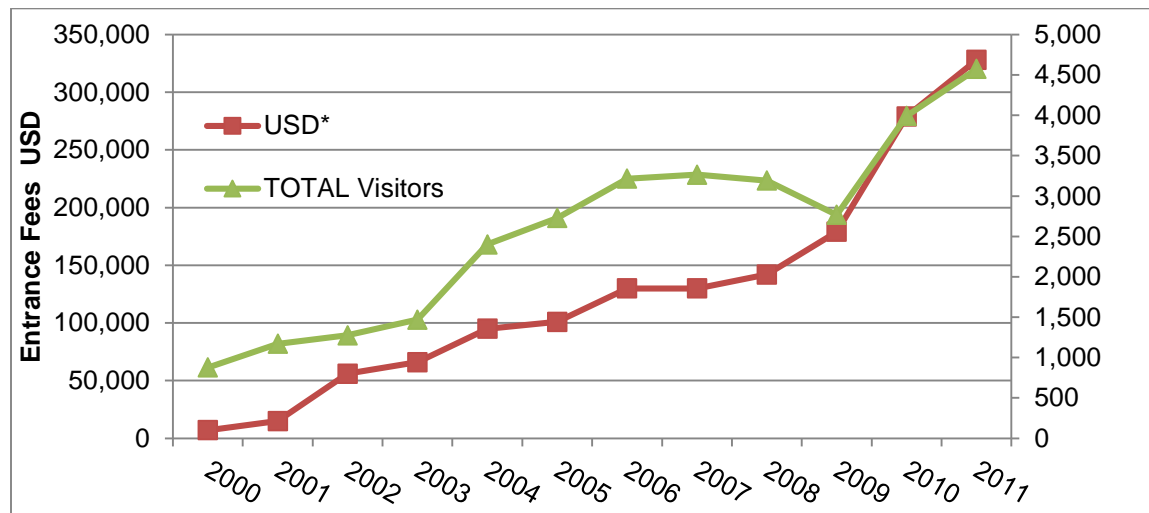


Figure 5 Historical number of visitors and entrance fee revenues in USD for MIMP⁴

Mafia Island Marine Park may be a special case for Tanzania as it is found on an island and has been supported for many years by a highly qualified international NGO (WWF). However, it is an excellent example of the potential for tourism to play a key role in supporting some aspects of marine conservation in Tanzania.

Part of the support of WWF, MPUR and their partners has been in encouraging and incentivizing the VLCs and BMUs of the RuMaKi area. The Co-management study has reported that the BMUs (including the VLCs in the Park) have had the most success with data collection and with revenue generation. For example of the 17 approved BMU management plans (84 prepared plans out of 184 total BMUs with data) – all 17 are from the RuMaKi project area. Similar success in having approved bylaws and

⁴ Data from MIMP, MPRU, and analysis from Meyers (2012) Marine Legacy Funds of Tanzania.

collecting data can be seen from the RuMaKi area. Although this is not directly related to the existence of a strict Marine Park (Mafia Island Marine Park), the landscape is a “managed area” (not under the MPRU) and the biodiversity value of the area is what has drawn WWF to work in the area in the first place.

Tourism is significant in Mafia Island Marine Park and the Dar es Salaam Marine Reserves. All of the other MPAs on Tanzania Mainland managed by MPRU are at a very early stage of tourism development and may require many years before they are able to generate substantial revenues. In some cases, MPAs may have little tourism potential at all due to the absence of extremely attractive snorkeling or diving sites or the lack of necessary infrastructure such as roads, hotels, and airports. The lack of tourism infrastructure results in higher travel time and costs, lower quality conditions thus, a lowering of tourist’s willingness to pay for park entrance fees.

Table 7 Mainland Parks and Reserves Total Visitors

<i>Year</i>	<i>MIMP</i>	<i>DAR</i>	<i>Total</i>
2000	877	4,984	5,861
2001	1,170	10,353	11,523
2002	1,275	27,320	28,595
2003	1,470	14,945	16,415
2004	2,402	14,430	16,832
2005	2,729	25,195	27,924
2006	3,216	28,812	32,028
2007	3,266	22,860	26,126
2008	3,191	21,128	24,319
2009	3,768	24,120	27,888
2010	4,146	15,598	19,744
2011	4,575	19,792	24,367
Total	32,085	229,537	261,622

Data from MACEMP final report

The historical trends in entrances have been generally consistent growth in visitors at MIMP with a decline during the 2008 economic crisis perhaps slightly compounded by the doubling of entrance fees at the same time. In general, annual growth rates averaged around 18% from 2000 through 2011. Interestingly, visitor numbers to the Dar Marine Reserves (DAR) has been extremely variable over this time period and shows a slight declining trend from 2006. It is difficult to evaluate if this is less visitation or less collection.

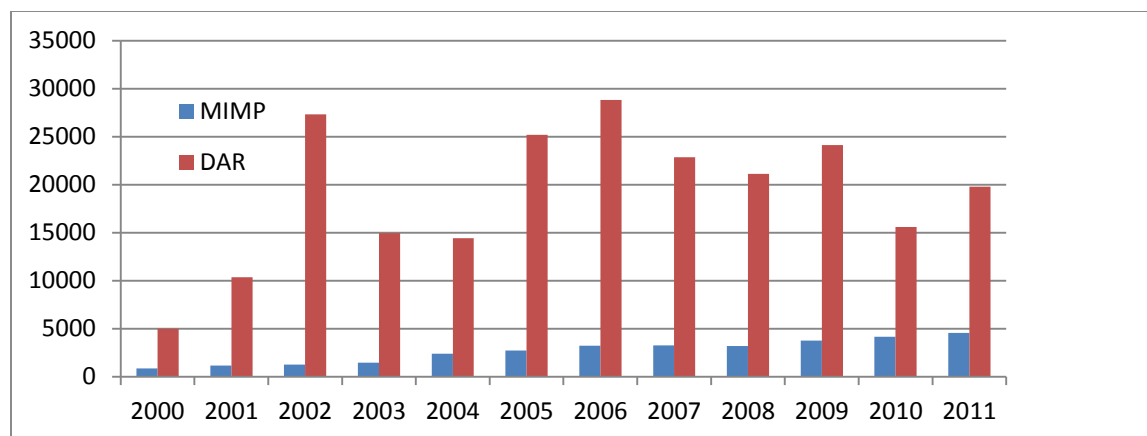


Figure 6 Historical number of visitors to the mainland Parks and Reserves based on MACEMP data

Current revenues from Mtwara and Tanga are non-existent but can be expected to begin to generate revenue in the coming years. Using some conservative hypotheses for future growth in visitors (5% for MIMP and zero growth for DAR) we project expected revenues from these two sites below in Table 9 below.

2. OPPORTUNITIES FOR SWIOFISH

Proposed Integration of Mainland Tanzania Parks and Reserves into the SWIOFish program can be grouped into two areas of opportunity. First, the MPAs offer excellent geographical focal areas for targeted interventions due to a combination of economic and production values – they contain areas of high productivity or tourism value – and secondly, these MPAs can be excellent models for effective fisheries management due to the significant past investment from various projects combined with the general success of the MPA model and tools.

With regard to the first point, the MPAs have important benefits for some of the SWIOFish priority fisheries including mixed reef fish, octopus, prawns, and small pelagics by assuring the effective management of key coral reefs, mangrove, and estuary ecosystems in key geographic locations (RuMaKi, Mtwara, and Tanga). Past interventions – especially in the RuMaKi area – such as no-take zones, effective Beach Management Units (called Village Liaison Committees, VLCs, in the MPAs) including the collection of landing data, implementation of fishing gear regulations, and adequate levels of patrolling and other MCS interventions, enable SWIOFish to show the fisheries production value of different management tools. The ability to take villagers from one area of Tanzania and show them a functioning management system in another is a powerful tool for effective communication of the benefits of responsible fisheries and ecosystem management. Additionally, because tourism in Tanzania is a long term sustainable industry and the cornerstone of the country’s economy, the MPAs (at least Mafia Island Marine Park and some of the Marine Reserves) provide an example of the jobs and financial benefits available to local communities and to the private sector from effective management of these areas. Although tourism revenue will not be a large source of financing for large areas of the coastline, there may be one or two valid areas in each district where tourism development can lead to increased

revenues for fisheries management programs, local communities, district councils, and supporting industries.

Considering the second area of opportunity – building on past efforts – working with MPAs as focal areas allows SWIOFish to build on functioning models and active BMUs/VLCs to further develop Fisheries Information Management Systems (FIMS) and test improved co-management actions. More information on the co-management benefits of working with existing BMUs can be found in the Co-Management report (Anderson and Mwangamilo, 2013).

To achieve these opportunities for SWIOFish, the MPRU will need significant technical and some financial support from the project. The financial cost of this support relative to the benefit is low due to the revenue generation of the current Parks and Reserves as well as the significant progress that has been made to date on the structuring and technical capacity of the MPRU and the MPAs under its jurisdiction (see Mafia Island box above). The MPRU is currently managed as a quasi-governmental organization (as it was moved from the Ministry of Tourism and Natural Resources to the Ministry of Livestock and Fisheries Development) and currently has draft legislation that would make the MPRU an official autonomous entity with public benefit – similar to TANAPA. As well, the MPRU currently has an associated fund that manages revenues generated by tourism fees. This financial mechanism, while not adequately transparent, is an excellent start towards long term sustainable financing that is currently lacking in the structure of the Zanzibar MPA system. That being said, the MPRU does not have adequate funding to assure effective management of the current marine protected areas and an extension of the MPA system is being recommended by the government as part of the SWIOFish project. As such, the MPRU will require some financial support for improving its management effectiveness and closing budgetary gaps to assure strong MPA and fisheries management in the areas it works.

3. CHALLENGES AND RECOMMENDATIONS

The challenges to achieving effective fisheries management in and around Mainland Tanzania's Marine Protected Areas (MPAs) can be grouped into institutional, technical, and financial issues.

Institutional / Governance

The Marine Parks and Reserves Unit (MPRU) is a quasi-independent governmental entity under the Ministry of Livestock and Fisheries Development / Department of Fisheries Development. The MPRU has been developing and supporting legislation that would make it an autonomous quasi-governmental agency. This independence could be useful in some ways but also generates additional risks. On the positive side, the MPRU would be free to set its own salary levels and hiring practices. Although under the DFD, it currently manages its own budget with oversight from its Board of Trustees – primarily government officials and MPRU management. The Board of Trustees also oversees the MPRU's Conservation and Development Trust Fund (CDTF) – a repository account for all of the tourism revenue generated by the parks and reserves. The revenue generated by tourism is significant (estimated at over \$450,000 in 2011). Currently 70% of this revenue is retained by the MPRU for management activities, 20% is available for community projects and 10% goes to the District Council. As noted above, the CDTF

is managed by the same Board of Trustees as the MPRU – a Board that does have some outside members but includes too many members of the MPRU itself and government to allow for transparent effective governance. However, transparent participative governance of the CDTF is absolutely essential for the MPRU to maintain its legitimacy in the eyes of the local populations, District Councils, and international donor community.

Part of this governance challenge can be seen in the current legal battle that the MPRU is having with tourism investors and operators in Mafia Island Marine Park. The legal battle stems from a concession fee that the MPRU Board of Trustees imposed on all hotels in the MPAs. As the tourism owners and operators are the second most important partner group to the MPRU (after communities), this confrontation and loss of collaborative approach could have been completely avoided if the MPRU and the Board of Trustees had been more participative and collaborative at designing the concession policy and fees.⁵

Table 8 Estimated tourism revenues from Mainland Tanzania (Mafia Island MP and Dar es Salaam Reserves, DAR) and Zanzibar.⁶

	<i>Visitors 2011</i>	<i>Est. Revenues</i>
MIMP	4,575	326,000
DAR	19,792	139,000
MBCA	35,774	75,000
MIMCA	21,687	46,000
PECCA	23,124	49,000

It is recommended that MPRU create an independent Board of Trustees for the Conservation and Development Trust Fund and manage the fund transparently and with one level of governance removed from the MPRU management to minimize conflict of interest.

It is recommended that MPRU establish an ecotourism / partnership position at a high level to integrate the concerns and issues of the private tourism sector into the policies and plans of the MPRU.

Technical Capacity

The MPRU has a certain level of technical capacity due in part to the presence of well trained staff who worked under international NGO support and capacity building for many years. These staff members are critical to pass on knowledge gained from their training and experiences to other members of the MPRU staff. However, many of these staff members have been working in the field and have not been able to effectively share their experiences and knowledge.

⁵ When the outside member of the Board of Trustees disagreed with the proposed policy, they were asked to leave the Board instead of adequately considered.

⁶ Estimated by David Meyers, “Marine Legacy Funds of Tanzania”, 2012.

It is recommended that the MPRU establish a capacity building program that includes bringing on an international technical advisor for 2-4 years to provide high level and field based training for the MPRU staff at national and field locations.

Sustainable Finance

Some aspects of MPRU's sustainable financing were addressed above from an institutional and governance perspective with the recommendation to make the CDTF more independent and transparent. Additional opportunities that could stem from this evolutionary change would be increasing access to donations and even perhaps government mandated fees from the emerging offshore oil and gas industry. Industry members are currently providing project-based financing to Mnazi Bay-Ruvuma Estuary Marine Park (MBREMP) and have expressed an interest in further financing the MPRU but would require a financing vehicle such as the CDTF that is transparent and does not have a governance structure with inherent conflicts of interest.

Specific Activities

Specific activities proposed by the Government working group during the November 2013 World Bank mission:

- By 2019 One new Marine Park and 2 additional Marine Reserves established. This activity would require identification and evaluation of potential sites in years 1-2 and formal establishment procedures in years 3-5.
- By 2016 MPAs Conduct and publicize economic valuation studies for the MPAs of Tanzania. These studies would help to identify the value of investing in MPAs and can be used to convince government and private sector decision makers about the potential value of financing the MPRU, expanding the network, and perhaps even the establishment of community and private coastal reserves. Such studies can be performed by specialists in approximately 6 months with an additional 6 months of stakeholder engagement and results sharing to maximize understanding and impact of the results. Suggested for years 1 and 2.
- By 2018 MPRU business plan developed and implemented. The business plan would be a combination of multi-year strategy and operations plan with a financing strategy. The document could be used for securing financing as well as reaching out more effectively to government, donors, and private sector partners. Completed by year 3.
- By 2016 A certain number of MPA staff trained in climate change adaptation and vulnerability assessment. Years 1 and 2.
- By 2019 A certain number of MPA staff certified as MPA Professionals in years 2 through 4
- Transparency & accountability in revenue collection and sharing enhanced. Starting Year 1.

IV. WORKS CITED

- Andy Drumm, J. E. (2012). *Sustainable Finance Strategy and Plan for the Belize Protected Area System*.
- Balmford, A., Gravestock, P., Hockley, N., McClean, C. J., & Roberts, C. M. (2004, June). The worldwide costs of marine protected areas. *Proceedings of the National Academy of Science*, 101(26), 9694–9697.
- Board of External Trade. (2003). *The Fish Sector Export Development Strategy, Tanzania*.
- Lange, G.-M., & Jiddawi, N. (2009, October). Economic value of marine ecosystem services in Zanzibar: Implications for marine conservation and sustainable development. *Ocean & Coastal Management*, 52(10), 521-532.
- Mafia Island Marine Park. (2012). *Unpublished Visitor Statistics*.
- Meyers, D. (2012). *The Marine Legacy Funds of Tanzania*. MACEMP.
- Ministry of Natural Resources and Tourism. (2011). *Tourism Statistical Bulletin*. Dar Es Salaam.
- Spalding, M., Ravilious, C., & Green, E. (2001). *World Atlas of Coral Reefs*, UNEP World Conservation Monitoring Centre. Berkeley, California, USA: University of California Press.
- Tanzania Coastal Management Partnership Support Unit. (2001). *TANZANIA Coastal Tourism Situation Analysis*.
- Tanzania Department of Tourism. (2011). *Tanzania Tourism Bulletin 2011*. Dar es Salaam: Ministry of Natural Resources and Tourism.
- UNEP. (2001). *Eastern Africa Atlas of Coastal Resources, Tanzania*. Produced by UNEP/DGIC/URT/IMS-UDSM.
- Whitney, A., Bayer, T., Daffa, J., Mahika, C., & Tobey, J. (2003). *Tanzania state of the coast report 2003. The National ICM Strategy and Prospects for Poverty Reduction*. Produced by TCMP/NEMC/University of Rhode Island Coastal Resources Center/USAID.
- Zanzibar Association of Tourism Investors, Z. (2009). *ZATI Progress Report 2009-2010*.

V. APPENDICES

APPENDIX A. FINANCIAL COST / REVENUE PROJECTIONS FOR MMAS⁷

Marine Managed Areas (MMA) includes Marine Protected Areas, Marine Conservation Areas, and a range of community based resource management areas. In many cases, entrance fees are charged to tourists who use the MMA for recreational activities. These user fees are established based on a range of principles such as tourists' willingness to pay, the level of services provided by the management organization, comparative fees in similar regional or international situations, etc. Fees should be set with adequate stakeholder discussions – especially with the tourism industry partners since they will be affected by changes in entrance fee structures and are often best positioned to know the desires and interests of the tourists.

Both the MPRU and the MCU have Entrance Fee structures and the rates vary enormously across the URT. Historical visitor entrances at the visited Parks, Reserves, and Conservation Areas have been presented in the main report. Future projections for both costs and revenues are presented below.

If we project annual visitor growth at the MPAs to be 5% annually (except for the Marine Reserves where visitation has been flat or variable), then annual growth in visitors combined with a change from and entrance price of \$3 to \$5 planned for 2014 will result in the following estimation of future revenues.

Table 9 Projections for Entrance Fees (USD) in the MMAs of Mainland Tanzania and Zanzibar 2013-2020

	<i>Visitors 2011/20 12</i>	<i>Est. Revenues</i>	<i>Growth</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>	<i>2016</i>	<i>2017</i>	<i>2018</i>	<i>2019</i>	<i>2020</i>
MIMP	5,003	341,000	5%	375,953	394,750	414,488	435,212	456,973	479,821	503,812	529,003
MR	19,792	129,000	0%	129,000	129,000	129,000	129,000	129,000	129,000	129,000	129,000
MBCA	35,774	75,000	5%	137,813	144,703	151,938	159,535	167,512	175,888	184,682	193,916
MIMCA	21,687	45,000	5%	82,688	86,822	91,163	95,721	100,507	105,533	110,809	116,350
PECCA	23,124	48,000	5%	88,200	92,610	97,241	102,103	107,208	112,568	118,196	124,106

These projections indicate that the mainland parks and reserves (only MIMP and DAR) will generate about 500,000 USD in entrance fees in 2013 and could reach over USD 650,000 by 2020. The distribution of this revenue is foreseen as 70% being used for park and reserve management, 20% going to adjacent communities for projects, and 10% going to the local administration. On Zanzibar a similar distribution is implemented where 70% is retained for MCA management and 30% is returned to the communities. Projected revenue availability is provided in Table 10.

Table 10 Projections of available revenues for different uses from future Entrance Fees

⁷ Adapted from Meyers 2012

	2013	2014	2015	2016	2017	2018	2019	2020
MPRU	353,467	366,625	380,441	394,948	410,181	426,175	442,969	460,602
Communities	100,991	104,750	108,698	112,842	117,195	121,764	126,562	131,601
Local Admin	50,495	52,375	54,349	56,421	58,597	60,882	63,281	65,800
	2013	2014	2015	2016	2017	2018	2019	2020
MCU	216,090	226,895	238,239	250,151	262,659	275,792	289,581	304,060
Communities	92,610	97,241	102,103	107,208	112,568	118,196	124,106	130,312

Minimal and Optimal Cost of MMA Management

During the Business Plan process and during a UNDP Financial Scorecard effort, there is a distinction made between basic costs and optimal costs for managing protected areas. As neither of these exercises has been implemented for the MMAs of Tanzania, there is minimal information on which to make expectations of costs. Using actual costs is not possible as the MPRU and MCU were not able to provide comprehensive expenditure information. The information provided by MPRU is provided in Table 11 and is not broken down according to different expenditure categories or MPA management units.

Table 11 Annual historical expenditures by the Marine Parks and Reserves Unit (MPRU) converted to USD

Year	Expenditures (USD)
2000/2001	1,073,146
2001/2002	1,034,255
2002/2003	1,031,322
2003/2004	1,063,676
2004/2005	942,590
2005/2006	1,358,964
2006/2007	1,170,685
2007/2008	993,275
2008/2009	1,639,599
2009/2010	1,374,094
2010/2011	1,335,980
2011/2012	950,399

The Marine Conservation Unit of Zanzibar provided the consultants with their expenditures relative to the revenues generated by entrance fees as provided in Table 12. It is unlikely that these expenditure figures include salaries which are currently paid by the government through the Department of Fisheries.

Table 12 Management expenditures provided by the Marine Conservation Unit (Zanzibar) converted to USD.

Year	MBCA	MIMCA	PECCA
------	------	-------	-------

2004/2005		34,413	
2005/2006	55,100	26,637	
2006/2007	64,925	26,983	14,592
2007/2008	51,873	22,189	9,021
2008/2009	64,188	26,521	20,601
2009/2010	38,563	19,999	14,280
2010/2011	53,214	27,413	11,660
2011/2012	62,929	37,452	11,755
Average	55,827	27,701	13,652

It should be noted that these levels of expenditures are associated with managing the smaller MPAs prior to their expansion under MACEMP. As well, it appears that these expenditures do not include salary costs which are covered by the government budget to the Fisheries Department.

Blueprint 2050 gathered information on the protected areas back in 2003. Budgets at that point were highly dependent on donor financing and reflect neither basic costs nor optimal costs.

Table 13 Annual Budgets from Blueprint 2050 (2005) reflected available financing

Protected Area	Area (km ²)	Annual Budget	Cost/km ²	Cost/ha
Menai Bay (MBCA)	470	85000	181	1.81
Misali (part of PECCA)	22	120000	5455	54.6
Chumbe	1	21600	21600	216
Mnemba (part of MIMCA)	12	5000	417	4.17
Jozani / Chwaka	50	430000	8600	86
Ngezi	14.4	30000	2083	20.8
Kiwengwa	17.5	13356	763	7.63

From discussions with MPA managers, it appears that current budgets for MIMP and Tanga Coelacanth Marine Park are approximately USD 80,000 and USD 40,000 respectively excluding salaries. According to MPA management staff, these are inadequate levels of financing. The optimal budget for Tanga Coelacanth Marine Park – the newest MPA in Tanzania – was recently estimated during the management planning process at approximately \$200,000 per year. This level of financing would be closer to the basic level of financing needed for MIMP as well with its optimal budget allowing it to cover the more distant island reserves around Mafia Island and to support the protection of the whale sharks during their annual visit.

The optimal levels of MPA financing for each PA depends on a range of factors, which include PA size, threats, location (i.e. local costs), and the nature of activities in the PAs. There are several comparative studies that have shown that 3 variables – (i) area under management, (ii) the purchasing price parity (PPP) of the country, and (iii) the distance from inhabited areas are excellent combined predictors of PA costs (Balmford, Gravestock, Hockley, McClean, & Roberts, 2004).

Using a simplified version of Balmford et al.’s regression model (excluding “distance from inhabited area”), we are able to make a very rough prediction of what expected costs for managing the MPAs of Tanzania would be if they were at the level of the average international MPA management funding

level. It should be noted that most MPAs involved in the study reported that they were not receiving adequate financing to achieve their conservation goals. As such, these estimates should not be considered the optimal financing levels but can be considered internationally normal financing levels.

Other studies have indicated that headquarters account for from 15 to 30% of a PA systems' budget (Andy Drumm, 2012). As a result, we can estimate the "adequate" budget for the MPAs of Tanzania Mainland and Zanzibar.

Table 14 Estimated adequate financing levels for Tanzania Mainland MMAs

<i>MMA Estimated Full Budgets (USD)</i>	<i>Area (km²)</i>	<i>Intl Norm Budget (2004 USD)</i>
Maziwe Island	2.6	63,160
Mafia Island Marine Park	822	316,530
Mnazi Bay-Ruvuma Estuary Marine Park (MBREMP)	650	296,392
Dar es Salaam Marine Reserve System	408	260,157
Mafia Island Marine Reserve System (Nyororo, Shungimbili, and Mbarakuni)	21	113,363
Tanga Coelacanth Marine Park	552	283,135
Tanga Marine Reserves System	36	131,830
MPRU HQ	25%	488,189
Subtotal MPRU		1,952,756
Tanga Collaborative Management Areas	1914	534,728
Rufiji-Mafia-Kilwa (RUMAKI) Seascape Programme	9000	824,854
Estimated Total Financial Needs		3,312,338

The estimated international norm financing level for the Tanzania Mainland MPAs managed by MPRU are significantly underfunded and a combination of additional government financing, increased tourism levels, and outside financing through the Marine Legacy Fund will be necessary to close the funding gap.

Table 15 Estimated adequate financing levels for Zanzibar MMAs

	<i>Proposed Area (km²)</i>	<i>Projected Costs (2004 USD)</i>
Menai Bay Conservation Area	700	302,606
Mnemba Island Marine Conservation Area	290	236,441
Pemba Channel Conservation Area	1000	334,388
Tumbatu Marine Conservation Area	133	190,077
Chwaka Bay Marine Conservation Area	116	182,936
MCU (HQ)	25%	415,482
Total		1,661,929

For the MPAs of Zanzibar, financing levels are extremely low and this may be in part responsible for the lack of adequate management currently implemented at the MPAs.

In summary, current and projected entrance fees are inadequate to cover the costs of this level of management. Additional financial support from the government is essential to maintain the marine and coastal environment in a state of high productivity. The Marine Legacy Funds can leverage existing financing to identify and secure additional financing to help cover the projected financing gaps.

APPENDIX B. TERMS OF REFERENCE FOR TECHNICAL SUPPORT TO PROJECT
PREPARATION

Shared Growth Program (SWIOFish)

Project No. P132123

**Terms of Reference for
Technical Support to Project Preparation**

Assessment of potential role of MPAs in SWIOFish Tanzania project

1. Background

Between 2005-2013 the World Bank financed the Marine and Coastal Environment Management Project (MACEMP) project which was a US\$ 65million project with the objective to strengthen the sustainable management and use of Tanzania's Exclusive Economic Zone, territorial seas, and coastal resources resulting in enhanced revenue collection, reduced threats to the environment, better livelihoods for participating coastal communities living in the Coastal Districts, and improved institutional arrangements. MACEMP closed on February 15, 2013 and among the project's important achievements were the strengthening and consolidation of fisheries management at the Union level, and harnessing of \$9.3m in revenue to the URT from the offshore fishery. Key issues affecting its implementation were: 1) over-ambitious project design, involving a multitude of activities and institutions topics and actors; 2) weak institutional capacity among implementers; 3) early up-scaling of pilot activities along the entire Tanzanian coastline; and 4) inadequate arrangements for project monitoring and evaluation, leading to difficulties in assessing project impact.

At the regional level, the World Bank has also been supporting various fisheries projects in the Africa Region. The most relevant of these is the South West Indian Ocean Fisheries Project (SWIOFP), which closed on March 31, 2013. The SWIOFP, which brought together all countries in the South West Indian Ocean, including Kenya, Mozambique, South Africa, Seychelles, Comoros, Madagascar, Mauritius, Somalia (observer) and Tanzania, was successful in building regional capacity for fisheries management, including through establishing a network of fisheries researchers and managers, and developing a regional management framework. Ultimately the Member countries of the SWIO Fisheries' Commission (SWIOFC) agreed to reform the Commission, promoting it from an advisory body to a Regional Fisheries Management Organization (RFMO) of the Coastal States – enabling it to take binding decisions on fisheries management, and to negotiate in bloc with Distant Water Fishing Nations. Given the important achievements of SWIOFP, SWIOFC Member Countries have requested a follow-on project namely– the South West Indian Ocean Fisheries Governance and Shared Growth Program (SWIOFish).

2. Program Objectives and Components

The Program Development Objective of the South West Indian Ocean Fisheries Governance and Shared Growth Program (SWIOFish) would be to increase the economic, social, and environmental benefits of SWIO countries from marine fisheries.⁸ A phased set of complementary country and regional investments would achieve the program development objective: (i) by strengthening the countries' governance capacity to manage fisheries, including reducing illicit fishing activities and strengthening co-management of small-scale fisheries; (ii) through investments to increase the profitability and

⁸ The term "fisheries" refers to both capture and culture fisheries

sustainability of fisheries and aquaculture production and value chains and increase the value-added captured by the countries; (iii) by supporting policies that share the benefits from sustainable use of marine living resources among the economic agents and that prioritize pro-poor and community fisheries; and (iv) by building robust and cost-effective regional cooperation on fisheries.

The Program will have three phases each consisting of groups of countries. Each group of countries may have two or more countries, and will be processed as individual projects. This document describes the overall Program as well as the first two country (i.e., Comoros and Tanzania) project. The second project, comprising another group of countries for Phase 1 activities, will be processed when those countries are ready, and as early as next FY (see details in Section III.C below).

The Project Development Objective of the first, five-year phase of the Program (the Project) would be to strengthen the institutional capacity of regional organizations, governments and selected coastal communities to effectively manage selected priority fisheries⁹. The first five-year project (Phase 1) for each group of countries would establish the core human and institutional competencies and frameworks that are necessary for fisheries management, and prepare for any major public and public/private capital investments required, for example, for fleet adjustment, port infrastructure, or replication and expansion of community fisheries co-management or business programs. At the regional level the Project would consolidate and strengthen regional cooperation on fisheries and marine resource management, through improved management of transboundary fisheries, strengthen building regional fisheries institutions, and promote knowledge exchange and capacity development.

A series of complementary regional investments and national investments would achieve the development objective by: (i) strengthening the countries' governance capacity to manage fisheries, including reducing illegal fishing activities; (ii) investments to increase the profitability and sustainable production of fisheries and aquaculture and the proportion of the value-added captured by the countries; (iii) supporting policies that share the benefits from sustainable use of marine resources among the key economic drivers and which prioritizes poverty alleviation through co-management of fishing communities fisheries; and (iv) building robust regional cooperation on fisheries.

The Program will have four operational components namely: (i) improved governance of fisheries; (ii) increased fisheries contribution to national economies and (iii) regional collaboration; and (iv) project management. The draft project description is included in Annex A.

The proposed consultancy will contribute to the preparation of project design for Tanzania only.

3. Country Context

The fishery sector is of great importance to the development of Tanzania, as it is one of the top three growth sectors, although this is driven by inland rather than marine fisheries. It makes a significant contribution to gross domestic product and is an important source of foreign exchange earnings. The Tanzanian coastline is 1 424 kilometres long and the marine fishery is divided into territorial waters that are dominated by artisanal fisheries and the exclusive economic zone (EEZ), which extends 200 nautical miles off-shore and is dominated by the commercial fishing industry. The marine component of the fishery sector, however, is dwarfed by the lake fisheries, but remains very important in coastal areas. Well over 90% of fishers in the marine sector are employed in the small-scale or artisanal fisheries subsector. Importantly, marine fisheries provide up to 90% of the animal protein in coastal communities and 30% of the animal protein nationally.

⁹ Priority fisheries for each country will be identified based on national priorities. Tuna and tuna like species will be included in the priority fisheries for all countries, being the most important fisheries in the region.

The fisheries sector is not governed in a holistic and integrated manner, although there is a trend to move to better fisheries governance with the most recent laws, most notably the 2004 National Integrated Coastal Environment Management Strategy for mainland, and the Fisheries Act (2003 and 2010, for mainland and Zanzibar, respectively), and the establishment of a common governance regime for the EEZ through the creation of the Deep Sea Fishing Authority, composed of members from mainland Tanzania and Zanzibar. Due to the political governance structure of Tanzania and Zanzibar, and as the fisheries sector is not considered a union matter, Mainland Tanzania and Zanzibar manage their fisheries sectors separately.

The Fisheries Divisions under the Ministry of Livestock and Fisheries Development in mainland and the Ministry of Fisheries and Livestock in Zanzibar are the competent authorities responsible for both development and utilization issues pertaining to the fisheries sector. Management of fisheries is largely the responsibility of the ministries, with many functions devolved to Local Government Authorities. Efforts to strengthen co-management are also on-going, with the devolution of some management responsibilities to organized fishing communities (BMUs).

The main challenges for Tanzanian fisheries management include: (i) insufficient resources, including financial and human capacity to adequately execute management functions; (ii) the largely open access nature of fisheries; (iii) limited research capacity; (iv) poor integration between research and management; (v) weak integration between the local and national levels of fisheries management, with low capacity of local communities and resource users; and (vi) limited harmonization between Zanzibar and mainland Tanzania fisheries management in internal and territorial waters (with the notable exception of the common governance regime for the EEZ).

Marine Conservation Areas (MCA) play an important role in marine fisheries management, particularly regarding conservation of critical breeding habitats. In recent years there have been important efforts to expand and consolidate the MCA system in both mainland and Zanzibar.

Existing and proposed marine conservation areas in Zanzibar

Name of MCA	Date of Gazettement	Approx. Area (Km ²)
Menai Bay Conservation Area (MBCA)	9 Aug 1997	470
Mnemba Island Chwaka Bay Conservation Area (MIMCA)	22 Nov 2002	290
Pemba Channel Conservation Area (PECCA)	23 Sept 2005	1,000
Tumbatu Marine Conservation Area	Proposed	133
Changuu-Bawe Conservation Area	Proposed	116
Kojani Marine Conservation Area	Proposed	
Total area under protection		2,009km²

Existing marine parks in mainland Tanzania

	Year of	Approx. Area

Name of MCA	Gazettelement	(Km ²)
Mafia Island Marine Park	1995	822
Mnazi Bay & Ruvuma Estuary Marine Park	2000	650
Tanga Coelacanth Marine Park	2009	552
Total area under protection		2,024 km²

4. Preparatory Studies

Project design is being supported by a series of expert consultancies. These include:

1. Legal Analysis
2. Institutional Analysis
3. Assessment of Co-management Experience
4. Scoping Study to Assess Knowledge on State of Key Stocks
5. Diagnostic on potential measures to increase effectiveness of Monitoring Control and Surveillance including mitigating the impact of dynamite fishing
6. Diagnostic on Fisheries Information Management System
7. Environmental and Social Assessment
8. Prioritization of Measures to Enhance Coastal Resilience

The outputs of these studies would be used to help finalize detailed project design.

5. Objective

The objective of the assignment is to: 1) assess the potential role of marine conservation areas (MCAs) and marine parks in Zanzibar and mainland Tanzania respectively in strengthening the management of selected priority fisheries; and 2) outline a proposed program of activities to include in SWIOFish, as appropriate.

6 Scope of work

The consultancy assignment is aimed at providing expert technical assistance to the future implementing agencies of SWIOFish (the Ministry of Livestock and Fisheries Development Mainland; the Ministry of Livestock and Fisheries Zanzibar; and the Deep Sea Fishing Authority (DSFA)) in finalizing project design. Working closely with the implementing agencies, and other key stakeholders in the marine and coastal fisheries sector, the Consultant is expected to:

1. Briefly review current state of institutional development of marine conservation areas (MCAs) in Zanzibar in terms of their staff capacity, status of management plans, status of regulations, recent and planned project initiatives, if any, etc.
2. Briefly review current state of institutional development of marine parks in mainland Tanzania in terms of their staff capacity, status of management plans, status of regulations, recent and planned project initiatives, if any, etc.
3. Conduct relevant consultations in Zanzibar and mainland with a view to assessing the potential role of both marine conservation areas (MCAs) and mainland marine parks in

strengthening the management of the 5 or 6 priority fisheries selected as the focus for the SWIOFish project, if any. Consider also what capacity-building and resources might be needed to fulfill any proposed role.

4. As appropriate, outline a proposed program of activities to include in SWIOFish to support achievement of project objectives.
5. Participate in project pre-appraisal mission.

5. Expected Outputs/ Products

The consultant will be expected to deliver the following:

- (i) Input to aide memoire;
- (ii) Summary report outlining the findings of the assessment;
- (iii) Input to PAD.

6. Timing and Reporting

The assignment is expected to last for 15 working days.

The following timelines are expected:

Activity	Timing / deadline
1. Participate in pre-appraisal mission, including aide memoire	November 18 to 27, 2013
2. Summary report outlining findings of assignment	December 6, 2013
3. Input to draft PAD	December 10, 2013

6. Qualifications and Experience

The successful candidate must have an M.S or Ph.D. in a relevant discipline and at least 10 years of experience in supporting Governments on issues related to protected areas management, including fisheries and marine parks, including in developing countries. S/he should have excellent writing and communication skills in English. Extra credit for work in the South West Indian Ocean

7. Reporting and Supervision

Contractual arrangements with the consultant will be managed by the Task Team Leader for the project. On the quality of the expected output however, the Task Team Leader will liaise and seek the opinion of the concerned team members.