

Policies and legal frameworks for Marine Protected Areas governance in Tanzania mainland: their potential and limitations for achieving conservation and livelihood goals.

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Abstract

The focus of this study is territorial sea marine protected areas governance in Tanzania mainland. The study describes and analyses the limitations and potential for existing policies and legal framework for managing these systems to better integrate conservation and livelihood goals; by using Mafia Island Marine Park (MIMP), which is a marine protected area (MPA), located on Mafia Island as a case study. The study examines Tanzanian legislations and international instruments that are relevant for MPA governance and their applicability in MIMP. There are about 33 marine protected areas along the Tanzanian coastline. The coastline is endowed by numerous small near shore islands and islets as well as several large islands, coral reefs, mangrove forests, sea grass beds and sandy beaches which support plentiful marine organisms as spawning, breeding, feeding, and growth habitats that are worth to be managed and used sustainably. The coastline extends approximately 1400km in north-south direction from the Tanzania-Kenya border in the north to the Tanzania-Mozambique border in the south. Several previous reports have identified most of the governance challenges facing coastal and marine resources including MPAs in Tanzania. Therefore, through utilization of secondary data, understandings into the MPA management/governance and by applying lessons from other developing nations coastal settings this study highlighted some mechanism on how the existing policies and legal frameworks can be used to improve the situation on the ground for sustainably exploiting and managing coastal and marine resources of Tanzania.

Disclaimer

The views expressed herein are those of the author and do not necessarily reflect views of the Government of the United Republic of Tanzania, the United Nations, the Nippon Foundation of Japan, Bremen University or Leibniz Centre for Tropical Marine Ecology (ZMT).

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Table of content

Abstract	ii
Disclaimer	i
Supervisors	iv
Acknowledgement	v
Table of content	vi
List of Acronyms and Abbreviations	viii
List of tables and figures	xi
1 Introduction	1
1.1 Country background and general information	1
1.2 Contribution of coastal and marine resources to socio-economy	3
1.3 Overview of marine and coastal area management practises and the rationale behind MPAs establishment in Tanzania.....	6
1.4 Aims and Objectives	12
2 International and Tanzania mainland frameworks for MPA governance (policies, legal and institutional settings)	14
2.1 International legal frameworks for MPA governance.....	14
2.1.1 <i>Legally binding instruments</i>	14
2.1.1.1 United Nation Convention on the Law of the Sea 1982	15
2.1.1.2 United Nations Fish Stocks Agreement (UNFSA).....	17
2.1.1.3 International Maritime Organization (IMO) and Associated Instruments	17
2.1.1.4 The Convention on Biological Diversity (CBD).....	19
2.1.1.5 World Heritage Convention (WHC).....	20
2.1.1.6 Convention on International Trade in Endangered Species of Fauna and Flora (CITES)	21
2.1.1.7 Convention on Migratory Species (CMS)	21
2.1.2 <i>Soft laws, with no legal binding effect</i>	22
2.1.2.1 FAO, and the Code of Conduct for Responsible Fisheries (CCRF)	22
2.1.2.2 Chapter 17 of Agenda 21 and Declaration of the World Summit for Sustainable Development	23
2.1.2.3 Global Programme of Action - Protection of the Marine Environment from Land-based Activities.	24
2.1.3 <i>Other multilateral conventions, agreements and regional binding instruments</i>	25
2.2 Governance arrangement for Tanzania mainland MPAs.....	26
2.2.1 <i>Constitution of the United Republic of Tanzania of 1977</i>	27
2.2.2 <i>Environmental legislation</i>	27
2.2.2.1 National Environmental Policy (NEP, 1997)	27
2.2.2.2 Environmental Management Act (EMA, 2004)	28
2.2.2.3 Institutions responsible for environment management	30

2.2.3	<i>Integrated Coastal Management (ICM)</i>	31
2.2.3.1	National Integrated Coastal Environment Management Strategy (2003)(NICEMS)	31
2.2.3.2	Functional institutional structure for NICEMS	31
2.2.4	<i>Fisheries instruments</i>	32
2.2.4.1	National Fisheries Sector Policy and Strategy Statement (1997) (NFSPSS)	32
2.2.4.2	The Fisheries Act No 22 of 2003	34
2.2.5	<i>Marine Parks and Reserves Act No. 29 of 1994</i>	35
2.2.6	<i>Tourism Management Legislation</i>	36
2.2.6.1	National Tourism Policy (1999).....	36
2.2.6.2	Tourism Act No. 29 of 2008.....	37
2.2.7	<i>Wildlife Legislation</i>	37
2.2.7.1	National Wildlife Policy	37
2.2.8	<i>Forest Act of 2001</i>	38
2.2.9	<i>Local Government Authority role in resource management</i>	38
2.2.9.1	Local Government (District Authorities) Act, No 7 of 1982	39
2.2.9.2	The Local Government (Urban Authorities) Act, No. 8 of 1982.....	40
3	Historical perspectives in the establishment of MPAs in Tanzania mainland..	41
3.1	Bagamoyo Collaborative Fisheries Management (CFM) no-take zone	42
3.2	Tanga Coelacanth Marine Park (TACMP) and Tanga Marine Reserve system (TMRs)	45
3.3	Dar es salaam Marine Reserves (DMRs)	49
3.4	Mafia Archipelago (MIMP and Nyororo, Mbarakuni and Shungimbili Marine reserves).....	50
3.5	Saadani National Park.....	53
3.6	Mnazi Bay Ruvuma Estuary Marine Park (MBREMP)	54
3.7	Proposed Tanzanian National MPA Network	55
4	Mafia Island Marine Park Policies Implications and the way forward.....	57
4.1	Biodiversity conservation goals and livelihood support under the current framework	59
4.1.1	<i>Institutional arrangements/policies implications</i>	59
4.1.2	<i>Decentralization and community /village based management</i>	64
4.1.3	<i>Ecological implications of these policies</i>	66
4.1.4	<i>Socioeconomic implications of these policies</i>	69
4.1.4.1	Livelihoods impacts	69
4.1.4.2	Community involvement and marine buffer zones.....	72
4.2	Towards a more effective MIMP	76
4.2.1	<i>BMUs and Village Liaison and Enforcement Committees accountability</i>	76
4.2.2	<i>Enhance public participation</i>	79
4.3	EBM opportunities under existing frameworks for coastal and marine resources governance.	83
4.3.1	<i>Embedding the MPAs in Integrated Coastal Management</i>	85
4.3.2	<i>Ecosystem Based Management opportunities under existing laws</i>	90
4.3.3	<i>Conclusions</i>	93

List of Acronyms and Abbreviations

ACEP	African Coelacanth Ecosystem Programme
BMU	Beach Management Unit
CA	Conservation Area
CBD	Convention of Biological Diversity
CCRF	Code of Conduct for Responsible Fisheries
CFM	Collaborative Fisheries Management
CITES	Convention on International Trade in Endangered Species
CMAs	Collaborative Management Areas
CMPs	Community based Collaborative Plans
CMS	Convention on Migratory Species
COP	Conference Of Parties
CTWG	Core Technical Working Group
DDC	District Development Committee
DF	Director of Fisheries
DMRs	Dar es Salaam Marine Reserves
DoF	Department Of Fisheries
EA	Ecosystem Approach
EAME	East African Marine Eco region
EAP	Environmental Action Plan
EARO	Eastern Africa Regional office
EBM	Ecosystem Based Management
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMA	Environment Management Act
EMP	Environmental Management Plan
FAO	The United Nations Food and Agriculture Organization
FFEM	Fonds Français pour l'Environnement Mondial
FMPs	Fisheries Management Plans
Frontier-TMZ	Frontier Tanzania Marine Research Programme
GDP	Gross Domestic Product
GMP	General Management Plan
GPA	Global Programme of Action
IBAs	Important Bird Areas
ICAM	Integrated Coastal Area Management
ICM	Integrated Coastal Management
ICM	Integrated Coastal Management
ICZM	Integrated Coastal Zone Management
IMCAM	Integrated Marine and Coastal Area Management
IMO	International Maritime Organization
IMS	Institute of Marine Science

IOTC	Indian Ocean Tuna Commission
ISWG	Issue Specific Working Group
IUCN	International Union for the Conservation of Nature
IWC	International Whaling Commission
JPOI	Johannesburg Plan of Implementation
LGs	Local Government's
LGAs	Local Government Authorities
MACEMP	Marine and Coastal Environmental Management Programme
MBREMP	Mnazi Bay Ruvuma Estuary Marine Park
MCMP	Mangrove Collaborative Management Plan
MIMP	Mafia Island Marine Park
MLFD	Ministry of Livestock and Fisheries Development
MNRT	Ministry of Natural Resources and Tourism
MPA	Marine Protected Area
MPRU	Marine Park and Reserve Unit
NBSAP	National Biodiversity Strategy and Action Plan
NBSAP	National Biodiversity Strategy and Action Plan
NEAP	National Environmental Action Plan
NEMA	National Environmental Management Act
NEMC	National Environmental Management Council
NEP	National Environment Policy
NFSPSS	National Fisheries Sector Policy and Strategy Statement
NGOs	Non-Government Organizations
NICEMS	National Integrated Coastal Environment Management Strategy
NPA	National Protected Area
NSC-ICM	National Steering Committee on Integrated Coastal Management
PAs	Protected Areas
PSSA	Particularly Sensitive Sea Areas
RFMO	Regional Fisheries Management Organization
RUMAKI	Rufiji Mafia and Kilwa
SEA	Strategic Environmental Assessment
SEE	Society for Sea Exploration
STWG	Science and Technical Working Group
TACMP	Tanga Coelacanth Marine Park
TACOECONT	Tanzania Coastal Environmental Conservation Network
TANAPA	Tanzania National Parks Authority
TCMP	Tanzania Coastal Management Partnership
TCZCDP	Tanga Coastal Zone Conservation development Programme
TMRs	Tanga Marine Reserves
UDSM	University of Dar es Salaam
UNCLOS	United Nation Convention on the Law of the Sea
UNDP/GEF	United Nations Development Programme/ Global Environment Facility
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific, and Cultural Organization

UNFSA	United Nations Fish Stocks Agreement
UNGA	United Nations General Assembly
URI-CRC	University of Rhodes Island Coastal Resources Centre
URT	United Republic of Tanzania
USAID	United States Agency for International Development
VEMC	Village Environmental Management Committee
VEU	Village Enforcement Units
VG	Village Government
VLC	Village Liaison Committees
VPs	Vice-President's Office
WHC	World Heritage Centre
WIO	Western Indian Ocean
WMA	Wildlife Management Areas
WPC	World Park Congress
WSSD	World Summit for Sustainable Development
WWF	The World Wide Fund for Nature

List of tables and figures

Table 1: List of MPAs in URT territorial sea	15
Figure 1: Shows coastline of Tanzania mainland and Zanzibar and Map of the United Republic of Tanzania.....	2
Figure 2: Shows the impact of the 1998 coral-bleaching event on coral cover (1997 vs 1999) in various reef sites in Tanzania.....	9
Figure 3: Shows long-term trends in total live coral (HC) and Acropora cover in Bawe, Zanzibar from 2002 to 2008.....	11
Figure 4: Map of Tanzanian coastline including Zanzibar showing the distribution of MPAs.....	18
Figure 5: Map showing the location of No-take and Fished reefs and villages involved in the Community Based Fisheries Management in Bagamoyo.....	45
Figure 6A: Map showing the location of Tanga Marine Reserve Systems.....	48
Figure 6B: Map showing the location of Tanga Coelacanth Marine Park and Maziwe Marine Reserve.	49
Figure 7: Map shows Coral reefs and sea grass beds in the vicinity of DMRs-South and tourist's facilities along the mainland coast.....	50
Figure 8: Map showing Mafia Island Marine Park. Zonation and surrounding villages.....	52
Figure 9: Shows trend of Tourists in Mafia Island Marine Park for a Period of 12 years.....	72
Figure 10: Illustration showing spectrum of co-management arrangements.....	79

1 Introduction

1.1 Country background and general information

The United Republic of Tanzania (URT) is comprised of two former sovereign states, namely Tanganyika (currently Tanzania Mainland) with an area of 942,800 km² and Zanzibar (Unguja Island and Pemba Island), which occupy an area of 2400 km². Both merged to form the union government in 1964. The country is located on/at the east coast of Africa extending from latitude 4°49'S to latitude 10°28'S and shares its borders with Kenya and Uganda in the North, Rwanda, Burundi, and Democratic Republic of Congo in the West. In the Southwest Zambia and Malawi, in the South Mozambique and in the East the Indian Ocean¹. The Union Government operates under the Union Constitution and has full responsibility for some of the main sectors (i.e. foreign affairs, home affairs, defence, finance) and for some subsectors such as higher education and marine fisheries, where a single management regime (authority) has been established to oversee all fisheries activities beyond the 12 nautical miles territorial sea. Her ocean ward boundary extends to 200 nautical miles, the Exclusive Economic Zone (EEZ) limit, in accordance with Part V of United Nation Convention on the Law of the Sea (UNCLOS) 1982. Last year, the country has made a partial submission on the outer limit of its continental shelf beyond 200 nautical miles to the Commission on the Limit of the Continental Shelf pursuant to Part VI and Annex II of UNCLOS². Its EEZ area borders with Kenya, Mozambique, Comoros and Seychelles; the coastline extends approximately 1400km in north-south direction from the Tanzania-Kenya border in the north to the Tanzania-Mozambique border in the south. The country has also numerous small near shore islands and islets and one oceanic island, Latham Island. About two third of the coastline has fringing reefs often close to the shoreline broken by river outlets including the Rufiji, Pangani, Ruvuma, Wami, Matandu and Ruvu³ (**Figure 1**). Tanzania's coastal and marine ecosystems cover 5 coastal regions:

¹ The World Fact book - Tanzania, U.S. Central Intelligence Agency, updated 29 April 2013.

² http://www.un.org/depts/los/convention_agreements/texts/unclos/unclos_e.pdf

³ Decker, C, *et al* 2003. Proceedings of the Marine Biodiversity in Sub-Saharan Africa: The Known and the Unknown. Cape Town, South Africa, 23-26 September 2003.

Tanga, Coast, Dar es Salaam, Lindi, and Mtwara). The coastal area of the mainland extend over 30,000 km², the semi-autonomous island state Zanzibar lies 40-60 km off the mainland with a total area of about 26,243 km². It is comprised of Pemba (with its coastal administrative regions Pemba North and Pemba South), Unguja (with its coastal administrative regions Unguja North, Unguja South, and Unguja West) and Mafia Island - the latter being part of the mainland (Figure 1)⁴.

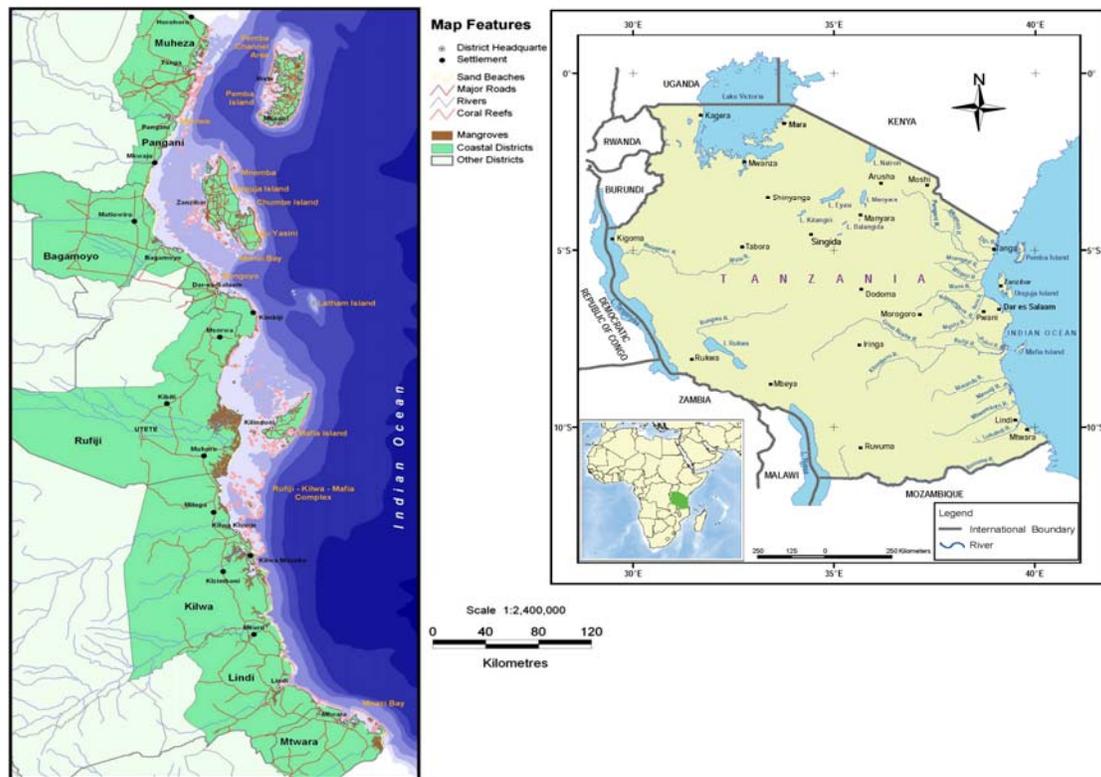


Figure 1: Left: coastline of Tanzania mainland and Zanzibar (Islands Unguja and Pemba); right: Map of the United Republic of Tanzania; (from Gustavson et al. 2009).

With a total national population of about 44 million people, the country has a density of about 51 people per km² with variations across regions. Most of the population is concentrated in areas located along the coastline, where the annual growth rates is above the national average of 2.7%, whereby the growth

⁴ Francis, J., & Bryceson, I. (2001). Tanzanian Coastal and Marine Resources: Some Examples Illustrating Questions of Sustainable Use, 76–102.

⁴Gustavson, K., Kroeker, Z., Walmsley, J., & Juma, S. (2009). A process framework for coastal zone management in Tanzania. *Ocean & Coastal Management*, 52(2), 78–88.

rate as well as the average density of Zanzibar is higher than on the mainland⁵. Tanzanian coastal waters harbour some of the richest marine resources in the Western Indian Ocean⁶ with coral reef communities consisting of different fish species. Besides coral reefs, Tanzania possesses a great variety of other coastal environments including estuaries, mangrove forests, beaches and sea grass beds⁷ that are intensively used by small-scale fisheries and tourists, who enjoy viewing their aesthetic nature and biodiversity especially in marine protected areas (MPAs⁸).

1.2 Contribution of coastal and marine resources to socio-economy

The URT coastline and its adjacent intertidal and sub tidal habitats form the back-bone of various social and economic activities of coastal communities. Most of the fisheries resources (specifically demersal fish stocks) in mangroves, coral reefs, and sea grass beds occur in the inshore (shallow) waters. The highest primary productivity occurs in the shallow waters, mainly because of synergistic effects of benthic and water column productivity and high rates of nutrient recycling from re-suspension of sediments. These vast resources in these near shore zones support the livelihoods of more than 25% of the total country's population. The coastal communities use these environments for instance by cutting of mangrove wood or by cultivating seaweed, fish and oysters. However, one of the most important activities for Tanzanian coastal communities is the inshore fishery, with mangrove creeks, coral reefs, sea grass beds and sand banks belonging to the most productive fishing grounds⁹. Thus, the fishery

⁵ Feidi, I.H. 2005. The Fisheries of Zanzibar : Potential for New Investments. *NAGA, WorldFish Center Quarterly* 28, 37–40.

⁵<http://www.geohive.com/cntry/tanzania.aspx>

⁵Population Distribution by Administrative Units, United Republic of Tanzania, 2013,

⁵ http://www.nbs.go.tz/takwimu/references/Tanzania_in_figures2012.pdf

⁶ Salm, R. *et al*/1998. Partnership for Conservation: Report of the Regional Workshop on Marine Protected Areas, Tourism and Communities. Diani Beach, Kenya. IUCN Eastern Africa Regional Office, Nairobi, Kenya.

⁷ Francis and Bryceson 2001

⁷ Jiddawi, N. S., & Ohman, M. C. (2002). Marine fisheries in Tanzania. *Ambio*, 31, 518–527.

⁸ SEE BOX 1 FOR DEFINITION

⁹ Gustavson et al. 2009

⁹ Jiddawi and Ohman 2002

sector in Tanzania is one of the top three growth sectors¹⁰, contributing 2.1-5.0 % to the Gross Domestic Product (GDP) of the mainland. On Zanzibar, the marine fishery plays an even larger role having a share in GDP of 2.2. -10.4 %¹¹. The export value of products of marine fisheries resources for the mainland and Zanzibar is approximately 7,650,000 \$ and about 598,000 \$, respectively¹². However, fishing not only represents a source of income; it also (and often more importantly) serves as a direct food provision for the population¹³. The annual consumption of fishery products on the mainland is estimated as 13 kg per person¹⁴, while on Zanzibar it is much higher at 23 kg per person¹⁵. Fishery products constitute up to 30 % of the animal protein supply of the overall population of Tanzania and over 90 % of that of coastal communities¹⁶. Estimates suggest that Tanzania is home to approximately 55,000 fishermen and possesses approximately 400 landing sites¹⁷. Only 20,000 fishermen are operating on the mainland, the greater part is active on Zanzibar and they use 254 landing sites,¹⁸ which are located in 13 and 5 coastal districts, respectively. Additionally, marine and coastal resources play an important role in economic growth and poverty reduction in the country. The number of fishermen, the per capita consumption of fisheries products and the contribution of the marine fishery to the GDP demonstrate a higher dependency on marine resources for the coastal dwellers.

Even though marine fisheries have a significant importance for employment and income levels along the coastal regions in Tanzania, poverty along coastal regions is still widespread, with an average of 85 % of the sample population of a survey conducted for the "Blueprint 2050" study surviving on less than a

¹⁰ January, M. and Ngowi, H.P. (2010) *Untangling the Nets: The Governance of Tanzania 's Marine Fisheries*. South Africa.

¹¹ Jiddawi and Ohman 2002

¹² Francis and Bryceson 2001

¹³ Jiddawi and Ohman 2002

¹⁴ Sobo, F.A.S. 2004. *Strengthening of artisanal data collection and management in Tanzania*. Dar es Salaam, Tanzania.

¹⁵ Lange, G.-M., & Jiddawi, N. 2009. Economic value of marine ecosystem services in Zanzibar: Implications for marine conservation and sustainable development. *Ocean & Coastal Management*, 52(10), 521–532.

¹⁶ Berachi IG, 'Bioeconomic analysis of artisanal marine fisheries of Tanzania (mainland)', unpublished MSc dissertation, Department of Economics and Norwegian College of Fishery Science, University of Tromso, 2003.

¹⁷ Jacquet, J., Fox, H., Motta, H., Ngusuru, a, & Zeller, D. 2010. Few data but many fish: Marine small-scale fisheries catches for Mozambique and Tanzania. *African Journal of Marine Science*, 32(2), 197-206.

¹⁸ Feidi, I.H. 2005

dollar a day¹⁹. The average monthly per capita consumption expenditures in 2003 for the sample population of the same study were about USD 21. This is roughly two-thirds of the established poverty line of USD 30²⁰. Outside the urban centres, marine fisheries are a vital source of employment and income as well as an important source of nutrition and alternative to expensive meat. In the general discourse, however, the real contribution of marine fisheries to the Tanzania economy is underestimated and still not properly understood by those entrusted with informed policy making. Moreover, coastal and marine resources in Tanzania play an important role both for the coastal population in rural areas of the country and for the economy as a whole through income generated from tourism and fishing licences both from artisanal fishers and from distant water fishing vessels from abroad. Of Tanzania's total population 75 per cent live in rural areas²¹. Here most people have access to fishery and other coastal and marine resources, and it is estimated that about 40% of the income in rural households comes from the use of natural resources, which will for many years continue to play an important role in rural livelihoods²². Tourism is another important economic activity yet with obviously insufficient benefits arriving to the local communities that experience devastating levels of poverty. In Zanzibar, the sandy beaches and coral reefs along the coast, as well as the forest habitats in the south, have spurred the growth of the tourism industry. A string of hotels exists along the entire coast, and according to the 2004/2005 State of the Environment Report for Zanzibar²³, there are 200 tourist accommodation venues in Unguja Island, most of which are located on the north and east coasts. Mnemba islet is one of the few examples in Zanzibar that have been leased to private owners, which offer a high-end tourism experience in their luxury lodge. The number of both formal and informal tourist operators that base their

¹⁹ World Bank 2005. Study on Growth and Environment Links for the Preparation of Country Economic Memorandum (CEM). Part 2: Uncaptured Growth Potential Forestry, Wildlife and Marine Fisheries. Final Report, World Bank.

²⁰ Ruitenbeck, J, Hewawasam, I.; Ngoile, M. (eds). 2005. Blueprint 2050, sustaining the Marine Environment in Mainland Tanzania and Zanzibar. The World Bank.

²¹ Kajembe, G, and Marageri, E. 2009. Integration of natural resources into local government decision-making. Tanzania country report.

²² *ibid*

²³ State of the Environment Report for Zanzibar (2004/2005) cited in Mnemba Island and Chwaka bay Conservation Areas: A preliminary Situational Assessment. Report Prepared by EcoAfrica Environmental Consultants. 2005.

operations (mostly involving diving and snorkelling) on the natural features that the area offers, is also growing²⁴.

1.3 Overview of marine and coastal area management practises and the rationale behind MPAs establishment in Tanzania

As stated above, the marine environment and its resources do not only support the local communities and coastal residents, but also the national economy. Early studies²⁵ revealed that the marine environment and the resources are under pressure from unsustainable uses. Moreover, due to the narrowness of the continental shelf, the majority of the reefs are close to land and easy accessible. As a result, they are strongly subjected to human influences. As a consequence, most of the coastal resources are already showing signs of degradation from overexploitation, destructive fishing practices and or pollution from land-based sources. Fishing, ecotourism, mining, port developments, coastal transport and trade, upland agriculture along river banks, are the main drivers of economic development and sources of livelihoods of coastal communities, but they are also potential sources of degradation of coastal zones. Most of the major urban centres and about 75% of industrial facilities are located along the coastline, thereby increasing the pressures on coastal resources and their habitats. Additionally, physical threats to coastal environments and their resources include anchor damage and trampling from fishers and tourists, beach goers, but also activities related to oil and gas exploration and extraction, which are new and important economic undertakings²⁶. While coral reef studies in the 1960s and 1970s had reported high diversity and luxurious growth of corals and associated resources, surveys conducted during the 1980s and 1990s described a general degradation of coral reef ecosystems, mainly due to destructive fishing (dynamite and dragnets) and over-exploitation of certain key species. The increases in coastal populations, the lack of alternative employment, unplanned tourism and coastal construction

²⁴ Mnemba Island and Chwaka bay Conservation Areas: A preliminary Situational Assessment. Report Prepared by EcoAfrica Environmental Consultants. 2005.

²⁵ Ray, G.C., 1968: Marine Parks for Tanzania. Washington Conservation Foundation. Washington D.C. pp 47

²⁶ Muhando *et al*/2000. State of reefs in other marine protected areas of Tanzania. Unpublished Report.

BOX 1: MPA DEFINITION

The following are the two most used definitions of an MPA:

According to **CBD Article 2** defines MPA as:

“A geographically defined area which is designated or regulated and managed to achieve specific conservation objectives” and

IUCN defines MPA as:

“An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means”

In addition, IUCN elaborates this further to define an MPA as:

“Any area of intertidal or sub tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment”

The 4th World Wilderness Conference developed this definition in 1987 and adopted it in resolution 17.38 at the IUCN General Assembly of 1988 (IUCN/WCMC, 1994; Kelleher, 1999). Both the IUCN and CBD definitions require that an area must be set aside principally for conservation if it is to be recognized, at the global level, as a protected area. The definitions, however, do not exclude PAs having additional objectives, such as improving livelihoods or promoting education or research (Wells, S. *et al* 2007). WWF uses the term MPA as an overarching description of an area designated to protect marine ecosystems, processes, habitats and species which can contribute to the restoration and replenishment of resources for social, economic and cultural enrichment. These definitions cover all types of marine areas with a certain degree of protection. Their main goals are biodiversity protection, and therefore they may include different systems such as marine reserves, marine parks, sanctuaries etc.

In Tanzania mainland (**Table 1 & Figure 4**) all marine reserves, and national parks are no take areas where fishing and extraction of any kind is not allowed except recreational and research activities. Marine parks are zoned for a wide range of uses including fishing. In addition, no take zones are designated within the multiple use marine parks. Closed areas may be found within CMAs or CFM in which their primary objective is fishery management rather than biodiversity conservation.

as well as a lack of trained personnel and resources to enforce legislation have contributed towards coral reef degradation. Furthermore, the lack of capacity and facilities to effectively enforce legislation safeguarding the marine environment and its resources has resulted in the escalation of marine environmental destruction that was witnessed in the 1980s and 1990s²⁷. However, the most significant

²⁷ Bryceson I., T.F. Desouza, T. Jihangeer, M.A.K. Ngoile and P. Wynthers, 1990. State of the Marine Environment in the Eastern African Region. UNEP Regional Seas Report and Studies. No. 113. 46p.

²⁷ UNEP 1989. Coastal and marine environmental problems of the United Republic of Tanzania. UNEP *Regional Seas Reports and Studies* No. 106. 33 pp. + annex.

²⁷ Ngoile MAK. and Horrill CJ. 1993. Coastal ecosystems, productivity and protection: Coastal ecosystem management. *Ambio* 22(7):461-467.

²⁷ Johnstone, R., Muhando, C. and Francis, J. 1998. The status of coral reef of Zanzibar: One example of a regional predicament. *Ambio* 27 (8): 700-707.

wide scale mechanism of coral reef degradation has been thermally induced coral bleaching. This is a process whereby elevated sea surface temperatures trigger the expulsion of symbiotic zooxanthellae from coral polyp cells²⁸. While coral bleaching can be a natural phenomenon²⁹, anthropogenically induced climate change has increased the intensity and frequency of bleaching occurrences³⁰. Reefs in Tanzania are thus also at risk from climate change, which appear to aggravate coral bleaching events³¹ (Figure 2), and favour the growth of fleshy algal and coral predation from corallimorpharia³². Other causes, which also play a role in Tanzanian coral reef degradation, include the proliferation of diseases affecting corals and intensive predation from outbreaks of Crown-of-thorns-starfish³³ (Figure 3).

In recognition of the social, economic, cultural, and ecological importance of marine and coastal ecosystem and in response to their continued and accelerated loss, the government adopted the idea of establishing MPAs. MPAs have emerged as the most favored coral reef management tool to address issues of overfishing, habitat degradation, and to foster alternative livelihoods. The preference for this spatial management tool for coral reef systems is grounded in ecological and social considerations.

²⁸ Glynn, P.W. (1993) Coral reef bleaching: ecological perspectives. *Coral Reefs* 12(1), pp. 1-17.

²⁹ Brown, B.E. 1988. Assessing the environmental impacts on coral reefs. *Proceedings of the 6th International Coral Reef Symposium Australia 1988 Vol. 1*, pp. 71-87.

²⁹ Brown, B.E. 1997. Coral bleaching: causes and consequences. *Coral Reefs* 16, pp. 129-138.

³⁰ Hoegh-Guldberg, O. 1999. Climate change, coral bleaching and the future of the world's coral reefs. *Marine Freshwater Research* 50, pp. 839-866.

³¹ McClanahan, T., Ateweberhan, M., Muhando, C., Maina, J. & Mohammed, M.S. (2007a) Effects of Climate and Seawater Temperature Variation on Coral Bleaching and Mortality. *Ecological Monographs* 7: 503-525.

³² McClanahan, T.R., Muthuga, N.A. & Mangi, S. 2001 Coral and algal changes after the 1998 coral bleaching: interaction with reef management and herbivores on Kenyan reefs. *Coral Reefs*, 19: 380-391.

³² Mohammed, S.M., Muhando C.A. and Machano, H. 2002. Coral Reef Degradation in Tanzania: Results of Monitoring 1999-2002. In: O. Linden, D. Souter, D. Wilhelmsson, & D. Obura (Eds.), *Coral Reef Degradation in the Indian Ocean. Status Report 2002* (pp. 108). Kalmar: CORDIO. pp 21-30.

³² Muhando, C. A. 2009. Coral reef monitoring in Tanzania: an analysis of the last 20 years. *Western Indian Ocean J. Mar. Sci.* Vol. 8, No. 2, pp. 203 - 214, 2009.

³³ Raymundo L.J, Couch C.S, and Harvey, D. (eds.) 2008 *Coral Disease Handbook*. Coral Reef Targeted Research and Capacity Building for Management Program. 121 pp.

³³ Ussi, A.M. 2008 Population Dynamics, and Impact of Crown-of-Thorns Starfish, *Acanthaster planci* (L), on Coral Reefs of Zanzibar. MSc Thesis, University of Dar es Salaam. 93 pp.

³³ Muhando, C. A and Mwaipopo, R 2008. Tanzania Coral Reefs Status Report

Some highly valued coral reef fish (e.g., serranids and lutjanids) have high site fidelity and increase in size and density within no-take MPAs in a relatively short time frame³⁴. Additionally, coral reef MPAs can increase dive tourism providing livelihoods and are considered easier to enforce than seasonal closures or fishery management techniques that limit entry of generally poor artisanal fishers³⁵.

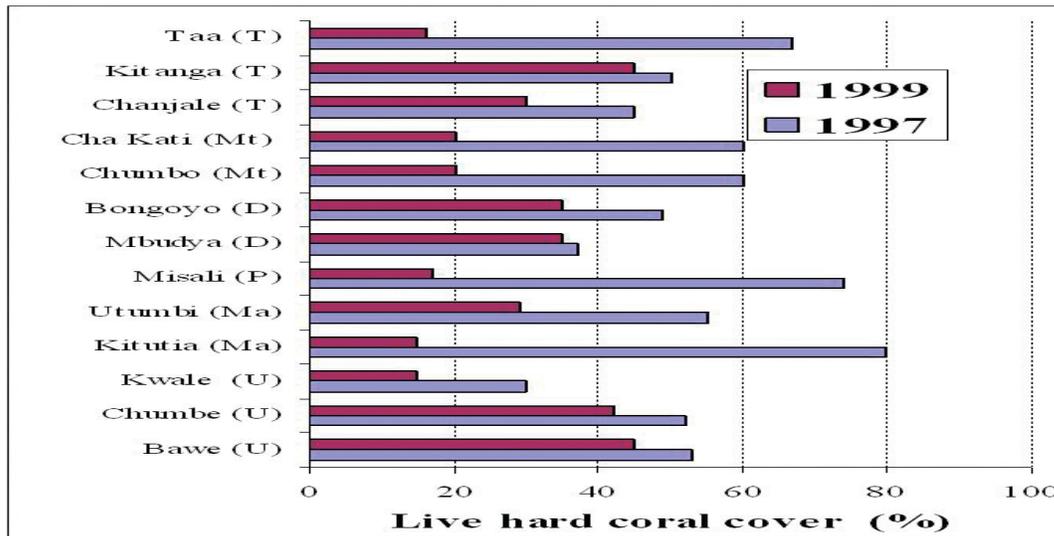


Figure 2: The impact of the 1998 coral-bleaching event on coral cover (1997 vs 1999) in various reef sites in Tanzania (T= Tanga, Mt = Mtwara, D = Dar es Salaam, Ma = Mafia, P = Pemba and U = Unguja, Zanzibar) (Source: Muhando, 2009.)

In some regions such as Southeast Asia and the Pacific³⁶, the use of MPA as a technique for fisheries management dates back centuries. Regardless of often-increased external pressures, their use as ocean governance tool has increased in many areas. MPAs are also being promoted as tools to reach both goals of biodiversity conservation and fisheries managements. However, more often MPAs are established with different objectives and goals depending on the particular situation and area in question. Although the priority objectives and management strategies may differ slightly between them, they all have the same expectation of maintaining the ecological processes, ensuring sustainable

³⁴ Russ GR, Stockwell B, Alcala AC 2005. Inferring versus measuring rates of recovery in no-take marine reserves. *Mar Ecol Prog Ser* 292:1–12

³⁴ McClanahan TR, Mwanguni S, Muthiga NA (2005) Management of the Kenyan coast. *Ocean Coast Manage* 48:901–931.

³⁵ White AT, Alino PM, Meneses AT (2006) Creating and managing marine protected areas in the Philippines. Fisheries improved for Sustainable Harvest Project, Coastal Conservation and Education Foundation Inc, University of the Philippines Marine Science Institute. Cebu City, Philippines

³⁶ Johannes, R, E .1998. The case for data-less marine resource management: examples from tropical nearshore finfisheries. *Trends in Ecology and Evolution* 13: 243-246

utilization, and preserving biotic diversity³⁷. Because of the expected benefits of establishing MPAs, special efforts were directed towards creation of MPA in the form of reserves, parks, conservation areas, etc. To date, there are about 33 such systems in the country (**Table 1 & Figure 4**). These MPAs are mainly designed to cope with local, anthropogenic influences on coral reefs, while the other threats such as climate changes and natural calamities are more unpredictable, complicated and or require greater global co-ordination to tackle. Nonetheless, the increased usage of MPAs as management tool is improving our understanding of coral reef functioning and coastal resources management. It is hoped that MPAs may allow for a more sustainable management of resources particularly in ways that can benefit the poor and provide them with a strong base for economic growth and hence pathways out of poverty. MPAs are expected to allow for improved efficiency in the management of coastal and marine resources, in order to increase their contribution to all levels of the national economy, including at community level where the impact of declining resources is felt most.

While in developing nations like URT, poverty is the main driving force for the destruction of coastal and marine environments, it is becoming clear that protection of marine ecosystems and biodiversity is crucial if livelihood and food security are to be sustained and/or improved. Fisheries also cannot be sustained unless the vulnerable life stages of exploited species are protected and natural systems are functioning normally. Additionally, tourism industry requires clean water and beaches and healthy reefs³⁸. Coral reef MPAs in tropical countries are frequently designed to meet both biodiversity and fisheries management objectives. However, there are only few examples where these double objectives have been met³⁹. In many instances maximizing economic and conservation benefits simultaneously

³⁷ Kelleher G. and Kenchington R. 1991. Guidelines for establishing marine protected areas. A Marine Conservation and Development Report. IUCN Gland, Switzerland. vii + 79 pp.

³⁸ WWF. Eastern African Marine Ecoregion. 2004. Towards the establishment of an ecologically presentative network of marine protected areas in Kenya, Tanzania and Mozambique. WWF. 74pp.

³⁹ Maypa et al 2002. Long term trend in yield and catch rates of the coral reef fishery at Apo Island central Philippine. *MarFreshw Res* 53:207-213

³⁹ Russ et al 200. Inferring versus measuring rates of recovery in no take marine reserves. *Marine Ecology Prog ser* 292:1-12

with the same MPAs has proven to be unrealistic and resulting in collective action problems⁴⁰. Tanzanian government has therefore largely abandoned the “no take area concept” (however, no take zones are designated within the multiple use MPAs Refer to Box 1) in favour of reserves and conservation programs that allow regulated extraction and encourage community participation.

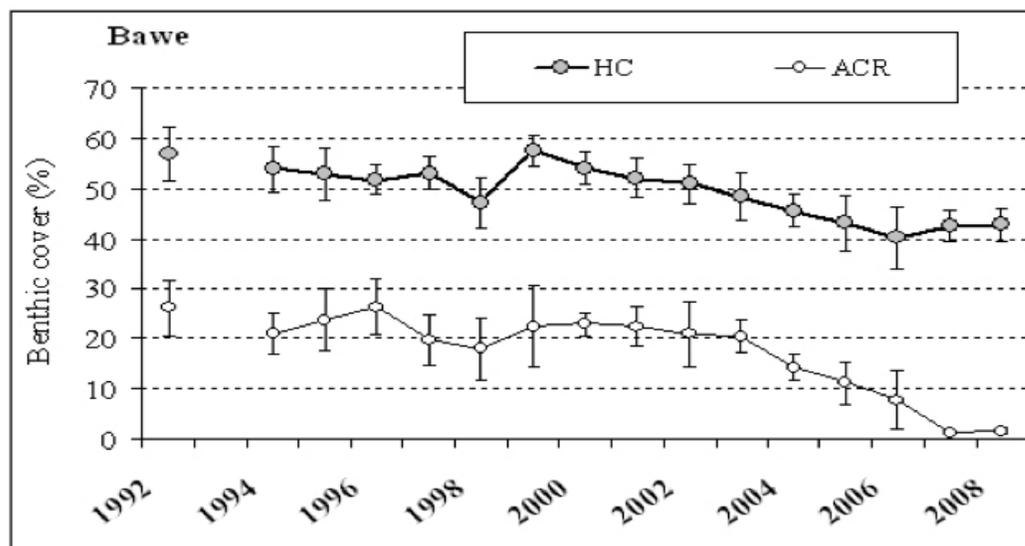


Figure 3: Long-term trends in total live coral (HC) and Acropora cover in Bawe, Zanzibar. Note: Slight decline in 1998/99 was due to bleaching event and the decline in Acropora cover from 2002 to 2008 is due to outbreak of Crown-of-thorns-starfish⁴¹.

By doing this, the government seeks to eliminate destructive fishing, such as dynamite fishing or dragnets to be replaced by nonthreatening extraction methods⁴². The effective and long-term sustainable management of URT’s marine environment is important because of its large potential benefits for the economy. Additionally, the importance of the area in terms of its biodiversity becomes evident, when we consider that it contains several of

⁴⁰Jones, P.J.S. 2006. Collective action problems pose by no-take zones. *Mar Policy* 30:143–156.

⁴¹ Muhando, C. 2009. Coral reef monitoring in Tanzania: an analysis of the last 20 years. *Western Indian Ocean J. Mar. Sci.* Vol. 8, No. 2, pp. 203 - 214, 2009.

⁴² Muhando, C, A and Francis, J. 2000. The status of coral reefs in the Dar-es-salaam marine reserves system and the state of reefs in other marine protected areas of Tanzania.

the WWF's Global 200 eco-regions⁴³ such as East African Coastal Forest, East African Mangroves, and Eastern Africa Marine Eco-region (EAME) just to name a few. Mafia Island Marine Park (MIMP) in Tanzania mainland is an example of an MPA from which insights have and still can be gathered.

1.4 Aims and Objectives

URT currently has 12.5% of its coastal waters under some form of protection⁴⁴. The country has thus already achieved its intention to increase the number of MPAs to reach 10% of its territorial sea by 2012⁴⁵. However, no efforts are in place to create MPAs in EEZ. Both governments (Tanzania mainland and Zanzibar) through the support from MACEMP GEF/World Bank project that ended officially early this year have proposed a network of MPA in order to meet the goals of the Convention of Biological Diversity (CBD)⁴⁶. However, to date the majority of the MPAs in the country are facing several problems such as insufficient enforcement, effects of poverty, lack of alternative income sources, high dependency of local people on the coastal and marine resources for livelihood, lack of coordination between governments bodies/agency and weak local participation⁴⁷ that leads to problems of non-

⁴³ The World Wide Fund for Nature (WWF) defines an Eco-region as a "large unit of land or water containing a geographically distinct assemblage of species, natural communities, and environmental conditions".

⁴⁴ Environmental Science Report #133. Frontier Tanzania. 2013. John, A.D (PI) and Everatt, M. (RDI). The Society for Environmental Exploration, London, UK. The University of Dar es Salaam. (Accessed online December 2013)

⁴⁵ UNEP-WCMC. 2010. World Database on Protected Areas (WDPA) Annual Release 2010. UNEP-World Conservation Monitoring Centre, Cambridge

⁴⁶ In 2004, the 7th Conference of the Parties to the CBD adopted the Programme of Work on Protected Areas (PoWPA) with an overall objective to establish and maintain, by 2010 for terrestrial areas and by 2012 for marine areas, "comprehensive, effectively managed and ecologically representative systems of protected areas" that, collectively, will significantly reduce the rate of loss of global biodiversity. Implementation of the PoWPA was expected to contribute to the three objectives of the Convention, its strategic plan, the 2010 biodiversity target, and the poverty alleviation and sustainable development targets of the Millennium Development Goals.

⁴⁷ Meseke, I., Tila, N. and Chande, A. (Undated). Sustainable tourism management in marine protected areas of Tanzania.

⁴⁷ Andrews G, 'Mafia Island Marine Park Tanzania: Implication of applying a marine park paradigm in a developing country', paper presented at the International Tropical Marine Ecosystem Management Symposium, Townsville, 23–26 November 1998.

⁴⁷ Mwaipopo R, 'The social dimensions of marine protected areas (MPAs): A case study of the Mafia Island Marine Park in Tanzania', *Samudra monograph*, International Collective in Support of Fishworkers, Chennai, India, 2008.

compliance. Generally speaking, most of the challenges seem to be related to the arrangements and frameworks, through which the MPA is governed. Nonetheless, it has been claimed that in the process of establishing these MPAs (for example MIMP), the government of Tanzania has provided an enabling environment and new laws that encourage the decentralization of fisheries management⁴⁸. With this in mind, the focus and case study of this research will be the MIMP, a multiple use MPA with 14 villages and over 18,000 people living within the park boundaries. The study will examine the rules, which are hindering better performance of the MPAs. Policies of the central government as well as the local government will be analysed with respect to the appropriateness of current laws and regulations governing MPAs and the extent to which various user committee have established legal and accountability relationships to local government institutions for strengthening governance as well as supporting livelihood of the coastal communities. Using a desktop review approach, the study will address the following questions:

- i. What are the existing policies and legal frameworks that deal with MPA management? To what degree do these policies affect MPAs in achieving their objectives? What are the main constraints for success?
- ii. What are the existing institutional arrangements and mechanisms for the decentralized MPA management and how effective are these in Tanzania?
- iii. What strategies are needed to improve the level of community involvement in and control over MPA decision-making arrangement and management?

⁴⁷ Bailey Kincaid *et al* 2013. Fishers' perception of a multiple-use marine protected area: Why communities and gear users differ at Mafia Island, Tanzania. *Marine Policy*: Volume 43, January 2014. Pages: 226-235

⁴⁷ EcoAfrica Environmental Consultants 2012. An Assessment of Legal and Institutional Framework for Effective Management of Marine Managed Areas in Tanzania. Mainland Tanzania Report. Marine Parks and Reserves Unit, Dar es Salaam, Tanzania. PP 83

⁴⁸ Pomeroy, R. S and Berkes, F. 1997. Two to tango: the role of government in fisheries co-management. *Marine Policy*, Vol.21, No. 5, pp. 465-480.

⁴⁸ January, M. and Ngowi, H.P. 2010. Untangling the Nets: The Governance of Tanzania's Marine Fisheries. South Africa.

- iv. Is there any effort of situating MPA management within a wider coastal zone (CZM) or Ecosystem Based Management (EBM) framework?

2 International and Tanzania mainland frameworks for MPA governance (policies, legal and institutional settings)

This part will describe the international and national marine and coastal environment legislation that are relevant to MPAs governance. The first section will deal with international frameworks and the second section with those of Tanzania mainland. Because all MPAs are found within the territorial sea Zanzibar frameworks will not be the focus of this thesis as there are separate legal frameworks governing MPA with respect to marine resources found in Zanzibar territorial sea. Matters concerning territorial sea resources are not under the Union government.

2.1 International legal frameworks for MPA governance

The URT government has signalled its intent and commitments to protect coastal and marine areas in the country by adopting numerous international and regional conventions that are concerned with the sustainable use and conservation of these areas. The country has implemented these instruments at the national level using a wide variety of tools including the establishment of MPAs and other policies relevant for marine environment conservation, protection, and sustainable use. A comprehensive review of the international legal frameworks relevance to MPAs was undertaken by Young, 2006⁴⁹. This included a review of the overall international framework of binding and non-binding laws and instruments relevant to MPAs (this section draws on some information from the aforementioned report).

The following are the key international legal instruments underpinning governance of MPAs:

2.1.1 Legally binding instruments

This subsection will describe relevant legally binding global instruments that contain general and specific obligations to protect and preserve the marine environment. Their relevance to MPAs shall be highlighted.

⁴⁹ Young, T. R. 2006. The legal framework for MPAs and successes and failures in their incorporation into national legislation. FAO Fisheries Report No 825.

2.1.1.1 United Nation Convention on the Law of the Sea 1982

UNCLOS provides that some ocean areas are under national jurisdiction while others are beyond the jurisdiction of any single State, i.e. open to all States, whether coastal or landlocked. Beyond the limits of national EEZs or in the high sea, UNCLOS recognizes high seas freedoms of navigation, over flight, cable laying, fishing, and scientific research, etc.

Table 1: List of MPAs along the Tanzanian Coast (Note that: The MPA area has to be taken with cautions due to unknown official boundaries. Source. Dr Mhando-IMS: UDSM)

Name	Category	Location	MPAs Area (km ²)	Year established	Governance type
Pemba Channel CA	Conservation Area	Pemba - Zanzibar	1000.00	2005	Government
Misali CA	No take area	Pemba - Zanzibar	21.6	1995	NGO
Chwaka_Paje	Conservation Area	Unguja - Zanzibar	223.00	2004	Collaborative
Menai_Bay	Conservation Area	Unguja - Zanzibar	470.00	1997	Collaborative
Tumbatu	Conservation Area	Unguja - Zanzibar	133.00	Proposed	Government
Changuu-Bawe	Conservation Area	Unguja - Zanzibar	116.00	Proposed	Government
Mnemba Island	Conservation Area	Unguja - Zanzibar	290.00	2002	Private-Community
Jozani Park	Forest Park	Unguja - Zanzibar	11.23	2004	Collaborative
Chumbe Sanctuary	Marine Reserve	Unguja - Zanzibar	1.30	1991	Private
Mnemba Island	Marine Reserve	Unguja - Zanzibar	2.00	2002	Private
Poyogo	Community No-take	Bagamoyo-TZ mainland	0.41	2005	Collaborative Fisheries Management (CFM)
Mshingwi	Community No-take	Bagamoyo-TZ mainland	1.44	2005	CFM
Mweduga	Community No-take	Bagamoyo-TZ mainland	3.15	2005	CFM
Mjini	Community No-take	Bagamoyo-TZ mainland	0.64	2005	CFM
Saadani	National Park	Bagamoyo-TZ mainland	841.28	1969	Government
Mafia Island	Marine Park	Mafia - TZ mainland	900.96	1995	Co-management
Mnazi Bay Ruvuma	Marine Park	Mtwara - TZ mainland	824.08	2000	Government
Tanga Coelacanth	Marine Park	Tanga - TZ mainland	553.48	2009	Government
Fungu Yasini	Marine Reserve	Kinondoni TZ mainland	8.86	1975	Government
Mbudya	Marine Reserve	Kinondoni TZ mainland	10.75	1975	Government
Pangavini	Marine Reserve	Kinondoni TZ mainland	2.34	1975	Government
Bongoyo	Marine Reserve	Kinondoni TZ mainland	8.31	1975	Government
Barakuni Island	Marine Reserve	Mafia - TZ mainland	14.94	2007	Government
Shungumbili Island	Marine Reserve	Mafia - TZ mainland	10.03	2007	Government
Nyororo	Marine Reserve	Mafia - TZ mainland	4.45	2007	Government
Kwale Island	Marine Reserve	Tanga - TZ mainland	12.55	2010	Collaborative
Ulenge Island	Marine Reserve	Tanga - TZ mainland	3.20	2010	Collaborative
Mwewe Island	Marine Reserve	Tanga - TZ mainland	0.49	2010	Collaborative
Kirui Island	Marine Reserve	Tanga - TZ mainland	40.75	2010	Collaborative
Maziwe Island	Marine Reserve	Tanga - TZ mainland	17.05	1975	Government
Makatembe Island	Marine Reserve	Temeke - TZ mainland	6.41	2007	Government
Sinda Island	Marine Reserve	Temeke - TZ mainland	4.38	2007	Government
Kendwa Island	Marine Reserve	Temeke - TZ mainland	1.49	2007	Government

Within EEZs, it recognizes various levels of sovereign right and jurisdiction, but the coastal State's shall act in the manner compatible with the provision of the convention⁵⁰.

⁵⁰ UNCLOS, Article 56

The support for creating MPAs can be deduced from a number of articles in the UNCLOS. Parties to the convention have specific obligations to protect and preserve the marine environment, to conserve natural resources, and to cooperate with other States for conservation purposes⁵¹. Other articles of UNCLOS lend support to the creation of MPAs under national jurisdiction for specific purposes such as conservation and management of living resources⁵², exploration of the continental shelf and management of its resources⁵³, the assessment and monitoring of environment impacts⁵⁴ and cooperation with other coastal States⁵⁵. The UNCLOS elaborates further on this general obligation and provides that "States shall take, individually or jointly as appropriate, all measures consistent with this convention, that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection"⁵⁶. Measures to be taken include those necessary to protect "rare and fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life"⁵⁷; to prevent, reduce and control pollution of the marine environment resulting from the use of technologies under States Parties jurisdiction or control the introduction of alien or new species to a particular part of the marine environment, which may cause significant harm to that part of the environment⁵⁸. The Convention requires States to promote compliance with measures for conservation of marine living resources of the high sea, cooperation among States in conservation through formation of RFMO or other international cooperation mechanism, or the entire global community⁵⁹.

⁵¹ UNCLOS, Arts. 61, 118 and Part XII, especially Arts. 192 and 237.

⁵² UNCLOS Article 61

⁵³ UNCLOS Article 77

⁵⁴ UNCLOS Article 204

⁵⁵ UNCLOS Article 303(1)

⁵⁶ UNCLOS Article 194

⁵⁷ UNCLOS Article 194 (5)

⁵⁸ UNCLOS Article 196(1)

⁵⁹ UNCLOS, Part VII, Section 2, Articles 116-120.

2.1.1.2 United Nations Fish Stocks Agreement (UNFSA)

The basic objective of the UNFSA is to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks through effective implementation of the relevant provisions of the UNCLOS⁶⁰. The UNFSA requires both the use of best scientific evidence available⁶¹ and the application of the precautionary approach⁶² to protect biodiversity in the marine environment for the management and preservation of straddling fish stocks across the range of their distribution. The UNFSA establishes both the requirement and the principle of compatibility between the measures adopted by the international community for the high seas and the relevant coastal State for the areas under its jurisdiction⁶³. In line with the responsibilities of the coastal States under UNCLOS⁶⁴, the UNFSA recognizes the special requirements of developing States in the management of the aforementioned fish stocks whether they occur on the high seas or within national waters of coastal developing States.

2.1.1.3 International Maritime Organization (IMO) and Associated Instruments

The IMO's primary purpose is to develop and maintain a comprehensive regulatory framework for shipping and its responsibility includes safety, environmental concerns, legal matters, technical co-operation, maritime security, and the efficiency of shipping. IMO is the source of approximately 60 legal instruments. Among its instruments, a number have focused on dumping and pollution from navigation and other activities and areas in which shipping and maritime traffic can have an impact on the marine environment⁶⁵.

⁶⁰UNFSA, Article 2, 3 (1)

⁶¹ UNFSA, Article 5 (b) and (c)

⁶² UNFSA, Article 5 (d)

⁶² UNFSA, Article 6

⁶³ UNFSA, Article 1 (b)

⁶³UNFSA, Article 7

⁶⁴UNCLOS Part V

⁶⁵ The International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78); International Convention for the Control and Management of Ships' Ballast Water and Sediments;

Specifically,

- i. International Convention for the Prevention of Pollution from ships 1973 as modified by the protocol of 1978 relating thereto (MARPOL 73/78)
- ii. International Maritime Organization (IMO) Guidelines for the Designation of Special Areas and the Identification of Particularly Sensitive Sea Areas (PSSA).

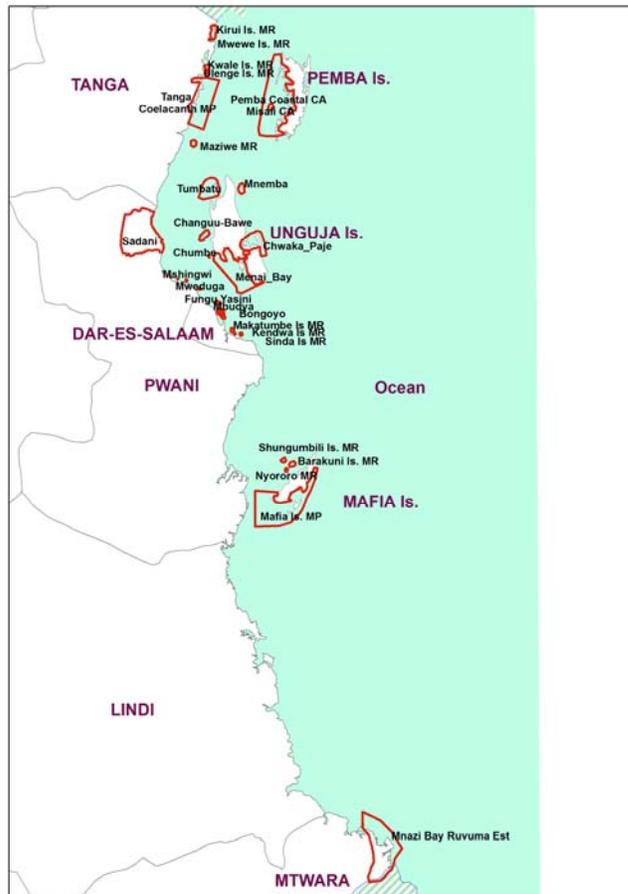


Figure 4: Map of Tanzanian coastline and Zanzibar (Pemba and Unguja Islands) showing the distribution of MPA (Source: Dr C.A. Muhando, IMS-UDSM)

IMO's approach to environmental protection includes many provisions for the designation of specific areas, including both areas that must be protected and areas specifically usable as dumping sites or for purging ballast water. These designations may be useful, if they can be integrated into national and

Convention for the Prevention of Marine Pollution by Dumping of Wastes and Other Matter (London Convention and its 1996 protocol); and particularly the IMO Revised Guidelines for the Identification and Designation of Particularly Sensitive Sea Areas, IMO Assembly Resolution A. 982 (24) (Adopted 2005)

international processes of MPA creation. IMO's suite of geo-located protective measures includes a range of different "special areas," within which particular kinds of discharges and emissions (oily wastes, "noxious liquid substances," garbage, and air pollution) are forbidden⁶⁶. Another measure is the "particularly sensitive sea area" (PSSA)⁶⁷, which is much broader in scope, mandating that all vessels undertake a list of protective measures, whenever they are in an area that has been designated as a PSSA. It has been noted that the PSSA designation is not a mandate for conservation. However, if used in conjunction with other conservation measure, the PSSA might have a significant role in providing the linking mechanism between environmental/conservation action and IMO's shipping oversight⁶⁸.

2.1.1.4 The Convention on Biological Diversity (CBD)

The CBD is a global instrument that addresses three objectives: the conservation of biological diversity, the use the components of biological diversity in a sustainable way, and the equitable sharing of benefits arising out of the utilization of genetic resources. It recognizes that conservation of biological diversity is a common concern of human kind and that investments in conserving biodiversity will result in environmental, economic, and social benefits⁶⁹. It has acknowledged marine conservation as a priority in its second Conference Parties (COP) when the Jakarta Mandate on marine and coastal biodiversity was adopted in 1995⁷⁰. As part of its Jakarta Mandate, the CBD is committed to a series of specific goals that include the establishment of marine and coastal protected areas and that encourage, and enhance the implementation of wide-ranging integrated marine and coastal area management (IMCAM) that includes a broad suite of measures at all levels of society. Protected Areas (PAs), broadly addressed within the term "*in situ* conservation measures" are specifically addressed under the CBD as

⁶⁶ MARPOL 73/78, Regulation 10 of Annexes I, II, V, and VI.

⁶⁷ The PSSA concept has been derived indirectly from multiple sources within IMO instruments, and has been specifically referenced in UNCLOS, Agenda 21 and processes under the CBD. Article 211 of UNCLOS is generally thought to reference the IMO system, especially MARPOL 73/78.

⁶⁸ Young, T. R. 2006. The legal framework for MPAs and successes and failures in their incorporation into national legislation. FAO Fisheries Report No 825.

⁶⁹ <http://www.cbd.int/>

⁷⁰ CBD, COP II

a primary tool for ensuring that valuable biodiversity and biological resources are not lost to extinction through abuse, overuse, or unintentional neglect⁷¹. The CBD clearly emphasizes that PAs designations are tools for such protection, rather than *per se* objectives that can be satisfied by simply gazetting the area as a “paper park”⁷². The CBD envisions an integrated, comprehensive approach to conservation and sustainable use. Hence, Parties are required to prepare and update inventories of biological resources as a basis for planning and decision-making⁷³. The Convention’s scope specifically includes marine areas within the limits of national jurisdiction, *and* extends to processes and activities undertaken by a country or by persons or vessels under its jurisdiction in the high seas and the Area⁷⁴. The primary MPA coverage issue for the CBD has been the relationship between the CBD and UNCLOS. Although the CBD specifically requires parties to “implement this Convention consistently with the rights and obligations of States under the law of the sea,”⁷⁵ the two international processes have an evolving relationship, particularly with regard to MPAs and other marine conservation issues.

2.1.1.5 World Heritage Convention (WHC)

The WHC was created to ensure the protection and safeguarding of specific areas of international importance. Observing that the cultural heritage and the natural heritage are increasingly threatened with destruction not only by traditional causes of decay, but also by changing social and economic conditions, which aggravate the situation with even more formidable phenomena of damage or destruction. The Convention also mandates international oversight of listed sites (based on its Operational Guidance and other Principles) to ensure that the relevant area’s condition does not decline. Once listed, a PA may use the WH designation as a kind of certification or “brand,” which has

⁷¹ CBD Article 8

⁷² *ibid*

⁷³ CBD Article 6 and 8

⁷⁴ CBD, Articles 4 and 5

⁷⁵ CBD Article. 22.2

proven to increase the number of visitors to the site⁷⁶. Marine sites, particularly those in coastal waters or within relatively short boating distances of shore, have been designated as WH sites such as Kilwa District of the Lindi region in the southern part of mainland Tanzania, which hosts the UNESCO World Heritage Site in the Selous Game Reserve, characterized by a huge abundance and diversity of wildlife. Other wildlife in the area includes mangrove forests inhabited by hippos and crocodiles, while the nearby sea grasses harbour the rare dugong and further out to sea the rich marine life of coral reefs. The main limitation of the WHC relates to its objectives, since it is not a 'protected areas convention,' *per se*, but rather is designed to create incentives and mandates for a specific type of PA especially one that enhances tourism.

2.1.1.6 Convention on International Trade in Endangered Species of Fauna and Flora (CITES)

The convention does not address PAs or MPAs directly, yet it has relevance to conservation beyond national waters. CITES incorporates properties of a conservation convention and an "international trade agreement," closely regulating international movements of endangered and threatened species, or their parts and derivatives. CITES focuses significant attention on the listing of protected species, and efforts to ensure their protection⁷⁷. This convention is relevant in Tanzania though not applicable in territorial water but it does have an implication when it comes to endangered animals such as sea turtles and the like when they are outside the MPAs and territorial waters.

2.1.1.7 Convention on Migratory Species (CMS)

Like CITES, CMS focuses on the listing of particular species (or groups of species) that are both migratory and endangered. The primary requirement imposed on Parties with regard to these species is to take measures to protect manage and conserve their habitats. Several instruments have been developed to address the conservation and management of these species across their migratory range. An example is the Memorandum on the Conservation of Sea Turtles of the Indian Ocean and South

⁷⁶ <http://whc.unesco.org/en/convention/>

⁷⁷ CITES, Articles III.5, and IV.6.

East Asia⁷⁸.

2.1.2 Soft laws, with no legal binding effect

Soft law refers to rules that are neither strictly binding in nature nor completely lacking legal significance. In the context of international law, soft law refers to guidelines, policy declarations or codes of conduct that set standards of conduct. However, they are not directly enforceable⁷⁹. Soft laws may provide good evidence of authoritative guidance on the interpretation or application of a treaty, and may serve as agreed standards for the implementation of more general treaty provisions or rules of customary law⁸⁰. Soft law instruments are as described below;

2.1.2.1 FAO, and the Code of Conduct for Responsible Fisheries (CCRF)

The UN Food and Agriculture Organization (FAO) has long recognized the intrinsic linkage between conservation and natural resource management, and the achievement of the Organization's primary mandates relating to food, agriculture, fisheries, and forestry⁸¹. Its work provides strong examples of the value of non-binding and voluntary instruments, including specifically the CCRF , which focuses on the balance between "the biological characteristics of the resources and their environment and the interests of consumers and other users"⁸². However, certain parts of the Code are based on relevant rules of international law. The CCRF does not specifically discuss geographic-based protection measures; however, it focuses on the needs for conservation, restoration and sustainable use of ecosystems, commercially fished species, and species that are not commercially fished⁸³. As noted, PAs are thought to be relevant and necessary to the achievement of these objectives⁸⁴. The Code provides principles

⁷⁸ Memorandum of Understanding on the Conservation and Management of Marine Turtles and their Habitats of the Indian Ocean and South-East Asia (2001).

⁷⁹ <http://definitions.uslegal.com/s/soft-law/>

⁸⁰ Boyle, A. E. 1999. Some reflections on the relationship of treaties and soft law." *International and Comparative Law Quarterly* 48.4 (Oct 1999): 901-913.

⁸¹ Young, T. R. 2006. The legal framework for MPAs and successes and failures in their incorporation into national legislation. FAO Fisheries Report No 825.

⁸² *ibid*

⁸³ *ibid*

⁸⁴ CCRF Articles 6 (1), 6(2), and 6(8) The CCRF

and standards applicable to the conservation, management, and development of all fisheries. It also covers the capture, processing, and trade of fish and fishery products, fishing operations, aquaculture, fisheries research, and the integration of fisheries into coastal area management⁸⁵. Further, the Code had a significant impact on the growing trend toward coordinated management and the promotion of sustainability in fishing activities in all ocean areas⁸⁶. In the context of the CCRF and its overall objective of sustainable fisheries, the issue of excess fishing capacity in world fisheries is an increasing concern. Excessive fishing capacity is a problem that, among others, contributes substantially to overfishing, the degradation of marine fishery resources, and the decline of the food production potential. The CCRF requires that States take measures to prevent or eliminate excess fishing capacity and ensure that levels of fishing effort are commensurate with sustainable use of fishery resources⁸⁷.

2.1.2.2 Chapter 17 of Agenda 21 and Declaration of the World Summit for Sustainable Development

Agenda 21 identifies a full range of issues that must be addressed in a globally and locally integrated or interrelated way, in order to ensure the health, stability, and sustainability of the ecosystems, species, and the global environment. These principles are directly applied to the conservation and management of the oceans in Chapter 17, which calls on States to co-operate with regard to the protection and restoration of endangered marine species and the preservation of habitats and other ecologically sensitive areas⁸⁸. To achieve this objective, Agenda 21 recognizes the need to integrate policy and decision making processes relating to coastal and marine areas and to involve all concerned individuals, groups and organizations in planning and decision making steps. Agenda 21, in chapters 8, 38, 39, and 40, stresses the importance of enhancing local capacities for sustainable development in developing countries. In 2002, the World Summit for Sustainable Development (WSSD) recognized that ocean

⁸⁵ CCRF Articles 6(2) and 6(9)

⁸⁶ *ibid*

⁸⁷ <http://www.fao.org/fishery/code/en>

⁸⁸ United Nations Conference on Environment and development (UNCED), Rio de Janeiro, 3-14 June 1992. Agenda 21 Chapter 17. Online: <[http://www.un.org/esa/sustdev/documents/Agenda 21/english/Agenda 21.pdf](http://www.un.org/esa/sustdev/documents/Agenda%2021/english/Agenda%2021.pdf)> (Accessed 4 July 2006)

⁸⁸ Agenda 21, 17.46.

related objectives of Chapter 17 of Agenda 21 were still lagging behind⁸⁹. The Johannesburg Plan of Implementation (JPOI), adopted at the WSSD, set out new commitments and priorities for action on sustainable development. The JPOI sets a number of specific time bound commitments for ocean and sea including the establishment of a representative network of MPAs by 2012⁹⁰. States are called on to maintain the productivity and biodiversity of important and vulnerable marine and coastal areas, including in the high seas; and to develop new approaches and tools to establish MPAs consistent with international law and based on scientific information⁹¹. In 2003, the Durban World Parks Congress (WPC) called on the international community as a whole to establish by 2012 a global system of effectively managed, representative networks of marine and coastal PAs and to implement an ecosystem-based approach to sustainable fisheries management and marine biodiversity conservation⁹¹. The Congress confirmed that, if managed properly, marine resources offer enormous potential for effective wealth creation and poverty reduction⁹². Policy makers worldwide have committed to using MPAs as a mechanism for promoting resource management while improving economic well fare⁹³.

2.1.2.3 Global Programme of Action - Protection of the Marine Environment from Land-based Activities.

GPA is a comprehensive, multi-sectoral instrument reflecting the desire of governments to strengthen the collaboration and coordination of all agencies with mandates relevant to the impact of land-based activities on the marine environment, through their participation in a global programme. In addition to pollution issues, the GPA also addresses physical alterations of the coastal zone, including the destruction of marine habitats. The GPA specifically discusses and encourages the recognition of

⁸⁹ WSSD Plan of Action

⁹⁰ WSSD Plan of Action

⁹¹ World Park Congress. Rec 22: Building a global system of marine and coastal protected area networks. Seeonline: <<http://www.iucn.org/themes/wcpa/wpc2003/pdf/english/proceedings/recommendation/pdf>>

⁹² WPC Recommendation V.22 Building a Global System of Marine and Coastal Protected Area Network <<http://www.iucn.org/themes/wcpa/wpc2003/pdf/english/proceedings/recommendation/pdf>>

⁹³ Ruitenbeek. J, Hewawasam. I, and Ngoile. M, Blueprint 2050: Sustaining the Marine Environment in Mainland Tanzania and Zanzibar 2005. IBRD/ World Bank, Washington, DC. pp 125

protected areas and references the need for attention to ‘areas of concern’ within the coastal zone⁹⁴. It also notes the value of declaration of zones, including both zones that must be protected, and those that serve as the only permitted area for certain activities (e.g. dumping). The GPA encourages cooperation through international instruments and other mechanisms⁹⁵.

2.1.3 Other multilateral conventions, agreements and regional binding instruments

There are specific multilateral regional conventions and action plans that support the creation of regional MPAs within adjacent national jurisdictions⁹⁶ such as the UNEP Regional Seas Conventions. Examples for the Eastern Africa Region are

- i. The Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region (Nairobi Convention); adopted 1985, put in force in 1996;
- ii. The Protocol concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region; adopted in 1985.
- iii. Regional Fisheries Management Organizations (RFMOs)

RFMOs establish conservation and management measures to facilitate joint assessment and utilization of fish stocks, and in the recent years they have started to focus also on ecosystems, and ensuring that the biodiversity of aquatic habitats and ecosystems is conserved and endangered species are protected⁹⁷. An example for the Indian Ocean region is the Indian Ocean Tuna Commission (IOTC).

In addition, there are agreements related to marine resource management or PAs indirectly which are also relevant to the conservation and sustainable use of biodiversity such as:

- i. Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas

⁹⁴ GPA Article 152(d) and Article 153(a).

⁹⁵ Young, T. R. 2006. The legal framework for MPAs and successes and failures in their incorporation into national legislation. FAO Fisheries Report No 825.

⁹⁶ <http://www.unep.ch/regionalseas/legal/conlist.htm>

⁹⁷ CCRF., 7.2.2(d)-(g) and 7.3.2.

ii. International Whaling Convention (IWC)

Created as a tool for management and conservation of whale stocks – i.e. as a single-genus sustainable use convention, the IWC has created two whale sanctuaries (single-species-oriented protected areas), covering very large areas⁹⁸. The URT, however, is not a contracting party.

iii. Agreement on the International Dolphin Conservation Program⁹⁹.

iv. Other initiatives

Labelling and certification approaches have generally been undertaken through national law and commercial mechanisms. Examples are the certification of tuna and other commercially harvested living marine resources, which involves the certification of the fishery itself – in some cases, the creation of an MPA focused on restricting the nature of fishing processes, and in some other cases the limitations of volumes of fish taken. Certification approaches represent a potential mechanism that can be used with other tools and approaches to promote conservation and sustainable marine management.

2.2 Governance arrangement for Tanzania mainland MPAs

In this section, the current legal and policy framework formulated and enforced by the Tanzanian mainland government are discussed. The section will also include an overview of the local government authorities (LGAs), which represent the level below the central government structures and are accountable to local populations through some kind of an electoral process, through which a participatory approach for resources management is enabled. The government has always relied on regulatory mechanisms to manage marine and coastal zones, particularly to control activities and allocate resources among users. These regulatory mechanisms can be grouped into those used to regulate access to and use of public resources such as fisheries, forestry, and wildlife; and those used for environmental protection such as the Environmental Impact Assessment (EIA) and such. Protection of coastal and marine resources is a policy priority for the government. Regardless of the type of the

⁹⁸ The Southern Ocean Sanctuary (SOS, established 1994), includes all ocean areas below the 60th parallel. The Indian Ocean Sanctuary (IOS, established 1979) includes the entire Indian Ocean, specified by 'metes and bounds.

⁹⁹ Agreement on the International Dolphin Conservation Program

management regime adopted¹⁰⁰, it is argued that sound regulatory principles and adequate capacities have been acknowledged as a necessary assurance of most successful MPAs¹⁰¹.

2.2.1 Constitution of the United Republic of Tanzania of 1977

The Constitution of the Republic of Tanzania was amended in 1984 to provide for the Bill of Rights. The Bill of Rights stipulates that every person has a right to life and to the protection of life by society¹⁰². Moreover, the Constitution requires the Government to ensure that national resources are harnessed, preserved, and applied toward the common good¹⁰³. These provisions on the protection of the natural resources can logically be extended to cover the environment. Although this Article is part of the non-judicial "fundamental objective and directive principles of the state policy" provisions of the Constitution, it portrays the commitment of the government to ensure sustainable development and protection of the environment. However, the URT government is currently in the process of reviewing the Constitution and these issues of Environment and Coastal and Marine Governance are highly recommended by the public to be explicitly mentioned in the new or reviewed Constitution. The process of Constitutional review or formulation of a new one is planned to end in 2015.

2.2.2 Environmental legislation

2.2.2.1 National Environmental Policy (NEP, 1997)

An overarching national environmental policy focuses on the conservation of the environment and the effective use of natural resources. The policy identifies six (6) major problems, which require urgent attention. These are: 1) loss of wildlife habitats and biodiversity; 2) deforestation; 3) land degradation; 4) deterioration of aquatic systems; 5) lack of accessible, good quality water; and 6) environmental

¹⁰⁰ Christie, P. and White, T.A. 2007. Best practices for improved governance of coral reef marine protected areas. *Coral Reefs* 26, pp. 1047-1056.

¹⁰¹ Geoghegan, T. and Renard, Y. 2002. Beyond community involvement: lessons from the insular Caribbean. *Parks* 12(2), pp. 16-25.

¹⁰¹ Gibson, J., McField, M. and Wells, S. 1998. Coral reef management in Belize: an approach through integrated coastal zone management. *Ocean and Coastal Management* 39, pp. 229-244.

¹⁰¹ Leslie, H.M. 2005. A synthesis of marine conservation planning approaches. *Conservation Biology* 19(6), pp. 1701-1713.

¹⁰² Constitution of the United Republic of Tanzania of 1977 Article 14

¹⁰³ Constitution of the United Republic of Tanzania of 1977 Article 9 section 1 (c)

pollution. Further, the government admits, in this policy, that the country needs to adopt environmentally sustainable natural resource management practices in order to ensure that long-term sustainable economic growth is achieved. It can therefore be concluded that, the policy recognizes that the country's long-term economic growth is dependent, among other factors, upon its coherent natural resource management.

2.2.2.2 Environmental Management Act (EMA, 2004)

The Act is the main piece of the legal framework for the management of the environment in Tanzania mainland. It was enacted by the Parliament of the URT in 2004 and came into force in 2005. Prior to its enactment, environmental management issues were governed and regulated by sectorial laws. Thus, EMA 2004 establishes an administrative and institutional arrangement that is designated to facilitate administration of environmental matters across the different government institutions, from the local to national level. The Act provides a legal and institutional framework for the sustainable management of the environment. It outlines principles of environmental management, environmental impact and risk assessment, prevention and control of pollution, waste management, environmental quality standards, public participation in environmental decision making and planning; environmental compliance and enforcement; implementation of international instruments on environment; and implementation of the NEP. In addition it repeals the National Environmental Management Act, 1983. In its legal framework, the Act creates legal rights¹⁰⁴ imposes duties and obligations¹⁰⁵, assigns roles and functions, and confers powers and limits over its institutions. The Act overrides all other laws (sector laws) on environmental management issues that are inconsistent with its provisions¹⁰⁶ and imposes the duty on the sector Ministries not to carry out functions stipulated under their respective laws that are inconsistent

¹⁰⁴ EMA (2004) Section 4

¹⁰⁴ EMA (2004) Section 5

¹⁰⁴ EMA (2004) Section 18(3)

¹⁰⁴ EMA (2004) Section 172

¹⁰⁴ EMA (2004) Section 178(2)

¹⁰⁵ EMA (2004) Section 6

¹⁰⁶ EMA (2004) Section 232

with the EMA¹⁰⁷. The Act directs every Local Government Authority (LGA) to prepare an Environmental Action Plan (EAP) under the National Environmental Action Plan (NEAP) identifying environmental problems prevalent in its area of jurisdiction¹⁰⁸. The EMA works directly with Local Government's (LGs); the environmental local leaders to coordinate all functions and activities geared towards the protection of the environment within the area¹⁰⁹. The Minister responsible for environment has power under the Act to declare any area of land to be an environmentally sensitive area¹¹⁰ and their management becomes the responsibility of the National Environment Management Council (NEMC). The same power may be invoked to protect wetlands by declarations. Each managing authority of a National Protected Area (NPA) is bound to prepare an Environmental Management Plan (EMP) identifying inter alia areas of biological diversity¹¹¹. Rivers, river banks, lakes, or lakeshores and shore lines are protected from environmental degradation by a ministerial declaration establishing them as PAs and restrictions are imposed as the Minister deems appropriate notwithstanding any other laws regulating them¹¹². NEMC and LGA are responsible for issuing guidelines for the protection of rivers, riverbanks, lakes, or lakeshores and shorelines. Once guidelines are issued, it will be a criminal offence to use, erect, construct, place, alter, extend, remove or demolish a structure in the ocean, natural lake shorelines, riverbank, or water reservoir, or excavate, drill tunnel or disturb the shorelines of the natural lake river bank or water reservoir. Wetlands are also protected in the same manner and managed by respective sector ministries¹¹³. The Act provides for the conservation of biological diversity in situ as well as ex-situ subject to regulations made by the Minister. Tanzania, like other countries, has adopted EIA as a tool for managing the environment¹¹⁴. Strategic Environmental Assessment (SEA) is a mandatory requirement

¹⁰⁷ EMA (2004) Section 31(2)

¹⁰⁸ EMA (2004) Section 42

¹⁰⁹ EMA (2004) Section 40

¹¹⁰ EMA (2004) Section 47

¹¹¹ EMA (2004) Section 49

¹¹² EMA (2004) Section 54

¹¹³ EMA (2004) Section 56

¹¹⁴ EMA (2004) Part VI

for proposed Bills, Regulations, Policies, Development Plans, Strategies, and Programs. The aim is to know the likely impact that any management measure will have on the environment at the time of its implementation. The Act also provides a mechanism for prevention and control of pollution¹¹⁵. Provides for powers to issue administrative orders for control of various forms of environmental degradations e.g. environmental restoration, easement, and conservation orders¹¹⁶ and the Act provides a legal and institutional framework for environmental information, education and research¹¹⁷. Public participation in environmental decision-making is also guaranteed¹¹⁸. International cooperation in environmental management issues, e.g. transboundary environmental issues, coordination of implementation of international agreements etc.¹¹⁹. For ensuring compliance, the Act creates various offenses and stipulates respective penalties¹²⁰. These environment legislations offer a good platform on which to base MPA management, from central government to district authority.

2.2.2.3 Institutions responsible for environment management

The responsibility for overall environmental management lies within the Ministry for Environment that is hosted by the Vice President's Office (VPs), which implements NEP through relevant Ministries and Specialized committees. However, the policy has concentrated most of the powers and functions into the VPs office through the Division of Environment (DE). Mandates flow from the VPs office to the LGs but this is not clearly expressed in the NEP. The VPs office is expected to assist Ministries, public bodies and private persons engaged in activities, which are likely to have a significant impact on the environment. Hence, the Ministry has mainly coordinating and regulatory roles rather than an implementing role. In this regard, it should work with other Ministries and sectors to ensure that the environmental policies are incorporated into sectorial policies, programmes, and activities. However, this

¹¹⁵ EMA (2004) Part VIII

¹¹⁶ EMA (2004) Part XI

¹¹⁷ EMA (2004) Part XIII

¹¹⁸ EMA (2004) Part XIV

¹¹⁹ EMA (2004) Part XV

¹²⁰ EMA (2004) Part XVI

is considered a long-term process involving the revision of these sectoral activities. In addition, the coordinating role of the VPs office is not clearly evident at the local level¹²¹. The NEP advocates for the formation of environmental committees to coordinate natural resources management at the regional, district, ward and village levels. Environmental committees “shall be responsible for coordination and advising on obstacles to the implementation of environmental policy and programmes, promoting environmental awareness; information generation, assembly and dissemination (sic) on the environment relating to district, ward or village”¹²². Therefore, the Ministry has the authoritative voice and is the catalyst for action on behalf of the entire government. The placement of environment portfolio under the VPs office is considered advantageous in that it offers strong policy and political influence, strong capacity for inter-sectoral coordination and creates high visibility for environmental management.

2.2.3 Integrated Coastal Management (ICM)

2.2.3.1 National Integrated Coastal Environment Management Strategy (2003)(NICEMS)

The NICEMS outlines the commitment to sustainable coastal governance; champions ICM and establishes the foundation for coastal governance in Tanzania. Apart from identifying the six broad governance issues facing the coastal and marine environment, it also lays down seven strategies that are implementable to solve the identified issues through the ICM approach. Moreover, this Strategy defines the boundary of operation and gives the institutional structure for coastal management in Tanzania. The Strategy duration is up to 2025. The NICEMS provides a framework under the NEP that links sectors at all levels of governance and creates partnerships among stakeholders towards sustainable use of coastal resources and development.

2.2.3.2 Functional institutional structure for NICEMS

To implement the NICEMS, three levels of the institutional structure have been formed:

1. National Steering Committee on Integrated Coastal Management (NSC-ICM)

¹²¹ LEAT, 1999. Legal and Institutional Mandates For Environmental Management in Tanzania, Report Presented to the Vice President's Office- ILFEMP Project.

¹²² National Environmental Policy (1997) Section 104

The NSC-ICM role is to provide policy oversight and guidance on the overall vision of the ICM activities.

2. The Integrated Coastal Management Unit (ICMU). The ICMU
 - i. Serves as a secretariat to the NSC-ICM;
 - ii. Coordinates and facilitates the implementation of the National ICM strategy;
 - iii. Advises the Director General of the NEMC, during the formulation and review of initiatives related to integrated coastal management; and
 - iv. Carries out any other coastal-relevant activities, as directed by Director General of NEMC.
3. Intersectoral working groups

Inter-sectoral working groups are the engines for ICM. The working groups are composed of experts representing different disciplines and sectors and include representatives from the private sector and communities. Working group members are both technical experts and representatives of their sectors. These working groups are: a Core Technical Working Group (CTWG), Issue-Specific Working Group(s) (ISWG), and a Science and Technical Working Group (STWG). LG has significant responsibility for carrying out the strategies therein. The responsibility of the LGAs include:

- i. Preparing and/or facilitating ICM Action Plan formulation;
- ii. Review and approval of district and local ICM Action Plans;
- iii. Implementation of Action Plans, including adoption of by-laws;
- iv. Management of local resource use conflicts; and
- v. Education and mobilization of the local community to promote ICM objectives.

2.2.4 Fisheries instruments

2.2.4.1 National Fisheries Sector Policy and Strategy Statement (1997) (NFSPSS)

The Policy recognizes that renewable resources are limited and hence the need to seek ways and means to better conserve, manage and develop them on a sustainable basis. The overall goal of the National Fisheries Policy is to promote conservation, development and sustainable management of fisheries resources for the benefit of present and future generations. On fisheries resources and aquatic

environmental protection, the Policy mentions the requirement to integrate conservation and sustainable utilization of the fisheries resources into the socio-economic programs of the community, encourage and support all initiatives leading to the protection and sustainable use of fish stock and aquatic resources and to protect the productivity and biological diversity of coastal and aquatic ecosystems through prevention of habitat destruction, pollution and over exploitation. Among the strategies stated by the Policy as a means to achieve that objective is promoting the protection of fragile ecosystems, ecosystem processes and conservation of biodiversity. Also the Policy explains the need for protection of endangered species throughout their life. It further provides for the protection of vulnerable species, habitats and areas of special ecological significance by according special legal status to such areas as marine parks, marine reserves and closed breeding areas. Other strategies include:

- i. Discouraging of mining of live coral to minimize destruction of coral reef ecosystem in order to protect the coastal area environment;
- ii. Collaborating with other relevant sectors to develop a water quality monitoring system;
- iii. Adopting relevant regional and international protocols and treaties for the protection and conservation of fisheries resources and aquatic environment;
- iv. Promoting collaborative management approaches with user communities to areas designated as PAs such as MPAs and Marine Reserves. In order to achieve this Department of Fisheries (DoF) have created local institutions known as Beach Management Unit (BMU) for management of fisheries resources in parallel to LGs institution; this somehow satisfies the demand on increased local ownership. However, the degree of participation is often determined by a variety of local conditions and systems, and may evolve over time as necessary. Therefore, community participation in fisheries management can be regarded as among the management tools as it helps in sustainable resources utilization to resource users.

On regional and international cooperation with the objective of protecting marine environment, the policy mentions the need to strengthen that relationship for sustainable exploitation, management and conservation of the resources in shared water bodies and the EEZ. Strategies for achieving this

objective include strengthening environmental strategies by improved surveillance of prohibited fishing practices and water pollution through co-operation with other national and international institutions. The policy also calls for active participation in regional and international programs to enhance sustainable management of the resources in the EEZ¹²³, as provided for under the UN Conventions¹²⁴.

Other key documents include the Fisheries Master Plan of 2002, which outlines a 10-year strategy to develop a sustainable fisheries sector that will primarily benefit the fishing community through capacity building. Coastal and marine fisheries management is also an integral part of the NICES. A number of guidelines with some bearing on fisheries resource management are in place, including: The Tanzania Mariculture Guidelines (2001), Tanzania Investment Guidelines, Guidelines for Coastal Tourism Development in Tanzania (2003), Guidelines for establishment of BMU of the marine fishery (2009) and a draft Guidelines for Collaborative Fisheries Management Areas (2012).

2.2.4.2 The Fisheries Act No 22 of 2003

The Fisheries Act No 22 of 2003 provides the basis for the national policy framework. This Act makes provisions for sustainable development; the conservation and protection of fishery resources; aquaculture development; and the regulation and control of fish, fish products and aquatic flora and their products. The Act repealed the Fisheries Act No. 6 of 1970. It provides for designation of vessel registration and Licensing Officers; Enforcement Officers and Fish Inspectors¹²⁵, for the establishment of Surveillance Unit whose function are protection of fish and its environment, fishery products and aquatic flora against unlawful dealers and generally the enforcement of the Act¹²⁶. The Act prohibits use of explosives to kill fish or destroying aquatic flora and possession of poison within the vicinity of any water body containing fish¹²⁷. Further, the Act stipulates that all biological resources and their intangible

¹²³ National Fisheries Sector Policy and Strategy Statement (1997) (NFSPSS)

¹²⁴ UNCLOS Article 303 (1)

¹²⁵ The Fisheries Act No 22 of 2003 section (5)

¹²⁶ The Fisheries Act No 22 of 2003 section (31)

¹²⁷ The Fisheries Act No 22 of 2003 section (43)

¹²⁷ The Fisheries Act No 22 of 2003 section (44)

products whether naturally occurring or naturalized within fisheries, including genetic resources, shall be conserved and utilized for the people of Tanzania in accordance with the provision of existing relevant laws¹²⁸. However, in the context of Fisheries Act the Minister responsible for Fisheries has yet to make regulations that, among others would provide for the protection of critical habitats and prevention of pollution of territorial waters under national jurisdiction excluding EEZ (Note: The URT EEZ fall under different mandates). The Act is currently the main piece of legislation guiding the fisheries industry and MPAs. The periodic amendments to fisheries regulations in accordance with changing socioeconomic contexts are also central instruments in terms of national policy direction regarding fisheries. They stipulate user requirements, which include licensing with an annual fee tag, use of specific gear, and the role of local authorities in fisheries management¹²⁹.

2.2.5 Marine Parks and Reserves Act No. 29 of 1994

All designated MPAs are established under the Marine Parks and Reserves Act No. 29 of 1994 and they fall under the mandate of DoF under Marine Parks and Reserves Unit (MPRU) in Dar es Salaam and are declared in Government Gazettes. The Act has the mandate of protecting particular areas of scenic, scientific, historical or other importance¹³⁰. The Act has two overriding objectives:

- i. To protect, conserve and restore the species and genetic diversity of living and non living marine resources as well as the ecosystem processes of marine coastal areas; and
- ii. To ensure that communities and local users of resources are facilitated to engage (through education and information sharing) in the planning, development and management of an MPA, and that they share in the benefits of the operation of the PA, and have priority in the resource use and economic opportunities afforded by the establishment of the marine park or reserve.

Management of the MPAs is coordinated by the MPRU of the DoF, which monitors the control,

¹²⁸ The Fisheries Act No 22 of 2003 section (51)

¹²⁹ URT. *The National Fisheries Act, 2003*. Dar es Salaam: Ministry of Natural Resources and Tourism, United Republic of Tanzania, 2003.

¹³⁰ Marine Parks and Reserves Act No. 29 of 1994 section 8(2)

¹³⁰ Marine Parks and Reserves Act No. 29 of 1994 section 10

management, and administration of parks and reserves, and organizes for financial inputs for their running and development. This may include managing or granting concessions or licenses to other persons to operate businesses and services for recreation or tourism purposes, part of the revenues from which accrue to the MPA concerned. Since the collection of local revenues and rents for most of Tanzania's MPAs is still an issue, significant international donor funding supports most of the implementation expenses. All MPAs are required to adopt a General Management Plan (GMP)¹³¹ that outlines the granted activities, rights, licenses, titles, interests, franchises, leases, claims, privileges, exemptions, or immunities specific to the MPA. According to the regulations, the preparation of the GMP is supposed to involve the village councils of affected villages in the enactment of regulations or zoning of areas, although the Minister for Livestock and Fisheries Development (MLFD) has the final say on what activities to permit or restrict within the park or reserve. The Marine Parks and Reserve Act No. 29 of 1994, and the Marine Parks and Reserves (Declaration) Regulations of 1999 (G.N. No. 85 of 1999) are the basic legislative documents that guide the operations of marine parks in mainland Tanzania. These instruments operate within the context of national environmental and fisheries policies that provide the general framework for the protection of natural resources and the fisheries sector, in particular, as well as outline the roles and responsibilities of community members and fishers regarding the use of resources. Sensitive habitats such as coral reefs and sea grasses; and species such as dugongs and turtles, if they are within the PAs fall under the responsibility of the agencies responsible for MPAs. However, if they are found outside the park boundaries they will have some level of protection under the Fisheries Act No 22 of 2003 with responsibility falling to the DoF.

2.2.6 Tourism Management Legislation

2.2.6.1 National Tourism Policy (1999)

The Policy aims to promote environmentally friendly tourism in PAs, highlighting the need for

¹³¹ Marine Parks and Reserves Act No. 29 of 1994 section 14

¹³¹ Marine Parks and Reserves Act No. 29 of 1994 section 13(1)

conservation of wildlife parks, reserves, and other important natural areas. The Policy seeks to assist in efforts to promote the economy and livelihood of the people, essentially poverty alleviation, through encouraging the development of sustainable and quality tourism that is culturally and socially acceptable, ecologically sustainable, and economically viable. The Policy emphasizes that the relationship between the environment and development of sustainable tourism is so close that the two cannot be dealt with in isolation. It also stresses that protection, enhancement, and improvement of various components of man's environment are therefore among fundamental conditions for harmonious development of tourism. The Policy states clearly that the development of tourism will be based on a careful assessment of carrying capacities of tourism products and ensure enhancement and improvement of special environment features in order that tourism development does not conflict with indigenous forests, beaches, mountains and other important vegetation¹³².

2.2.6.2 Tourism Act No. 29 of 2008

The Act provides an institutional framework, administration, regulation, registration, and licensing of tourism facilities and activities. The Act strives to promote eco-tourism, cultural tourism, and other forms of tourism that provide better sectorial linkages and foster sustainable development¹³³. The Act empowers the Minister responsible for Tourism to develop regulations prescribing, among others, the requirements to be complied with before any facility or activity may be registered¹³⁴.

2.2.7 Wildlife Legislation

2.2.7.1 National Wildlife Policy

The policy aims to better address the problems and obstacles that have plagued wildlife management in Tanzania. It recognizes the role of the Government, private sector, local and international donors, Non Government Organization (NGOs), and the public in the management of wildlife in Tanzania. It advocates for the transfer of the Wildlife Management Areas (WMA) to local communities and ensure

¹³² Daffa, J. 2011. Policy and governance assessment of coastal and marine resources sectors within the framework of large marine ecosystems for ASCLME in Tanzania.

¹³³ Tourism Act No. 29 of 2008 section 3

¹³⁴ Tourism Act No. 29 of 2008 section 56

that the local communities obtain substantial tangible benefits from wildlife conservation whilst taking wildlife protection responsibilities as well as for investment in other wildlife activities. Nonetheless, the policy retains State ownership and control of wildlife resources. Continued State ownership and control of wildlife resources perpetuates the "wildlife-first" philosophy of biodiversity conservation, the use of a protected area network as a principal management tool, and patron-client relationships that have marked government-community relations in wildlife and other natural resource management. The Wildlife Conservation Act of 1974 keep, among other roles, announces national parks and implements the Policy. One example is the coastal Saadani Game Reserve, established in 1974 on the edges of the Indian Ocean under this Act.

2.2.8 Forest Act of 2001

Mangroves forest as sensitive habitats have a protected or reserve status all along the mainland coastline. The Forest Act has the mandate for designations of mangrove forest reserves and encourages community-based management. Harvesting and export of mangrove is permitted under license issued by the Division of Forestry and Beekeeping.

2.2.9 Local Government Authority role in resource management

Local Government Authorities are to protect and manage the environment in their respective areas of jurisdiction. Institutions falling under the documentation of "Local Government Authorities" include: village councils, district councils, township and municipal authorities. These were established through the process of decentralization¹³⁵. It is widely accepted that decentralized structures facilitate genuine democratic participation, empower grassroots and channel their input constructively into national development efforts¹³⁶. Attempts to implement decentralization in Tanzania took place in two phases.

¹³⁵ Decentralized approach can be referred to as the transfer of authority and responsibility from the central to local government. As confirmed by the World Bank (2002), it is an extremely broad development strategy, which covers a wide spectrum of general development policy goals, and highly considers various stakeholders in its implementation. In this sense, adaptation and adoption of decentralization must be carefully analysed in any State before determining if decentralization applies as the main policy for local government administration.

¹³⁶ Mukandala, R.S 1998. Decentralization and Democratization in Tanzania". Occasional Paper No. 46, University of Iowa.

The first phase was during the colonial period when independent local institutions were brought under colonial rule and at some point administered under the colonial local government system. This however ended in 1969 with the postcolonial government. The second trial was made in 1984 after the failure of structural decentralization¹³⁷. This was done through facilitation of more effective democratic participation in decision-making and implementation at the village, district and regional levels¹³⁸. Decentralization in the 1990s must be viewed in light of economic, social and political changes that took place in Tanzania by then. The introduction of the Bill of Rights (1985) and multi-party democracy (1992) in the Constitution of the URT of 1977 expanded the potential space for the respect for human rights, basic freedoms, and rule of law, political transparency and good governance¹³⁹. The LGAs in Tanzania are under the jurisdiction of the Minister responsible for LGs affairs. In performing their functions, the LGAs must protect and properly utilize the environment for sustainable development. The NEP recognizes the indispensable role of LGs in achieving its policy objectives. This is because most local authorities are better placed to receive local concerns and implement ways to create sustainable conditions. LGs also construct, operate and maintain economic, social and environmental infrastructure, and establish local environmental policies and regulations. The NEP recognizes that LGs are better able to educate, mobilize and respond to the local community, also, enhance and implement environmental objectives. In addition, LGAs have the legislative power under Act No. 7 of 1982 and Act No. 8 of 1982, to make by-laws, which are applicable in their areas of jurisdiction.

2.2.9.1 Local Government (District Authorities) Act, No 7 of 1982

The Local Government (District Authorities) Act of 1982 creates district based local government authorities in Tanzania. The Act provides for *-inter alia-* the establishment, composition, functions and legislative powers of district, township councils and village authorities. At the village level, the

¹³⁷ *ibid*

¹³⁸ Max M. A. O. 1991. The Development of Local Government in Tanzania. Education Publishers and Distributors Ltd. Dar es Salaam.

¹³⁹ Mniwasa, E and Shauri, V. 2001. Review of the decentralization process and its impact on environmental and natural resources management in Tanzania.

government structure is comprised of a village assembly consisting of all persons aged 18 and above. The corporate entity of a registered village is the village council, comprising of a chairman or chairperson elected by the village assembly. There are also village committees covering such matters as planning, finance, economic affairs, social services, security, environment, natural resources protection etc.¹⁴⁰. The village council's functions and roles include planning and coordinating activities, rendering assistance and advice to the villagers engaged in agriculture, forestry, industrial or any other activity, and to encourage village residents to undertake and participate in communal enterprises. Proposals by the village assembly must adopt by-laws before being submitted to the District Council for approval¹⁴¹. In addition, the Act provides for division of districts into wards¹⁴². As an administrative subdivision between the village and the district, the ward reviews the proposed village council's projects in its jurisdiction and approves them for passage up the line to the District Development Committee (DDC). District Councils, through the appropriate DDC supervise the implementation of all plans for economic, commercial, industrial and social development in their respective areas. Also, the council approves by-laws made by the village councils and co-ordinates plans, projects and programmes for the villages within its area of jurisdiction. Apart from the DDC, there are other council committees. These committees are for finance, administration and planning; education, health and water; and economic affairs and environment.

2.2.9.2 The Local Government (Urban Authorities) Act, No. 8 of 1982

The Act provides for the establishment, composition, functions and legislative powers of the urban-based local government authorities (urban councils) in Tanzania. The urban council is comprised of the governing bodies for townships, municipalities and the city council. The Act provides for the composition of a town council, which cannot have more than three members appointed by the local Minister of

¹⁴⁰ Local Government (District Authorities) Act, No 7 of 1982 Section 35

¹⁴¹ Local Government (District Authorities) Act, No 7 of 1982 Section 163

¹⁴² Local Government (District Authorities) Act, No 7 of 1982 Section 29

Government Affairs¹⁴³. The council is comprised of members elected from the ward within the town and members of parliament representing constituents within the town¹⁴⁴. The elected members then elect a chairman and vice-chairman for each town council. Further, the Act provides for the establishment of the urban authorities committees who are in charge of finance and administration; economic affairs, health and education; and urban planning and environment¹⁴⁵. The functions of the urban authorities are facilitating the maintenance of peace, order and good governance; and promoting the social welfare and economic well being of the local community¹⁴⁶.

3 Historical perspectives in the establishment of MPAs in Tanzania mainland

In the 1960s, there was not enough legislation for the protection of the marine environment and its resources¹⁴⁷. The Fisheries Act of 1970 provided the first comprehensive legislation to safeguard the marine environment and it had a provision that the Minister of Natural Resources and Tourism (MNRT) or the Director of Fisheries (DF) may declare an MPA if there is enough evidence that by doing so the environment and its resources, as well as the national interest, are not threatened. Initial efforts to manage the marine and coastal environment through PAs started in 1975 through regulations under the Fisheries Act 1970. Seven small areas of reef were declared Marine Reserves for total protection. These include the four islets of Kitutia, Chole, Maziwe, and Latham, and the three islets that make up the Dar es Salaam Marine Reserves (DMRs- Kinondoni; namely, Mbudya, Bongoyo, Pangavini and Fungu Yasini). The lack of resources, expertise, and a clear vision on management for conservation of marine areas hampered these initial initiatives, until the proclamation of the Marine Parks and Reserves Act (for mainland Tanzania) was based in 1994, which revealed, for the first time, a committed direction by the government to organize MPAs.

This, this part will provide a historical perspective on the evolution and formation of MPAs in the country

¹⁴³ The Local Government (Urban Authorities) Act, No. 8 of 1982 Section 19(1)

¹⁴⁴ The Local Government (Urban Authorities) Act, No. 8 of 1982 Section 20

¹⁴⁵ The Local Government (Urban Authorities) Act, No. 8 of 1982 Section 42

¹⁴⁶ The Local Government (Urban Authorities) Act, No. 8 of 1982 Section 54

¹⁴⁷ Ray, G.C., 1968: Marine Parks for Tanzania. Washington Conservation Foundation. Washington D.C. pp. 47

and other coastal and marine resources management initiatives. It will also highlight the roles played by the government, and non-governmental movements.

3.1 Bagamoyo Collaborative Fisheries Management (CFM) no-take zone

Bagamoyo is a large district located just north of Dar es Salaam (**Figure 1**). The total population of the district is around 311,740 persons, with an annual growth rate of almost 2.2%¹⁴⁸. The district extends to almost 10,000 km² and has 78 villages, of which 9 are coastal villages and the Bagamoyo town. Artisanal fishing is by far the most important economic activity for the people in these villages and 70-80% of the men and women are to some extent involved in the fishing industry. The number of licensed fishermen in the district rose from 780 in 1988 to 1918 in 2004. Fishing effort has thus more doubled in the past twenty years, but the catch has declined dramatically¹⁴⁹. This is due to the fact that destructive fishing is practiced on Bagamoyo's coral reefs. In the 1980's and 1990's, dynamite fishing was out of control with blasts occurring two times per day. However, as of 2005, dynamite fishing seems to be declining in the Bagamoyo area. Some say that the decline can be attributed to the awareness raising efforts that have taken place through the district ICM process¹⁵⁰. However, dynamiting is still a problem, with blasts heard approximately once a week¹⁵¹. In 1990, 436 fishers were beach seining and in 2004, that number had risen to 523¹⁵². The use of fine mesh nets causes increasing catches of small juvenile fish and combined with dynamite fishing exacerbates the over-fishing problem. Mangroves grow along the flats between the coastal villages and the shore. Mangrove resources have been protected in Tanzania ever since 1898, when the German administration established a mangrove management ordinance. The British subsequently expanded the mangrove reserves to cover 80,000 hectares on the mainland. After independence, the Tanzanian government continued to protect mangroves as territorial

¹⁴⁸ http://www.nbs.go.tz/takwimu/references/Tanzania_in_figures2012.pdf

¹⁴⁹ (TCMP, Community Based Ecological Monitoring 2004-2005)

¹⁵⁰ Torell, Elin, Aviti Mmochi, and Penny Spierling, 2006. Bagamoyo Governance Baseline Coastal Resources Center, University of Rhode Island. pp. 24

¹⁵¹ District Fisheries Statistics

¹⁵² *ibid*

forest reserves. However, the reserves were neither managed nor enforced. In 1987, the Director of Forestry imposed a national ban on the cutting of mangroves, pending the preparation of a mangrove management plan, which was approved in 1994. Through this plan, all mangroves in Tanzania are protected through a national zoning scheme¹⁵³. Through Tanzania Coastal Management Partnership (TCMP) and other coastal zone initiatives, the Bagamoyo district authority and coastal communities have embarked into a process of assessing the coastal environment and associated resources as well as analysing factors influencing the fishery activities and its economic returns¹⁵⁴. The TCMP is a national coastal management initiative supported by the United States Agency for International Development (USAID) in cooperation with the government of Tanzania through NEMC and the Coastal Resources Centre of the University of Rhode Island (URI-CRC). In 2002, the Cabinet approved the NICEMS that was a result of a cooperative agreement between the URT government with the URI-CRC for the formulation of national coastal policies. Through this strategy, Tanzania has committed to support integrated planning of coastal resources and activities at the local level and to provide mechanisms to harmonize national interests with local needs. One way to fulfil this commitment is through district based ICM action planning. In August 2000, TCMP launched the "Local ICM Action Planning Program" in two pilot districts Pangani and Bagamoyo. In Bagamoyo, the process of developing the collaborative fisheries management (CFM) plan began in September 2004. Through a community participation process, fisheries issues and concerns were identified. At the same meetings, the fishermen and village government's selected possible CFM no- take zones in the district¹⁵⁵. A team of scientists and village fishermen performed a rapid ecological assessment in 2004¹⁵⁶ of the proposed coral reef no-take areas, to determine which were most suitable for no-take zones. District fisheries

¹⁵³ Torell, E. (2002). "From Past to Present: The Historical Context of Environmental and Coastal Management in Tanzania." *Development Southern Africa* 19(1).

¹⁵³ Wang et al. 2005

¹⁵⁴ TCMP, 2005. *Community Based Fisheries Management Plan: A collaborative effort July 2005 - July 2006*.

¹⁵⁵ Torell, E. *et al*/2006

¹⁵⁶ Mbije, N.E. 2005. *Integrated assessment of suggested Collaborative Fisheries Management (CFM) areas in Bagamoyo. Tanzania Coastal Management Partnership (TCMP)*.

officers and private stakeholders (hotel owners) also participated and provided resources to support this effort. After the ecological assessment meetings, village governments, along with fishers, made their final selection of CFM no-take areas¹⁵⁷. Four reef sites: Mweduga, Mshingwi, Poyogo and Mjini out of 13 surveyed areas for CFM were identified as no-take zones¹⁵⁸ (Table 1 and Figure 5) and were declared as Community no-take area in 2005, specifically for the purpose of fisheries management. A crucial expected result is the eventual resource spill over from no-take areas to adjacent open fisheries areas, thereby increasing fish catches, while the habitat and resource populations are improved inside no-take zones¹⁵⁹. A second assessment in 2006 was undertaken to assess the current reef environment and resource status and to compare with the baseline assessment of 2004. Results indicated that some improvement in coral cover had occurred in most reefs except in Mwamba Mjini, where there has been a substantial increase in sea grass and algal cover. Soft coral cover had not changed. Mwamba Mshingwi and Mweduga had high live coral cover, as well as dead corals and a high density of coral recruits, a typical situation of reefs with high potential for coral recovery. Despite the high coral cover, its location in the channel and the smallness, give the Mwamba Poyogo reef a limited potential in terms of reef resources or services (tourism). Poor environmental conditions (river sediments, poor visibility) and associated low coral cover and high preference of macroalgae in Mwamba Mjini and Mwamba Kati offer a limited recovery potential in these reefs¹⁶⁰.

The district has also done quite well in establishing commitment for the ICM planning process, through the ICM action plan and the institutional arrangements created for its implementation at district and village level. The only problem is that the district is still very much dependent on donor funding for implementing both the action plan and the CFM¹⁶¹.

¹⁵⁷ Torell, E. *et al* 2006

¹⁵⁸ TCMP, 2005.

¹⁵⁹ Muhando, C. A. 2006. Ecological monitoring of coral reefs in marine no-take and fished zones off Bagamoyo coast.

¹⁶⁰ *ibid*

¹⁶¹ Torell, E. *et al* 2006



Figure 5: Map showing the location of No-take and Fished reefs and villages involved in the Community Based Fisheries Management in Bagamoyo. Figure 4: Provide the General localisation of this area in the country geography.

3.2 Tanga Coelacanth Marine Park (TACMP) and Tanga Marine Reserve system (TMRs)

In Tanga, the practice of Integrated Coastal Area Management (ICAM) has a long history. The first MPA in Tanga was the Maziwe Island Marine Reserve, declared in 1975¹⁶². Due to reasons that are unknown to us, the GMP for this reserve is still under preparation. The Tanga Coastal Zone Conservation and Development Program (TCZCDP), was initiated in July 1994 and continued through June 2007, providing a basic understanding and practice of ICAM principles in Tanga coastal districts¹⁶³. The programme was implemented by three coastal districts (Muheza and Pangani Districts and Tanga Municipality) in collaboration with the Regional Administrative Secretariat, MNRT, and the VP's Office. The Eastern Africa Regional Office (EARO) of IUCN based in Nairobi provides technical advice and manages the programme on behalf of the donor agency, Ireland Aid. Community based Collaborative Management Plans (CMPs) were established. Moreover, a database of mangrove and coral reef resources was developed, as a tool for storing, analysing, and disseminating coastal data and

¹⁶² Muhando, C.A, and Francis, J. 2000. The status of coral reefs in the Dar-es-salaam marine reserves system and the state of reefs in other marine protected areas of Tanzania. IMS-Zanzibar

¹⁶³ Wells, S.; Makoloweka, S. and Samoilys, M. (eds.) 2007 Putting Adaptive Management into Practice: Collaborative Coastal Management in Tanga, Northern Tanzania. IUCN, Nairobi; Kenya. 197p.

information to users. However, due to various reasons including the completion of TCZCDP in 2007, the implementation of CMPs ceased and ICAM practices slowed. Increased coelacanth catch rates from 2002 to 2009 along the Tanga coast alarmed marine scientists, the international community, and managers. A subsequent research involving remotely operated underwater vehicles (ROVs) revealed the existence of local populations of coelacanths in the Kigombe Mwarongo area. Three local and international stakeholders' workshops were held by the MPRU in 2007 and 2008 with support from the African Coelacanth Ecosystem Programme (ACEP) and Marine and Coastal Environmental Management Programme (MACEMP). These raised awareness of the coelacanth by-catch of the species' ecology and abundance in Tanga¹⁶⁴. Conservation planning for coelacanths and critical habitats in the area was initiated by stakeholders and concluded with a call for the establishment of a conservation area to protect the species and its environment. In 2009 the TACMP was declared, somehow also replacing the CMPs that were dormant. A zoning scheme was developed¹⁶⁵ as part of the TACMP GMP¹⁶⁶ to facilitate the controlled use of core zones and specified use zones within the TACMP. All stakeholders participated during all stages of the development of the TACMP GMP¹⁶⁷ and compliance is expected to be high during the implementation of its regulations. In 2010 after consultations with local authorities, the MPRU identified four Islands (Ulenge, Kwale, Mwewe and Kirui) located north of Tanga Bay to the Tanzania Kenya border as suitable marine reserves also known as Tanga Marine Reserve System (TMRs). These marine reserves were gazetted in June 2010, but no GMP are yet in place, although the studies on the biophysical status had already been conducted to assist for the preparation of GMP¹⁶⁸ for TMRs. Applying suitable management principles in these

¹⁶⁴ Buriyo AS, Shayo S, Dlaza TS, Mhitu H & Mmonwa AL. In review. Diversity of Macro-algae in the proposed marine protected area at Kigombe, Tanga, Tanzania. ACEP informal report to MPRU. 9 pages.

¹⁶⁵ Muhando, C.A. 2011. Proceedings of the Tanga Coelacanth Marine Park Zoning Scheme Workshop, Tanga, 20th April 2011 and The TACMP Zoning Plan. ReCoMaP/MPRU Report. 23 pp.

¹⁶⁶Tanga Coelacanth Marine Park (TACMP) General Management Plan MPRU/ReCoMAP/IUCN/TACMP.

¹⁶⁷ Muhando, C.A. 2011

¹⁶⁸ Muhando, C.A. 2011. Biophysical Features in the Northern Tanga Marine Reserves, Tanzania. Marine Parks and Reserves Unit, Dar es Salaam, Tanzania. vi +38 pp.

Islands is expected to positively influence (spillover effects) the whole northern coastal zone. Hence, besides the fact that TMRs are located in the north, the Tanga coastal region has one marine park, TACMP (with a total area of 552 km²) and one older marine reserve, the Maziwe Island Marine Reserve (declared in 1975), both located south of Tanga Bay (Table 1; Figure 6A& 6B). Previous management efforts in and around the TMRs exist. The Boma Mahandakini CMA plan was developed and implemented during the TCZCDP to serve Mayomboni and Moa wards, including the Kirui and Mwewe Island marine reserves. The Kwale and Ulenge Island reserves were under the Deep-sea-Boma CMA plan. Various conservation activities including coral reef and mangrove management were planned for and carried out. However because of various reasons¹⁶⁹ financial being the main factor, these initiatives are not functional as expected. The Forest Act of 2001 enacted further amendments and specifically provides for the joint management of mangroves by local communities and the Mangrove Management Unit (MMU) of the Forest and Beekeeping Division. Mangrove Collaborative Management Plans (MCMP) was drawn to guide the use and conservation of mangrove ecosystems. Village Environmental Management Committees (VEMC) was established and still exists. Forest users have exclusive rights to the products, but the forests remains the property of the Central Government. There are specific guidelines and regulations, sometimes including patrols, to ensure sustainability in both mangrove forests and coral reefs resources¹⁷⁰.

¹⁶⁹ Wells, S.; Makoloweka, S. and Samoilys, M. (eds.) 2007

¹⁷⁰ *ibid*

3.3 Dar es salaam Marine Reserves (DMRs)

The DMRs are a group of marine wildlife reserves in Tanzania mainland situated off the coast of the Dar es Salaam region. The reserves system consists of nine uninhabited islands, 4 north of Dar es salaam (Kinondoni District: (Bongoyo, Mbudya, Pangavini and Fungu Yasini; **Table 1& Figure 4**) and 5 south of the city (Temeke: District (inner and Outer Makatube, Inner and Outer Sinda and Kendwa Island; **Table 1& Figure 7**). They provide protection for several important tropical ecosystems coral reefs, mangroves and sea grass beds. DMRs-North was first established under the Fisheries Act of 1970 and in 1998 was transferred to the Marine Park and Reserves Act No. 29 of 1994. The DMRs-South was gazetted in 2007 through the aforementioned legislation.



Figure 6B: Map showing the location of Tanga Coelacanth Marine Park and Maziwe Marine Reserve, south of Tanga town; Muhando, C.A. 2011. Figure 4: Provide the General localisation of this area in the country geography.

There is an elaborate coastal resources monitoring system in place in the DMRs-North but for the DMRs-South little baseline information exists. However, in 2008 a study was carried out for the purpose of generating information to be used for GMP and other negotiations with various stakeholders and

development partners¹⁷³. Visits to the reserve area represent a popular daytrip for both tourists and Tanzanian residents alike, the islands thus serving as a location for a variety of leisure activities, including snorkelling, sunbathing and hiking. However, over recent years, unregulated tourist activities have led to a degradation of the reserves. The nearby fishing communities of Kunduchi, Ununio, and Msasani all appear to be heavily dependent on the resources in the reserves, and resource overexploitation is an increasing concern with local fishermen attributing a decline in fish catches over recent years to the use of small mesh nets and dynamite fishing. Decreases in the abundance of fish and increase in the amount of bleached corals have been observed, and divers have also reported broken corals.



Figure 7: Coral reefs and sea grass beds in the vicinity of DMRS-South and tourists facilities along the mainland coast (Muhando and Rumisha, 2008¹⁷⁴). Figure 4: Provide the General localisation of this area in the country geography.

3.4 Mafia Archipelago (MIMP and Nyororo, Mbarakuni and Shungimbili Marine reserves)

Mafia is the central island of the Mafia Archipelago that consists of about 15 sandstone and coral rag islands, several of which are inhabited. Mafia is the largest island, measuring approximately 50km in length and 15km across its widest point. There is an estimated population of 46,438 people living on the

¹⁷³ Muhando, C.A. 2008. Biophysical survey in the newly gazetted inner & outer Sinda, inner and outer Makatombe and Kendwa islands marine reserves in Temeke District, Dar es salaam.

¹⁷⁴ Muhando, C.A. and Rumisha, C.K. 2008. Distribution and Status of coastal habitats and resources in Tanzania.

Mafia Archipelago, primarily in the south of the island¹⁷⁵. Studies to create MIMP were initiated in 1988 by the UDSM-IMS, with financial support from Shell Petroleum Development Tanzania Limited, and in collaboration with the Frontier Tanzania Marine Research Programme (Frontier-TMZ), which is run by a United Kingdom, - based NGO known as Society for Environment Exploration (SEE). The study sought to provide baseline information, on which to develop a proposal for Tanzania's first Marine Park. The main environmental problem at that time was the abuse of the marine environment by unsustainable harvesting methods, such as dynamite fishing and live coral harvesting. Biophysical and socioeconomic data were collected. An area of southern Mafia incorporating 10 village communities was proposed for protection. In February 1991, Minister of Natural Resources and Tourism formally appointed a Steering Committee. This Committee was tasked to develop and propose the mechanism for creating and managing a marine park centred on Mafia Island. The Steering Committee collated existing information including that presented by the UDSM-IMS and the Frontier-TMZ. Frontier-Tanzania, with local counterparts and the Steering Committee, discussed the idea of a multiple-use marine park with the community¹⁷⁶. In 1995 the park was gazetted (**Table 1 & Figure 8**). With a total area of 821km², the MIMP is located between the Rufiji river delta to the West and the open Indian Ocean to the East. The huge Rufiji delta influences the biophysical ecosystem characteristics of Mafia Island through the supply of nutrients to the marine food chain. Its geographical region harbors complexes of estuarine areas, mangroves, intertidal flats, sea grass beds, coral reefs, and the marine ecosystems contain important nesting grounds for sea turtles and whale sharks. The Rufiji- Mafia-Kilwa (RUMAKI) seascape programme was created by WWF and its international recognition as a critical site for biodiversity conservation made it a Ramsar site candidate. Permitted within its boundaries are activities that have

¹⁷⁵ <http://www.citypopulation.de/php/tanzania-admin.php?adm2id=0606>

¹⁷⁶ Andrews G, 'Mafia Island Marine Park Tanzania: Implication of applying a marine park paradigm in a developing country', paper presented at the International Tropical Marine Ecosystem Management Symposium, Townsville, 23–26 November 1998.

¹⁷⁶ For more details on the history of MIMP establishment read Andrews (1998)

been outlined in the adopted GMP¹⁷⁷. Ever since, SEE this NGO through its marine programme (Frontier TZM) has been doing monitoring studies (commercial fish survey, invertebrate survey and benthic composition survey) for the MIMP authority together with WWF.

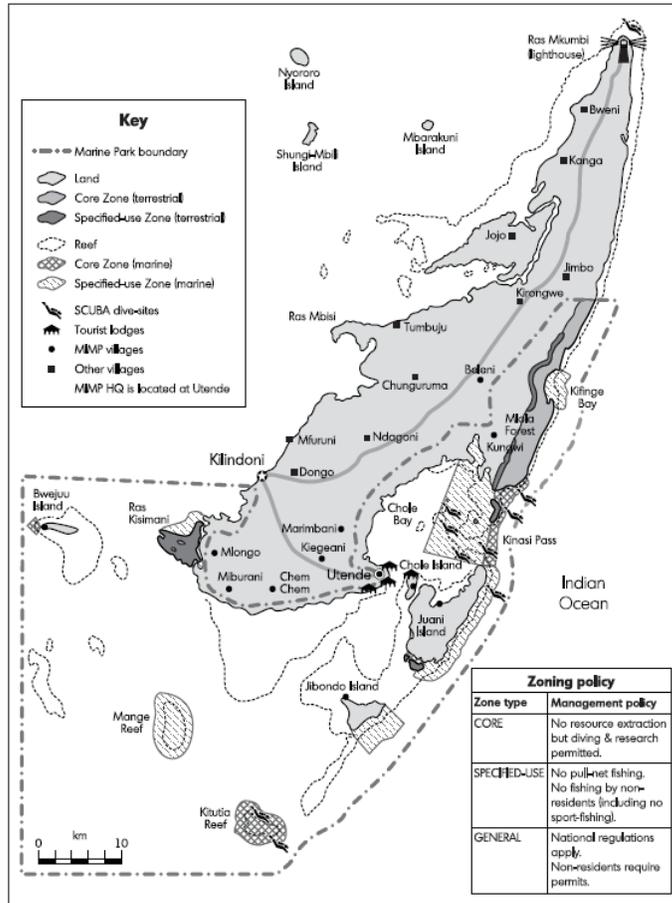


Figure 8: Source: GMP, Mafia Island Marine Park. Figure 4: Provide the General localisation of this area in the country geography.

Data collected by Frontier-TMZ (1989-1995) within Chole Bay on the east coast of Mafia Island have led to the formation of a management plan and the 1st multiuse MPA in Tanzania. In November 2007, the project moved to the western side of Mafia Island to assess the coral reefs that are outside the MIMP boundaries. Based on the survey results, the area encompassing three islands off the mid to north-western side of Mafia Island (Shungumbili, Mbarakuni and Nyororo) were declared as marine reserves (Table 1 & Figure 4) and gazetted in 2007 as another MPA in addition to MIMP. These reserve areas revealed the presence of species of a high biodiversity importance (including important elasmobranchs).

¹⁷⁷ MNRT 2000. General Management Plan Mafia Island Marine Park. Ministry of Natural Resources and Tourism, Tanzania.

A need for an adjustment of the current demarcation of the reserves was seen as in several cases the reserve areas were delineated in such a way as to omit areas of high ecological importance. The socio-economic survey revealed the importance of the Island of Nyororo as a stop off and trading post between Mafia and the mainland, thereby serving a much wider group than those who stay there. Further socio- economic surveys are recommended. In the meantime, there is an ongoing process to engage private investors for operating eco-lodges and/or tented camps. A Frontier TZM was relocated back to Utende within the MIMP (from January 2010-December 2015) to complete aspects of a 5 years monitoring survey scheme. The list of fish to be monitored in this phase was adapted to suit the needs of the MIMP long term monitoring goals, focusing on commercial fish and families that can be indicators of the reef health. The monitoring results have been disseminated according to the research phases that are normally in period of 3 months. To date, there are reports for phases 113,114,121,122,123,124, 125,131 and the latest phase 132 was carried out from April to June 2013¹⁷⁸. Most important and worth to note is that the MIMP is run jointly by the MPRU and the WWF.

3.5 Saadani National Park

Saadani Game Reserve was established in 1974¹⁷⁹ on the edges of the Indian Ocean. This national park contained both marine and terrestrial components. Encompasses a mixture of forest, woodland, savannah, and mangroves habitats as well as 70km² of ocean with offshore coral reefs. Although the documented history indicates that local residents encouraged the protection of wildlife in the area to eliminate uncontrolled recreational hunting, the subsequent demarcation of the boundaries of the reserve squeezed the historical settlement of Saadani to a mere 0.25 km² village, stretching just a kilometre or so from the River Mvave southwards towards River Wami in the Bagamoyo District. In addition, restrictions on land for cultivation, and on the use of wildlife and forest resources, except for

¹⁷⁸<http://seeconservation.org/DisplayPublications.aspx?author=&country=1&project=82&publicationtype=®ion=14&subject=5&keyword=&datefrom=&dateto=>

¹⁷⁹ The Wildlife Conservation (Game Reserves) Order of 1974

the marine environment, were instituted¹⁸⁰. The management of the Saadani reserve has since been taken over by the Tanzania National Park Authority (TANAPA), whose policies have only led to more restrictions on people's use of the coastal and marine environment of the area. Protected as a game reserve since the 1960s, was expanded in 2002 it to cover twice its former area. The reserve suffered greatly from poaching prior to the late 1990s, but recent years have seen a marked turnaround, due to a concerted clampdown on poachers, based on integrating adjacent villages into the conservation drive. Now the Saadani National Park (1,100 km²) has been gazetted in 2005. It encompasses a preserved ecosystem including the former Saadani game reserve, the former Mkwaja ranch area, the Wami River as well as the Zaraninge forest (**Figure 4**). Many villages exist around the boundaries of the park. Before being included in the national park, the Zaraninge forest was managed by the WWF, whose goal was to preserve the extremely high botanical diversity of one of the last coastal rain forests remaining in Tanzania.

3.6 Mnazi Bay Ruvuma Estuary Marine Park (MBREMP)

MBREMP is a multi-purpose marine protected area with globally significant marine biodiversity values. It is located to the south of Mtwara town in southern Tanzania, and includes the last 45 kilometres of coastline to the Ruvuma River forming the border with Mozambique. The park covers 650 km² including also the northern portion of the Ruvuma Estuary, Mnazi Bay to the headland of Ras Msangamkuu. Within the park boundaries are three islands: Namponda, Membelwa (or Mongo), and Kisiwa Kidogo and numerous small rocky islets. The large area of the marine park is to ensure that the ten villages and five sub-villages that have traditionally depended on the marine resources of the park are comfortably included within the park. Prior to the establishment of the park Mnazi Bay and Ruvuma Estuary were identified as priority areas for the conservation of global marine biodiversity in 1995¹⁸¹. Soon thereafter, the Government of Tanzania followed the recommendations of that report by considering the area as a

¹⁸⁰ Mwaipopo-Ako, Rosemarie. *The Power of Meaning: People and Natural Resource Use and Management of Coastal and Marine Resources in Saadani Village, Tanzania*. PhD Diss., University of Cape Town, South Africa, 2001.

¹⁸¹ GBRMPA/World Bank/IUCN, 1995.

priority for marine park designation. The preliminary social and environmental assessments carried out prior to gazetting¹⁸² showed that the area supports a complex and diverse system of coral reefs, mangroves, and sea grass beds¹⁸³. The assessments also showed that the communities living in the area, numbering almost 30,000, are economically poor and rely primarily on marine resources and subsistence agriculture for their livelihoods¹⁸⁴. A series of consultations were organized with the communities, which showed that there was general support for an initiative that would improve the condition of the resource base on which they depend. These consultations led to the adoption of the "Mtwara Resolution on MBREMP" in April 1999, in which local communities (from 10 villages and 7 sub-villages) in the proposed park area, along with representatives from the District, Regional and National level government, the private sector and NGOs agreed on the designation of the area as a marine park. In 2000, MBREMP was gazetted as a marine park, the second in Tanzania after MIMP (Government Notice No. 285, published on 4/8/2000) (**Figure 4**). The development of the marine park is being assisted through a UNDP/GEF and Fonds Français pour l'Environnement Mondial (FFEM) funded project, which was initiated in 2002 in order to assist the Government of Tanzania in "conserving a representative example of internationally significant and threatened marine biodiversity". The development objective of that project is to "enable local and government stakeholders to protect effectively and utilize sustainably marine biodiversity and resources of the MBREMP"¹⁸⁵.

3.7 Proposed Tanzanian National MPA Network

Following the government declaration, at the 5th World Parks Congress in Durban in 2003, of its intention to increase protection of its seas to 10% by 2012 and 20% by 2025, several initiatives were undertaken. Through MACEMP funds a proposal was made to develop a national MPA system¹⁸⁶. A

¹⁸² World Bank/GEF supported Block B PDF grant

¹⁸³ Muhando, C., Mndeme, Y. & Kamukuru, A. 1999. Mnazi Bay-Ruvuma Estuary Proposed Marine Park: Environmental Assessment Report.

¹⁸⁴ Mwaipopo and Ngazy 1998

¹⁸⁵ UNDP/GEF, 2000

¹⁸⁶ Ruitenbeek J, Hewawasam I, and M. Ngoile, 2005. Blueprint 2050: sustaining the marine environment in Mainland

very simple process was used to assess priority sites for inclusion. Biodiversity information was available for coral reefs, mangroves, birds (International Birds Association: IBAs), dugong distribution, and turtle nesting, as well as information on uses of the coastal and marine environment. The Tourism Master Plan for the mainland and the Tourism Zoning Plan for Zanzibar were also taken into account since coastal areas had been identified as priority areas for tourism development, and the mainland plan emphasizes the role that MPAs might play in the expansion of the tourism industry. The location of important hydrocarbon and mineral resources was also mapped. Mariculture (including seaweed farming) and salt production, which are important sources of revenue for coastal villages were not mapped as data were not available, but these activities would be included in a more detailed assessment. The information was collated onto simple maps, using a GIS system, but without sophisticated software programmes, given the lack of precise data. Other initiatives were taken into consideration, including the NICEMS, which mainly addresses mainland Tanzania, and recommends planning at different spatial levels. These include District ICM Action Plans, which might cover the full District and territorial sea, or smaller areas within the District, such as a village or a bay. Also included are SAMPs that can cover a single District, several Districts, or an area within a District, and are developed in a partnership arrangement between the central government, local governments, and local communities.

The following six areas were identified for potential development of sub-national MPA systems, all of which had previously been recognized as priorities for biodiversity conservation through a WWF's-EAME analysis¹⁸⁷.

- i. Tanga Region: A system of CFM areas with closed reefs already in place at the northernmost

Tanzania and Zanzibar. World Bank.

¹⁸⁷ WWF-EAME. 2004a. The Eastern African Marine Ecoregion Vision: a large-scale approach to the management of biodiversity. WWF Dar es Salaam, Tanzania. 53 pp

¹⁸⁷ WWF EAME. 2004b. Towards the Establishment of an Ecologically Representative Network of Marine Protected Areas in Kenya, Tanzania and Mozambique. WWF, Dar es Salaam, Tanzania. 74pp.

- coast and that may be included the later gazetted TACMP.
- ii. Pemba Island: Entire west coast, now gazetted as the Pemba Channel Conservation Area, and one pre-existing MPA around Misali Island.
 - iii. Unguja Island: Existing MPAs at Menai Bay, Chumbe, Mnemba, and Jozani-Chwaka Bay.
 - iv. Dar es Salaam-Bagamoyo: Existing DMRs in Dar es Salaam and CFM areas in Bagamoyo and a District level ICM programme in place.
 - v. Rufiji-Mafia-Kilwa-Songo Songo complex: This comprises three Districts and covers over 9,000 km², with some 140,000 people inhabiting the zone. This complex is planned as a network of management areas that are being developed and implemented with the support of the WWF EAME programme in collaboration with Kilwa, Mafia and Rufiji Districts. This would include the existing Mafia Island Marine Park, a community-managed MPA in Kilwa area; a Ramsar site in the Rufiji Delta; and protection of part of the Songo-Songo Archipelago, with the individual sites linked through a Biosphere Reserve approach.
 - vi. Mtwara District: Largely covered by Mnazi Bay- Ruvuma Estuary Marine Park, and potentially to be developed as a trans boundary conservation area with Mozambique.

The implementation of sub-national proposed MPA systems for the Pemba area was supported by MACEMP and for Rufiji-Mafia-Kilwa-Songo Songo areas through WWF programme with other NGOs.

4 Mafia Island Marine Park Policies Implications and the way forward

Mafia Island is considered to be one the poorest areas of Tanzania¹⁸⁸. Its inhabitants depend mainly on agriculture and fishing. Subsistence farming is predominant in the north, where more bush land is available. Marine fishery is the dominant economic activity for the vast majority of residents on this island (major occupation of the southern half of Mafia Island) and also provides significant resources for district local revenues. Although different finfish are important in terms of local consumption and export to Dar es Salaam, it is the crustaceans such as lobsters and prawns, and cephalopods such as squids,

¹⁸⁸ URT,2005

that fetch higher prices. A small Greek owned fish processing factory in the capital Kilindoni has been replaced by a much larger plant owned by a Kenyan-based company (Alpha Africa) that mainly deals with crustaceans and cephalopods. The fishing industry has also been commercialized to a large extent, which is a major reason for the conservation measures adopted for the MIMP, whereby approximately half the district is designated as a marine reserve. Several modalities for community-based management of marine resources are also implemented. The park is a multiple marine and land-use facility allowing human settlement within its boundaries¹⁸⁹. In order to integrate conflicting interests between user groups, a zoning plan was adopted. An important practical indicator of the MIMP success is the health of its fisheries. A sustained level of the fisheries is considered as indicative of overall community health and is important to the local people, whose livelihoods depend on marine resources. MIMP in its GMP¹⁹⁰ lean to achieve the following objectives:

- i. To protect, conserve and restore species, genetic diversity and ecosystem processes of the marine environment and coastal area;
- ii. To promote sustainability of existing resource use;
- iii. To ensure that local residents are involved in the planning, development and management of the fishery and in the share of benefits of the operation. They should have priority in resource use and economic benefits afforded by the established park;
- iv. To stimulate the rational harvest of underutilized natural resources;
- v. To promote community oriented education and dissemination of information concerning conservation and sustainable use of resources in the marine park;
- vi. To facilitate research and to monitor resources conditions and uses within the park;
- vii. To conserve and protect historic monuments, ruins and other cultural resources that have been identified as of significant to the history of Mafia Island; and
- viii. To facilitate the development of appropriate eco-tourism.

¹⁸⁹ Caplan P. (2004). Mafia Island, Tanzania. [http://Mafia Island-tanzania.gold.ac.uk](http://Mafia%20Island-tanzania.gold.ac.uk)

¹⁹⁰ Mafia Island General Management Plan

4.1 Biodiversity conservation goals and livelihood support under the current framework

4.1.1 Institutional arrangements/policies implications

When examining the ability of the MPA to achieve its stated objectives, a critical consideration is the legislation and institutional frameworks in place for the management of the area and its associated resources. Multilateral agreements/conventions to which Tanzania is a Party have direct implications for MPAs, as explained in section 2.1 and its subsections; 2.1.1 to 2.1.3. The importance of compliance with international agreements, especially in developing nations such as Tanzania, cannot be underestimated. In many occasions, the acceptance of these multilateral treaties allows to focus, catalyze, or reinforce the establishment of national legislation and institutions geared towards conservation and sustainable development. This is because these treaties may force the country's policy makers to revisit and amend what would otherwise be, for the most part, stagnant national environmental policy¹⁹¹. Following the NEP 1997, as a guiding policy on environmental protection and management, the government developed a National Biodiversity Strategy and Action Plan (NBSAP) in 1998 as a response to one of the requirements of the CBD, which was signed in 1992 and ratified in March 1996¹⁹². With the NBSAP in place, the implementation began through a set of three major thematic areas: aquatic biodiversity, agro-biodiversity and terrestrial biodiversity. An important action of relevance to the management of MPAs was the formulation of a NICEMS in 2003 to safeguard conservation and sustainable utilization of coastal biodiversity¹⁹³. While the NEP serves as an overall policy arm, the NICEMS serves as a specific benchmark for the management and sustainable use. It suggests commendable progress in conservation initiatives both from the government and in partnership with local and international conservation agencies, NGOs, and programmes. While these and other policies offer a good platform on which to base a park management, they are by no mean

¹⁹¹ Anderson, W. (2003) Review of national legislation related to coastal and marine resources management and the adequacy/inadequacy of the institutional arrangements under which this takes place. Netherlands: UNEP/GPA.

¹⁹² VPO 2009. Fourth National Report on Implementation of Convention on Biological Diversity (CBD). Division of Environment, Vice President's Office, Dar es Salaam. 81pp.

¹⁹³ *ibid*

exhaustive. The international community calls for the wise use of wetlands within the context of sustainable development, and this involves the development of regulatory mechanism that will ensure that sustainability goals are achieved. However, at present no management plan is in place to oversee the protection of wetlands and regulations are still missing. The water quality issue is increasingly important for tourists, who dive in the MPAs. However, an assessment carried out in 2003 shows the deterioration in water quality in Chole Bay inside the MIMP. It was argued that the poor water quality might be larger scale phenomenon acting on the wider coast, possibly related to discharge from the Rufiji Delta¹⁹⁴. Upland deforestation also impacts marine wetlands through increasing the sediment loads borne by rivers that drain the deforested areas. The Minister that is responsible for environmental affairs is urged to provide guidelines for conducting human activities within the area (Rufiji delta). Tourism is one of the fastest growing sectors in Tanzania, and coastal areas in particular are known for attracting tourists' activities. Apart from creating job opportunities and revenues, this sector may negatively impact coastal environments through tourists' hotel constructions that may lead to the clearance of important wetlands and mangrove habitats, which may in turn affect marine species depending on these key habitats. However, this issue is not addressed within the NFSPSS¹⁹⁵.

The MIMP vision on tourism development on Mafia Island states that:

"MIMP believe that tourism promotion must stimulate the development of the Mafia residents at the same time mitigating the potential negative impacts that can result from it so that the socio-economic and cultural status is not adversely affected".

In the MIMP general management plan the main concerns in regulating tourism development are:

- i. Over- exploitation of freshwater supplies;
- ii. Improper disposal of solid waste, wastewater, sewage, chlorinated and other contaminated water;

¹⁹⁴ Rubens, J. and Kazimoto, S. 2003. Application of the WCPC-Marine/WWF Guidebook on Evaluating Management in MPAs

¹⁹⁵ Whitney A, Bayer T, Daffa J, Mahika C & J Tobey, *State of the Coast Report: The National ICM Strategy and Prospects for Poverty Reduction*. Dar es Salaam: Tanzania Coastal Management Partnership, 2003.

- iii. Habitat damage, such as mangrove clearing;
- iv. Disturbance of the coastline from construction too close to the shore;
- v. Visual pollution; and
- vi. Friction with local residents over land acquisition and access rights.

Related to these issues are concerns with over settlement in areas where tourism is developing. Other issues of concern according to the MIMP management plan are:

- i. Disturbance of visitors in lodges by noise from neighboring houses and local bars;
- ii. Disturbance of visitors by beach boys¹⁹⁶;
- iii. Additional pressure on local resources including freshwater and land; and
- iv. Over- development and crowding of tourism areas by local houses.

Conduct of tourism activities in MPAs falls under the Ministry of Lands and Human Settlements Development (MLHSD), the MNRT and the MLFD. These create overlapping mandates in exercising and overseeing the procedures for allocation of investment areas along the coast and approve plans for investment and monitoring. Furthermore, it has often been reported to lead to violation of rules and regulations concerning location of investments on the beach¹⁹⁷. Moreover, environmental issues such as freshwater management, waste disposals etc. have to be addressed by conducting EIA that all hotels must undertake in order to get approved. However, none of the hotels built so far on Mafia Island have had to undergo this process of EIA. Not surprisingly, there are already problems with freshwater supply in some villages during the dry season and no public management of solid waste and sewage on Mafia is in place¹⁹⁸. A study conducted in 2003 highlights the legal and institutional weaknesses in enforcing EIA in Tanzania. It pointed out that, while Tanzania is keen to attract investments to foster the country's socioeconomic development, pure economic considerations have in many cases sacrificed policies

¹⁹⁶ Beach boys also called 'ticks' are men wanting to act as your guide and of course they demand to be paid

¹⁹⁷ EcoAfrica Environmental Consultants 2012. An Assessment of Legal and Institutional Framework for Effective Management of Marine Managed Areas in Tanzania. Mainland Tanzania Report. Marine Parks and Reserves Unit, Dar es Salaam, Tanzania. PP 83.

¹⁹⁸Linn Marie Holberg, 2008. Tourism in Mafia Island. Study of Perceptions and impacts from different type of tourisms in MIMP, Tanzania

geared towards sustainable development. Even though multinational financing institutions also make EIA mandatory before any development project can be funded, it has not been practiced because the EIA regime is short of the enabling factors like the government's political will, institutional support, proper development objectives, and trained personnel¹⁹⁹.

Government institutions that have a stake in the governance of marine and coastal resources in Mafia Island are the MLFD, VPs, and MNRT. The primary legal entities are the Fisheries Act of 2003, the Forest Act 2001 and the Marine Parks and Reserves Act of 1994, which provided for the establishment of MPRU under DoF in the MLFD. In its effect, the MIMP's zoning plan has categorized the park area into three fishing zones (**Figure 8**). Fisheries Act of 2003; this Act has some fundamental flaws when compared to international instruments. The jurisdictional scope of the fishery activities, the resource conservation, and the management purposes are not well explained. The Act does not include a detailed implementation of protective measures for critical habitats or endangered species, particularly when they are outside the park boundaries. Through this Act, the further developments of traditional and industrial fisheries are promoted. It does this by providing extension and training services, by conducting research and surveys, by promoting cooperation among fishers, and by promoting arrangements for the orderly marketing of fish, providing infrastructure, etc. It is worth noting that the fisheries policies and its legal statements are quite ambiguous and do not refer specifically to coral reef protection and management. It is also very important to mention that there are no well-defined regulations or guidelines for harvesting of fish for aquarium trade (coral reefs fishes). The DoF is required to issue a license based on the approval of the environment agency. However, communication between the agencies rarely occurs in the absence of established guideline²⁰⁰. Additionally there is no clearly defined policy and programme of implementations at all levels of the government.

¹⁹⁹ Katima, J.H.Y. (2003). Environmental Impact Assessment: For Whose Needs? In: UNEP Training Resource Manual: Case Studies from Developing Countries.

²⁰⁰ Hatton, J. (2001) Policy, Legal and Institutional Framework: Mozambique, Tanzania, Zanzibar & Kenya: Summary.

The management approach contained in the legislation is centralized and depends on an adequate capacity and resources to ensure implementation of legislation and compliance with conservation and management measures²⁰¹. The government on behalf of the public thus holds property rights to fish and exploitation of coastal resources and the focus is on developing regulations that maintain stocks of resources at sustainable level. The government uses fisheries policies to promote two rather opposite objectives: fisheries management for the community and the promotion of the development of the fisheries industry.

It has been argued, however, that due to the depleted state of resources and the continued deterioration of the livelihood and health of poor people, environmental protection should be prioritized²⁰² to support resilient and viable local communities.

The powers vested to MPRU under the DoF by the Marine Parks and Reserves Act No. 29 of 1994 has led to the recognition of the value of critical coastal and marine habitats and has resulted in the gazettal of MPAs. The declaration may be in response to a national government initiative, or to requests made by individuals, research organizations, NGOs, the private sector, or a LGA. Upon completion of the process, a Notice of the Declaration of an MPA is gazetted in the Government Gazette and becomes a law and the Minister responsible for fisheries is responsible for this. Equally, the Act provides that the Minister responsible for National Parks under the MNRT may, after consultation with the relevant local authorities, declare any marine park or part of a marine park to be a national park in accordance with the provisions of section 3 of the National Parks Ordinance. The provision for this transformation means that the TANAPA as an autonomous authority may have a legal room to influence the management of MPAs under the MPRU, which overrides jurisdictional powers and demonstrates the cross-sectoral legal operational uncertainties that may have an impact in the effectiveness of MPAs management. For example, the Saadani National Park that encompasses critical coastal and marine habitats is not yet

²⁰¹ Yona, G. 2011. Analysis of Tanzania's legislation in the context of the international law relating to the protection and preservation of endangered marine species. United Nations Nippon Foundation Fellowship.

²⁰² World Resources Institute (WRI) in collaboration with United Nations Development Programme and World Bank. 2005. The wealth of the poor managing Ecosystems to fight poverty

under the authority of MPRU. In addition, mangrove forests found within the MPAs are protected under a different legislation (Forest Act of 2001) that is governed by a different institutional body, the Department of Forest and Beekeeping under the MNRT. The act encourages community-based forest management (CBFM). This arrangement may induce conflicts with the provisions and practice of MPAs, especially in marine reserves, since no user rights are offered to fish in the adjacent mangroves areas.

4.1.2 Decentralization and community /village based management

Tanzania lacks explicit legal provisions for co-management arrangements. Instead, at the local authority level, the LGA Act governs the declaration-designated by-laws, whereby local authorities may decide on their own initiative or through request from some other entity such as NGOs or individuals, to declare MPAs in their area of jurisdiction. In such cases, the local authority designates and provides for management of such community-based MPAs under the LGA Act. By-laws are prepared to give legal backing to the designation and management of the MPAs. These are in turn approved at different levels and become legally binding. Depending on the purpose, these by-laws, provided they don't override the national legislation, may provide for the licensing mechanisms and fees schedules for fisheries and other resource extractive uses²⁰³.

Other arrangements that can be addressed under LGAs by-laws include the zoning of marine areas for management purposes (e.g. closed reefs) or the roles and responsibilities of villages in managing their coastal resource²⁰⁴. The success of the establishment of an MPA largely depends on the rationales behind the designation of these conservation areas. Examples here are CFM areas in Bagamoyo under the ICM action plan and CMAs in Tanga under TCZCDP. The latter are no longer operational since the project ended. Then, TACMP and TMRs lie entirely within the operational areas of the former TCZCDP and stand on a different legal basis. LGAs in Tanzania have substantive formal and informal functions

²⁰³ EcoAfrica Environmental Consultants 2012. An Assessment of Legal and Institutional Framework for Effective Management of Marine Managed Areas in Tanzania. Mainland Tanzania Report. Marine Parks and Reserves Unit, Dar es Salaam, Tanzania. PP 83.

²⁰⁴ Hurd, A. 2003. Sustainable financing of marine protected areas in Tanzania.

for natural resource management, and it can be argued that many important policy and legal developments as well as practical experiences, have taken place within the last decade to justify and enable a more participatory approach for natural resources management through LGAs. However, the legal assignment of functions for resources management to LGAs is still incomplete, as mandates of LGAs for management of natural resources are only vaguely described in the Local Government Act and are not clearly stipulated in the Fisheries Act 2003 or EMA 2004, in response to the policy of decentralization by devolution.

Real devolution²⁰⁵ of natural resources is mostly contested when it threatens the widely occurring extraction of profitable natural resource through local and centrally located elites. It is clear from the various reviews of the local government reform programme that the corresponding devolution of financial and human resources is lacking behind. The extent of fiscal and human resource autonomy has been assessed for the key sectors of education and health, but the major LG studies have not included detailed assessments for the natural resource sectors²⁰⁶. For example, there is a lack of clear and fair regulations for the sharing of revenues obtained from tourism and fisheries and a lack of common institutional arrangements at village level for fisheries management.

Lessons can be learned from experiences in the Philippines, with decentralized marine protected areas. The decentralized governance structure, encoded in the Philippines Constitution (1991 Local government Code & 1998 Fisheries code) strongly postulates the adoption of community-based and co-management frameworks. In terms of legislation, the Philippines have transferred the decision-making authority to local communities', the decision-making and fiscal power to local branches of the government and holistically incorporate the fisheries sectors in coastal resources management

²⁰⁵ Devolution is the process where the central government consciously creates or strengthens the structures of the sub-national units of government, thereby, lessening the direct control of the central government.

²⁰⁶ Kajembe, G, and Marageri, E. 2009. Integration of natural resources into local government decision-making. Tanzania country report.

(CRM)²⁰⁷. Evidence from interviews carried out in the Philippines and Indonesia suggest that fair and effective law enforcement²⁰⁸ and the consistency between national and local laws and institutional goals²⁰⁹ are important to achieve MPA effectiveness and sustainability. ,

4.1.3 Ecological implications of these policies

Because of policies described above, the protection of coastal and marine areas in Mafia Island can be categorized into four management regimes.

- i. Core zone (no take area) and marine reserves: these are areas where fishing and extraction activities with or without a license are not allowed; only recreational activities and research are permitted.
- ii. Specified use zones: these zones (reefs) act as buffer to marine parks and as multiple use areas. Harvesting, in terms of fishing and collection of other marine organisms, is allowed, but for resident fishers only. Only traditional harvesting techniques (mostly fishing traps made from coconut palm fronds and straw, locally known as madema) as well as hooks and lines are permitted as well as tourism activities. Both Acts relating to fisheries and marine habitat conservation and protection prohibit the use of destructive harvesting methods, such as dynamite fishing, seine netting and coral mining.
- iii. General use zones: national fishing regulations apply here and non-residents may require a permit to undertake activities within the park. Dragnets and fishing nets with a mesh size < 2.5 inches are not permitted within the park. The general use zone is intended to be sustainably used by residents of the marine park. It is meant to relieve pressure from areas of higher protection. Other residents of Mafia Island, and people from outside Mafia Island, may

²⁰⁷ Fernandez et al 2000. Coastal Area Governance in the Philippines. *Journal of Environment and Development*. 9(4): 341-369

²⁰⁸ Pollnac, R.B and Pomeroy, R. S 2005. Factors affecting the long term sustainability of integrated coastal management projects in the Philippines and Indonesia. *Ocean Coast Manage* 48:233-251.

²⁰⁹ Eisma, R. V, Christie P and Hershman, M. J 2005. Legal issues affecting sustainability of integrated coastal management in the Philippines. *Ocean Coast Manage* 48: 336-359.

undertake extractive activities here but only under the permission of MIMP and, where relevant, from the village councils²¹⁰.

- iv. No protection: This category applies to coral reefs, marine animals, and other resources that are outside the designated conservation areas. However, even in these areas, the Fisheries Act 2003 applies and is enforced by the DoF. However, while the destructive methods such as dynamiting and coral mining are prohibited, no formal management is in place. The DoF may seek support by the marine police or the Tanzanian navy to enforce the Act. Nevertheless, due to the general lack of control of these large areas and their resources, there is gross over-exploitation. As a result, these areas and their reefs are the most degraded²¹¹.

In Mafia Island, the reefs outside the marine park have thus been noted to be locations of destructive and unsustainable fishing practices, such as dynamite fishing. A blooming artisanal fishery exists along the mid-western coast of Mafia Island, with the majority of boats being traditional sailing dhows, which employ seine nets and leave daily from Kilindoni harbor. Observations (both of fishing boats & the local fish market in Kilindoni) suggest that a number of reef fish species are targeted for subsistence and commercial use, including various species of snapper, emperors, parrotfish, groupers, jacks & trevally, sweetlips, barracudas and sharks. However, snappers and emperors seem to be the preferred target families, making up approximately 42% of the total catch²¹². Biophysical surveys undertaken along the western shore of Mafia Island, revealed that the reefs in that area are in fact degraded and measures are needed to restore them to a higher level of productivity²¹³. Likewise, results indicated that the

²¹⁰ Linn Marie Holberg, 2008. Tourism in Mafia Island. Study of Perceptions and impacts from different type of tourisms in MIMP, Tanzania.

²¹¹ Frontier Tanzania (2009). An Assessment of the Reefs on Western Mafia Island, Tanzania. Fosuah, E.N. & Steer, M.D. (eds). Frontier Tanzania Environmental Research Report 125. The Society for Environmental Exploration, London, UK, The University of Dar es Salaam.

²¹² Kamukuru, A. T., Y. D. Mgaya, and M. C. Ohman (2004). Evaluating a marine protected area in a developing country: Mafia Island Marine Park, Tanzania. *Ocean and Coastal Management*, 47, 321-337.

²¹³ Frontier Tanzania (2009). An Assessment of the Reefs on Western Mafia Island, Tanzania. Fosuah, E.N. & Steer, M.D. (eds). Frontier Tanzania Environmental Research Report 125. The Society for Environmental Exploration, London, UK, The University of Dar es Salaam.

highest frequency of fish encountered during surveys were in the smallest size category (<20cm), for 7 of the 11 families surveyed. Three of the families (haemulidae, lethrinidae and carangidae) however, showed a higher frequency of individuals encountered in the second smallest size category (21-40cm). Epinephelinae, which are usually medium (60 cm) to large fish (130cm)²¹⁴, were recorded mainly in the smaller size categories, with very few individuals reaching even 61-80cm. Given that this should be an average size for a grouper in a healthy stock, this suggests that the population on the mid-western coast of Mafia Island is being detrimentally affected in some way. A possible explanation for this could be over-fishing (either growth or recruitment over-fishing). Groupers are especially sensitive to fishing pressure and exhibit reductions in density and average size in sites, which are fished²¹⁵. Lutjanidae and lethrinidae, which usually have an average size of 60 cm, were recorded in the two smallest size categories. These families of fish were the most frequently observed targets for fishers in this area²¹⁶. Therefore, it is likely that the growth over-fishing may be responsible for the small sizes of these species. Fishers targeting small and therefore not yet mature fish cause growth, as well as recruitment over-fishing. If immature fish are caught prior to reaching minimum spawning size, they have no opportunity to reproduce, and the recruitment of small fish to the adult stock is inhibited²¹⁷. However, surveys conducted on mangrove creek fish and intertidal species found that intertidal harvesting of fish and invertebrate species for local consumption does not seem to produce significant deleterious effects²¹⁸. On the other hand, surveys carried out within MIMP showed differences in abundance and

²¹⁴ Lieske and Meyers, 2001

²¹⁵ ²¹⁵ Roberts, C. M. and N. V. C. Polunin (1993). Marine reserves: simple solutions to managing complex fisheries? *Ambio*, **22**, 363-368.

²¹⁵ Russ, G. (1985).b Effects of protective management on coral reef fishes in the central Philippines. Proc. 5th Int. Coral Reef Symposium, **4**, 219-224.

²¹⁶ Frontier Tanzania (2009). An Assessment of the Reefs on Western Mafia Island, Tanzania. Fosuah, E.N. & Steer, M.D. (eds). Frontier Tanzania Environmental Research Report 125. The Society for Environmental Exploration, London, UK, The University of Dar es Salaam.

²¹⁷ Barnes, R. S. K. and E. M. Hughes (1999). An introduction to marine ecology. 3rd Edition, Blackwell Science Ltd, Oxford, 269pp.

²¹⁸ Frontier Tanzania (2009). An Assessment of the Reefs on Western Mafia Island, Tanzania. Fosuah, E.N. & Steer, M.D.

size between differences zones. Reef fish such as angelfish, butterfly fish, and surgeons show a greater prevalence within the specified used zones whilst schooling pelagic fish, such as snapper and fusilier, are present in larger populations in the core zone. Trevally populations are highest within the specified use zone inside the bay, trevally are the focus of a high level of fishing activity, and their relatively large populations inside the specified use zone suggests that restriction on fishing gear is an effective method for reducing the impact of extraction pressure on these fish. Snapper and parrotfish populations remain healthy in both zones (core zone and specified uses zone), which is a positive indicator for the effectiveness of MIMP's management and enforcement program as local fishers target these species. As yet, no surveys have been carried out in the general use zone. The available survey results, however, highlight the importance of continuing surveys in more than one protection zone in order to assess whether the different zones of the park were being managed efficiently²¹⁹.

4.1.4 Socioeconomic implications of these policies

4.1.4.1 Livelihoods impacts

The marine Parks and Reserves Act of 1994 requires that marine parks fulfil certain objectives that are deemed to serve the national interests, such as biodiversity protection, tourism development as well as the livelihood interest of local communities surrounding the parks. MPA management policies restrict access to fishing in some areas, and this may have an adverse impact on households that depend on fishing for their livelihoods. Thus, livelihood improvements may come about in two main ways because of MPAs. 1) direct revenue generation opportunities caused by the MPAs, due to increased fish catches in surrounding waters, or increased employment in the tourism sector; or 2) because donor agencies have supported programmes to develop alternative or supplementary income generating activities as a parallel activity to the development of the MPA.

Most people on Mafia Island depend on fishing as their main source of livelihood support. Women

(eds). Frontier Tanzania Environmental Research Report 125. The Society for Environmental Exploration, London, UK, The University of Dar es Salaam.

²¹⁹<http://seeconservation.org/DisplayPublications.aspx?author=&country=1&project=82&publicationtype=5®ion=14&subject=5&keyword=&datefrom=&dateto=>

collect octopus, bivalves, and seaweed farming whilst men go out fishing in boats.²²⁰ In addition, Mafia is the chief source of fish to Dar es Salaam; about 3000 metric tons of various fish sources are fished annually.

One of the suggested ways the MPAs can enhance fisheries is through the mechanism of spillover²²¹. However, in Mafia Island the extent of the spillover effect from MIMP reefs to adjacent reefs habitats has never been quantified, the efficacy of spillover as a strategy to boost fish abundance island wide²²² rests on successful limiting destructive fishing habits within the park. According to some study, it is recommended that 15% of the coastlines should be set aside as no take zone²²³. It may therefore be sensible to strengthen the law enforcement capacity within the park. According to Fisheries Statistics²²⁴ fish catches in Mafia Island have increased from 356.31 metric tons in 2007 to 3212.99 metric tons in 2012, which might reflect the achievement of MIMP conservation efforts, but which may also just be a reflection of increased fishing effort. Research is thus needed to have a flawless and thorough argument regarding this catch increase. It is no doubt, however, that fishing pressure has increased in Mafia Island, as more fishers from other parts of Tanzania have been and are attracted to fish in Mafia waters. This catch increase has, however, not improved local incomes, as local fishers are still poor. This is mainly due to the division of profit gained from fishing, whereby a large share goes to the boat owners, a majority of which resides in the capital city of Dar es salaam. In addition, local fisher sell their fishes to

²²⁰ Walley, C. (2004). *Rough Waters. Nature and Development in an East African Marine Park*. Princeton Paperbacks: Princeton & Oxford.

²²¹ Kamukuru, A. T., Y. D. Mgaya, and M. C. Ohman (2004). Evaluating a marine protected area in a developing country: Mafia Island Marine Park, Tanzania. *Ocean and Coastal Management*, **47**, 321-337.

²²² Roberts, C.M. and Polunin, V.C. 1991. Are marine reserves effective in management of reef fisheries? *Reviews in Fish Biology and Fisheries* 1, pp. 65-91.

²²² Murray, S.N., Ambrose, R.F., Bohnsack, J.A., Botsford, L.W., Carr, M.H., Davis, G.E., Dayton, P.K., Gotshall, D., Gunderson, D.R., Hixon, M.A., Lubchenco, J., Mangel, M. MacCall, A., Mc Ardle, D.A., Ogden, J.C., Roughgarden, J., Starr, R.M., Tegner, M.J. and Yoklavich, M.M. 1999. No take reserve networks: sustaining fishery populations and marine ecosystems. *Fisheries* 24(11), pp. 11-25.

²²³ Balgos, M.C. 2005. Integrated coastal management and marine protected areas in the Philippines: concurrent developments. *Ocean and Coastal Management* 48, pp. 972-995.

²²⁴ Annual Fisheries Statistics of 2007 and 2012 reports. Department of Fisheries. MLFD

middle men or fish traders at low prices, while these middle men sell the fish again at a much higher price²²⁵ in city markets outside Mafia Island.

With regards to enforcement, the MIMP has implemented a fishing gear exchange program and provides loans to fishing groups to facilitate the use of more sustainable fishing gears and the formation of VEUs. In 2003 the MIMP police, VEU and fisheries authorities apprehended 27 fishers without licenses or who were fishing in prohibited zones of the park, and confiscated illegal fishing gear in 5 occasions²²⁶. Unfortunately, apprehended fishers are not always prosecuted in the legal courts or forced to pay the established fines. Because court procedures are too long and the Fishing Act No. 22 of 2003, Part IX (Offences and Penalties), provides weak penalties for illegal fishing activities, more people are attracted to commit an offence as the penalty is weak and fines can easily be paid. This situation creates conflicts between conservation and fisheries policies.

Besides fishery, the only other main industry on Mafia is tourism. Since the establishment of MIMP, tourism facilities have improved with the number of visitors increasing (**Figure 9**). It appears that most people are recognizing the link between the MIMP and economic development of the surrounding community through tourism activities. The majority of newly employed people work as cleaners and such (non-skilled labor) ²²⁷. Interviews conducted with villagers from Chole and Utende revealed that tourism has become integral to their livelihood activities²²⁸. However, issues of concern with regard to this industry are that tax revenues go directly to the central government and not much benefit can be shown for MIMP and the local communities. However, the MIMP is supposed to get part of its income

²²⁵ Bryceson, Ian, Narriman Jiddawi, Arbogast Kamukuru, Kassim Kulindwa, Rosemarie Mwaipopo, Paul Onyango and Merisia Sebastian. Fisheries Study in Tanzania Coastal Waters: The Effects of Trial Export of Finfish from Mafia Island on Ecological–Social Resilience and Vulnerability. Tanzania-Norwegian Development Co-operation, the Management of Natural Resources Programme (TAN0092), 2007.

²²⁶ Kazimoto, M. 2005. "Marine Protected Area Management for Sustainable Resource Use-Experience from Mafia Marine Island Park." Paper presented at the Marine and Coastal Conservation and Management Seminar in Dar es Salaam on June 27, 2005.

²²⁷ Linn Marie Holberg, 2008. Tourism in Mafia Island. Study of Perceptions and impacts from different type of tourisms in MIMP, Tanzania

²²⁸ *ibid*

for community projects through the fee it takes from visitors, which is \$10 per person per day for those staying within the MIMP boundaries. However, according to the MIMP warden, this has yet not generated enough to support the desired projects, which have left villagers frustrated. As the District gets part of the income from these fees, the opinion of the tourism officer is that MIMP should be consulted more in matters that affect them in decisions made by the District²²⁹.

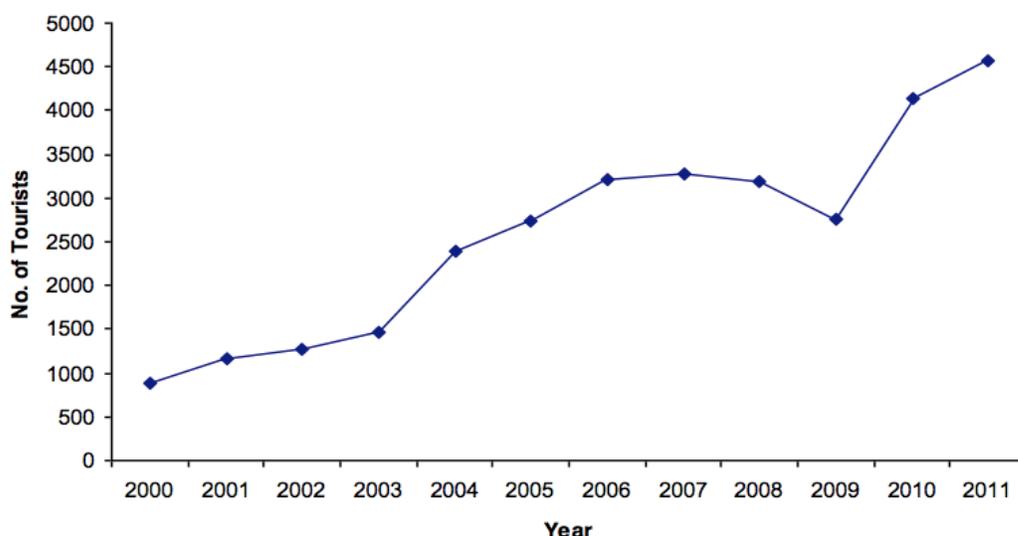


Figure 9: Trend of Tourists in Mafia Island Marine Park for a Period of 12 Years (Masekela et al undated).

Various projects are in place that aimed at supporting community management for tourism operation. Sea Sense is one among many NGOs in Tanzania that is helping coastal community protect endangered marine life such as dugong, sea turtle and whale shark by promoting ecotourism as part of livelihood support programme it also provide environmental education and offer community awareness with respect to marine life conservation. For example it has been documented that small financial incentives are given to villagers who report sea turtle nests. Additionally, income generated from visitor to sea turtle nesting beaches is donated to Village Environment Funds established by Sea Sense in villages close to sea turtle nesting beaches²³⁰.

4.1.4.2 Community involvement and marine buffer zones

Before independence, in 1962, there were few government regulations on resource exploitation. Local

²²⁹ *ibid*

²³⁰ [http://www.seasense.org/publications/assessed in December 4th 2013](http://www.seasense.org/publications/assessed%20in%20December%204th%202013).

communities were very much left to themselves. A number of studies conducted by the TCZCDP have shown that despite this “non-interference policies” of pre-independence administrations, there was no traditional or indigenous management of resources. The reason given by the communities was that there was no need, since resources were plenty and peoples few²³¹. In the 1990's during the process of democratization, the government stated that it recognized the need for increased autonomy of local communities. Yet, there were no policies or laws developed that specifically provided for the involvement of communities²³², until the Marine Parks and Reserves Act of 1994 was adopted. The Act is the only piece of legislation that specifically states the rights of communities in marine parks and reserves through participation in the formulation of the GMPs. However, community based arrangements for MPAs are not explicitly within the scope of Marine Park and Reserve Act.

For the case of MIMP, it has been argued and documented that the process of park creation was not participatory enough, and the surrounding communities felt they were not given an opportunity to express their opinions. They thus considered the process more of a top-down approach²³³. Through applying a zoning scheme, the park hoped to achieve the multiple-use approach that is inclusive and regulated through parks rules and policies. Nevertheless, the MIMP zonation creates four types of conflicts between the resources users and it appears that within the existing framework the capacity to reduce these conflicts is very limited. These conflicts are between:

- i. Dagnet fishers and trap fishers²³⁴;
- ii. Tourists and fishers;

²³¹ Horrill, J.C.(undated). Collaborative Fisheries Management in the Tanga Region, IUCN Tanga Coastal Management Project.

²³² *ibid*

²³³ Andrews G, 'Mafia Island Marine Park Tanzania: Implication of applying a marine park paradigm in a developing country', paper presented at the International Tropical Marine Ecosystem Management Symposium, Townsville, 23–26 November 1998.

²³³ Mwaipopo R, 'The social dimensions of marine protected areas (MPAs): A case study of the Mafia Island Marine Park in Tanzania', *Samudra monograph*, International Collective in Support of Fishworkers, Chennai, India, 2008.

²³⁴ Bailey Kincaid *et al*/2013. Fishers' perception of a multiple-use marine protected area: Why communities and gear users differ at Mafia Island, Tanzania. *Marine Policy*: Volume 43, January 2014. Pages: 226-235.

- iii. Immigrant/ seasonal fishers and residents fishers; the outside fishers are coming from other regions of Tanzania and some from Zanzibar and they normally camp at the villages in Mafia Island. Often they refuse to pay permit fees and compete for space with the residents fishers; and
- iv. Between fishers/villagers and the marine park staff²³⁵.

For no take zones to be part of multiuse MPAs, the policy needs to consider that fishers are a valid and important part of the ecosystem and park. Primary factors that inhibit the support for MIMP goals of conservation and sustainable fisheries were the lack of community involvement and the permitted gear type. The failure to define 'participation' and 'community' early on in the project led to the failure to implement strategies to ensure actual participation. Nevertheless, two main ways of participation/involvement in MIMP occurred: 1) involvement in training in alternative livelihoods to fishing; and 2) involvement at the community meetings and in developing the GMP ²³⁶. Community involvement in planning and execution of the management plan was considered more effective. Hence, fishers who seem to comply or to agree with management objectives were fully involved in developing GMP and were thus able to having their views incorporated into the marine park zonation scheme. The MPA design and implementation should seek to understand the diversity of coastal people and communities, especially in relation to their livelihood strategies. The conflicts between drag net fishers and dema-trap fishers, for example, can be understood by their history and gear usage pattern²³⁷.

The concept of core zones of sensitive feeding and nursery areas is not new for Mafia's fishers who have long been used to seasonal closure and access restriction²³⁸. It is argued that despite varying

²³⁵McClanahan TR, Cinner J, Kamukuru AT, Abunge C, Ndagala J. Management preferences, perceived benefits and conflicts among resource users and managers in Mafia Island Marine Park, Tanzania. *Environmental Conservation* 2009; 35(4): 340–50.

²³⁶ Bailey Kincaid *et al* 2013. Fishers' perception of a multiple-use marine protected area: Why communities and gear users differ at Mafia Island, Tanzania. *Marine Policy: Volume 43*, January 2014. Pages: 226-235.

²³⁷ *ibid*

²³⁸ Mwaipopo R, 'The social dimensions of marine protected areas (MPAs): A case study of the Mafia Island Marine Park in Tanzania', *Samudra monograph*, International Collective in Support of Fishworkers, Chennai, India, 2008.

adequacy of local traditions for formal MPA design under contemporary conditions, there is a fairly strong consensus that formal MPAs without any local inputs to institutional development tend to be inflexible and unable to incorporate the rationales and priorities of local ecosystem stakeholders²³⁹. MPAs are the product of social institutions and are established to change human behavior by restructuring the incentives that people face in their use of coastal and marine resources. Goals for the scope and purpose of MPAs must reflect a balance between scientific, social, political, economic needs and realities. The point here is to understand the role of people in management. There is definitely a need to identify the links between the socio - and ecological system²⁴⁰. The networks of resource users in Mafia Island are informally self-organized according to the gear they use and the activities they perform (e.g., seaweed farmers and octopus collectors). Their every day's behaviour shapes the actual situation on the ground. Institutions, the resource users and law enforcement agents (BMUs, VEC, VLC, Fisheries Officers and Park rangers) have all clear (and often diverging) interests, which define the way they act and relate to each other. Each network has created informal groups/institutions to perform their activities and to relate/network with the other groups. Some of them are in clear opposition, while others reinforce each other. For example, regulations clearly differ between dragnets (illegal) and dema-trap (legal) fisheries; net fishing is thus very problematic but still has cultural aspects perceived as positive. Zonation also created some problems between MIMP and villagers within the park. Villagers in Jibondo disagreed about the understanding of the zoning scheme and reacted by withdrawing from it. According to MIMP, people in Jibondo were influenced by seasonal fishers from other parts of Tanzania and traders from Dar es Salaam, and were supplied with illegal fishing equipment²⁴¹. In addition, Jibondo villagers said they found no benefits from being part of the marine park, and that some parts of the agreement were not fulfilled by the MIMP or had not met their expectations. Furthermore, the villagers

²³⁹ Polunin NVC. Marine protected areas, fish and fisheries. In: Hart PJB, Reynolds JD, editors. Handbook of fish and fisheries, vol. II. Oxford, UK: Blackwell Science; 2002. p. 293–318.

²⁴⁰ Sebastian-ZMT

²⁴¹ Aanby, S. (2006). A resilience analysis of the social and ecological effects of Mafia Island Marine Park (MIMP), Tanzania. Cand. Science Thesis. UMB: Norway.

claimed that the tensions between people inside and outside the park have increased because of the restrictions of movement inside the park. Some even mentioned that they felt their lives were made more difficult because of the restrictions of the marine park²⁴². Under these situations, even community-based initiatives may be destabilized, when neighboring communities and leaders do not support the MPA implementation.

4.2 Towards a more effective MIMP

The above discussion has highlighted the challenges inherent in the current legislation as also apparent in the MIMP's ability to maintain its ecological integrity, while at the same time encouraging livelihood goals and sustainable development. This section will reveal and expand upon some mechanism that may be suitable to address challenges that faced by Mafia Island from integrating biodiversity conservation and sustainable development. Further, the idea of how to situate the MIMP within a system supporting a wider coastal area management, and allowing to find feasible ways to strengthen public participation approaches to MPA implementation and coastal/marine resources management in general, will be explored.

4.2.1 BMUs and Village Liaison and Enforcement Committees accountability

The Fisheries Act 2003 and its sector policy strategies; allow for the creation of various formal and informal local institutions known as BMU²⁴³ for management of marine resources specifically fisheries in parallel to local government institutions outside the MPAs. This may, at least temporarily, satisfy demands on increased local ownership. Formation of these BMU in coastal areas has been assisted in most cases through donor projects such as MACEMP and WWF-RUMAKI.

The BMU regulation is an important governance instrument, as it reflects a bottom-up approach also referred to as co- management²⁴⁴ embracing communities and all stakeholders, who effectively become

²⁴² *ibid*

²⁴³ BMU is co-management system established in Lake Victoria the government adopt and implement at the coast.

²⁴⁴ Co-management can be defined as an arrangement where the responsibility of resource management is shared between government and resource user groups, i.e. it refers to a paradigm shift that supports the inclusion of resource users in management decision- making.

the stewards of the resources they exploit. They are therefore involved in the decision-making, implementation, and monitoring processes.

Sen and Nielsen outline a spectrum of types of co-management systems showing the degree of participation in the decision making process²⁴⁵. This spectrum ranges from 'instructive' to 'informative', as shown in **Figure 10**. A multitude of tasks can be co-managed at different stages of management. Co-management therefore covers a broad spectrum of collaborative decision-making between government and user groups. The key objective of co-management is to develop a strategy for collaborative decision-making that leads to an agreement on the decision-making process, together with management roles and responsibilities. The key principles for successful co-management are power sharing, benefit sharing, and capacity building²⁴⁶.

BMUs also provide a framework for managing fisheries that are of a trans-boundary or shared nature in the coastal zone and territorial sea. Membership of BMU is open to persons whose livelihoods depend directly or indirectly on fisheries activities. A BMU's area of jurisdiction is the fish landing station, assigned to the exclusive purpose of landing and selling of fish and fishery products. Their primary responsibility is to assist the fisheries officers in law enforcement (registration of boats, enforcement of gear regulations and protection of fishing grounds etc), landing station development and sanitation, collection of fisheries data; conflict resolution and welfare matters. They also have the mandate of restricting non-BMU member to camp²⁴⁷. The concept of involving local communities in the management of natural resources has found its way in most environmental policies and legislations in Tanzania, but it is still a challenge to be fully institutionalized at the district level and downwards.

²⁴⁴ Hauck M & M Sowman (eds), *Waves of Change: Coastal Fisheries Co-management in South Africa*. Cape Town: UCT Press, 2003, p. 3.

²⁴⁵ Sen S & JR Nielsen, 'Fisheries co-management: A comparative analysis', *Marine Policy*, 20, 5, 1996, p. 406.

²⁴⁶ *ibid*

²⁴⁷ Ogwang, V.O., Nyeko, J.I. and Mbilinyi, R. (2009). Implementing Co-management of Lake Victoria's Fisheries: Achievements and Challenges. *African Journal of Tropical Hydrobiology and Fisheries* 12: 52-58

Public participation and representation of local community in the MPAs management is provided for in the Marine Park and Reserve Act through Village Liaison Committees²⁴⁸ (VLC) and Village Enforcement Units (VEU). These are elected at a village council meeting. These committees represent unique opportunities for institutionalization of democratic and community based management of natural resources, though they have not yet been fully exploited.

In MIMP it has been documented²⁴⁹ that, VLCs- though structured under the Village Government (VG)- have a closer link with MIMP than with the VG leader. When MIMP gets donor funds, the VLC also gets monthly allowances. Even their offices are said to be in rather good condition when compared to those of the VG offices, thanks to the support from MIMP. The VEU, on the other hand, interacts closely with park rangers, and usually monitors malpractices in the marine environment. The MIMP management has supported the VEUs with bicycles, hi-fi radio transmitters, and other gadgets to facilitate their work, which has enhanced enforcement practices around the MIMP area. However, VEU members seem to regard enforcement activities more as an annoying duty, rather than an essential element for the management and conservation of resources.

It is recommended²⁵⁰ that villages outside the MIMP boundaries should also be included in the management arrangement through liaison committees. While, they are outside the MIMP, they have been also affected (denied and reduced access to the fishing area especially in special use zone) and are in turn affecting the MIMP through poaching in protected areas and use of illegal gears. It has further been argued that involving these villages in the management arrangement will in the long run provide a broad-based and inclusive participatory management of fisheries resources hence fulfilling the conservation objective.

²⁴⁸ Village Liaison Committees responsibilities are to keep records of the meetings, provide information on resources issues, advises warden and to serve as a community development and monitoring assistants and they report to the village council.

²⁴⁹ Mwaipopo R, 'The social dimensions of marine protected areas (MPAs): A case study of the Mafia Island Marine Park in Tanzania', *Samudra monograph*, International Collective in Support of Fishworkers, Chennai, India, 2008.

²⁵⁰ January, M. and Ngowi, H.P. (2010) *Untangling the Nets: The Governance of Tanzania 's Marine Fisheries*. South Africa

BMUs in fisheries and VG committees appear to be relatively successful as community based marine resources management institutions, provided they do not become elitists and remain accountable to and more representatives of the local communities. Mechanisms to ensure this need to be put in place by developing clear working terms for these local level governance structures. These should comprise periodic training to improve their skills on marine resources management as well as on governance issues including accountability, transparency and equity.

4.2.2 Enhance public participation

In Tanzania, the actual management of the coastal and marine environment is decentralized. Policies and regulations developed at the national level are typically implemented through district and local governments. Thus, coastal management activities require acceptance and collaboration at the local level for successful implementation. In addition, the implementation of program activities may come under the jurisdiction of a number of different departments.

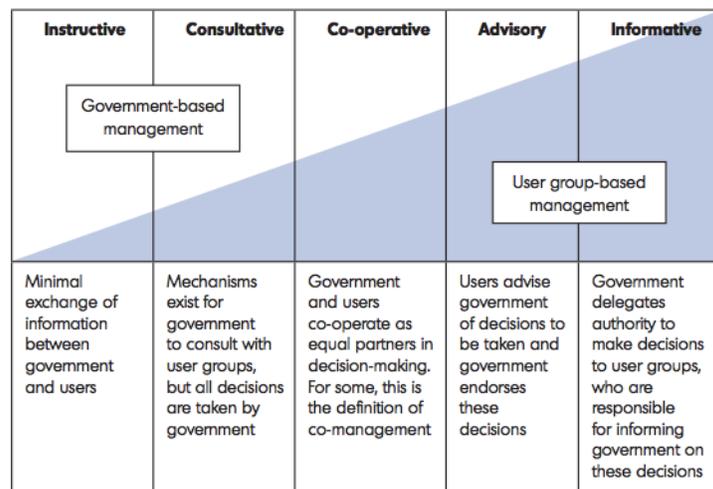


Figure 10: Spectrum of co-management arrangements (Source: Sen S & JR Nielsen)

Public participation has become a keyword in the decentralization debate. Decentralization is not only seen as a means for enhancing the role of lower levels of government, but it is also perceived to create opportunities for the empowerment of the civil society, including local user communities, in managing natural resources through the inclusion of local non-government stakeholders. Thus, it is often stated that decentralized coastal management enables communities to be actively involved in planning and

management²⁵¹. However, decentralization relates to changes within government systems, and does not per se lead to a higher degree of participation of local non-government stakeholders. Public participation can be differentiated into three levels of involvement: 1) passive involvement, where community members are merely informed on decisions taken by the authorities, 2) consultative involvement, where stakeholders are given limited opportunities to express their concerns, and 3) active involvement, which enables participants to take decisions and take over management and planning responsibilities²⁵². In Tanzania active involvement and empowerment of communities in coastal management is at its early stages and fragmented. Decentralization policies have empowered local and regional authorities, while the participation of local ecosystem users, although connected with the decentralization rhetoric, have lagged behind. Capacity building is needed to raise awareness and increase the ability of local users to engage in coastal resource management.

However, it is argued that the active participation of the public requires forms of decentralized planning and management that allow community members to take part in decision making processes²⁵³. Intriguingly, the debate on the evolution of natural resource co-management comes to the same conclusion. Effective participatory management requires a framing role of the central State that needs to be carefully and reliably defined and implemented²⁵⁴. Co-management in that manner facilitates awareness and participation.

However, several problems still exist because of conflicting interests among stakeholders and overlapping jurisdictions over marine resources among government institutions and agencies. Recent surveys in Tanzania with practitioners revealed that there is a need for a strong political will to really

²⁵¹ Larson, A., Ribot, J., 2004. Democratic decentralization through a natural resource lens: an introduction. *The European Journal of Development Research* 16 (1), 1.

²⁵² Govan, H., Harrison, M., Inglis, A.S., Pretty, J.N., Wightman, A., 1998. Best practice in community participation for national parks. *Scottish Natural Heritage Review* 107, 75.

²⁵³ Wever, L., *et al*/2012. Decentralization and participation in integrated coastal management: Policy lessons from Brazil and Indonesia. *Ocean & Coastal Management* 66 (2012) 63-72.

²⁵⁴ Ferse, S., Máñez Costa, M., Schwerdtner, K., Adhuri, D., Glaser, M., 2010. Allies, not aliens - increasing the role of local communities in marine protected area implementation. *Environmental Conservation* 37 (1), 23-34.

²⁵⁴ Sen, S., Nielsen, J.R., 1996. Fisheries co-management: a comparative analysis. *Marine Policy* 20 (5), 405-418.

address the roots of the problems, i.e., conflicts of interest and overlapping jurisdictions among stakeholders, including governments authorities, the coastal communities, and the private sector. Decentralization is not yet apparent as such. The role of LGAs in managing coastal and marine resources is not yet significant in situations where there is no external aid, not only financial but also technical. This is exemplified by the TCZCDP that have failed to extend beyond donor assistance and the programmes transferred to respective LGAs²⁵⁵.

Lessons from other developing coastal States such as Indonesia and Brazil indicate that during the reform-era, coastal management legislation and policies intended to encourage decentralized, participatory, and integrated coastal management. Once in place, decentralization has also created the scope for local participation to achieve management success in both countries. Despite their very different political and cultural contexts, promising examples of community-based and customary coastal management thus exist in both Indonesia and Brazil, where empowered local communities have actively taken part in shaping, and implementing successful management systems that reflect local realities and priorities. Local leaders have played key roles for the success of decentralized coastal management schemes. Their values and capacities were central for the development of institutional arrangements that balance the coordination and networking requirements with the empowerment of local institutions²⁵⁶. Furthermore, in both Indonesia and Brazil, coastal ecosystem users have formulated the wish to regulate the use of natural resources and to be able to exclude outsiders from local resource access²⁵⁷. While national laws do not permit such exclusion, many communities are themselves

²⁵⁵ EcoAfrica Environmental Consultants 2012. An Assessment of Legal and Institutional Framework for Effective Management of Marine Managed Areas in Tanzania. Mainland Tanzania Report. Marine Parks and Reserves Unit, Dar es Salaam, Tanzania. PP 83.

²⁵⁶ Wever, L., *et al*/2012. Decentralization and participation in integrated coastal management: Policy lessons from Brazil and Indonesia. *Ocean & Coastal Management* 66 (2012) 63-72.

²⁵⁷ Glaser, M., Krause, G., 2005. Integriertes Küstenmanagement im föderalen Brasilien: Institutionelle, sektorale und legale Strukturen und die Grenzen der parti- zipativen Planung. In: Glaeser, B. (Ed.), *Küste - Ökologie - Mensch: integriertes Küstenmanagement als Instrument nachhaltiger Entwicklung*. Oekom Verlag, München, pp. 37-54.

²⁵⁷ D'Incao, F., Reis, E.G., 2002. Community-based management and technical advice in Patos Lagoon estuary (Brazil). *Ocean & Coastal Management* 45 (8), 531-539.

developing and attempting to enforce rules to exclude 'outsiders' in order to sustain their surrounding ecosystems for local livelihoods and according to local sustainability agendas. Local priorities such as the fulfillment of ecosystem users' subsistence and equity standards are central to this²⁵⁸. Another example is a national system of marine tenure in Chile, which allocates exclusive user rights and responsibilities to fisher collectives, shows how the empowerment of local users embedded in a pre-existing social network of fishers can trigger a governance shift towards a more sustainable use of marine resources²⁵⁹.

In Tanzania, the bottom-up evolution of coastal management institutions of community based approaches such as BMUs, CMAs, CMPs and CFM for coastal management practices has the potential for participatory coastal management arrangements.

Institutions, which are developed with the active involvement of concerned ecosystem users, can increase the legitimacy of public authority and the local tendency to follow rules²⁶⁰. In order to accommodate the different, potentially conflicting stakeholder interests, it is important to prioritize stakeholder participation in the decision-making processes. This needs to be combined with a high degree of transparency about objectives and processes.

²⁵⁷ Peterson, D., Hanazaki, N., Simões-Lopes, P.C., 2008. Natural resource appropriation in cooperative artisanal fishing between fishermen and dolphins (*Tursiops truncatus*) in Laguna, Brazil. *Ocean & Coastal Management* 51 (6), 469-475.

²⁵⁷ Elliott, G., Mitchell, B., Wiltshire, B., Manan, I.A., Wismer, S., 2001. Community participation in marine protected area management: Wakatobi national park, Sulawesi, Indonesia. *Coastal Management* 29 (4), 295-316.

²⁵⁸ Krause, G., Glaser, M., 2003b. Coastal Dynamics, Socio-economic Structure and Legislation in the Bragança Region (Pará, North Brazil). Rights and Duties in the Coastal Zone Multi-disciplinary Conference. Beijer International Institute of Ecological Economics and Royal Swedish Academy of Sciences, Stockholm, Sweden, pp. 12-14 June 2003.

²⁵⁹ Gelcich, S., Hughes, T.P., Olsson, P., Folke, C., Defeo, O., Fernández, M., Foale, S., Gundersong, L.H., Rodríguez-Sickert, C., Scheffer, M., Steneck, R.S., Castilla, J.C., 2010. Navigating transformations in governance of Chilean marine coastal resources. In: *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, pp. 16794-16799.

²⁶⁰ Gelcich, S., Hughes, T.P., Olsson, P., Folke, C., Defeo, O., Fernández, M., Foale, S., Gundersong, L.H., Rodríguez-Sickert, C., Scheffer, M., Steneck, R.S., Castilla, J.C., 2010. Navigating transformations in governance of Chilean marine coastal resources. In: *Proceedings of the National Academy of Sciences of the United States of America (PNAS)*, pp. 16794-16799.

²⁶⁰ Green, C., Penning-Rowsell, E.C., 1999. Inherent conflicts at the coast. *Journal of Coastal Conservation* 5, 153-162.

For coastal management to become socially more just and environmentally more benign, local communities need to be better informed, capacitated and officially supported so that their clear quest to protect the ecosystems on which their livelihoods depend can become part of wider national and international policy agendas. This requires collaborations between authorities and local users that rely on effective information exchange, the active participation of both government and non-government stakeholders within clear democratic structures, and up and downward accountable leaders²⁶¹. It is argued that coastal management policy tools commonly focus more on formal structures such as governments, while neglecting informal institutions such as perceptions, values, and cultural patterns of behavior and social rules of action²⁶². In the same context, I would argue that improved understanding of stakeholder perceptions and interests as well as of the institutional conditions and dynamics that render them incompatible is needed to improve the prospects of public participation in marine and coastal management.

The existing Fisheries Act and the Marine Parks and Reserves Act in Tanzania mainland do not make provisions for recognition of customary laws and practices. Traditional or customary usage rights practiced by coastal communities that for example exclude outsiders are critical considerations that need to be reflected in the legislation to encourage better management, and voluntary enforcement of the laws. Where these customary laws or practices are consistent with MPAs laws, they form the basis for community support²⁶³.

4.3 EBM opportunities under existing frameworks for coastal and marine resources governance

As previously mentioned, gaps exist in the current ocean and coastal governance, that does not adequately respond to ocean and coastal impacts. Governance challenges to effective management of

²⁶¹ Wever, L, *et al*/2012. Decentralization and participation in integrated coastal management: Policy lessons from Brazil and Indonesia. *Ocean & Coastal Management* 66 (2012) 63-72.

²⁶² Visser, L. 1999. Coastal zone management from the social scientific perspective. *Journal of Coastal Conservation* 5 (2), 145-148.

²⁶³ Ruitenbeek, J., Hewawasam, I., and Ngoile, M. (2005). *Blueprint 2050: Sustaining the marine environment in mainland Tanzania and Zanzibar*. The World Bank, Washington DC., XX pp.

marine and coastal environments, among others include narrow sector-specific laws and institutions that do not allow for consideration of cumulative impacts. Overlapping mandates may lead to manager and/or user conflict or create redundant management systems.

In addition to overlaps, fragmented governance leads to legal and regulatory gaps. From an ecological perspective, management gaps can result in the unintended degradation of resources that do not fall within a particular management regime. From an industry perspective, a gap in management authority can lead to uncertainty and risk for business development and investment, which may prevent both environmentally positive and negative economic activities²⁶⁴.

In order to address the multitude of impacts facing marine and coastal environments and management shortcomings, many scientists, policy-makers, and environmental advocates call for ecosystem-based management (EBM)²⁶⁵. It includes adoption of new ecosystem approaches within the ocean and coastal sectors, as well as cooperative and integrated management among sectors within a given region. Hence, the ecosystem approach (EA) is the key organizing principle, indicated by the 2002 WSSD and the CBD:

*'As a strategy for integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way [...] based on the application of appropriate scientific methodologies [...]. It also recognizes that humans, with their cultural diversity, are an integral component of many ecosystems'*²⁶⁶.

As pointed out the term EBM²⁶⁷ has generally the same meaning as EA, and both terms are often used

²⁶⁴ Crowder *et al* 2006. *Resolving Mismatches in U.S. Ocean Governance*, 313 SCIENCE 617.

²⁶⁴ Juda, et al 2001. *Governance Profiles and the Management of the Uses of Large Marine Ecosystems*, 32 Ocean Development, and International law 43.

²⁶⁵ EBM is an approach to achieving sustainability and ecosystem conservation using a cooperative, ecology-based management system.

²⁶⁶ Convention on Biological Diversity (CBD), 2004. The Ecosystem Approach. CBD. Secretariat, Montreal

²⁶⁷ Agardy, T., David, J., Sherwood, K., Vestergaard, O., 2011. Taking Steps toward Marine and Coastal Ecosystem-based Management: an Introductory Guide. UNEP Regional Seas Reports and Studies No. 189. UNEP, Nairobi.

interchangeably. However, EBM now seems to be the preferred term²⁶⁸. A second trend is the emergence of area-based tools to put the EBM framework into practice²⁶⁹. Various instruments are developed in order to achieve ecological, social and economic objectives in an integrated way, such as marine spatial planning (MSP), the establishment of MPAs or, when in open-ocean waters and deep-sea habitats, ecologically and biologically significant areas (EBSAs), integrated coastal zone management (ICZM), ocean zoning, and ecosystem-based fisheries management (EBFM), also labelled as 'ecosystem approach to fisheries' (EAF)²⁷⁰. The different management tools build upon the same EBM principles, but have different emphasis or scope. Some focus on management measures for one sector (i.e. fisheries in EBFM) or one main objective (protection of ecological values by establishing MPAs or EBSAs). Single sector or single aim measures can only partly meet the EBM objective, while other tools (such as MSP, ICZM and area-based management) employ a cross-sectoral perspective and could serve as full EBM tools²⁷¹.

4.3.1 Embedding the MPAs in Integrated Coastal Management

Several studies on MPA management/governance acknowledged that the effectiveness of MPA management is often inhibited by impacts that originate from outside the park boundaries²⁷².

²⁶⁸ Agardy et al., 2011

²⁶⁸ Curtin, R., Prelezo, R., 2010. Understanding marine ecosystem based management: a literature review. *Mar. Policy* 34, 821-830.

²⁶⁹ Katsanevakis, S., Stelzenmüller, V., South, A., Sørensen, T.K., Jones, P.J.S., Kerr, S., Badalamenti, F., Anagnostou, C., et al., 2011. Ecosystem-based marine spatial management: review of concepts, policies, tools, and critical issues. *Ocean Coast Manage.* 54, 807-820.

²⁶⁹ Crowder, L., Norse, E., 2008. Essential ecological insights for marine ecosystem-based management and marine spatial planning. *Mar. Policy* 32, 772-778.

²⁶⁹ Young, O.R., Osherenko, G., Ekstrom, J., Crowder, L.B., Ogden, J., Wilson, J.A., Day, J.C., Douvère, F., et al., 2007. Solving the crisis in ocean governance: place-based management of marine ecosystems. *Environment* 49, 20-32.

²⁷⁰ Agardy et al., 2011; Young et al., 2007

²⁷¹ Agardy et al., 2011; Young et al., 2007

²⁷² Gibson, J., McField, M. and Wells, S. 1998. Coral reef management in Belize: an approach through integrated coastal zone management. *Ocean and Coastal Management* 39, pp. 229-244.

²⁷² Balgos, M.C. 2005. Integrated coastal management and marine protected areas in the Philippines: concurrent developments. *Ocean and Coastal Management* 48, pp. 972-995.

Consequently, viewing MPAs in isolation from external impacts is inappropriate. In addition, other scholars suggested that the benefits that MPAs can deliver are related to the effectiveness of the management outside of the MPAs²⁷³. Similarly, related affirmations are applicable to MIMPs as well. As previously mentioned (Section 4.1.1), negative impacts from terrestrial sources (i.e. sedimentation resulting from upland deforestation in watershed catchments areas) reduce visibility in and attractiveness of the coral waters. In addition, poor/unavailable wastewater management from hotels and residential houses may also lead to faecal coliform bacteria proliferations and may cause eutrophication. Unplanned tourism will also place demands on natural resources, and compete with villagers for land, potable water, and sea space (conflicts between fishers and divers).

Prior to the establishment of the marine park, the management of Mafia Island's coastal and marine resources was inadequate and issues such as dynamite fishing and live coral harvesting were not addressed. Since the park was established, environmental education, patrolling and a system of fishing permits have resulted in a reduction of dynamite fishing and other unsustainable fishing practices inside the park boundaries. However, due to a lack of enforcement capacity, outside the park boundaries dynamite fishing and illegal fishing (without fishing permit) is continuing. Reefs outside the park when surveyed for coral cover and reef health were found to be degraded with dominant sand and rubble substrate. Hard coral cover was minimal and only a few fish and invertebrate species had remained. However, according to Mafia residents, fishers from outside are responsible for illegal activities as highlighted in previous section. It thus seems that the debilitating influence of these land-based activities and other outside influences from Mafia Island need to be considered within a more comprehensive, overarching ICZM plan in order to mitigate impacts and better achieve conservation. ICZM objectives

²⁷² Leslie, H.M. and McLeod, K. 2007. Confronting the challenges of implementing marine ecosystem-based management. *Frontiers in Ecology and the Environment* 5(10), pp. 540-548.

²⁷³ Christie P., White A. and Deguit E. 2002. Starting point or solution? Community-based marine protected areas in the Philippines. *Journal of Environmental Management* 66, 441-454

²⁷³ Cicin-Sain, B. and Belfiore, S. 2005. Linking Marine Protected Areas to integrated coastal and ocean management: a review of theory and practice. *Ocean and Coastal Management* 48: 847-868.

are to:

"[A]ttain sustainable development of coastal and marine areas; to reduce vulnerability of coastal areas and their inhabitants to natural hazards; and to maintain essential ecological processes, life support systems and biological diversity in coastal and marine areas....[I]t analyses and addresses implications of development, conflicting uses, and interrelationships between physical processes and human activities and promotes linkages and harmonization among sectoral coastal and ocean activities²⁷⁴."

Therefore, based on ICZM goals, MPAs and ICZM are indeed mutually supportive to achieve ecological, social and economic objectives in an integrated way. MPAs is a tool that can be used to boost ICZM capacity while, as hinted before, the opposite is also true. MPAs are unlikely to be viable when situated in coastal settings, where the prevailing developmental vision widely deviates from MPA objectives and/or neglects approaches designed to alleviate negative environmental impact. ICZM seeks to prevent or treat this situation when it may occur and hence acts as a complement to MPA operation.

Following the above explanation, applying ICZM and MPAs together, a shift from sector-based policies to shared efforts and responsibilities of governments, market parties, local communities, and NGOs can be achieved on multiple levels. In negotiations, these actors try to find integrated solutions for problems caused by conflicts concerning incompatible uses between sectors and between resource users and marine ecosystems.

ICZM in Tanzania mainland receives important incentive from a number of policies and regulations. Such policy drivers are environmental legislation, legislation for energy, fisheries regulation, water, and land and strategies for cross-sectoral and integrated management such as NICEMS. In addition, the Environmental Impact Assessment (EIA) and Strategic Environmental Assessment (SEA) also have

²⁷⁴ Cicin-Sain, B. and Belfiore, S. 2005. Linking Marine Protected Areas to integrated coastal and ocean management: a review of theory and practice. *Ocean and Coastal Management* 48: 847-868.

important implications for ICZM, as they require EIA to be undertaken for individual projects or development programmes and plans.

ICZM plans necessitate that integration take place within a number of different realms to be effective²⁷⁵.

These dimensions of integration include:

- i. *Integration among sectors*- bringing together all sectors that operates within a coastal area or beyond to manage human and economic activities/conflicts and work towards common goals. In Mafia Island intersectoral ICZM would involve fisheries, forestry, tourism industry, the clean water and sewage authority, the districts and planning agency (land allocation for hotel development), MPA managers, the fishery industry as well as artisanal fishers, and community leaders among others. An example is the development of an action and implementation plan concerning illegal fishing inside and outside the park boundaries or a planned cooperation with MIMP or other sectors concerning tourism management or development. Or the development of an action plan that addresses sustainability issues and conflict resolution. As mentioned earlier, fishers continue to use illegal gear in spite of clear restrictive regulations within the park boundaries. Efforts to include market actors and to analyse their impacts on fish populations and ecosystems have also to be included in the planning process.
- ii. *Integration among levels of government*- In Mafia Island this would mean better interaction between the local village councils, the regional and district government and the central government of Tanzania mainland. The integration will offer a direct linkage among sector institutions (especially at the ministerial level). It will also entail more clearly the responsibilities at each governmental level and shall ground these in suitable legal frameworks in order to remove overlapping and un-coordination.
- iii. *Integration between land and water elements of the coastal zone*- This would involve

²⁷⁵ Sorensen, J. (1997) National and international efforts at integrated coastal management: definitions, achievements, and lessons. Coastal Management 25, pp. 3-41.

connecting the issues that arise across the ocean-coastline-terrestrial continuum and adopting a more holistic methodology to deal with them. Example, developing watershed management plan that overtime will solve the problem of water quality and sedimentation. In Mafia Island the whole island and the catchment areas will have to be taken into consideration in the spatial extent of the ICZM plan. The nature-synchronous approach to development is especially appropriate for the coastal environment (the recognition of protected areas along the wetland areas, Rufiji Delta is a recognised Ramsar site and potential exists for World Heritage designation for parts of the area in Kilwa and Mafia Island these are good example of this approach).

- iv. *Integration among disciplines:* Bridging the knowledge and management gap will emphasize that the inclusion of all means of scientific (via applied scientific investigations), cultural, traditional, political and local ecological knowledge need to be accounted for and integrated.
- v. *Integration between nations:* where discourse between States is needed to resolve transboundary issues affecting coastal area management and open ocean at large.

Hence, ICZM plan is needed in Mafia Island because its development is driven by coastal activities and more importantly almost half of the island is designated as a marine park. Lessons learned and experiences from Bagamoyo district that has embarked on a process of ICM action planning with support from the Tanzania Coastal Management Partnership (TCMP) can be scaled up and applied to Mafia Island. The District has developed a collaborative fisheries management (CFM) plan for seven of the nine coastal villages with the goal to: rebuild fish stocks and associated habitats to levels that allow for increased and sustainable fish catches by artisanal fishers, and that results in improved income for artisanal fishers in the Bagamoyo District²⁷⁶. Furthermore, success and failure of the previous TCZCDP has to be accounted for during planning.

²⁷⁶ Torell, E., A. Mmochi, and P. Spierling, 2006, *Bagamoyo Governance Baseline* Coastal Resources Center, University of Rhode Island. pp. 24.

Addition information can be elicited from international experiences, such as Belize²⁷⁷ and Barbados²⁷⁸, with respect to developing the institutional structure necessary to coordinate stakeholders and enable meaningful discourse and conflict resolution.

4.3.2 Ecosystem Based Management opportunities under existing laws

This section examines some of the key national environmental laws, policies, or strategies that may enable implementation of EBM concepts in coastal and marine environment. Based on existing EBM definitions, EBM identified goals and actions

Goals:

- i. Sustainability
- ii. Conservation and Protection to Ensure Ecological Health

Actions to achieve goals:

- i. Achieve Balance among Human and Ecological Values
- ii. Coordinate and Cooperate
- iii. Understand the Science so as to Make Informed Decisions
- iv. Define Success and be Accountable
- v. Be Adaptive

NICEMS 2003 is a national strategy that calls for participation of all relevant stakeholders to take actions to properly manage the coastal environment, many of which align with the actions to achieve ecosystem approach in planning and implementation issues. It promotes sustainable use of coastal and marine resources and can be used as guide for sector specific and cross-sectoral policies on coastal and marine environment.

²⁷⁷ Cho, L. 2005. Marine protected areas: a tool for integrated coastal management in Belize. *Ocean and Coastal Management* 48, pp. 932-947.

²⁷⁸ Atherley, K.A., Smith, D.A. and Nurse, L.A. 1993. An integrated coastal zone management programme for Barbados. *Coastal Zone '93: Proceedings of the Eighth Symposium on Coastal and Ocean Management*, pp. 2653-2667, New Orleans, Louisiana, 19-23 July 1993.

The challenge now is for the government to provide monetary incentives for coastal regions/districts LGA to set up coastal management programs that consider a multitude of ocean and coastal uses, in partnership with the people who depend on the resource base for their livelihood, to put into operation and effectively apply these broad strategies guidelines both locally, in areas facing significant coastal issues and nationally, through the national development plan.

The DoF under the MLFD manages the Tanzanian mainland coastal and territorial sea fisheries pursuant to the Fisheries Act No 22 of 2003. While limited in scope to fisheries, the Act's could provide some opportunity to conduct area-based EBM in critical habitat areas acting together with Marine Park and Reserve Act and LGA by laws. A critical habitats area here refers to waters and substrate necessary to marine organisms for spawning, breeding, feeding, or growth to maturity. It should be noted, however, that the current fisheries management system is often criticized for its single-species focus and for its failure to achieve sustainable populations for many fisheries and having no regulations that would provide for the protection of critical habitats and endangered species and prevention of pollution of territorial waters. One of the purposes of the EMA 2004 is "to promote the protection of marine environment" in the appraisal of projects conducted under national permits, licenses, or other authorities that affect or have the potential to affect such habitat such as oil and gas exploration that is undertaking in Southern part of the country. DoF is to coordinate with other government agencies regarding conservation and protection of marine environment in areas where these activities are being conducted. In addition, the Act requires other government agencies and NGOs to consult with DoF or NEMC for actions that may adversely affect marine environment. This enables fisheries and environment managers to evaluate whether actions taken by other sectors will adversely impact critical fishery areas, and to potentially evaluate cumulative impacts based on multiple agency actions in marine and coastal environment. In addition, moving toward EBM the extension will have to go beyond and include management measures in the fisheries management plans (FMPs) to conserve target and non-target species and habitats, considering the variety of ecological factors affecting fishery populations.

Recognize humans as part of ecosystem, integrate values, and balance needs: Principally, the Fisheries Act No 22 of 2003 and Marine Park and Reserve Act are laws to manage human use of the marine environment.

Reconcile spatial scales (temporal, geographic, political): EMA 2004 and Fisheries Act No 22 of 2003 creates a local management system through the creation of VEMC and BMU that are tasked with managing environment and fisheries respectively in their areas of jurisdiction. Local government, as previously stated can take advantage of these two provisions, designate and create the possibility of area-based management in critical areas.

Science-based management: The Fisheries Act No 22 of 2003 creates a science-based assessment and planning process with the help from research institute such as Tanzania Fisheries Research Institute, UDSM and IMS aligning with the science-based management components of EBM. An example of specific fishery management plans calls for use of "best science available" in managing that fishery. The Act requires the development of a strategic plan for research that includes;

"Biological research concerning the abundance and life history parameters of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, the impact of wetland and estuarine degradation, and other factors affecting the abundance and availability of fish."

The strategic plan for research, therefore, has the capacity to take a holistic approach to examining the environment in which that fisheries are managed.

Cooperative management: EMA 2004 provisions may enable DoF, MPRU and LGAs led cooperative management of marine habitats essential for the spawning, breeding, feeding, and growth of managed marine species. While these areas are designated based on the different purposes whether conservation or for fisheries enhancement, the management of the marine and coastal habitats could also be ecosystem-based in approach.

Participatory governance: The Fisheries Act No 22 of 2003 and Marine Park and Reserve Act provides opportunities for public input in developing FMPs, GMPs, and research plans. Meeting with stakeholders

are conducted and public hearings when developing and amending plans.

Standards and accountability: The DoF under the Fisheries Act No 22 of 2003 is tasked with establishing guidelines for the identification and establishment and protection of fish and its environment. FMPs are to minimize adverse effects caused by fishing and are to identify other actions to encourage conservation and enhancement of such habitat. One of the major challenges for DoF has been to develop specific fisheries management plans for at least key commercial species or group of species.

Adaptive management: DoF is to respond to changing information and conditions based on the health of the fishery or based on the behavior of the resources users. If evidence demonstrates that fisheries are overfished, the DoF must respond by stopping fishing or amending the FMPs for that particular fishery to stop overfishing and rebuild the stocks. For example the closing of industry prawn fishery in Tanzanian mainland water due to the decline in the prawn stock size²⁷⁹

4.3.3 Conclusions

Several previous reports²⁸⁰, have identified most of the governance challenges facing coastal and marine resources including MPAs in Tanzania. And have come with different recommendations, some have advocate for creation of network of MPAs (done) or formation of national ocean policy that would

²⁷⁹ Bwathondi, *et al*/2002. Investigation of prawn abundance and distribution in Bagamoyo and Rufiji areas. Report submitted to the Ministry of Natural Resources and Tourism. Dar es Salaam, Tanzania

²⁷⁹ Mwakosya, C. 2004. Assessment of Tanzanian prawn fishery resources, Department of Biology. University of Bergen, Norway, 83pp.

²⁸⁰ Yona, G. 2011. Analysis of Tanzania's legislation in the context of the international law relating to the protection and preservation of endangered marine species. United Nations Nippon Foundation Fellowship.

²⁸⁰ Akwilapo, F. 2007. A comparative study on marine protected areas between Australia and Tanzania The Nippon Foundation Fellow.

²⁸⁰ EcoAfrica Environmental Consultants 2012. An Assessment of Legal and Institutional Framework for Effective Management of Marine Managed Areas in Tanzania. Mainland Tanzania Report. Marine Parks and Reserves Unit, Dar es Salaam, Tanzania. PP 83

²⁸⁰ Daffa, J. 2011. Policy and governance assessment of coastal and marine resources sectors within the framework of large marine ecosystems for ASCLME in Tanzania.

cater for all issue pertaining marine resources management of both Zanzibar and Tanzania mainland and EEZ in general etc.

This study confirms the findings of previously scholars, however I argue that the existing governance framework has a potential to offer a more sustainable use of marine and coastal resources exploitation if political will is enhanced and other incentives are properly addressed. Having a network of MPAs is not an answer if individual MPA is not effectively managed and does not fully receive support from local resources users. More over this study highlighted some mechanism on how the existing policies and legal frameworks can be used to improve the situation on the ground.

In developing country like Tanzania where coastal people depend heavily on marine and coastal resources to sustain their livelihoods any effort on policy development/implementation that are to be applicable in protecting and preserving these areas have to go hand in hand with programme for community development. More importantly, these communities development programme have to be sustainable and have to be there for a long term not a short term. Because changing people behaviour is not something that you can do in five or ten -year period. It is well known and documented that most of the initiatives for MPAs designation or coastal and marine conservations in developing nations usually comes from government intervention or from donor agencies and very few or negligible are initiated by local or resources users. These projects tend to be unsustainable because once the donor agency withdraw everything goes back to zero. What is needed is to develop ways in which poverty can be tackled. Providing education, good and quality social services infrastructures such as hospital etc. as well as offering local people alternative livelihood that will be more payable than fishing is big challenge that the government and donor agencies have to work on.

Also conservation effort could also start far away from the area for examples in order to reduce illegal fishing in Mafia Island; businessmen who reside in Dar es Salaam or outside Mafia Island who are said to be the one who supplies illegal fishing net to the area have to be taken care off. We need to solve the root cause and not the problem. Based on the case study the need to safeguard the environment is being affected by high demand of fish and market opportunity outside the areas as well as poverty

among rural coastal people. Moreover, this is happening all over the coastal areas in Tanzania mainland not only in Mafia Island. Hence, these market opportunities should not be designed to increase total fish catch instead to improve inefficiency in market system. Market inefficiency here refers to economic inequalities that exist between stakeholders such as fishers and middlemen or fishers and boat/fishing gears owners. Therefore improving market inefficiency of current market networks to maximize incomes of local fishers and traders may present an opportunity to enhance the current resources management strategies.

In Mafia Island the prospect of tourism industry to develop is high but for this industry to have a positive impact on local community the mechanism in place has to be improved so that economic return gained from tourism or from increased fish catches due to conservation effort have to be channelled into improving people lives.