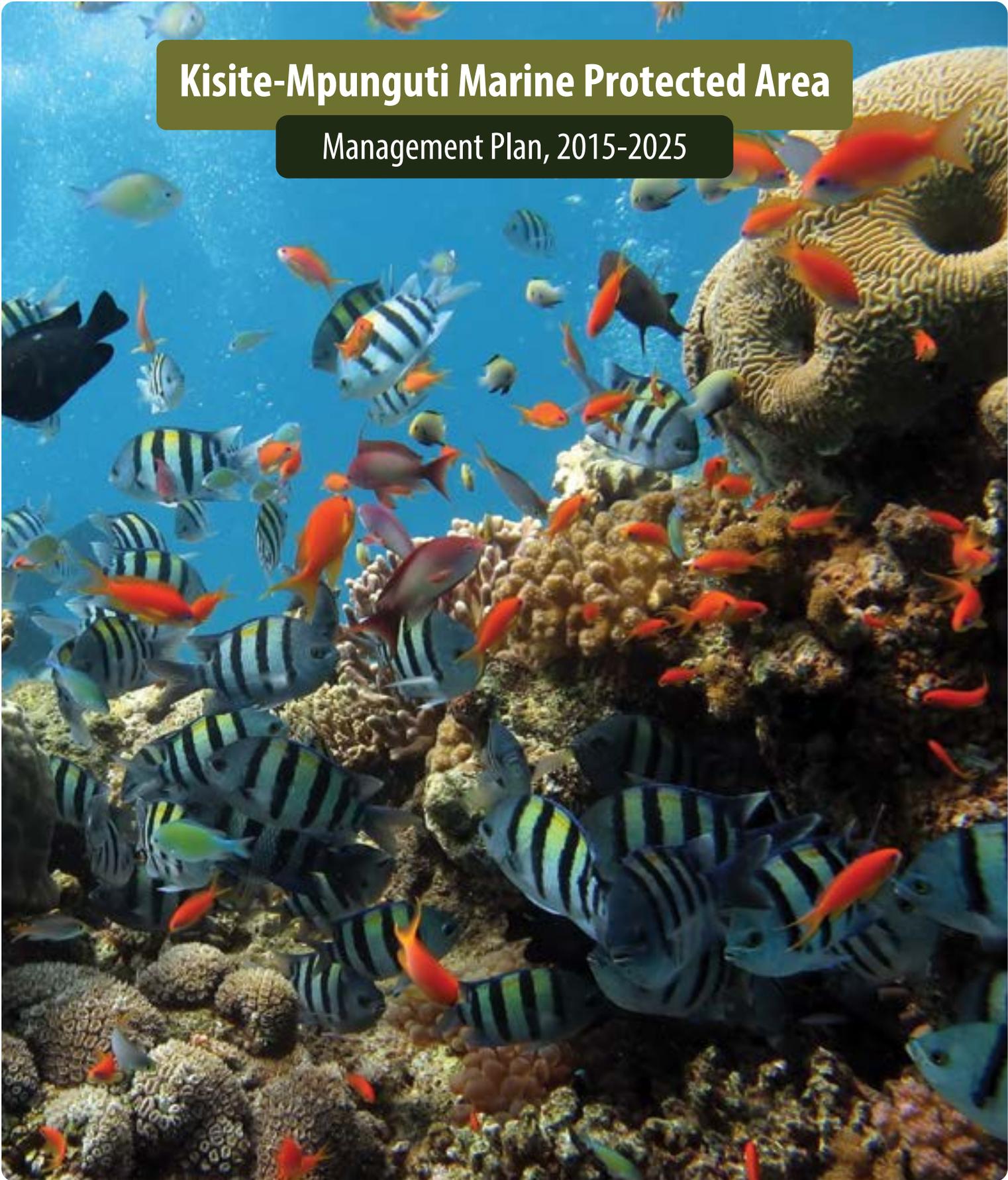


Kisite-Mpunguti Marine Protected Area

Management Plan, 2015-2025





Kisite-Mpunguti Marine Protected Area Management Plan, 2015-2025

Planning carried out by

KMMPA Managers

KMMPA Stakeholders

KWS Planning & Environmental Compliance Department

In accordance with the

KWS PROTECTED AREAS

PLANNING FRAMEWORK

Acknowledgements



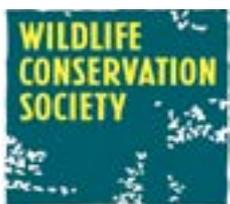
The Kisite-Mpunguti Marine Protected Area (KMMPA) Management Plan was developed through a participatory planning process involving a cross section of KMMPA stakeholders, under the coordination of a Core Planning Team that comprised of representatives from the marine protected area managers, KWS HQ planners and Coast Conservation Area Scientists and managers.



Initial funding for the planning process was provided by the Regional Programme for the Sustainable Management of the Coastal Zones of the Countries of the Indian Ocean (ReCoMap) with co-financing from KWS.



Plan review was carried out from December 2014 to March 2015 with funding support from the World Bank-funded Kenya Coastal Development Project (KCDP).



Wildlife Conservation Society (WCS) provided technical assistance through provision of marine research information and production of geographic information presented in the plan.

Approval Page



The Management of Kenya Wildlife Service has approved the implementation of this management plan for the Kisite-Mpunguti Marine Protected Area

On behalf of the KENYA
WILDLIFE SERVICE

William K. Kiprono
Director General
Date : 26.06.2015

Executive Summary

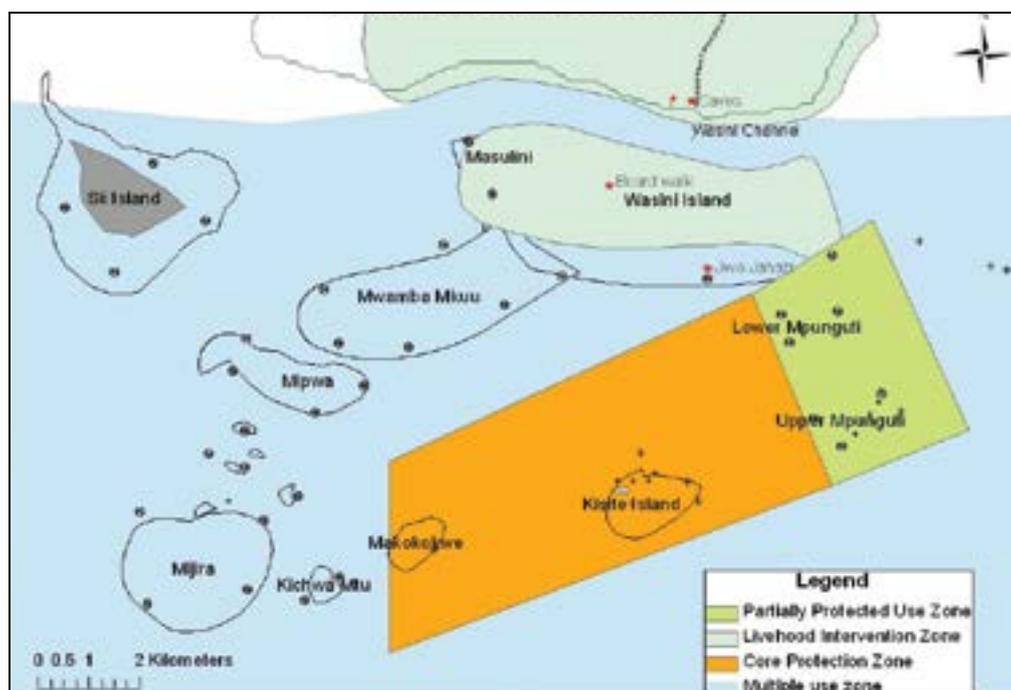
Kisite-Mpunguti Marine Protected Area (KMMPA) comprises of the Kisite Marine National Park and Mpunguti Marine National Reserve. Areas adjacent to the KMMPA have also been included in the planning areas as most of the threats to the MPA's ecological integrity emanate from these areas. The KMMPA and adjacent areas have exceptional resource values in terms of biodiversity such as sea turtles, whales, dolphins, dugongs, coral reefs, coconut crabs and the mangrove ecosystem; scenic values such as sandy beaches, River Ramisi estuary, Kisite, Mpunguti and Sii islands, Jiwe Mtu and Jiwe Jahazi; social values such as tourism, Wasini board walk and fishing; and cultural values such as Shimoni Slave Caves, historical ruins and war graves.

The KMMPA management plan has been formulated to provide a long-term vision and day-to-day guidance required for conservation and utilization of resource values found in the area. The plan has five key components:

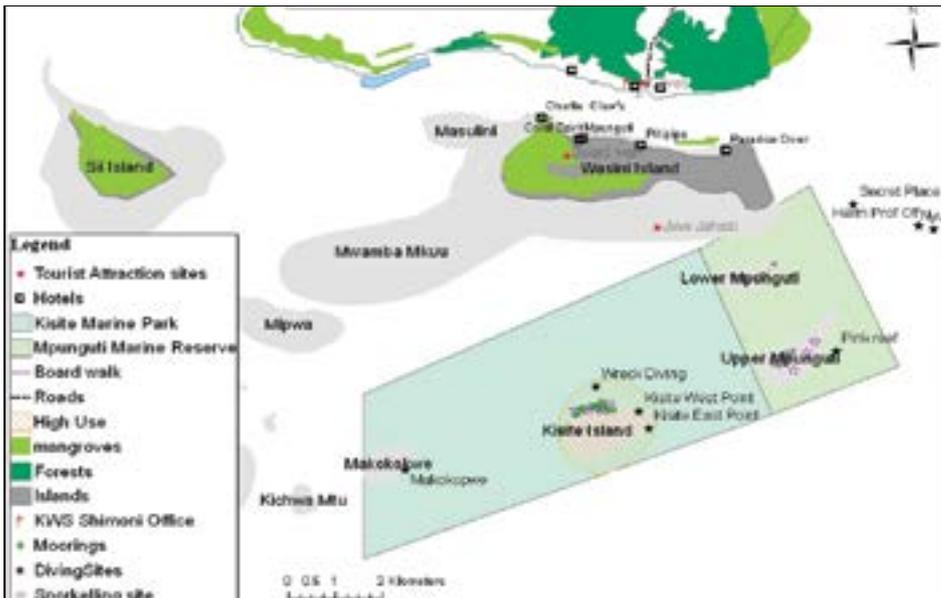
- Plan Foundations;
- Zonation Scheme;
- Management Programmes;
- Plan monitoring; and
- 3-Year activity plans

Plan Foundations: The plan foundations set out the purpose of the KMMPA which managers will aim to achieve. It describes the exceptional resource values that management will conserve and describes the planning process, plan structure and participation in planning.

Zonation Scheme: The Zonation Scheme is a management tool that allows managers to set different goals to be achieved in different parts of the MPA. There are two types of zoning applied in the KMMPA: Resource Use zoning and Visitor Use Zoning. The Resource Use Zones facilitate the integration of human activities and conservation goals with an aim of reducing resource use conflict. The Visitor Use Zones promote different types of visitor activities in different parts of the KMMPA.



KMMPA Resource Use Zones



KMMPA Visitor Use Zones

Management programmes: The management plan is divided into five programmes that address conservation and administration issues in the KMMPA and adjacent areas:

- **Ecological Management Programme**

The purpose of the Ecological Management Programme is to enhance biodiversity conservation by maintaining ecological integrity through restoration and protection of key ecosystem components. The management objectives that will be pursued to achieve this include restoration and protection of rare, endemic and threatened species; ensuring that marine ecosystems are maintained in a healthy functioning state; and promoting understanding and appreciation of marine biodiversity. Priority management actions under this management programme include:

- Map and conduct surveys on turtle nesting sites and habitat utilization;
- Develop a research and monitoring programme on various aspects of sea turtle, dolphin and whale for management purposes;
- Control access to critical habitats (coral reefs, sea grass and mangrove forest); and
- Conduct research on restoration and rehabilitation of critical habitats.

- **Tourism Development and Management Programme**

This programme aims to develop a distinct tourism product, based on the unique marine biodiversity, scenery and local culture that offer a memorable experience to visitors. The management objectives that will be implemented to achieve this aim include: ensuring there is adequate tourism support infrastructure and equipment; diversifying tourism activities and attractions; improving KMMPA's tourism marketing; and improving visitor administration and management. Priority actions under this management programme include:

- Upgrade and maintain Shimoni cottages;
- Develop and maintain nature trails;
- Develop and update a tourist map, guide book and brochure; and
- Establish a KMMPA tourism forum



- **Fisheries Resource Management Programme**

This programme aims at ensuring that KMMPA's fisheries resources are sustainably managed in collaboration with stakeholders to continue supporting the national economy and local livelihoods. This will be achieved through realization of the following objectives: strengthening regulatory frameworks and enforcing surveillance capabilities to regulate fishing; enhancing management linkages between research and fishery; enhancing stakeholder participation in fishery management; developing and implementing alternative sources of livelihood to fisher folk; and assessing impacts on emerging issues in fisheries resources. Priority actions under this management programme include:

- Lobby for the gazettelement of more effective MPA regulations;
- Develop and implement MoU between Ministry of Agriculture Livestock and Fisheries and KWS to manage areas of overlap within MPA;
- Establish KWS research sub-station at KMMPA;
- Support establishment of community managed marine protected areas; and
- Explore the impacts of emerging fishing methods on fish stocks

- **Community Partnership and Conservation Education Management Programme**

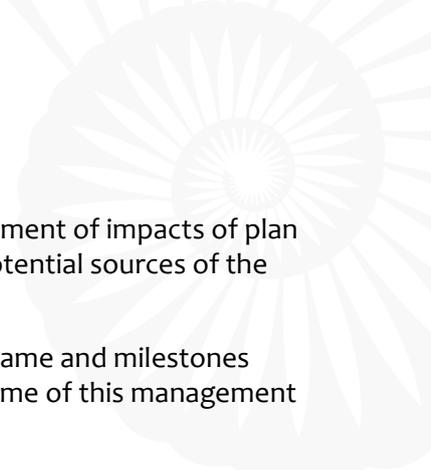
The purpose of this programme is to empower local communities to actively participate in sustainable conservation and management of natural resources at the KMMPA. It aims at ensuring: enhanced community participation in natural resources management; enhancing resource-use and mitigating human-wildlife conflict; and improving awareness of the significance of conserving marine resources. The priority actions under this programme include:

- Support establishment of community based tourism enterprise projects;
- Control access of migrant fishermen to Kenyan fishery;
- Support establishment and operationalization of a Community Wildlife Association;
- Organize outreach and awareness creation activities in the KMMPA community areas;
- Construct a student hostel at KWS Shimoni offices; and
- Construct and equip a resource centre at KWS Shimoni offices.

- **MPA Operations and Security Management Programme**

The purpose of this programme is to effectively and efficiently support the delivery of the other programmes set out in this plan. The programme aims to: strengthen human resource capacity; establish strategic collaborative partnerships; develop and maintain infrastructure to support MPA management; and strengthen MPA security operations. Priority actions under this programme include:

- Liaise with KWS Human Capital Department for deployment of staff with skills in marine conservation and management;
- Strengthen the KMMPA Management Committee;
- Develop and implement initiatives that will enable effective management of Diani Chale Marine National Reserve;
- Construct and maintain MPA infrastructure (jetties, office and residential buildings, visitor information center);
- Supply fresh water to the MPA Park Headquarters;
- Improve communication within the KMMPA;
- Mark and maintain MPA boundaries and acquire title deeds for all KWS Plots in KMMPA adjacent areas; and
- Control poaching in collaboration with stakeholders.



Plan Monitoring: The plan monitoring framework provides a framework for the assessment of impacts of plan implementation. It includes easily quantifiable indicators for assessing impacts, and potential sources of the information required.

Three-year activity plans: The activity plan details the activities, responsibilities, timeframe and milestones necessary for the delivery of each management action over the first three-year timeframe of this management plan.

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Acronyms

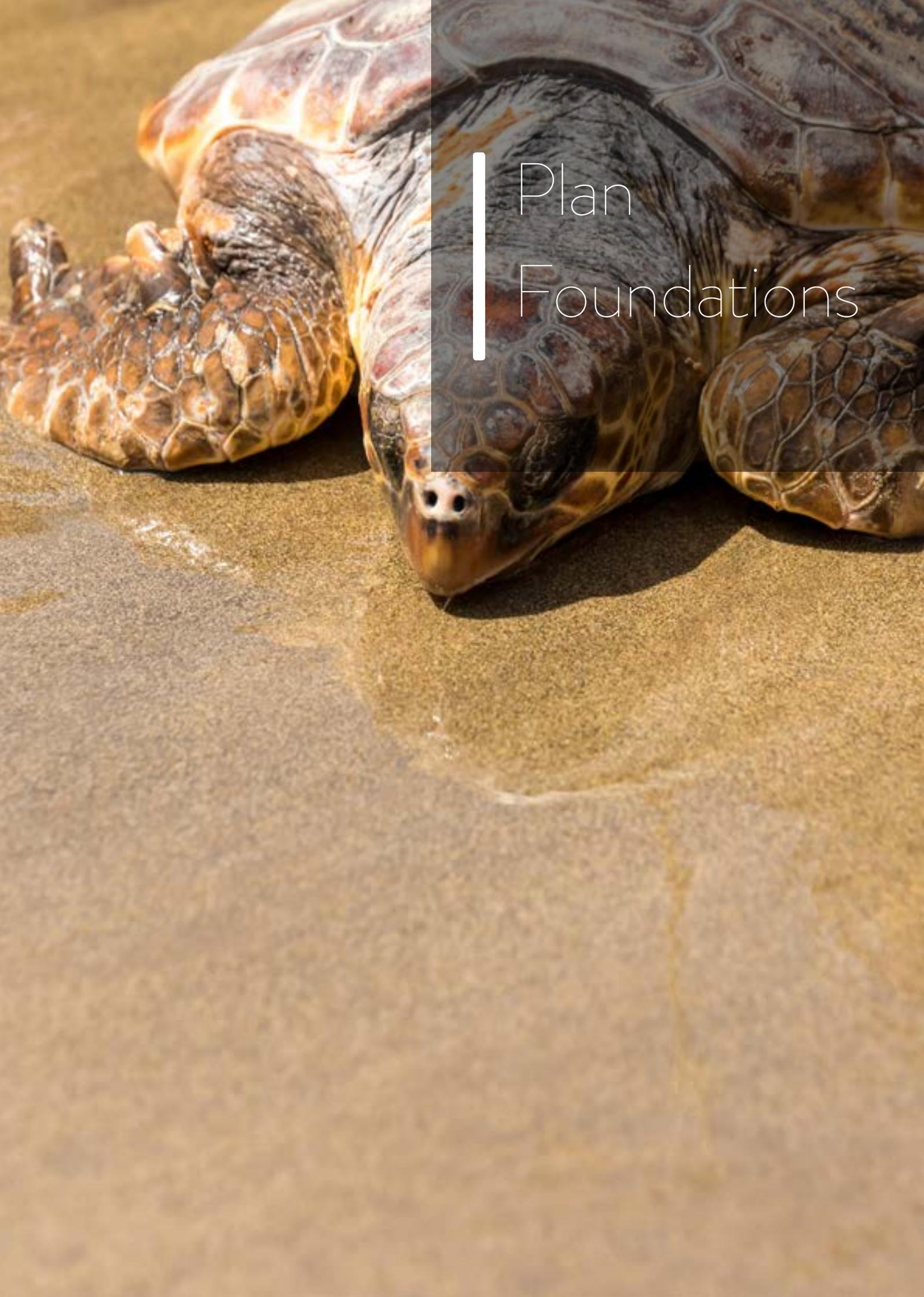
ASK	Agricultural Society Of Kenya
BOA	Boat Owners Association
BCD	Buoyancy Controlled Device
BMU	Beach Management Unit
BQs	Bill of Quantities
CAP	Conservation Action Planning
CBOs	Community Based Organizations
CCA	Coast Conservation Area
CCF	Community Consultative Forum
CDF	Constituency Development Fund
CFA	Community Forest Association
CITES	Convention On International Trade In Endangered Species
CMMPA	Community Managed Marine Protected Areas
CMS	Convention Migratory Species
CORDIO	Coastal Ocean Research And Development Organization
CPT	Core Planning Team
CPZ	Core Protection Zone
DC	District Commissioner
DSTv	Digital Satellite Television
DVD	Digital Video Disc
EA	Environmental Audit
EACFE	East African Coastal Forests Eco-Region
EAWLS	East African Wild Life Society
EIA	Environment Impact Assessment
EMCA	Environmental Management And Coordination Act
ERVs	Exceptional Resource Values
EWG	Expert Working Group
FADs	Fish Aggregation Devices
FiD	Fisheries Department
GIS	Geographical Information Systems
GPS	Global Positioning System
GVI	Global Vision International
HQ	Headquarters
HUZ	High Use Zones

Acronyms

HWC	Human Wildlife Conflict
IBAs	Important Bird Areas
ICRI	International Coral Reef Initiative
ICZM	Integrated Coastal Zone Management
IGAs	Income Generating Activities
IOC	Indian Ocean Commission
IUCN	International Union for Conservation of Nature
JICA	Japan International Cooperation Agency
KCDP	Kenya Coastal Development Project
KEAs	Key Ecological Attributes
KeRRA	Kenya Rural Roads Authority
KESCOM	Kenyan Sea Turtle Conservation Committee
KFS	Kenya Forest Service
KMA	Kenya Maritime Authority
KMFRI	Kenya Marine Fisheries Research Institute
KMMPA	Kisite Mpunguti Marine Protected Area
KMNP	Kisite Mpunguti National Park
KRB	Kenya Roads Board
KTB	Kenya Tourism Board
KATO	Kenya Association Of Tour Operators
KWS	Kenya Wildlife Service
LATF	Local Authority Transfer Funds
LIZ	Livelihood Intervention Zones
LUZ	Low Use Zones
MFTS	Manyani Field Training School
MMNR	Mpunguti Marine National Reserve
MALF	Ministry of Agriculture Livestock and Fisheries
MoT	Ministry of Transport
MOU	Memorandum Of Understanding
MPA	Marine Protected Area
MUZ	Multiple Use Zones
NEMA	National Environment Management Authority
NEPAD	New Partnership for Africa's Development

Acronyms

NGOs	Non Governmental Organizations
NIS	National Intelligence Service
NMK	National Museums Of Kenya
OCS	Officer Commanding Police Station
PAC	Problem Animal Control
PAPF	Protected Area Planning Framework
PRA	Participatory Rural Appraisal
RBI	Resource Base Information
RECOMAP	Regional Programme for the Sustainable Management of the Coastal Zone of the Countries of the Indian Ocean
RUZ	Resource Use Zones
SOQ	Staff Officer Quarter
SRS	Senior Research Scientist
SSC	Shimoni Slave Caves
TCA	Tsavo Conservation Area
TIU	Ticket Inspection Unit
TNC	The Nature Conservancy
TOR	Terms Of Reference
TV	Television
UNEP	United Nations Environment Programme
VHF	Very High Frequency
VIPs	Very Important Persons
VUZ	Visitor Use Zones
WCK	Wildlife Clubs Of Kenya
WCS	Wildlife Conservation Society
WG	Working Group
WIOMSA	Western Indian Ocean Marine Science Association
WRMA	Water Resource Management Authority
WWF	World Wildlife Fund



Plan
Foundations

The Plan

The KMMPA management plan (2015-2025) is the overarching management document for the KMMPA. The plan contains guiding principles, management objectives and actions that further the purposes for which the MPA is established under the Wildlife Conservation and Management Act, 2013.

KWS and KMMPA stakeholders completed the review of the KMMPA Management Plan (2011) in March 2015. The review was an opportunity to consider existing management approaches and actions, the future direction of management in the MPA, and provided an opportunity to evaluate the success in implementing the previous Management Plan.

The review is a requirement of the Wildlife Conservation and Management Act, 2013, which prescribes that PA management plans, should be prepared in consultation with Protected Area (PA)-neighbouring communities. In addition, the Protected Areas Planning Framework (PAPF), the KWS management planning standard, prescribes a plan review after every three years.

The plan review process involved a plan scoping exercise, drafting the management plan, and endorsement and approval of the management plan by stakeholders and KWS respectively. A plan scoping workshop was held to identify key values of the MPA and how these values should be conserved and managed. In addition, issues and problems hindering achievement of the MPA's conservation objectives as well as key stakeholders in the area were also identified. Further, each of the plan's five management programmes was reviewed by small working groups to identify gaps as well as assess implementation status of various management actions. Information generated during the scoping meeting was incorporated into a draft plan, which was presented to stakeholders for endorsement. The KMMPA Management Plan (2015-2025) was endorsed by KMMPA stakeholders on 29th January, 2015 at a plan endorsement meeting held at KMMPA Headquarters, Shimoni. Thereafter, the plan was approved for implementation by the KWS Director General on 26th June, 2015 and subsequently gazetted by the Cabinet Secretary for Environment and Natural Resources through gazette notice No. 1895 of 24th March, 2016.

The Planning Process

As mentioned above, the KMMPA management plan has been developed in line with the KWS Protected Areas Planning Framework (PAPF) which is the PA management planning standard for KWS. One of the key features of the PAPF is stakeholder participation in planning. Sufficient stakeholder participation in plan development and subsequent implementation ensures management success. The key planning activities and events that led to the development and review of this plan are explained below.

- **Plan Scoping Meeting:** This was the first step in the development of the KMMPA management plan and it set out the fundamentals of the planning process, upon which common agreement necessary to guide the planning process to proceed in a coherent and logical manner was developed. It was at this meeting that the scope of work for the development of the management plan was developed. This included identification and description of: the plan geographic scope; management issues, problems and opportunities to be addressed by the plan; Management Programmes needed to address these issues; stakeholders who should be involved in the management plan development; information needed for planning; responsibility for collection of the Resource Base Inventory (RBI) among the Core Planning Team (CPT); and the planning timeframe and budget.
- **Resource Base Inventory and Stakeholder Consultations:** This was the second stage in the planning process. It aimed at ensuring that the plan is developed based on relevant, up-to-date and accurate information.
- **Stakeholders Planning Workshop:** This workshop was meant to give stakeholders an early opportunity to participate in the planning process. Stakeholders raised issues that they needed to be considered in the development of the management plan. It is during this stage that the preliminary KMMPA Exceptional Resource Values were identified and the overall KMMPA purpose statement was developed. This activity was carried out during the initial planning process of 2011 and was skipped during the plan review as only minor changes were being made to the KMMPA management Plan 2011.

- **Management Programme Expert Working Group Meetings:** Several Expert Working Groups were formed to enable small groups of technical experts and key stakeholders to contribute to plan development. These groups were based on the five management programmes that form the heart of this management plan.
- **Stakeholders Plan Endorsement Meeting:** This meeting provided an opportunity for stakeholders to review, comment on and endorse the final contents of the management plan.
- **Plan approval:** The plan was forwarded to the Director General, KWS for his approval after which it was transmitted to the Cabinet Secretary, Ministry of Environment and Natural Resources for gazettelement in accordance with the Wildlife Conservation and Management Act, 2013.

Figure 1 shows the planning process that was followed in the development of this Management Plan.

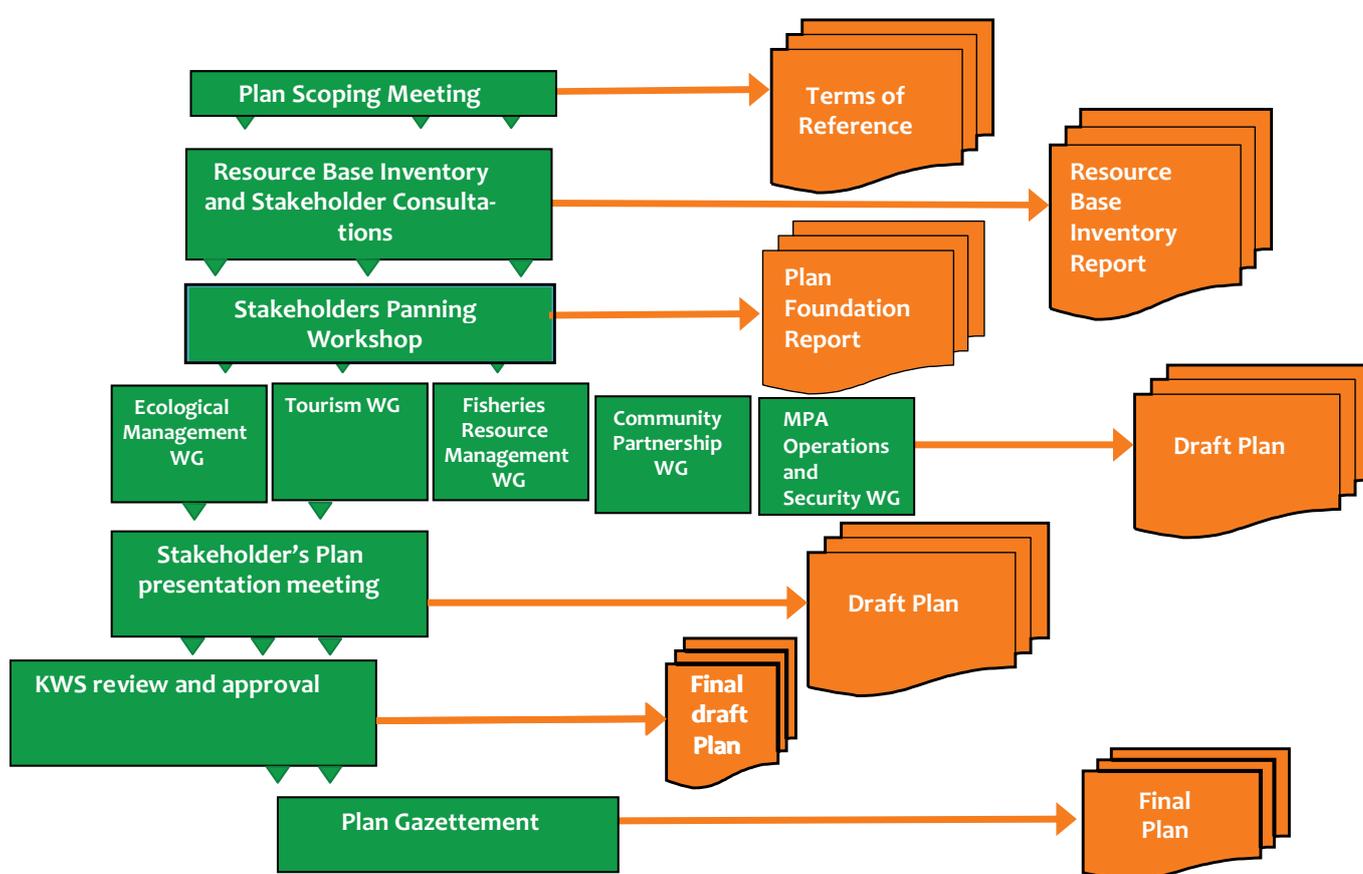


Figure 1. KMMPA Management Planning Process and Key Planning Outputs

Plan Structure and Function

The plan structure conforms to the one recommended in the KWS Protected Areas Planning Framework. This is a simple structure aimed at promoting understanding and implementation of the plan by the MPA managers. Table 1 below presents the key components of the plan and their functions.

Table 1. Plan structure, functions and contents

Chapter	Function and contents
Plan Foundations	<ul style="list-style-type: none"> • Introduce the plan, and describe the plan’s geographic scope, plan structure and the framework used to develop the plan • Set out the Plan Purpose Statement and Exceptional Resource Values (ERVs) • Outline management issues of concern at the KMMPA
Zonation Scheme	<ul style="list-style-type: none"> • This is meant to reconcile different types and intensities of use in different parts of the KMMPA, and to help reconcile the sometimes competing and conflicting conservation and resource use needs • Sets out areas of the KMMPA where different types of visitor use and tourism developments are permitted • Provides specific prescriptions on resource utilization by the communities
Management Programmes	<ul style="list-style-type: none"> • This section forms the bulk of the completed management plan and provides a framework to guide management activities in achieving the future desired state for specific aspects of the KMMPA management. As a result, the plan has five management programmes. These are: <ol style="list-style-type: none"> 1. Ecological Management 2. Tourism Development and Management 3. Fisheries Resource Management 4. Community Partnership and Conservation Education 5. MPA Operations and Security <p>Each management programme has a programme purpose statement that defines the programme aims during the plan period; guiding principles that underpin the development and implementation of management actions; management objectives that set out the specific goals of KMMPA management; and specific management actions that management will implement to achieve these goals.</p>
Plan Monitoring	<ul style="list-style-type: none"> • Provides a framework for the assessment of impacts of plan implementation • Includes easily quantifiable indicators for assessing impacts and potential sources of the information required
3-Year Activity Plans	<ul style="list-style-type: none"> • These provide the link between the 10-year management actions and the annual work planning and budgeting of KMMPA management • Break down the programme’s management actions into a series of tangible and explicit activities • Allocate responsibilities for implementation, sets out the timeframe for activity implementation, and “milestones” for monitoring plan delivery

Kisite-Mpunguti Marine Protected Area

Area Description

Kisite Marine National Park and Mpunguti Marine National Reserve, collectively referred to as Kisite-Mpunguti Marine Protected Area (KMMPA), were gazetted in 1978 through Legal Notice No. 216. Kisite Marine National Park is the largest of all Marine Parks in Kenya covering an area of 28 Km² while Mpunguti Marine National Reserve is the smallest of all Marine Reserves in Kenya covering an area of 11 Km². KMMPA was established to protect the scenic islands and special habitats for a wide range of marine animals and breeding migratory birds.

In Kisite Marine National Park, no consumptive utilization of natural resources is allowed, while in Mpunguti Marine National Reserve artisanal fishing is permitted. The KMMPA harbour a pristine reef, which historically has been the fishing ground of local communities. The KMMPA has three small coral islands, each with considerable areas of fringing reefs. Kisite Island features an exposed sand bar and the surrounding pellucid waters offer an ideal site for snorkelling. The islands of Mpunguti are known to support an important population of coconut crabs, nesting sites for African fish eagles, and its surrounding waters are frequently visited by Indo-Pacific bottlenose and humpback dolphins, migrating humpback whales as well as Hawksbill and Green turtles that feed on sea grass and algae.

The plan geographic scope for KMMPA covers: Kisite Marine National Park and Mpunguti Marine National Reserve (with their three islands, Kisite, Upper Mpunguti and Lower Mpunguti), which form the core area of the plan, and an influence area comprising the Wasini Channel, Wasini Island, Shimoni forest, the Slave Caves, the Museum, Ramisi estuary, Nyuli Reef, Sii Island and Funzi Island. KWS has management jurisdiction over the Core area but can only influence management decisions in the influence zone (figure 2 below).

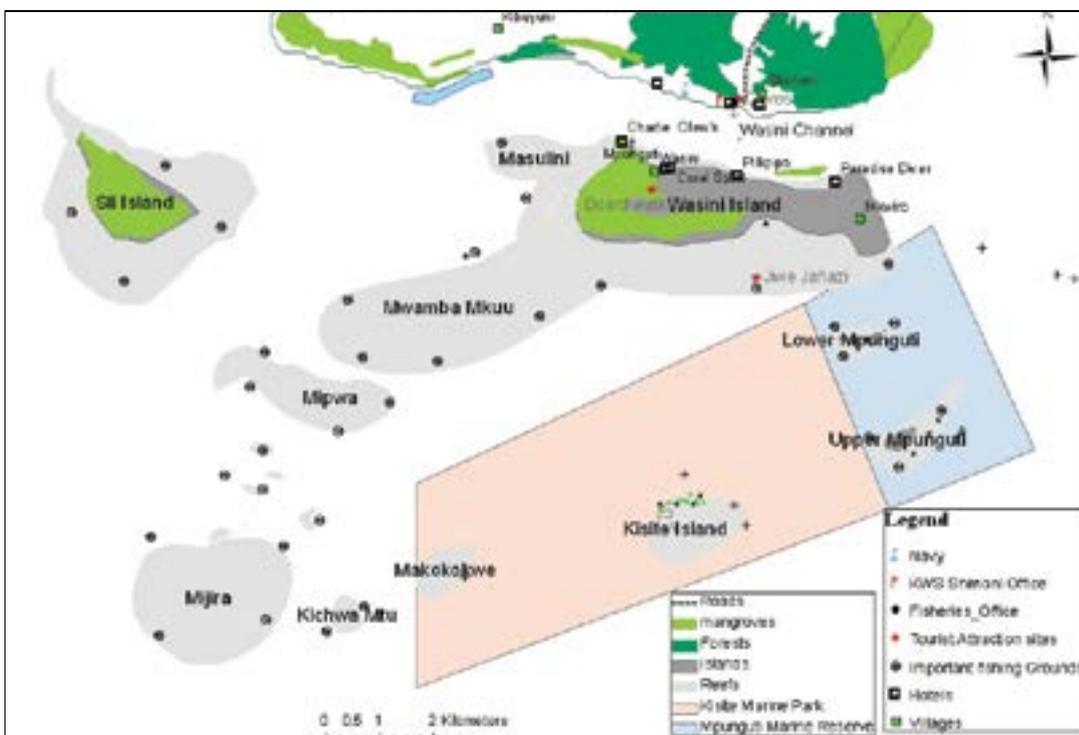


Figure 2. KMMPA Plan Geographic Extent

Vision Statement

The KMMPA management plan vision is an inspiring, forward-looking statement that describes the area as it could be in 10 years as a result of the actions carried out in the MPA. It provides the overarching frame for determining the expected results, while describing the most outstanding features of the MPA and how they would look like. KMMPA’s vision statement is as follows:

In 10 years.....

KMMPA is home to a rich diversity of marine plants and animals some of which are threatened and endemic (e.g. Coconut crab) to this area. A dynamic environment, the MPA is teeming with water birds, which enable it to retain its international recognition as an Important Bird Area (IBA). The coral reefs are protected and restored so that reef fisheries not only survive but also thrive.

This unique and magical place is where people gather to reconnect with nature and have memorable experiences. Visitors are drawn to the MPA by stories of pristine coral reefs, dolphins, magical islands, exquisite nature trails, people and the MPA itself. The understanding that the MPA is fragile inspires them to protect KMMPA for all to discover and enjoy. Visitors experience and personally connect with nature through the MPA's special mosaic of marine and terrestrial habitats while strolling on the community boardwalks and nature trails. They enjoy meaningful time through a rich menu of activities designed to meet their needs and interests, such as snorkelling, scuba diving, canoeing, boat safaris, bird watching, and picnicking.

The story of this outstanding heritage is presented to the public through both electronic and print media, and public outreach education activities increasing local and national support for the MPA.

The MPA is a showcase of community participation in conservation. The local communities conserve and utilise fisheries resources sustainably guided by specifications in the zoning scheme. A cooperative relationship ensures inclusion of stakeholders in all aspects of MPA operations and management creating opportunities for socio-economic benefits. The health and sustainability of the MPA, its unique habitats and threatened species are maintained by passionate staff and through strong relationships with KMMPA's neighbours.

KMMPA Purpose Statement

The KMMPA Purpose Statement summarizes the importance of the KMMPA, clarifies the reasons for its existence, and provides the overall goal that KMMPA managers are striving to achieve. The Purpose Statement is divided into a primary KMMPA Purpose followed by a series of supplementary purposes that expand on and complement the primary purpose. Both primary and supplementary purposes have been defined by KMMPA stakeholders.

The Purpose of the Kisite-Mpunguti Marine Protected Area is:

to preserve and maintain a typical representative area of the coral reef communities, migratory marine birds, and threatened and endemic marine wildlife for the benefit of present and future generations

Supplementary purposes of the KMMPA are:

- **To promote public understanding, appreciation and enjoyment of the natural resources through interpretation/education and the provision of recreational opportunities;**
- **To provide opportunities for rational and sustainable use of resources in the KMMPA and for the improvement of the overall relationships between people and their environment;**
- **To undertake the development of the KMMPA's natural resources in a manner which will generate revenue and therefore provide an economic justification for the use of scarce resources and land to fulfil the conservation objective; and**
- **To promote research for the purpose of supporting KMMPA management and education programmes.**

KMMPA Exceptional Resource Values

The KMMPA Exceptional Resource Values (ERVs) describe the area's key natural resources and other features that provide outstanding benefits to local, national and international stakeholders and are especially important

for maintaining the area’s unique qualities, characteristics and ecology. The ERVs build an understanding of the MPA’s features that are especially important for maintaining the unique character of the area and that most need to be conserved. The following sections describe the KMMPA Exceptional Resource Values as identified by stakeholders during the planning process and their importance to the area. These ERVs are categorised into the following four broad categories: Biodiversity, Scenic, Social and Cultural (Table 2 below).

Table 2. KMMPA Exceptional Resource Values

Category	Exceptional Resource Value
Biodiversity	<ul style="list-style-type: none"> • Sea Turtles • Marine mammals (whales, dolphins, dugongs) • Shimoni Tropical Forest • Coral reefs • Coconut crabs • Mangroves • Important Bird Area • Sea grass beds
Scenic	<ul style="list-style-type: none"> • Kisite and Mpunguti Islands • Jiwe Mtu • Jiwe Jahazi • Sandy beaches • River Ramisi Estuary • Sii Island
Social	<ul style="list-style-type: none"> • Tourism • Wasini Board Walk • Fishing • Trade
Cultural	<ul style="list-style-type: none"> • Shimoni Slave Caves • Kayas in Shimoni forest and Wasini Island • Historical Ruins • War Graves

Biodiversity Values

Marine mammals (Whales, dolphins, dugongs)

Marine mammals serve as important indicators of the health of marine environments. As top level predators, they impact on local food webs and ecosystems as a whole. They also indicate exposure and effects of pollutants over spatial, temporal and tropic scales. In KMMPA, these mega fauna species represent an important existing and potential resource for the greater Shimoni community. Indeed, the dolphin is considered as a flagship species for KMMPA and is the main attraction for visitors to the area. Conservation of these species may also have important implications for the conservation of marine biological diversity at national (Kenya), regional (East Africa), and international levels. In addition, one of the species, Indo-Pacific humpback dolphin, is classified under IUCN Red species list as near threatened due to decreasing population worldwide. Over the last few years increasing pressure from tourism activities puts additional challenges to the marine mammal populations. Studies undertaken on the marine mammals of KMMPA by Global Vision International (GVI) identified five different species of dolphins.



Plate 1: Bottlenose dolphins in the KMMPA

The most common species in terms of sighting frequency was Indo-Pacific bottlenose dolphins (*Tursiops aduncus*) with a mean group size of 8 individuals (Figure 3). Bottlenose dolphin population is resident in the area and utilizes these waters for all major activities: breeding, feeding, socializing and traveling. The highest spatial densities of bottlenose dolphins were concentrated along the east/south east side of Wasini Island and in the Marine Park by Kisite Island. The second in the rank was Indo-Pacific humpback dolphins (*Sousa chinensis*) with an average group size of 5 (Figure 4). Among long-snouted spinner dolphins (*Stenella longirostris*), there was observed the highest group variation of 4 - 200 individuals. Spinner dolphins mostly travel by the eastern boundaries of KMMPA; however, several records show that they utilize calm waters in the park or the reserve for resting. Pantropical spotted dolphins (*Stenella attenuate*) were sighted only on a couple of surveys in offshore waters east of Wasini Island. Presence of a sperm whale *Physeter macrocephalus* was reported by villagers of Mkwiro and confirmed by photographic evidence.

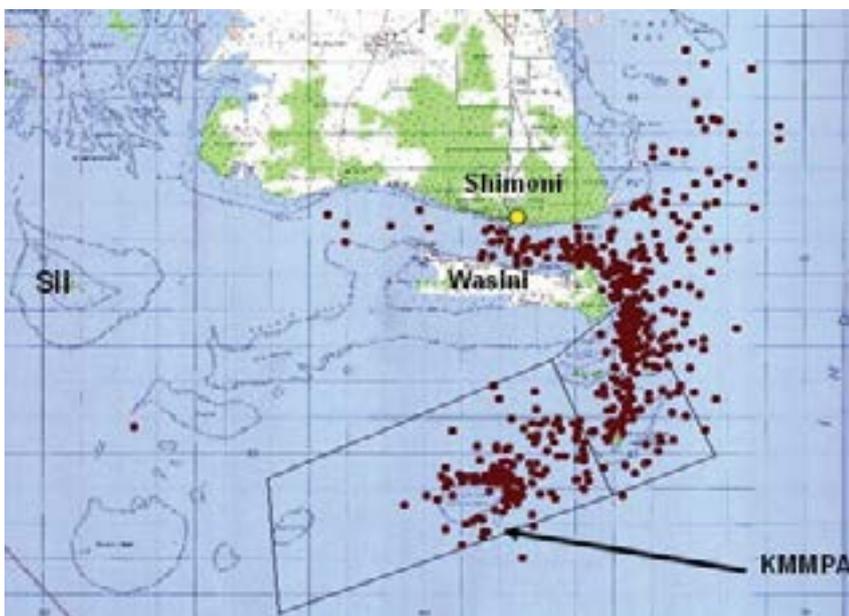
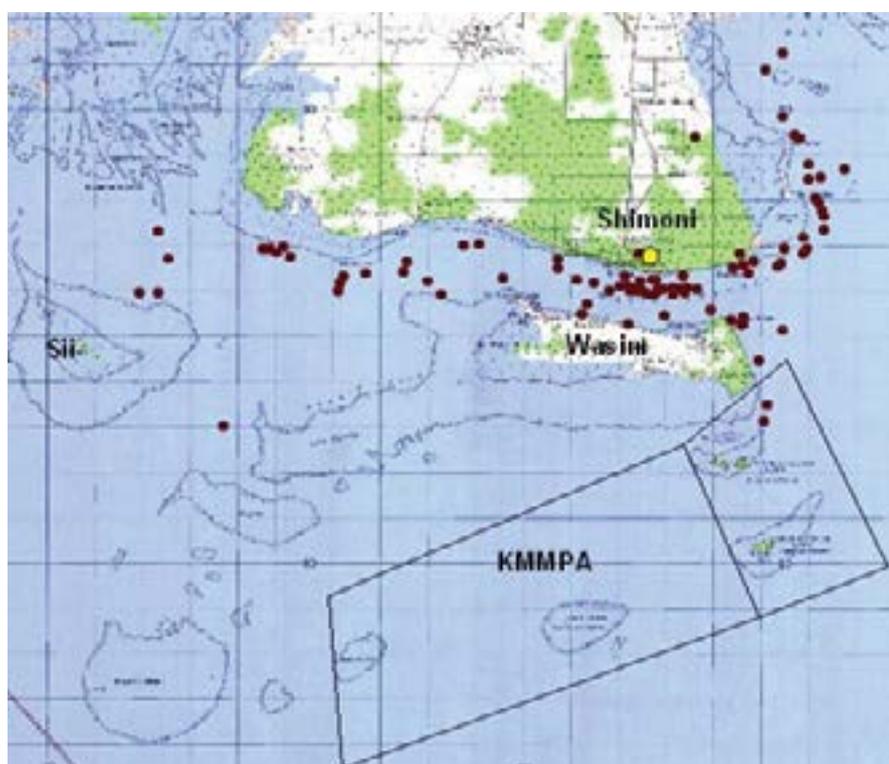


Figure 3. Bottlenose dolphin sightings 2006-2010 in the KMMPA

Table 3. Cetacean species sightings 2006-2010

Species	year					Total	%	Average Group size	Std. Deviation	Group Range
	2006	2007	2008	2009	2010					
Bottlenose dolphins	142	133	70	110	134	589	80.7	8.56	7.05	1-45
Humpback dolphins	42	30	9	12	12	105	14.4	4.98	2.98	1-15
Spinner dolphins	4	4	1	3	3	15	2.05	78.38	35.08	5-200
Humpback whales	0	4	5	7	4	20	2.7	1.61	0.81	1-3
Total	188	171	85	132	153	729				

Decrease in the number of humpback dolphin sightings was recorded from 2007 to 2010. This could be explained by lesser number of dolphin groups frequenting the area or by the reduced amount of effort in inshore waters, which is generally characterised as a humpback dolphin habitat. Surveys showed that these waters are important feeding and foraging grounds for humpback dolphins. Deterioration of near-shore habitats with an increased exposure to human activities could potentially result in humpback dolphin population decline. Therefore special attention should be given to the conservation of this species in the KMMPA.

**Figure 4. Humpback dolphin sightings 2006-2010 in the KMMPA**

Humpback whales are seasonal visitors in the KMMPA migrating through these waters from the end of July to the end of November. Sighting records from 2007-2010 show that more than 50% of whale groups encountered in the study area were composed of mother and calf pairs. Most of the calves were 4-5m in length which possibly corresponds to the newborn size indicating that KMMPA waters could be important breeding, nursing and resting grounds for migrating humpback whales.



Figure 5: Humpback whale sightings 2007-2010 in the study area

The Dugong (*Dugong dugon*) is listed by the IUCN as Vulnerable and it is also listed on CITES Appendix I. It is threatened worldwide due to hunting, fisheries interactions, degradation of sea habitats, and pollution. Aerial surveys conducted from 1973 to 1996 identified two potential dugong population grounds: Lamu archipelago on the north coast and Gazi-Shimoni in the south. After a long while a dugong sighting was recorded in the KMMPA in 2008 west of Wasini Island close to the Nyuli reef and in 2009 one more sighting was recorded in Kisite Marine National Park. Population estimate along the Kenyan Coast is considered to be less than 30 individuals.



Plate 2: Dugong observed off Wasini Island in 2008

Sea Turtles

All the five sea turtle species in Kenya are listed by the IUCN as either endangered or critically endangered (IUCN/SSC, 2008) and are listed under Appendix 1 by CITES. The most common turtle species observed within the KMPMA are green turtle (*Chelonia mydas*) and hawksbill turtle (*Eretmochelys imbricata*) (see plate 2 and 3). Both species are currently listed as Endangered in the IUCN Red List of Endangered Species. Sea turtles in KMPMA face a myriad of threats. They are poached primarily for meat, oil, eggs and the shell, which is economically valuable. They are threatened by increasing tourism development and beach erosion. Sea grass meadows which are green turtle foraging grounds are highly impacted by sedimentation and eutrophication from raw waste discharge from hotels and residences. The coastal community believes that sea turtle products have healing properties, and the meat is an aphrodisiac. These threats make sea turtles vulnerable; hence the need for more action to save the rapidly declining population. A National Sea Turtle Conservation Strategy has been developed and, if implemented, will go a long way in improving conservation of these species. See Table 4 and Figure 6 for turtle sightings from the year 2006-2010.



Plate 3: Female green turtle preparing a nesting site at Lower Mpunguti



Plate 4: Hawksbill turtle at Kisite Coral Gardens

Table 4. Sea turtle sightings 2006-2010

Year	SIGHTINGS		
	Green Turtle	Hawksbill Turtle	Unknown Turtle
2006	NR	NR	46
2007	NR	NR	86
2008	21	33	77
2009	19	15	56
2010	72	70	96
Total	112	118	361

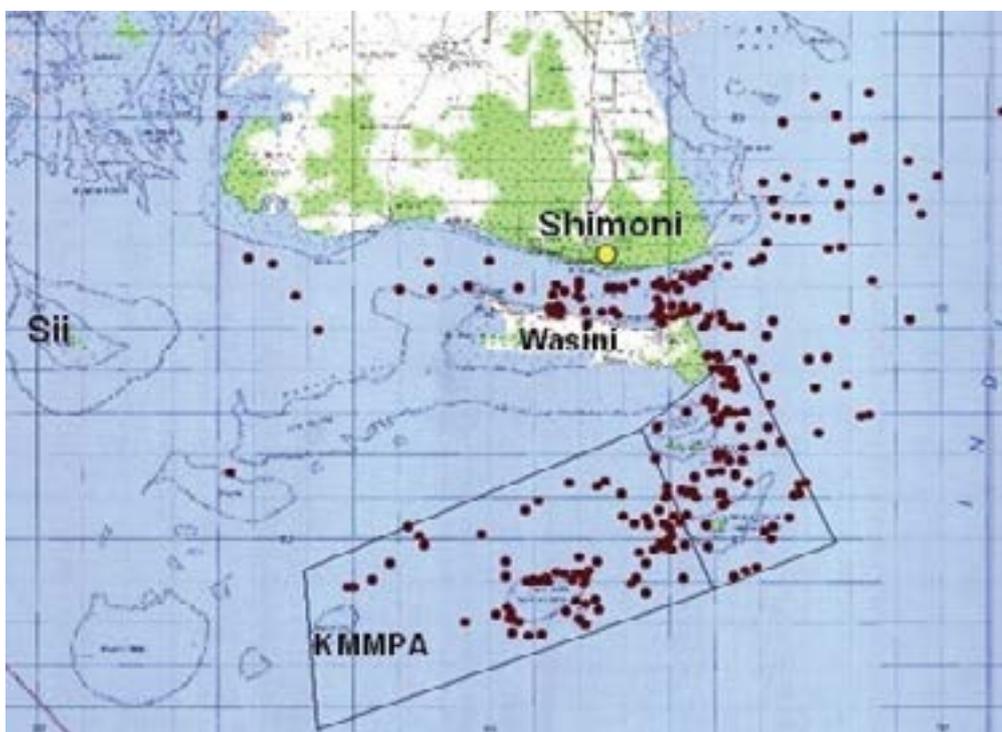


Figure 5. Turtle sightings in the KMMPA 2006-2010.

Mangroves

Mangroves are a critical habitat for a variety of terrestrial and aquatic plants and animals. The terrestrial fauna includes many species of birds, reptiles, mammals and insects. Aquatic fauna includes prawns, crabs and molluscs. Mangroves are critical feeding and breeding grounds for some fish species. The mangrove forests cover over 3.2 million ha in Africa. In Kenya mangroves cover approximately 54,000 ha. Its cover has been declining for several decades due to overexploitation. Mangroves of KMMPA are significantly important for their biological, economical and ecological functions. The area harbours highly significant species of mangroves with at least 10 species being recorded. They play a significant role in the socio-economic development of the coastal people as they are a source of high energy fuel wood and durable timber for building and boat construction. The mangroves are currently classified as endangered species by the IUCN. They face a myriad of threats ranging from pollution, increased sedimentation as a result of poor agricultural practices and disturbance or clearance.



Plate 5: Yellow billed storks in Wasini mangroves

Important Bird Area

KMMPA, and Kisite Marine National Park in particular, is an Important Bird Area especially due to the presence of habitats such as the Kisite Islands, Wasini Islands, Mpunguti islands, reefs, beaches and the Shimoni forest. Kisite Island supports an assemblage of pelagic – feeding birds and nesting sea birds. The remoteness of Kisite Island and serenity make it suitable for nesting seabirds. Between July and October, Kisite supports an assemblage of pelagic-feeding birds. In many (but not all) years this includes a significant breeding colony of roseate tern (*Sterna dougallii*). Up to 1,000 pairs have been recorded, but numbers fluctuate greatly from year to year. *Sterna fuscata* also nest here regularly, along with *Egretta dimorpha*.



Plate 6: Roseate tern

Coral reef ecosystem

The protected areas of KMMPA have a high diversity of marine life. The KMMPA is a complex of fringing reef, channels, islands and patch reefs, sand, sea grass and isolated coral heads. The coral reef ecosystem is important for many reasons: it provides protection and shelter for many different species of fish and invertebrate fauna. Coastal populations rely on coral reefs for food and livelihoods. In addition, coral reefs are very important because they protect the shoreline from strong currents and waves. Kisite Marine National Park protects one of Kenya's largest patch reefs. However, destructive fishing practices by artisanal fishers; increasing coastal development, pollution, unsustainable tourism activities and global climate change are a threat to the coral reef ecosystem and need to be controlled.

Shimoni Forest

The lowland coastal forests of the Shimoni peninsula and Wasini Island form a thin strip of 'coral rag forest', referred to as Northern Zanzibar-Inhambane (Z-I) Lowland Coastal Forest. It is also known as the Coastal Forest Mosaic due to the high number of small fragmented forest patches it contains. It is a small yet vital part of the East African Coastal Forests Ecoregion (EACFE).

Shimoni Forest is listed as number 129 in a list of 160 Key Biodiversity Areas for the EACFE hotspot. Most notable of the primate species of Shimoni forest is the Angolan Black and White Colobus monkey (*Colobus angolensis palliatus*). This subspecies, the palliatus, can only be found in the southern Kenyan coastal forests and the northern Tanzanian highlands. Although the palliatus were previously found along the entire coast, deforestation in the northern parts has resulted in their restriction to isolated pockets of forests south of Mombasa. Further inland, the Guereza black and white Colobus occur.

Despite its enormous ecological, social, cultural and economic benefit it possesses, the Shimoni forest is being lost at an alarming rate to deforestation; hence reforestation and education are the key intervention measures needed to conserve it. The principal threats to the survival of Shimoni forest and biodiversity conservation include charcoal burning, commercial logging, wildlife poaching, poorly regulated allocation of land to private landowners, private and commercial development and slash-and-burn land clearance for agriculture.

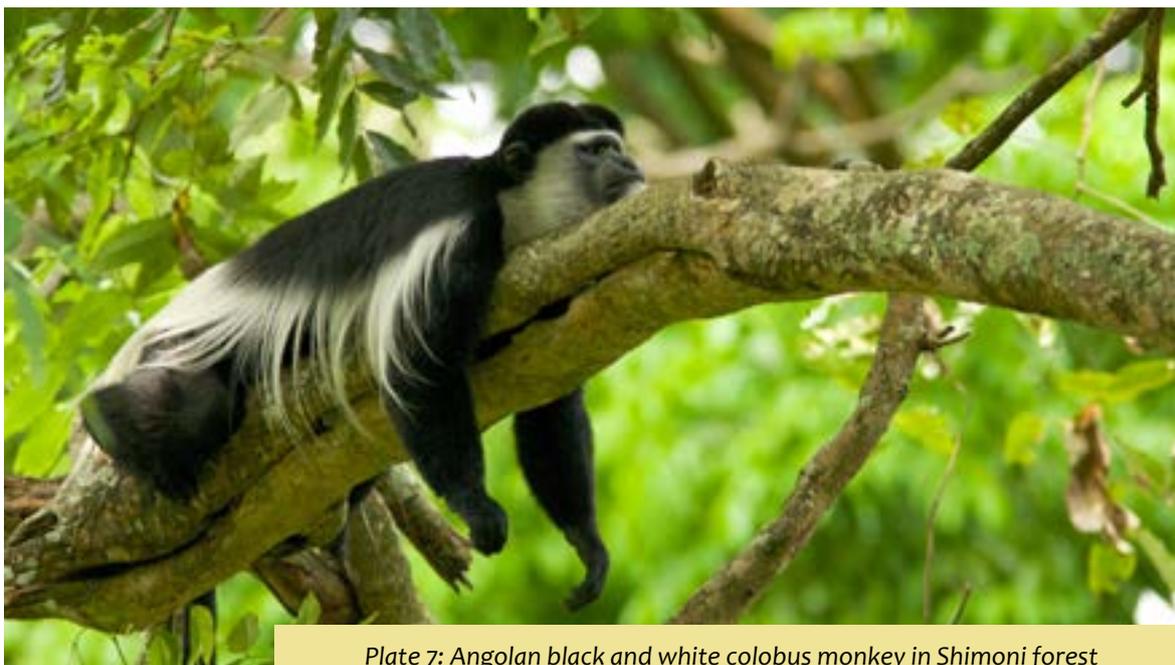


Plate 7: Angolan black and white colobus monkey in Shimoni forest

Coconut crab

Coconut crab is the largest land-living arthropod in the world. The species inhabits the coastal forest regions of many Indo-Pacific islands, although localized extinction has occurred where the species lives close to humans. They are generally nocturnal and remain hidden during the day, emerging only on some nights to forage. It is known for its ability to crack coconuts with its strong pincers to eat the contents. It is endemic to the lower Mpunguti Island in Kenya.



Plate 8: Coconut crab at Lower Mpunguti

Scenic Values

Mpunguti Islands

Mpunguti Islands are characterized by pristine dense coastal equatorial forest where visitors can walk and enjoy the scenic natural forest as well as the panoramic view of the ocean.

Kisite Island

Kisite Island is within the Kisite Marine National Park. The Island is made of coral rock with scanty grass on the top of the cliff. Most visitors frequent this small part of the protected reef for snorkeling, sun bathing and swimming, making the area prone to coral trampling and damage by bad anchoring practices.

Jiwe Mtu/Jiwe Jahazi

Jiwe Mtu is an aesthetic fossil coral that is shaped like a human being while Jiwe Jahazi is a jutting fossil coral outcrop shaped like a dhow.

Cultural and Historical Values

Shimoni slave caves

Shimoni caves are a historical site formerly used as Kaya shrines and as a hiding place for the people of Shimoni against attacks by marauding tribes from the hinterland. The caves were used by slave traders to hide the slaves before they were shipped out to the slave market in Zanzibar. Archaeological findings indicate that these coral

caves, with their lovely stalactites, have been inhabited for several centuries. The caves have been registered by National Museums of Kenya (NMK) as an important national historical heritage managed by the local community.

Historical ruins and buildings

The other elements of significance at Shimoni include the colonial buildings erected by the Imperial British East Africa Company in the later part of the 19th century. This was during the war to stop slave trade in the region and other interests. These include the old DC's House which is a national monument protected and managed by the National Museum of Kenya.

Social Values

Fisheries resources

Fishing is the lifeline of majority of the local community of the KMMPA. Most of the people are fishermen or rely on fishing activities for their livelihoods. Mpunguti Marine National Reserve is the main fishing ground where almost all fishermen go fishing, spending an average of eight hours per day (figure 6).

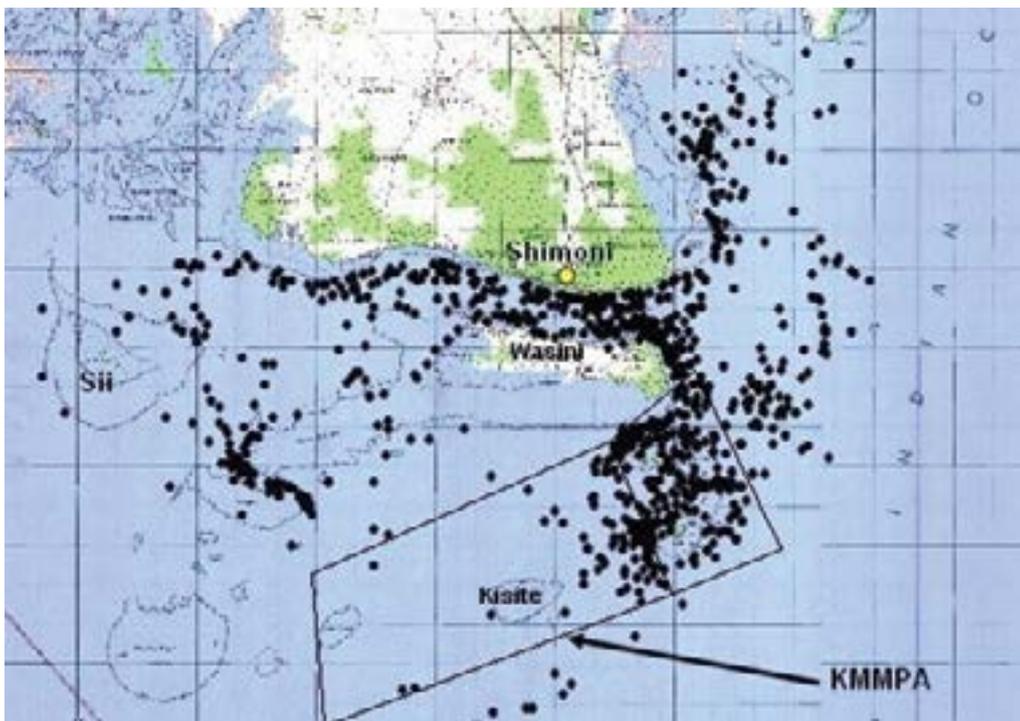


Figure 6. Fishing effort in the KMMPA 2008-2010. Black dots show the position of the fishing boat or fishing trap

Wasini board walk

This is a raised wooden platform stretching over 500 meters within Wasini island's fossil coral gardens and mangrove vegetation. During high-tide the seawater covers these coral gardens, above which visitors are guided along the boardwalk. Along various points on the boardwalk visitors enjoy the scenery and are educated by the local guide on the various mangrove species and other significant formations and ecosystem functions.



Plate 9: Wasini mangrove boardwalk

Major Issues of Concern

The major management issues of concern addressed in this plan are set out in the following sections:

1. Wildlife poaching

The sea turtles are under a lot of pressure as they are being poached and their nests destroyed by fisher folk and poachers. Due to their complex lifecycle, migratory habits and physiology, sea turtles and their habitats have long been under threat from humans. They are threatened by direct harvesting/fishing, trapping as by-catch in various fishing gear and by the destruction of foraging and nesting grounds due to poor shoreline management. In KMMPA, poaching and destruction of turtle nests has often been reported. Given that the area has very few nesting beaches, the pressure on sea turtles could be inordinately high.

2. Habitat degradation (Coral reef, sea grass and mangrove destruction)

Studies indicate that destructive fishing gears and overfishing at KMMPA has altered the coral reef community structure from a community dominated by corals and herbivorous fishes to sea urchins dominated community. The coral reefs are threatened by tourism activities, especially boat anchoring caused by divers and breakage by novice snorkelers. The sea grass ecosystem is threatened by deterioration of water quality caused by sedimentation. Mangroves of KMMPA, more so in Sii and Wasini Islands, are as well threatened by over exploitation.

3. Inadequate administration and management infrastructure (jetties, buildings, telecommunications)

Infrastructure to assist visitors to explore marine resources, such as jetties and anchoring moors, are lacking. These facilities, among others, need to be provided and existing ones maintained to ensure that visitor experience and satisfaction is enhanced. The current office block and utilities are inadequate to serve the current and future office space requirements proposed in this management plan. Appropriate storage facilities for stores and equipment and a wet lab to facilitate marine research are lacking. Effective communication both within and outside the KMMPA is essential for efficient management, and key to improving KMMPA management's response to urgent issues. The KMMPA office has phone and e-mail facilities but these have a limited range. As such there is need to improve administrative and management infrastructure to ensure effective and efficient management of the KMMPA.

4. Poor stakeholder collaboration mechanism

While KMMPA management authorities play a primary role in enforcing legislation, compliance will be improved to a great extent if stakeholders actively take part in KMMPA management activities. This call for a common strategy and focus among different stakeholders to ensure management and utilization of the fishery resource is undertaken in a way that permits both derivation of socio-economic benefits and conservation of the same.

5. Illegal activities in the KMMPA (illegal fishing gear, migrant fishermen, illegal fishing in the park)

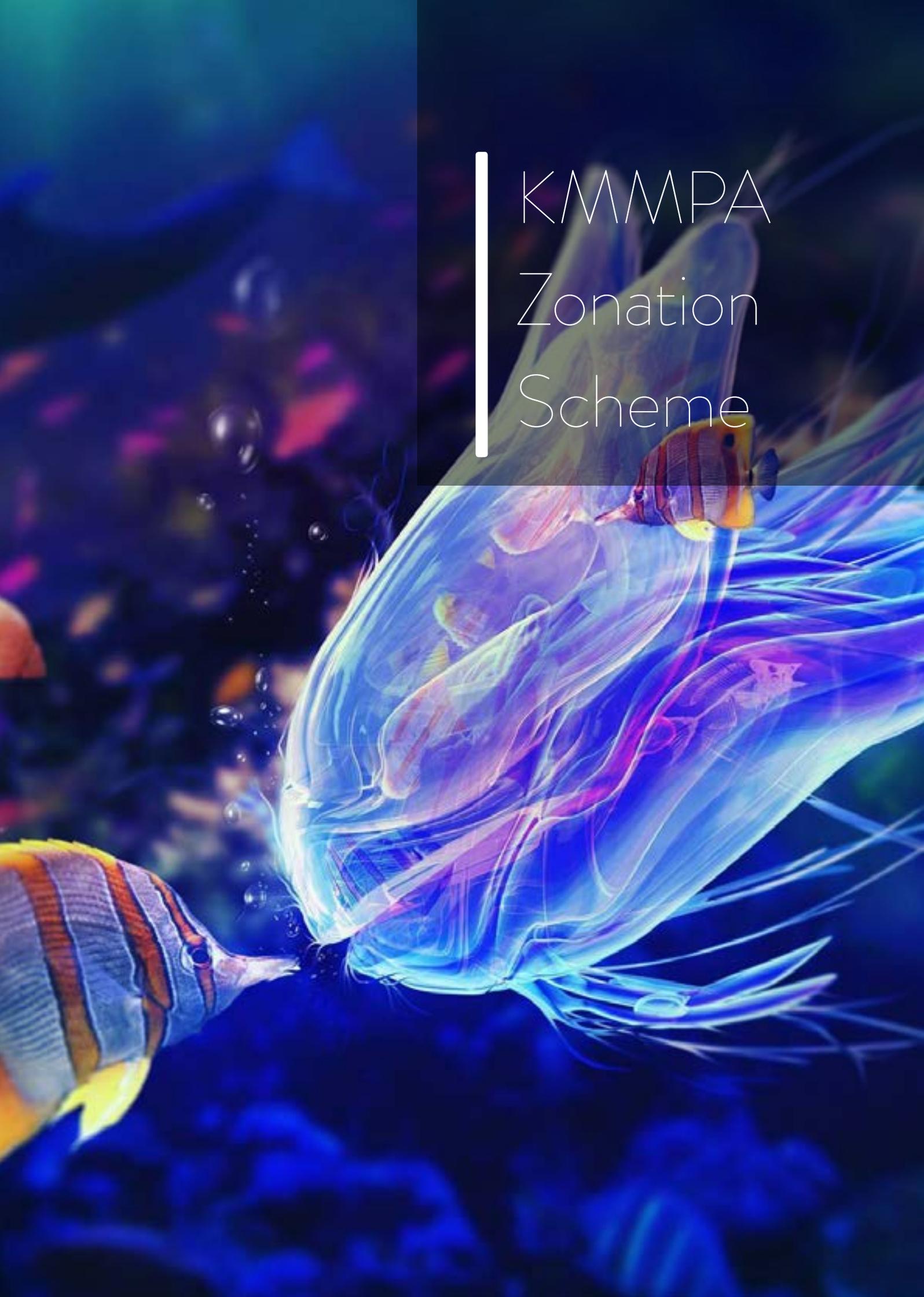
Fishing vessels, gear type and technology used by fishers are regulated and licensed by the Fisheries Department. There is limited enforcement of regulations on use of inappropriate gear due to financial constraints. This gives leeway to fishers to use fishing methods such as beach seines that are not appropriate and are potentially destructive. Poison and dynamite are illegal fishing methods practiced by foreign fishers. Unfortunately, these methods are being adopted by local fishers in the KMMPA. Consequently, there is need to ensure sustainable utilisation of marine resources in the protected areas through strengthening legal enforcement.

6. Lack of clear demarcation of the MPA Boundaries

Increased encroachment on the KMMPA by foreign and artisanal fishermen and land speculators can partly be attributed to unclear and unmarked protected area boundaries. Cases of unscrupulous persons selling the islands within the park and marine reserve have also been recorded. The KMMPA boundaries should therefore be marked appropriately to reduce illegal activities in the protected area.



Save our seas from environmental degradation



KMMPA
Zonation
Scheme

Introduction

Zoning is one method used by managers to protect the natural resources within a MPA, as well as, reduce the user conflicts to ensure that the various user groups are able to benefit from the resources in a sustainable way. Zoning is a system in which specific geographic areas within a protected area are classified according to their preservation requirements, and their ability to sustain certain human activities, by providing guidance as to what can and cannot occur within sections of the protected area with respect to its natural resources management, cultural resource management, human use and benefit, visitor use and experience, access, facilities and protected area development, maintenance and operations.

Section 32(2) a-e of the Wildlife Act, 2013 is the main piece of legislation which provides the basis for zoning of the KMMPA. It makes reference to the provision for the zoning of a Marine Protected Area for specified purposes¹.

The zoning scheme for KMMPA aims to protect sensitive and threatened resources, species and habitats, as well as the fishery stock. It also aims to ensure the sustainable use of KMMPA's natural resources, reduce user conflicts, while allowing all users to enjoy the benefits of the MPA.

This zoning scheme has been developed based on the characteristics and uses of the area and the recommendations of KMMPA stakeholders including current user groups, such as the MPA management, hotel/lodge owners, fishers and tour operators. The zoning scheme provides the framework for the management of uses within the KMMPA over a 10-year period (2015-2025), after which it will be revised based on recommendations arising from research, monitoring and evaluation activities. The effective implementation of the zoning scheme will require an effective enforcement framework, the engagement of stakeholders, and a sound public education strategy to encourage compliance among the respective resource user groups.

KMMPA zonation scheme has adopted a two tier approach to zoning as follows:

1. Resource Use Zones (RUZ)
 - Core Protection Zone
 - Partially Protected Zone
 - Multiple Use Zone
 - Livelihood Intervention Zone
2. Visitor Use Zones (VUZ).
 - High Use Zone
 - Low Use Zone

The following sections provide further details on the rationale for each zone.

¹Section 32(2) Notwithstanding the provisions of subsection (2), a marine protected area shall adopt a system of zoning that caters for multiple use of marine resources for any or all of the following:
(a) extraction or no extraction zones in respect of marine resources;
(b) protection of nesting, breeding and foraging areas;
(c) no take areas in respect of fisheries; and
(d) areas that may be used by local vessels for passage;
(e) any other purposes with respect to specified human activities within the zone

Resource Use Zone (RUZ)

The RUZ in the KMMPA has been divided into four zones (see figure 6): the Core Protection Zone, Partially Protected Zone, Multiple Use Zone and Livelihood Intervention Zone. The four zones will facilitate the development of mechanisms to reduce competition and conflict between human activities within the KMMPA while still serving conservation purposes and supporting aims of the Tourism Development and Management Programme.

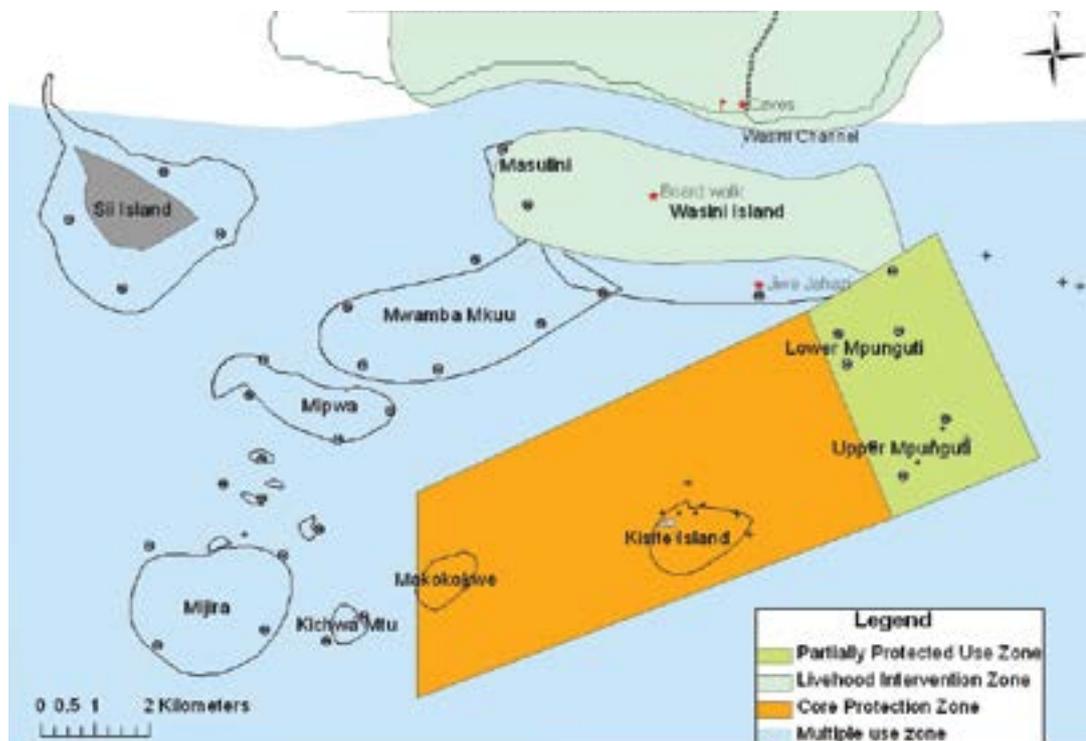


Figure 7. KMMPA Resource Use Zones

Core Protection Zone (CPZ)

The CPZ is designed to protect and conserve biologically significant habitats in their pristine conditions and offer ideal undisturbed sites for scientific research. Some of the key objectives of this zone are to:

- Protect spawning areas and nursery grounds;
- Minimise damage to important habitats;
- Provide refuge for protected species, such as dolphins, turtles and dugongs;
- Boost species numbers, which helps the food web as a whole;
- Increase the abundance of fish; and
- Provide pristine/undisturbed environments for research and other educational activities

As such, all types of fishing (apart from sport fishing) activities will not be allowed in this zone, but a range of recreational activities, such as boating, diving and snorkelling, that have minimal impact on the marine environment will be allowed. However, although these recreation activities will be promoted in this zone, the primary objective of this zone remains maintaining ecological integrity. Therefore, this zone will act as a sanctuary for fish and other marine animals. CPZ encompasses Kisiye Marine National Park covering an area of 28 Km².

The CPZ has sites for snorkelling and diving. These will be marked with buoys and no motorized vessel will be allowed within 30m of the site if a dive flag indicating diving activity is visible. This is expected to increase the safety of snorkelers and Scuba divers in the CPZ. Also, this measure will ensure that these users enjoy views of the marine environment in a fairly undisturbed state. Table 5 gives the activity prescriptions for the CPZ.

Table 5. Activity Prescriptions for the Core Protection Zone

Existing activities	Proposed activities
Snorkelling	Night snorkeling
Scuba diving	Night diving
Dolphin and whale watching	Floating deck
Sun bathing	Wreck diving
Bird watching at Kisite Island (seasonal)	
Photography and filming	
Limited impact research (non-extractive)	
Beach walking	
Ecological restoration/conservation activities	
Research/educational activities	
All activities associated with management of the area	

Partially Protected Zone (PPZ)

The Partially Protected Zone will allow ongoing use of most recreational and artisanal fishing activities that are not destructive, are ecologically sustainable and consistent with the overall objectives of KMMPA. This zone covers Mpunguti Marine National Reserve (11 km²) including its two constituent islands, Lower and Upper Mpunguti. A summary of activity prescriptions for this zone are given in table 6.

Table 6. Activity Prescriptions for the Partially Protected Zone

Existing activities	Proposed activities
Snorkelling	Diving at pink reef coral garden
Scuba diving	Telescoping at watchtower at Lower Mpunguti (dolphin, turtle, bird watching)
Artisanal fishing	Nature trails around the Upper Mpunguti tropical forest
Coconut crab watching on Lower Mpunguti island	Picnicking on the Upper Mpunguti
Camping on Lower Mpunguti	
Dolphin and whale watching	

Multiple Use Zone (MUZ)

The multiple use zones are areas that require specific zoning controls and management since they are under the jurisdiction of different management authorities. The MUZ encompasses the rest of the open waters in the KMMPA adjacent areas and includes such features as Wasini Channel, mangroves along the shoreline of Ncha Mwamba coral reef, Jiwe Jahazi, Nyuli Reef, Funzi Bay and Maritime jetty at Shimoni. The entire MUZ lies under the Maritime Authorities but it is utilized by different government agencies and communities. The Multiple-

use Zone will allow for a range of uses such as fishing as well as recreational boating and all activities with an environmental footprint that will not adversely impact the functionality of the area's ecosystems and that of adjacent zones. A summary of the activity prescriptions for the MUZ is given in table 7 below.

Table 7. Activity Prescriptions for the Multiple Use Zone

Existing activities	Proposed activities
Commercial and subsistence fishing	Turtle, dolphin and dugong conservation at Sii Island
Professional diving at Nyali reef	Mangrove conservation, replanting and utilization
Fun diving at Wasini south	Mariculture activities – seaweed farming at Kibuyuni and Mkwiro, Mud crab fattening and sea cucumber farming
Snorkeling – Wasini south	Apiculture activities at Kibuyuni and Wasini mangroves
Boat transport across Wasini Channel and to offshore waters	Construction of a KWS jetty for tourists
Commercial activities at Wasini channel	Recreational boat hire services and activities
Dolphin watching	
Research/educational activities	
Ecological restoration/conservation activities	

Livelihood Intervention Zone (LIZ)

This zone has been designed to support sustainable livelihoods, reduce illegal activities in adjacent forests, improve KWS relations with the local community and protect biodiversity in the forest. To achieve this goal, support will be given to local communities to develop sustainable livelihoods that will result in reduced pressure on the forest and raise awareness on the importance of forest conservation and need to protect the biodiversity. The LIZ encompasses Shimoni East and West forest extending all the way to Kibuyuni, with an inclusion of patches of the remaining forest on Wasini Island (Wasini village and Mkwiro village). The Shimoni slave caves, fish landing bay, Customs Office, KWS Shimoni office and the Shimoni Shopping centre area are also included in this zone. Table 8 shows the existing and proposed activities in the LIZ.

Table 8. Activity Prescriptions for the Livelihood Intervention Zone

Existing activities	Proposed activities
Forest product extraction – Medicinal plants	new nature trails
Shimoni East Forest nature trail	Apiculture in Kibuyuni/Wasini mangrove forest
Mangrove Boardwalk – Wasini village	Expansion of Mariculture activities in Kibuyuni/Mkwiro
Bird watching at Jiwe Jahazi	Construction of a hanging board walk
Visit to historical sites	Development of curio stalls at the KWS proposed jetty
Kaya tours (20 Kaya sites at Wasini and Shimoni forests)	Butterfly farming
Kaya Bogoa tour at Mkwiro village	Local canoe tours in mangroves at high tide
Shimoni Slave Caves tours	Cycling routes and camps
Research/educational activities	Camping in Shimoni forest as well as Wasini/Mkwiro forest
Ecological restoration/conservation activities	

Visitor Use Zones

As shown in Figure 8, the KMMPA has also been divided into two visitor use zones: the High Use Zone (HUZ) and the Low Use Zone (LUZ). These two visitor use zones have been designed to enable the degree and type of visitor use to be managed spatially across the KMMPA, and to support the aims of the Tourism Development and Management Programme. This programme aims to diversify visitor activities and attractions across the KMMPA, whilst providing high quality visitor experience and ensuring that ecological integrity of the marine ecosystem is maintained. These visitor use zones are discussed in the following sections.

High Use Zone for HUZ

In the HUZ, any type of fishing, collection of marine resources, disturbance or damage to marine wildlife and habitats is prohibited, so that visitors and the local community can appreciate diverse marine environments relatively undisturbed by human activities. HUZ offers not only recreational opportunities, but also high value educational resources. The HUZ includes:

- Kisite Island;
- Kisite coral garden;
- Kisite beach; and
- Immediate areas surrounding Kisite Island.

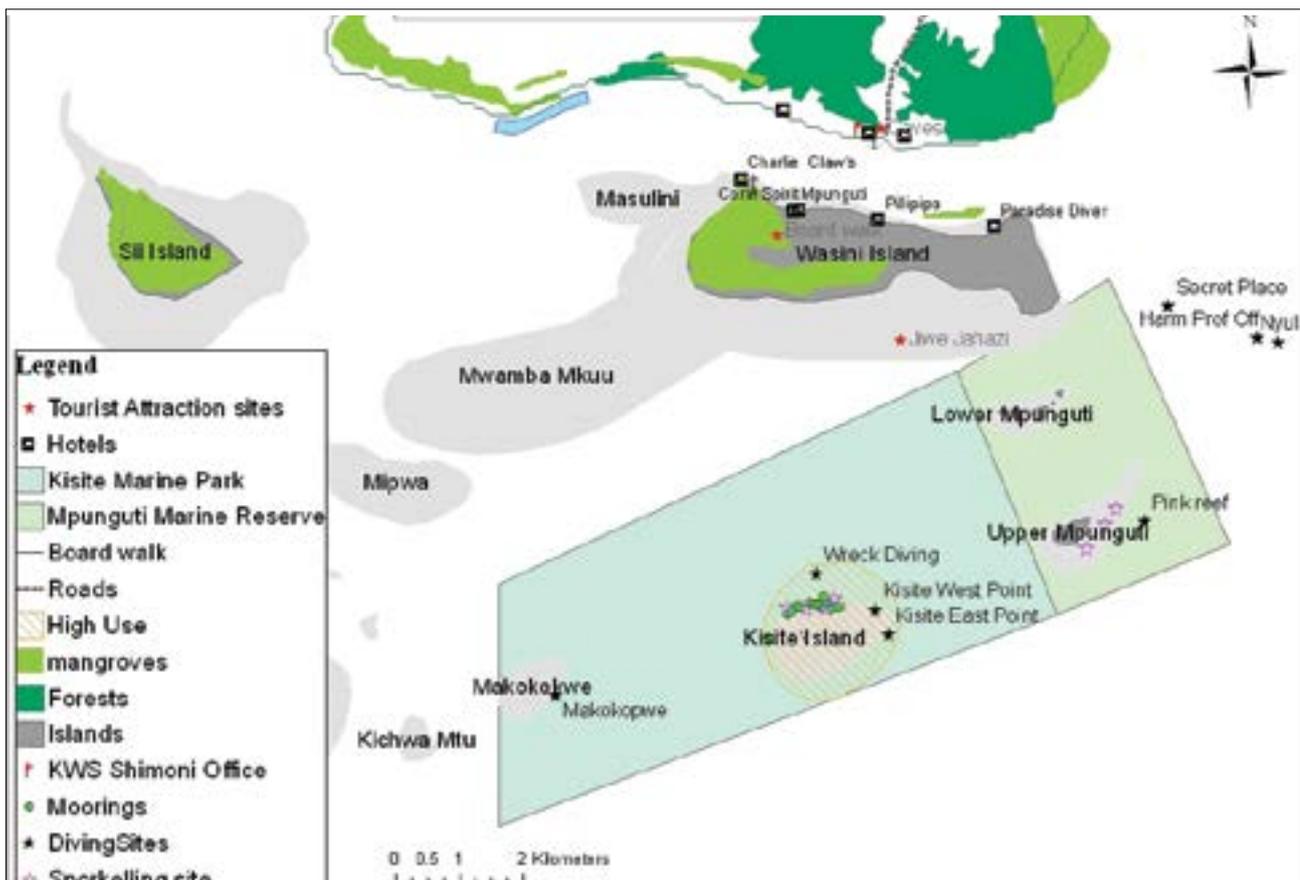


Figure 8. KMMPA Visitor Use Zones

Visitor activity prescriptions for KMPA HUZ are presented in table 9.

Table 9. Visitor activity prescriptions for the High Use Zone

<ul style="list-style-type: none">• Snorkelling• Scuba diving• Dolphin and whale watching• Sun bathing and beach activities• Bird watching at Kisite Island• Night snorkelling• Night diving• Glass bottom boat tours
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Low Use Zone

In the KMPA, the LUZ encompasses a wide range of habitats under different protection status. In Kisite Marine National Park (KMNP), any type of fishing is prohibited while in the Mpunguti Marine National Reserve (MMNR) artisanal non destructive fishing is allowed. The rest of the area overlaps with the Multiple Use Zone (MUZ) where a wide range of resources can be utilised. The Low Use Zone includes:

- The rest of KMNP (which is not included in the HUZ) including Makokokwe reef;
- The MMNR including Pink reef and light house;
- Nyuli reef;
- Mpunguti islands;
- Sii Island;
- Funzi Bay;
- Wasini Island; and
- Shimoni East and West Forest.

The visitor activity prescriptions for LUZ are given in table 10 while visitor accommodation prescriptions are given in table 11.

Table 10. Visitor activity prescriptions for LUZ

- **Camping:** At Wasini and Mkwiro villages as well as in Shimoni forest. Honeymoon camping at Lower Mpunguti, and recreational camping at Upper Mpunguti
- **Scuba Diving:** Nyuli, Upper Mpunguti and Mako Kokwe.
- **Snorkelling:** Upper and Lower Mpunguti and the reef at Funzi Bay
- **Nature trails:** Along specified routes agreed by the KMMPA management.
- **Apiculture and Mariculture tours:** In Kibuyuni/Mkwiro mangroves.
- **Local arts and crafts for sale:** On designated sites agreed by the KMMPA management.
- **Kaya tours:** Kaya centre and Shimoni forest sites
- **Mangrove board walks:** Wasini village and Sii Island (proposed)
- **Mangrove canoe tours:** during high tide at Mkwiro/Wasini mangrove trails
- **Butterfly farming:** Shimoni Forest
- **Bird watching:** At Jiwe Jahazi, Shimoni East and West Forest
- **Wreck diving:** two proposed locations have been identified. One is 300-400 meters north of Kisite Island and the other in Mpunguti Marine National Reserve.

Table 11. Visitor accommodation prescriptions for the LUZ

Facility type	Maximum size
KWS Banda	14 beds
Shimoni Reef Hotel	14 beds
Shimoni Garden	25 beds
Betty's Camps	13 beds
Mpunguti Lodge	25 beds
Special campsite	4 persons
Magical Mwazaro Lodge	40 beds
Public campsite (proposed in Mpunguti Island)	20 persons
Tree Houses (proposed in Shimoni forest)	10 beds
Home stays	Proposed
Eco-lodge (proposed in Shimoni forest)	25 beds

A dolphin is captured in mid-leap, emerging from the water. The dolphin's body is sleek and dark, with a lighter patch on its side. The water is a vibrant blue, with a large, curling wave cresting in the background. The sky is a clear, bright blue. The overall scene is dynamic and captures the grace of the dolphin.

Ecological Management Programme

Programme Purpose and Strategy

The purpose of the Ecological Management Programme is to:

Maintain KMMPA's ecological integrity through integrated strategic adaptive management

The KMMPA ecological management programme aims at enhancing biodiversity conservation and ecological integrity of key ecosystems in the Marine Protected Area. These ecosystems include mangrove forests, coral reefs, sea grass beds, sandy beaches, islands and their associated resources. The ecosystems serve as vital habitats for diverse flora and fauna that are important means of livelihoods for local communities. These ecosystems constitute an essential element for sustainable development. The ecosystems are, however, exposed to numerous and diverse anthropogenic and natural pressures resulting in degradation, often resulting in the loss of biodiversity. The primary anthropogenic pressure is unsustainable exploitation of natural resources to satisfy the needs of local communities resulting in conflict between utilization and conservation. Other threats include anchoring of vessels, illegal and destructive fishing methods (e.g. dynamite fishing), pollution (domestic waste/sewage, solid waste and marine debris) and impacts of climate change and global warming (sea level rise, rise in temperatures and acidification). Coral reef and sea grass beds are exposed to destructive fishing methods (mainly dynamite fishing) and the impacts of climate change and global warming. Mangroves are exposed to over extraction for domestic firewood and building materials, siltation, insect infestation and the impacts of climate change (sea level rise). The Shimoni and Wasini forests are exposed to encroachment for settlement, farming, and illegal logging leading to deforestation and loss of forest cover. These threats are compounded by high levels of poverty amongst local communities, lack of alternative livelihoods, low education and awareness amongst the local communities, resulting in little appreciation of the true economic values of these ecosystems.

The KMMPA Ecological Management Programme contains management actions and activities that seek to address and eliminate the aforementioned threats safeguarding the ecological integrity and values of the KMMPA ecosystem. The following section sets out the guiding principles that describe key factors considered in the development of the Ecological Management Programme and which will influence the way the programme is implemented.

Guiding Principles

In implementing the KMMPA's Ecological Management Programme, the KMMPA Management and stakeholders will strive to ensure that:

Marine and Coastal ecosystem resilience is safeguarded through maintaining ecological linkages and connectivity

The health of the marine and coastal ecosystems depends on strong ecological linkages and connectivity that maintains exchange of materials. Maintaining and safeguarding the connectivity ensures the structure and function of these ecosystems is safeguarded, promoting resilience and inherent recovery capacity after disturbances.

Human livelihoods are diversified and wellbeing is ensured

The role of ecosystem goods and services in sustaining community livelihoods and wellbeing is well documented worldwide. This is also highlighted in the Millennium Ecosystem Assessment Goals (MEA). Managing this human dimension associated with the key coastal and marine ecosystems is vital and constitutes the core of management and conservation action.

Conservation of marine and coastal species is enhanced

The ecosystems in the conservation area support rich biodiversity, including both flora and fauna. Some of the notable species in the KMMPA include coconut crabs, sea turtles, dugongs and whale sharks that are considered as threatened or endangered globally and are listed under CITES, IUCN Red List and the CMS. Under this management programme, efforts will be made to ensure that threats to these special status species are minimized and their populations are monitored.

Strategic linkages and exchange of information between researchers and managers

Diverse institutions and researchers have conducted studies under different disciplines in the KMMPA. However, information sharing among these institutions is wanting. This principle seeks to avoid duplication of research efforts, promote progressive research and enhance sharing and application of research findings in management decision making.

Effective research and monitoring programmes to guide management

Effective KMMPA planning and management requires understanding the ecosystem dynamics and the influences of both intrinsic and extrinsic pressures. This requires information on trends in ecosystem dynamics over a long period. Identifying the different ecosystem indicators and adopting or developing the right monitoring tools is essential to generating information that will guide management.

Targeting Ecological Management Action

The PAPF prescribes the use of *The Nature Conservancy’s (TNC) Conservation Action Planning (CAP)* process as a foundation for designing the Protected Area (PA) plan’s Ecological Management Programme. The rationale being that limited human and financial resources necessitates prioritisation of key aspects of the complex ecology of a PA. The CAP methodology provides a tested mechanism for targeting ecological management, identifying and developing accurate definitions and understanding of the PA’s key ecological features, their management needs, and the major threats.

The PAPF identifies three main stages in applying the CAP methodology: -

- the selection of **conservation targets**;
- the identification and ranking of **threats** to the conservation targets; and
- the development of **management objectives and actions** to address these threats as well as to enhance the conservation targets.

These key stages and their application in the KMMPA planning process are elaborated in the following sections.

Conservation Targets

The first step of the CAP process is the definition of a small number (usually about eight) of conservation targets. These conservation targets are a limited suite of species, communities, and ecological systems that represent and encompass the biodiversity in the PA and its ecosystem. They are the basis for setting goals, carrying out conservation actions, and measuring conservation effectiveness. The nine KMMPA conservation targets, the rationale behind their selection, important subsidiary targets (i.e. other ecosystem components that share Key Ecological Attributes (KEAs) and threats with the conservation target concerned), and each of the KEAs for each target are set out in table 12. These Conservation Targets (CT) represent the unique biodiversity and environmental or ecological features that may require specific management actions within the protected area.

Table 12. KMMPA Conservation targets, subsidiary targets, and Key Ecological Attributes (KEAs)

	Conservation target	Rationale for selection	Important subsidiary targets	Key ecological attributes
Systems	Mangrove Ecosystem	<ul style="list-style-type: none"> • High productivity value • High subsistence value • Highly degraded • Neglected ecosystem • Economic value (potential for alternative livelihoods) • Fisheries benefit • Nursery grounds • Bird community habitat • Shoreline protection • Buffer to wave energy 	<ul style="list-style-type: none"> • Diverse fish species • Bird species 	<ul style="list-style-type: none"> • Biomass value • Forest cover • Complexity index (measure of stand height, composition, density, etc) • Importance value index (frequency of occurrence of a particular species) • Water quality • Nutrient levels • Sedimentation • Bird community composition

	Conservation target	Rationale for selection	Important subsidiary targets	Key ecological attributes
		<ul style="list-style-type: none"> • Excellent carbon sink • Entrapment of sediment 		
Systems	Coral reef	<ul style="list-style-type: none"> • High biodiversity value • High productivity value • Highly sensitive habitat • High economic value (livelihood support, tourism) • Shoreline protection • Spawning ground • Turtle habitat • Nursery and breeding ground for coral reef community 	<ul style="list-style-type: none"> • Reef fish • Reef invertebrates 	<ul style="list-style-type: none"> • Fish and invertebrate density, diversity, and biomass • bleaching extent and severity • coral diseases • Diadema and Echinothrix density • Coral recruitment • Coral diversity and cover • Water quality • Predation and herbivory • Benthic composition (including live coral cover) • Reef rugosity • Seawater temperature • Turbidity (light attenuation) • Sedimentation rates
	Sea grass ecosystem	<ul style="list-style-type: none"> • High biodiversity value • High productivity value • High economic value (livelihood support) • Highly resilient • Turtles and dugong feeding grounds • Nursery ground for fish and invertebrates • Sediment trap/nutrient recycling • Carbon sink 	<ul style="list-style-type: none"> • Turtles • dugong 	<ul style="list-style-type: none"> • abundance of fish and invertebrates • sea grass cover and diversity • Herbivorous density • Nutrient levels • Primary productivity • canopy height • sedimentation • shoot density • Water quality • Primary productivity

	Conservation target	Rationale for selection	Important subsidiary targets	Key ecological attributes
Habitat	Intertidal habitat	<ul style="list-style-type: none"> • Biodiversity value • High productivity value • Economic value (livelihood support) • Shoreline protection 	<ul style="list-style-type: none"> • Octopus • Sea cucumbers • Sea molluscs 	<ul style="list-style-type: none"> • Abundance/diversity of invertebrates • Water quality
	Coastal Forest Habitat	<ul style="list-style-type: none"> • Critical habitat • Encroachment • High level of endemism • High cultural value • High subsistence value • Highly degraded • Highly fragmented • Urgent need for conservation intervention • Carbon sink • Rare endemic fauna and flora 	<ul style="list-style-type: none"> • Colobus monkey • Elephant shrew 	<ul style="list-style-type: none"> • Canopy cover • Forest area • Complexity index (measure of stand height, composition, density, etc) • Importance value index (frequency of occurrence of a particular species) • Availability of forest resources
	Islands	<ul style="list-style-type: none"> • Unique Islands • High cultural value • Nesting grounds of migratory birds • Nesting grounds (Lower Mpunguti) • IBA (Kisite) • Highly fragmented 	<ul style="list-style-type: none"> • Sooty tern • Coconut crab • Mangroves • Sandy beaches 	<ul style="list-style-type: none"> • Abundance and diversity of birds • Vegetation cover • Sea level
Species	Islands	<ul style="list-style-type: none"> • High biodiversity value • High productivity value • Highly sensitive habitat • High economic value (livelihood support, tourism) 	<ul style="list-style-type: none"> • Non-commercial finfish • Ornamental fish 	<ul style="list-style-type: none"> • Level of demersal resource exploitation, • Status of fish resources (Abundance, Biomass, diversity), • Trophic levels structure (Herbivorous, predatory) • Species aggregations

	Conservation target	Rationale for selection	Important subsidiary targets	Key ecological attributes
Species	Threatened Marine mammals (Whales, dolphins, dugongs)	<ul style="list-style-type: none"> • Biodiversity value • Tourist attraction • Indicator of ecosystem health • Highly endangered dugong (vulnerable to extinction) • Near threatened humpback dolphin • Endangered species 	<ul style="list-style-type: none"> • Prey species • Sea grass 	<ul style="list-style-type: none"> • Water quality • Population size and structure • Genetic diversity • Habitat quality and utilization • Availability of prey species • Human disturbance
	Sea turtles	<ul style="list-style-type: none"> • Biodiversity value • Endangered 	<ul style="list-style-type: none"> • Fish species 	<ul style="list-style-type: none"> • Water quality • Population size and structure • Genetic diversity • Habitat quality and utilization

Threats to Conservation Targets

A “threat” is a combination of a stress and source of stress that have a negative impact on conservation targets. The comprehensive definition of conservation targets and their KEAs enables the identification of the “threats” to these targets and attributes and the subsequent prioritisation of these threats according to their significance on conservation targets during the 10-year lifespan of the MPA plan. Table 13 shows the priority threats impacting or are likely to impact on the KMMPA conservation targets and their KEAs.

Table 13. Threats to Conservation Targets of KMMPA

TARGETS	Mangrove	Coral Reef	Sea grass	Intertidal habitat	Coastal Forest Habitat	Islands	Reef fish	Sea turtles	Marine mammals (Whales, dolphins, dugongs)
THREATS									
Over exploitation of resources	Very high	High		Medium			Very high	Medium	
Invasive rodent species (Rattus norvegicus)	Very high	High		Medium		Very high			
Habitat conversion	Low				High		Low		Low
Diversion of fresh water (Ramisi river estuary)	Medium								
Climate change (sea level rise, etc)	Medium	Medium	Low				Low		Medium
Pollution (debris from the sea)	Low			High				Very high	
Destructive exploitation (use of destructive gears and methods)		High		Low			High	Medium	
Waste water/Poor waste disposal		Low		Low		Low			
Land erosion/ sediment		Low							
Tourism pressure		Medium				Low	Low		High
Coral mining		Low							
Removal of keystone species		Medium							
Aquarium fishing							Medium		
Poor water quality			Low				Low		
Herbivory			Medium						
Competition with seaweed farms			Low						
Boat anchoring			Medium						
Charcoal production									
Illegal logging and timber					Very high				
					Very high				



TARGETS	Mangrove	Coral Reef	Sea grass	Intertidal habitat	Coastal Forest Habitat	Islands	Reef fish	Sea turtles	Marine mammals (Whales, dolphins, dugongs)
THREATS									
Bush meat poaching					Low			Medium	
Wild fires					Low				
Habitat fragmentation					Medium				
Quarrying					Medium				
Coastal development					Low				
Absentee landlords					Very high				
Over fishing of predatory fish that feeds on sea urchins		Very high	Very high				High		
Entanglement in fishing gears							Low	Low	Low
Impact from oil and gas exploration									High

Management Objectives and Actions

The identification and ranking of threats to the conservation targets and their KEAs provided the basis for the development of the Ecological Management Programme’s Management Objectives and Actions. The following sections describe these management objectives and provide an outline of the Management Actions needed to achieve them. Under each management objective there is a brief description of the relevant management issues and opportunities, which provide the specific context and justification for the management actions.

These management objectives are:

MO 1. Rare, endemic or threatened species are protected and restored

MO 2. Marine ecosystems are maintained in a healthy functioning state

MO 3. Marine biodiversity is understood and appreciated

Objective 1: Rare, Endemic or Threatened Species are Protected and Restored

The Kenyan coast is endowed with diverse terrestrial and marine habitats that host a wide array of flora and fauna species some of which are of special conservation concern. In the KMMPA’s ecosystem, the Shimoni and Wasini forests represent the coastal forest ecosystem that is home to an array of wildlife, including the Angolan black and white Colobus monkey (the flagship species for the Shimoni forest), Sykes monkeys, bush baby, baboons, the threatened African Golden Cat, the rare and threatened Zanj elephant shrew and over 145 bird species among others. Shimoni Forest is ranked 129 in a list of 160 Key Biodiversity Areas for the East African Coastal Forests Ecoregion (EACFE) hotspot.

The marine habitats include coral reefs, seagrass beds, mangroves, sandy beaches and sand dunes and intertidal habitats. These habitats are home to a variety of marine flora and fauna such as the endangered sea turtles, dugongs, dolphins, whales, and diverse species of fishes and invertebrates. These diverse compositions of species ranging from top predators to prey serve as important indicators of the health of the marine and coastal environment. Excessive pressure from recreational and artisanal fishing activities in the MPAs inevitably impacts on these species in a variety of ways. This objective has therefore been formulated to better understand the population ecology, key habitat requirements and threats to these species and their habitats. A key element of management is to effectively protect the rich biodiversity and mitigate against any recreational and commercial fisheries-related impacts and other adverse effects of tourism and other uses. Management actions that will be implemented to realize this objective are elaborated in the following sections.

Action 1.1: Conduct surveys on turtle nesting sites and habitat utilization

Sea turtles have a complex life cycle: eggs are laid and hatched on beaches, post-hatchlings are pelagic, sub-adults reside in developmental habitats, while adults live in adult foraging grounds. At different times in their life cycle, most turtle species will migrate between different foraging grounds, which are often hundreds of kilometres apart, and also migrate from these foraging grounds to onshore nesting beaches during their reproductive season.

Due to their complex life cycle, migratory habits and physiology, sea turtles and their habitats have long been under threat from humans. They are threatened by direct harvesting/fishing, trapping as by-catch in various fishing gear and by the destruction of foraging and nesting grounds due to poor shoreline management. In KMMPA, poaching and destruction of turtle nests has often been reported. Given that the area has very few nesting beaches, the pressure on sea turtles could be inordinately high. Hence, to address these threats, under this management action, KMMPA management will assess the turtle habitat including nesting, foraging and migratory habitats to provide information to update the status of the sea turtle populations within KMMPA. Further, turtle nesting sites will be secured and monitored.

Action 1.2: Disseminate information and increase public awareness on sea turtles conservation and management

Sea turtles are marine flagship species and the most publicized species within the country. This is attributed to the high number of stakeholders within the region conducting research, education and awareness and lobbying for conservation and protection of the species. In Kenya, six sea turtle conservation groups lead monitoring and conservation efforts. These groups comprise sea turtle conservationists in different capacities, including individuals, hoteliers, local community groups, NGOs and government institutions. All these operate under the umbrella of Kenya Sea Turtle Conservation Committee (KESCOM). Information generated by these groups is vital for the conservation of sea turtles. KMMPA management will therefore scale up its linkages with these groups and develop programmes for education and awareness. Developing and implementing a sea turtle conservation and education programme in collaboration with national and international education and awareness initiatives like the International Year of the Turtles will enhance support for conservation among stakeholders.

Action 1.3: Conduct inventories of key species

Many studies have been done in the KMMPA; however, they were focused on coral reefs with mangrove, sea grass and forest ecosystems of the KMMPA receiving less attention. Species inventories of fish, coral, invertebrates such as sea urchins and sea cucumbers, gastropods and marine molluscs, birds, marine mammals, and some vertebrates in the Shimoni forest can be collated from current publications but this information needs to be updated. Through this action therefore, KMMPA research section will undertake a thorough assessment of biodiversity in the area in collaboration with other researchers. A monitoring strategy that takes into consideration the key species, habitats and processes will also be developed to update and monitor habitat status and species movements.

Action 1.4: Implement the national survey of dugong report detailed by the CMS

As mentioned under the ERVs section of this plan, Dugong (*Dugong dugon*) is a highly endangered species and historical reports indicate that large groups were seen in Kenyan waters in the past. However, the current population of this species in Kenya is not well known as observations have been opportunistic. The dugong is threatened worldwide, due to hunting, fisheries interactions, degradation of sea habitats, and pollution. This marine species is listed globally by the IUCN Red List as Vulnerable to Extinction. In KMMPA, the last sightings recorded were in the year 2008 west of Wasini Island close to Nyuli reef and in 2009 in Kisite MPA. Based on the aerial surveys conducted from 1973 to 1996, two areas were identified as potential dugong population grounds: Lamu archipelago on the North coast and Gazi-Shimoni in the South. Population estimate is considered to be less than 30 individuals. The exact cause of the population status of dugong in the area has not been studied, but nonetheless anecdotal evidence shows that this species is severely endangered and needs special attention nation-wide. Nationally there is little effort to conserve dugongs; hence there is need to domesticate and implement the international initiatives, among them detailed by Convention on Migratory Species (CMS). Through this action, an economic valuation to ascertain the value of the current population of dugong will be conducted. The study will also provide information to support development of a National Marine Mammal Conservation Strategy proposed under Action 1.6. This will be done through consultations with local and international dugong research experts.

Action 1.5: Disseminate information and raise awareness about dugong in the area

There is limited research conducted in Kenya on dugongs. The few dugong monitoring and conservation efforts in Kenya include activities by: Eden Wildlife Trust in the South Coast since 1992; WWF/KWS conservation and development efforts in and adjacent to the Kiunga Marine National Reserve, since 1997 and KWS-led aerial

surveys. Global Vision International (GVI) conducted sighting surveys within the KMMPA in conjunction with the local communities in the late 2000s. The fishing communities have also been reporting sightings and mortality incidences within the area. Through this management action, this information will be collated and used to develop education and awareness materials. In addition, public awareness efforts on marine mammals, particularly the dugong, have been led by KWS with the support from regional and international conservation agencies. KMMPA management will continue and even strengthen stakeholder collaboration in creating awareness on conservation of the dugong in the South Coast.

Action 1.6: Lobby for and contribute to the development of a National Marine Mammal Conservation Strategy

Approximately 34 of the estimated 76 species of cetaceans (dolphins and whales) and 4 species of sirenians (dugongs) worldwide are known to occur in the Western Indian Ocean (WIO) region. However, few systematic studies on these marine mammals have been carried out along the Kenyan coast. To enhance conservation and management of these marine mammals, a National Marine Mammal Conservation Strategy will be developed to adequately identify and address challenges facing them.

Considering that the marine mammals are trans-boundary species, there will be need for concerted efforts by all the stakeholders to come up with an action plan for the strategy which can be implemented by multiple stakeholders. This will elevate the status of the sea mammals to a national level providing a link to the regional and international initiatives on marine mammal conservation. Through this management action, KMMPA will initiate the process of developing the strategy that will incorporate all stakeholders.

Action 1.7: Develop a research and monitoring programme on species conservation targets

There is a need to develop a long term national cetacean (whale and dolphin) research programme which addresses key aspects of dolphin and whale biology and ecology such as their life cycle, migration patterns and routes, population structure and distribution to understand potential threats and challenges and develop mechanisms to address them. Close collaboration with conservation-minded stakeholders outside the KMMPA will be necessary to achieve ultimate conservation goals. Information generated will provide enough data for mapping the area to determine the geographic boundaries of dolphin populations, identify hotspots, prime habitat requirements and possible threats to the successful survival of populations.

Action 1.8: Assess the level of human and marine mammals (dolphin and whale) interactions and raise awareness on potential threats through training and education

Dolphin tourism is rapidly expanding in the KMMPA increasing conflict between conservation and tourism. A code of conduct on whale and dolphin watching introduced by KWS in 2007 was expected to address some of the issues. However, there is still need for sensitization and research to effectively manage this activity. As such, the level of interactions between people and marine mammals and their impacts will be assessed to generate information for review of the current code of conduct and develop education and awareness materials. Since many of these interactions are directly related to the boat owners and operators, these industry players will be trained and sensitized on the conservation and wise management of whale-dolphin watching activities, as this is the flagship tourism product for the area.

Action 1.9: Conduct economic valuation of Dolphin and Whale watching industry

Dolphin and whale watching can become a very powerful tool for dolphin conservation. The economic value of watching dolphins in the KMMPA could provide an example of what might be done along the coast where dolphins are commonly harassed or could provide a justification for its conservation among the local community

and the country at large. Hence a study on the economics of dolphin and whale watching will be carried out in collaboration with stakeholders. This study will benefit a lot from the rich data possessed by GVI from their research on dolphins in KMPA.

Objective 2: Marine Ecosystems are Maintained in a Healthy Functioning State

The KMPA is home to different species ranging from the microscopic organisms to large marine mammals like the whales, dolphins, dugongs, various fish species, sea turtles and birds. The MPA also provides important livelihood opportunities for communities living adjacent to the protected area. The major habitats in the KMPA (coral reefs, sea grass, and mangrove ecosystem) have been altered due to climate change and anthropogenic factors. A notable climate change related effect on the critical ecosystems for KMPA is coral bleaching. The sea grass ecosystem is threatened by deterioration of water quality caused by sedimentation while the coral reefs are threatened by tourism activities especially boat anchoring and breakage caused by divers and snorkelers. The mangroves of KMPA, more so in Sii and Wasini Islands are as well threatened by over exploitation.

The following actions have been designed to ensure that critical marine ecosystems for KMPA are conserved and their long-term viability ensured. The actions aim at addressing effects of human activities detrimental to the ecosystems.

Action 2.1: Implement measures to reduce coral reef damage

Coral reefs are among the most biologically diverse marine ecosystems in the world. In Kenya, coral reefs and their associated mangrove and sea grass habitats play important ecological, economic and cultural roles. These habitats provide food and shelter for numerous fish and marine species, protect coastal areas from storm surge, prevent coastal erosion and support commercial fishing and an array of recreational activities.

The health of coral reefs has continued to decline throughout the tropical and subtropical world. Studies indicate that destructive fishing gears and overfishing at KMPA has altered the coral reef community structure from a community dominated by corals and herbivorous fishes to sea urchins dominated community. Breakage of corals by novice snorkelers is a major threat to the ecosystem within the MPA.

To minimize coral damage, an assessment to identify, map and zone coral reef ecosystems within KMPA will be undertaken. Key indicators of coral reef condition and benchmarks against which change will be assessed will be developed, and research and monitoring information will be communicated to the community and other stakeholders to enhance coral reef conservation awareness and promote wise use of the resource.

Action 2.2: Mainstream the implementation of the national coral reef and sea grass conservation strategy

Too much human pressure coupled with silt deposition from rivers, pollution and the effects of climate change are known to have diminished both the productivity and species richness and diversity of coral reef habitats. For example, trawling for prawns has damaged sea grass habitats while global warming has caused sea water surface temperatures to rise resulting in coral bleaching. Moreover, there is inadequate awareness on the importance of these habitats and poor enforcement of relevant regulations to protect these ecosystems. A critical step in developing effective conservation and management strategies for coral reefs in KMPA is the provision of information on the distribution, composition and health of these ecosystems. However, the existing information on coral reefs in KMPA is scanty.

The national coral reef and sea grass conservation strategy has prescribed priority actions to guide conservation of coral reef and sea grass. This action therefore calls for implementation of recommended strategies for managing these ecosystems for improved conservation of KMPA.

Action 2.3: Support the rehabilitation of KMMPA mangrove ecosystem

Mangrove ecosystems support a high diversity of fauna (crustaceans, molluscs, migratory birds, fish, and reptiles, among others). They provide a wide array of goods and services to KMMPA communities and also protect the shorelines from erosion. However, according to a socio-economic survey undertaken in 2012 and 2013, the ecosystem is faced with a myriad of problems including over exploitation, reduced fresh water influx from Ramisi river and climate change impacts. This is mainly attributed to population pressure, poverty, cultural attitudes, and poor governance. Through this action, KMMPA will partner with other institutions to develop mangrove restoration and monitoring programmes. Degraded areas will be identified, mapped, and support for implementation of restorative measures provided after which regeneration progress will be monitored over time.

Action 2.4: Enhance the conservation and rehabilitation of Shimoni and Wasini forests

The Shimoni and Wasini forest habitats support and sustain rare and endemic flora species which are of particular interest to biological conservation. Examples of such species are the *Barleria whytei*, *Indigofera tanganyikensis var paucijuga*, *Manilkara sp aff discolour* and *Queenslandiella sp aff hyalina*. The forest has many threatened species including the African Golden Cat (Rare), the spotted ground thrush (Critically endangered), Fischer's turraco (Threatened), the Southern-banded snake eagle (Threatened), the Plain backed sunbird (Vulnerable), the Uluguru violet-backed sunbird (Locally threatened) and Hildergardes tomb bat (vulnerable). The forest also has the largest population of the Angolan black and white Colobus monkey at the coast and it is an important bird habitat. Culturally, these forests represent important Kaya shrines and according to local communities, the forests are important sources of medicinal herbs.

Despite their enormous ecological, social, cultural and economic benefits, the Shimoni and Wasini forests are being degraded at an alarming rate through charcoal production, commercial timber harvesting, poaching of wildlife, uncontrolled developments, and clearance for agricultural use. This action therefore aims at supporting re-forestation initiatives and promoting community alternative livelihood projects to ease pressure on the forests.

Action 2.5: Conduct research on the ecology of sea grass beds

Sea grass beds are key marine ecosystems found predominantly in the muddy area of coastal lagoons. They provide feeding areas for a variety of commercially important fish species and support mature fish whose early life stages are found in estuaries and mud-flats. They are important feeding grounds for threatened and/or endangered species such as the green turtle, the hawksbill turtle and the dugong. However, despite the importance of this ecosystem, very few studies have been carried out to understand these ecosystems in the KMMPA making it difficult to effectively manage them. Twelve species of sea grass have been recorded from Kenyan waters but data on their distribution, densities and productivity is very scanty. The major threat to sea grass is excessive sedimentation of shallow coastal waters resulting from erosion of agricultural lands. Turbidity from a number of causes also tends to cut down the light penetration and sea grasses cannot thrive under such conditions. Hence, to understand the ecology of the sea grass beds, the status and trends of sea grass distribution in the MPA will be assessed and monitoring of marine water and sediment quality carried out in collaboration with stakeholders.

Action 2.6: Control access to critical habitats (coral reefs, sea grass and mangrove forest)

Uncontrolled human activities and natural events (sedimentation, overharvesting, El Nino, use of destructive harvesting practices) have led to the destruction of coral reefs, sea grass and mangrove ecosystems. Efforts to reduce destruction will involve development of resource extraction plans for coral reef-related resources, re-forestation of degraded mangrove areas and raising awareness about the need for healthy ecosystems in the protected area.

The sea grass bed is threatened by increased sedimentation and uncontrolled raw sewerage dumped in the sea. Sea weed farming is the most recent threat especially in the intertidal areas. Sea weed farming in KMMPA is taking place in Mkwiro, Kibuyuni, Gazi and Funzi Islands. Key stakeholders in these critical habitats will be sensitized on the impacts of human activities on these ecosystems and they will be assisted in developing and implementing appropriate measures. Furthermore, access to critical habitats such as coral reefs; estuaries; mangroves; sea grass beds; and other spawning and nursery areas, which have been zoned as Protection Zone, will be restricted through implementation of the prescriptions provided in the Zoning Scheme.

Action 2.7: Conduct research on restoration and rehabilitation of critical habitats

The compromised species and habitats of KMMPA require rehabilitation strategies. Hence, in partnership with other research agencies operating in the area, KMMPA management will conduct pilot studies on restoration and rehabilitation of critical habitats. Scientists and KMMPA managers will identify and use available rehabilitation manuals for critical habitats such as mangroves, sea urchins and crown of thorns control manuals. Pilot studies on restoration and rehabilitation strategies will be conducted where no such manuals exist.

Action 2.8: Control harvesting of aquarium fish

The aquarium fish is one of the highest value products harvested from coral reefs. In Kenya, this trade is artisanal and concentrated in the Shimoni area. There has been concern about this fishery due to high post harvest mortality and environmental impacts such as shifts in community structure due to heavy fishing in a small area, targeting a few species, and coral damage due to poor harvesting method.

Aquarium fishing is a very lucrative business supporting many livelihoods in KMMPA. Aquarium fishers harvest aquarium fish, shells and corals for trade purposes and in so doing destroy breeding and homing grounds for fish species such as the clown fish. To be able to make management decisions regarding aquarium fishing, an assessment will be done to gauge the level and extent of the trade and its impact on the habitat. At the same time, live rock collection will be assessed to determine the level of damage to the corals. An assessment on the impact on the targeted species will as well be conducted to determine its sustainability. The Fisheries Act, Cap 378 declares extraction of live coral illegal, yet their extraction by aquarium fishers continues to take place. As such KMMPA management will liaise with the fisheries department to enforce the law to ensure sustainability of the aquarium fishery industry.

Objective 3: Marine Biodiversity is Understood and Appreciated

Research and monitoring information is critical for effective management of a protected area. Managers need information to assess the status of key species and habitats as well as operational related information such as the behaviour of visitors and communities living adjacent to the managed area. In addition, managers need information to adapt to changes and hence improve management. The basic research and monitoring work that is currently carried out at the KMMPA includes ecological and biodiversity assessments, monitoring, and research on specific topics. From the annotated bibliography of the MPAs, 40 reports and journal articles are on

the KMMPA. Most are on coral reef ecology (15%), finfish and fisheries (15%) and gastropods and molluscs (12%). Very few are on management related topics such as financing, carrying capacity and visitor use. In addition, the first management effectiveness assessment of the KMMPA revealed that research information is not made readily available to managers and that the MPA have no storage and retrieval systems for this information. This objective has therefore been designed to streamline KMMPA research and dissemination of research outputs to stakeholders.

The management actions that will be implemented to achieve this objective focus on reviewing existing information and research on climate change; awareness creation with regard to climate change; conducting an economic valuation study of the area; conducting long-term and short term surveys of all critical habitats and species; conducting studies on impacts of fishing vessels and gear use; developing a formalized mechanism for networking; developing a central data and information management system; disseminating information widely to research and educational institutions as well as to the local community; developing an ecological monitoring programme and building capacity to implement the programme. These management actions are elaborated in the following sections.

Action 3.1: Conduct a review of existing information and research on climate change

The major ecosystems in the KMMPA including coral reefs, mangroves and coastal forests are threatened by impacts of climate change. Potential impacts include increased rainfall (a threat to mangroves and coral reefs) increased droughts (threat to forests and other terrestrial habitats), and increased bleaching events (threat to coral reefs). For example, the 1998 El Nino bleaching event caused reduced coral cover in the reefs of KMMPA. Bleaching events are projected to increase in severity and occurrence and could potentially cause severe changes in the community structure of coral reefs. Species such as dolphins, sea turtles, coral reef fish communities, dugongs among others could be seriously degraded.

Available ecological data from stakeholders provide some baseline information. However, most of this information is on coral reefs and how climate change will impact other habitats and species of the area, but potential mitigation measures are not available. This calls for a review of existing information on climate change and conducting targeted research on climate change indicators and potential climate change mitigation and restoration measures (e.g. reforestation, pilot coral growth studies, reefs connectivity studies to identify resilient reefs, pilot carbon capture project). For example, through regular surveys and research activities, a marine resource identified as degraded or threatened will lead scientist(s) to consult with the KMMPA management committee to develop consensus and prioritize research that aims at reducing, minimising or halting the resource damage. KMMPA management will partner with institutions involved with research in synthesizing information on climate change and developing relevant intervention measures.

Action 3.2: Raise awareness on climate change impacts, mitigation and adaptation measures

It is important that KMMPA stakeholders are aware of current global issues affecting ecological systems and livelihoods within the area. Hence, KMMPA management will collaborate with relevant research stakeholders in creating awareness on results and recommendations of climate change studies carried out in KMMPA. This information will be disseminated in an easy-to-understand form to stakeholders.

Action 3.3: Conduct long-term and short term surveys of all critical habitats and species

KMMPA requires short term and long term monitoring of critical habitats and species of special concern. Of significant importance is linking this data with a GIS database to visualize changes over temporal and spatial perspectives. Species of special concern are sea turtles and dugongs, which are currently classified by CITES as critically endangered. In addition, there are other protected species that are affected by fisheries such as the

humpback dolphin and Napoleon wrasse whose populations are documented to be on a declining trend. Surveys on these species and their habitats will be carried out regularly to determine trends.

Action 3.4: Conduct studies on fishing vessels, gear use, and their catch levels

Fishing vessels, gear type and technology used by fishers are regulated and licensed by the Fisheries Department. There is limited enforcement of regulations on use of inappropriate gear due to financial constraints. This gives leeway to fishers to use fishing methods such as beach seines that are not appropriate and are potentially destructive. Poison and dynamite are illegal fishing methods practiced by foreign fishers. Unfortunately, these methods are being adopted by local fishers in the KMMPA. The level of damage caused by illegal fishing gears has not been measured. A study will thus be conducted to generate information on gear use and impacts of individual gears to understand the level of damage caused.

Action 3.5: Conduct a visitor impact study

The way managers respond to critical threats and persistent stresses, will likely be the single most important factor affecting the long term viability of the KMMPA. KMMPA receives the highest number of visitors of all MPAs. The high number of boats taking visitors to the snorkelling or diving areas has at times led to insufficient mooring buoys forcing boat operators to anchor on the beach contrary to park regulations. Anchoring on the beach interferes with faunal behaviour on the beach and also reduces the beach's aesthetic value. Novice snorkelers occasionally cause damage to corals. This has led to increase in coral rubble over the years.

Consequently, the extent of damage caused by inappropriate boating, recreational visitors and fishing activities will be assessed in order to quantify their impact on conservation targets. This study will include the estimation of the visitor carrying capacity for reef tourism. It is essential to assess the carrying capacity to determine optimal levels of use, to avoid overuse or crowding, and maintain visitor satisfaction. This will involve monitoring the number of vessels and visitors and their activities at selected areas, as well as damage caused to the resources. Studies on tourism trends, dive operations, boat use and commercial and recreational fishing will provide useful information that will ultimately lead to both increase in tourism and conservation of critical habitats.

Action 3.6: Promote research collaboration and dissemination of information

The KMMPA provides an opportunity for many research and educational institutions to conduct studies. However, there is little coordination or formal mechanisms for information exchange and networking. Such a mechanism would help inform the development of research proposals and minimize duplication of studies. As such, researchers, managers and the KMMPA community will form a forum where they can share experiences on research and management of the KMMPA. Existing regional mailing lists are a good starting point and will be enhanced (Research mailing list, annual research meeting, quarterly newsletters, and WIOMSA country chapter mailing list). An annual research forum will be initiated and an update of key stakeholders of KMMPA will be done.

Collaborative effort between scientists and resource managers in developing research proposals is important to ensure that priority areas are targeted and research solutions identified. This not only creates ownership in terms of clarity regarding the purpose of research and sources of research funding, but also ensures proper coordination and implementation of recommendations by managers. In addition, collaboratively identified targets and indicators to evaluate management effectiveness improves management and planning in the area. Consequently, under this management action, collaborative research will be promoted among stakeholders. On the other hand, to ensure research is targeted on priority areas, research gaps will be identified and important research themes prioritized.

Action 3.7: Develop a central data and information management system

The main drive for developing a monitoring system is to get information that can be used to respond to threats and to tailor management interventions to the changing environment. This cannot be done if the information generated is not analysed and disseminated to managers in a timely manner for appropriate action. On the other hand, there are many research institutions, NGOs and universities that have conducted research in the KMMPA, but much of this information is not archived in a central place. Although an annotated bibliography of Kenya's MPAs is available, individual manuscripts, articles or reports are not readily available at the KMMPA. Hence, a comprehensive information management system will be developed at the CCA Research Office to ensure all relevant data and information is readily available. Information derived from monitoring studies will be analysed and disseminated regularly through appropriate media (e.g. technical reports, seminars, pamphlets and scientific papers). This will promote public appreciation of conservation efforts leading to increased support for the protected area.

Action 3.8: Develop an ecological monitoring programme

Research, monitoring and evaluation are essential for effective PA management. Managers require information to assess the status of key species and habitats as well as the behaviour of visitors and neighbouring communities for purposes of adaptive management. Hence, an ecological monitoring programme will be implemented to establish baseline data, record changes in resources and evaluate effectiveness of the Marine Protected Area.

Action 3.9: Review management practices effectiveness with managers

This activity will provide an opportunity for managers to review analyzed data and determine whether modifications to management practices are necessary. Management effectiveness assessment will help to find out if the protected area is meeting its objectives in the most efficient and effective way. It will determine whether the protected area is designed, planned and managed appropriately, and whether it is having positive results, such as protecting biodiversity, promoting tourism and improving livelihoods of local people.

Table 14. Framework for the development of the KMMPA Ecological Monitoring Plan

KEA/Threat	Indicator of change	Method of measurement	Collection frequency	Data source	Responsibility	Data currently collected?
Conservation Target 1: Mangroves						
KEA: Sediment and water quality	Decline in soil productivity by build up of sulphur and anoxic conditions.	Nutrients quantification (nitrates, ammonium, phosphates, silicates), biological oxygen demand, chlorophyll a, and sediment characterization	Annually	Water quality reports	SRS	No data currently exists
KEA: Biomass (fish, molluscs, mangroves) Threat: Overfishing and logging affecting species composition and structure	Decline in biological diversity and biomass	Establishing the densities of vertebrates and invertebrates within the mangrove ecosystem	Annually	Mangrove fauna reports	SRS	No data currently exists
KEA: Mangrove productivity Threat: logging causing decline in detritus and forest regeneration	Decline in detritus macro and micro fauna, lowered mangrove regeneration	Measuring of litter fall and detritus in the under storey and assessment of regeneration	Annually	Litter fall, benthic detritus and regeneration assessments	SRS	Data currently missing
Conservation Target 2: Coral Reef						
KEA: Water quality	Algal blooms due to eutrophication as a result of nutrients enrichment	Nutrients quantification (nitrates, ammonium, phosphates, silicates), biological oxygen demand, chlorophyll a,	Bi-annually	Water quality reports	SRS	No baseline data available
Threat: oil spill and chemical or industrial pollution	Organic pollutants such as crude oils and industrial chemicals arising out of shipping	Monitoring the levels of organic pollutants such as polychlorinated biphenyls, tributylene containing antifouling paints amongst other hosts of organic pollutants,	Annually and specifically after oil spills	Water quality reports	SRS	No baseline data available

KEA/Threat	Indicator of change	Method of measurement	Collection frequency	Data source	Responsibility	Data currently collected?
<p>KEA: Diversity and abundance of coral community (coral, fish, sea urchins)</p> <p>Threat: Degradation due to human activities (fishing, tourism)</p>	Change in fish and invertebrates families densities and composition, and population structure resulting in ecosystem shifts to single species domination	Ecological monitoring of key coral reef communities fish and invertebrate families	Bi-annually	Ecological monitoring reports detailing species composition, densities and population structure	SRS, WWF, CORDIO, KMFRRI	Baseline data available
<p>KEA: Coral community size & structure</p>	Changes in coral cover and species composition	Monitoring coral cover, species diversity and composition and human activities in coral reefs. Additionally, climatic changes such as temperature that causes bleaching is very important	Annually	Monitoring reports	SRS, WWF, CORDIO, KMFRRI	Baseline available
<p>KEA: Coral recruitment</p> <p>Threat: decline in coral diversity and cover</p>	Low coral cover and diversity. The ecosystem shows a shift from coral dominated to algae dominated.	Monitoring coral cover percentages and species diversity (resilience) and recruitment	Bi-annually	KWS, CORDIO, WCS, WWF	SRS	Some data exists
<p>KEA: Fish populations (Abundance, biomass, density, diversity)</p> <p>Threat: Decline in fish diversity and density</p>	Decline in fish densities and loss of fish species	Monitoring fish population densities and structure	Bi-annually	Monitoring reports	SRS	Some data is available KWS, CORDIO, WCS, WWF
Conservation Target 3: Sea grass ecosystem						
<p>KEA: Water quality</p> <p>Threat: Pollution and release of effluents to the sea</p>	Algal blooms due to eutrophication as a result of nutrients enrichment	Nutrients quantification (nitrates, ammonium, phosphates, silicates), biological oxygen demand, chlorophyll a	Bi-annually	Water quality reports	SRS	
<p>KEA: Sea grass cover</p> <p>Threat: Disturbance by other species as they forage for hidden prey</p>	Reduced sea grass cover and abundance	Monitoring sea grass cover and abundance to determine natural variability	Bi-annually	Monitoring reports	SRS	

KEA/Threat	Indicator of change	Method of measurement	Collection frequency	Data source	Responsibility	Data currently collected?
<p>KEA: Sea grass species composition Threat: Pollutants use up oxygen thus prohibiting sea grass growth</p>	A decline in sea grass species diversity and distribution	Monitoring sea grass species diversity and structure and also diversity and abundance of animals	Bi-annually	Monitoring reports	SRS	
Conservation Target 4: Intertidal habitat						
<p>KEA: Population of key intertidal organisms Threat: Removal of organisms by humans</p>	Depletion in marine organisms supported by the intertidal habitats	Population monitoring	Bi-annually	Population counts	SRS	
<p>KEA: Quality of habitat Threat: Pollution and human damage through trampling and rock turning</p>	Reduction of carrying capacity of the habitats	Habitat survey	Bi-annually	Ecological monitoring reports	SRS	
<p>KEA: Water quality Threat: Pollution by humans and oil spills</p>	Floating pollutants and oil traces and also algal blooms	Nutrients quantification, biological oxygen demand and pollutants	Bi-annually	Water quality reports	SRS	
Conservation Target 5: Coastal Forest						
<p>KEA: Species composition and structure Threat: Illegal logging and poaching</p>	Mainly the loss of flora and fauna species, decline in forest cover and changes in forest structure	Forest flora and fauna species composition, population structure of species	After every three years	Species distribution reports	SRS	Some data is available and further survey planned under KCDP
<p>KEA: Forest productivity Threat: Illegal logging</p>	Decline in detritus macro and micro fauna, lowered regeneration	Measuring of litter fall and detritus in the under storey and assessment of regeneration	Annually	Litter fall and regeneration assessments	SRS	Data currently missing
<p>KEA: Abundance and occurrence of keystone species such as Ader's duikers, elephant shrews Threat: Poaching and habitat degradation</p>	Decline in species densities and degradation or loss of habitat	Population counts	Annually	Population census reports	KMMPA Warden, SRS	Some data is available, but there remains a big gap.

KEA/Threat	Indicator of change	Method of measurement	Collection frequency	Data source	Responsibility	Data currently collected?
Conservation Target 6: Island ecosystems						
KEA: Available and quality of habitat	Extent of habitat destruction and human settlement and also invasion of species	Habitat survey and monitoring	Bi-annually	Ecological monitoring reports	SRS	
KEA: Species population densities Threat:	Reduced populations especially of native species	Population counts	Bi-annually	Population counts reports	SRS	
Conservation target 7: Reef Fisheries Resources						
KEA: Reef fish populations Threat:	Depletion of reef fishes due to overfishing	Monitoring fish population densities and structure	Bi-annually	Monitoring reports	SRS	
KEA: Water quality Threat: Pollution	Algal blooms due to eutrophication as a result of nutrients enrichment	Nutrients quantification (nitrates, ammonium, phosphates, silicates), biological oxygen demand, chlorophyll a	Bi-annually	Water quality reports	SRS	
Conservation Target 8: Sea Turtles						
KEA: Available and quality habitat	Extent of suitable sea grass beds quantity and quality of preferred forage species	Mapping of habitat; forage quality analysis; transects & quadrants to establish forage quantity	Bi-annual	Monitoring and mapping report	SRS/ collaborative institutions / consultant	No data is available
KEA: Population size, recruitment and structure Threat: Extraordinary predation	No. of individuals (age and sex); body condition	Sample counts	Quarterly	Census reports	SRS/ collaborative institutions	Baseline data is available
	No. of individual lost due to predation	Daily surveillance; counts	Daily	Daily surveillance and count reports	SRS/ collaborative institutions security	Baseline data available
Conservation Target 9: Marine Mammals (Whales, dolphins, dugongs)						
KEA: Available and quality habitat Threat: Insufficient habitat	Quantity and quality of preferred forage species; Population size verses carrying capacity	Transects to establish forage quantity and forage quality analysis	Bi-annual	Monitoring reports	SRS/ collaborative institutions	No data is available
KEA: Population size, recruitment and structure	Number of individuals (age & sex)	Counts	Daily	ID reports	SRS/ collaborating institutions	Baseline data is available



Tourism
Development
and
Management
Programme



Programme Purpose and Strategy

The purpose of the Tourism Development and Management Programme is:

To develop a distinct tourism product, based on the unique marine biodiversity, scenery and local culture at KMMPA, that offers a memorable visitor experience

Among the protected areas at the Coast Conservation Area, the KMMPA is the leading revenue earner. In the year 2014 KMMPA generated approximately Ksh.36 Million followed by Watamu Marine Protected Area with Ksh.29 Million. The MPA undoubtedly has significant tourism potential, as attested to by high visitation especially during periods of national tourism boom. The high visitation could be partly attributed to proximity of the KMMPA to Diani tourism hub and the diverse and unique tourism attractions that KMMPA offers.

With improvement in national security, the KMMPA is set to regain its popularity among visitors, especially the more discerning ones, considering that popular terrestrial protected areas are becoming more and more crowded eroding visitor experience. In addition, with implementation of projects outlined in this plan (e.g. construction of a Jetty at Shimoni), and increased collaboration between local tourism players and KWS that is creating a conducive environment for tourism to thrive, the KMMPA is bound to attract more visitors. The guiding principles underpinning the development and implementation of this programme are described below.

Guiding Principles

In implementing the KMMPA's Tourism Development and Management Programme, KMMPA Management will strive to ensure that:

Tourism is appropriately developed

Tourism has the potential to be a strong and sustainable source of support for the management and conservation of the KMMPA. However, uncontrolled tourism development can destroy the KMMPA values for which it was established and which are the MPA's tourism backbone. Most visitors to the KMMPA are presently attracted by the quality of the reef ecosystem, unique and diverse marine life including dolphins, endemic coconut crabs, and the rich local culture. Under this management programme, therefore, KMMPA management will strive to ensure that tourism activities do not impinge on ecological integrity of KMMPA's ecosystems and the authenticity of the local culture. This will be achieved through implementation of management actions outlined under this management programme and zonal prescriptions set out in the zonation scheme chapter. Furthermore, to ensure that new activities do not impact negatively on the ecosystem's integrity, any new proposed development will be subjected to an environmental impact assessment before work commences.

Tourism support infrastructure is developed and maintained

The tourism potential in the KMMPA is presently underdeveloped. This hinders exploration and enjoyment of KMMPA resources by visitors. It is therefore vital that KWS and relevant stakeholders explore means of ensuring that appropriate infrastructure set out in this plan is developed to enhance visitor experience and satisfaction. Hence, under this management programme, an enabling environment will be created for investors to facilitate development and operations of diverse tourism facilities.

Tourism products are diversified

In addition to the marine biodiversity resources that are currently the mainstay of tourism at the KMMPA, communities living around KMMPA have rich cultural and historical resources, such as sacred forests (Kayas), shrines, folklore, drum-beating ritual and ngoma ya pepo, that can be used to promote cultural tourism. If well developed, these cultural resources can be a major tourist attraction in the area. Hence, to unlock the potential of cultural tourism, this management programme aims to support development of diverse cultural tourism products around the MPA.

The above guiding principles are intended to guide the implementation of the Programme's Management Objectives which, if implemented, will lead to achievement of the programme purpose. These objectives are:

MO 1. Sufficient tourism support infrastructure and equipment provided

MO 2. Tourism activities and attractions diversified

MO 3. KMMPA's tourism marketing improved

MO 4. Visitor administration and management systems improved

The following sections discuss the management objectives and their corresponding management actions. Under each management objective or action, a brief description of the relevant management issues and opportunities is provided.

Management Objectives and Actions

Objective 1: Sufficient Tourism Support Infrastructure and Equipment Provided

The future desired state of the KMMPA is where sufficient high quality tourism-support infrastructure is developed to support sustainable tourism in the area. Currently, accommodation facilities in the MPA are not adequate to support the increasing number of visitors to the MPA. Visitors have to seek accommodation at Diani which is about 50Km away. Further, infrastructure to assist visitors to explore marine resources, such as jetties and anchoring moors, are lacking. These facilities, among others, need to be provided and existing ones maintained to ensure that visitor experience is enhanced. This objective has been designed to ensure that sufficient tourism infrastructure and facilities are provided and maintained around the KMMPA to support the envisaged increased tourism growth. The management actions that will be implemented to achieve this objective are elaborated in the following sections.

Action 1.1: Liaise with other stakeholders in the development of tourist accommodation facilities

Shimoni Forest is home to rare and endemic species which are of special interest to biological conservation. This indigenous forest provides vital natural resources to the surrounding Shimoni community and has the potential to support alternative sustainable livelihoods through responsible tourism. However, the forest is under threat from deforestation caused by agricultural encroachment. To avert the forest destruction, a local community based organisation, Friends of Shimoni Forest, has been in the forefront in campaigning against destructive forest activities and also advocating for acquisition of resource use permits by those utilizing forest products. To enhance the conservation of the forest, KMMPA management will liaise with relevant government agencies such as KFS, Kwale County Government and the local community to have an eco-lodge established in the forest. The presence of the eco-lodge will enhance security as well as demonstrate that the forest can generate revenue from non-consumptive uses.

Action 1.2: Upgrade and maintain Shimoni cottages

There are 7 cottages located within the KMMPA headquarters compound. Three of these have en suite bathroom facilities while the rest share communal washing facilities. The cottages are very popular with visitors due to limited tourist accommodation facilities in the KMMPA-adjacent areas. It is therefore critical that these cottages are maintained to high standards to ensure visitor satisfaction. Hence, the cottages that lack bathrooms will be upgraded to make them self contained. Also, to increase accommodation opportunities, additional cottages will be constructed.

Action 1.3: Develop and maintain public campsites and picnic sites

Kisite Marine National Park and Mpunguti Marine National Reserve are situated a distance away from the mainland. The Upper Mpunguti Island, in Mpunguti marine reserve, is an important stopover for visitors en route to Kisite Marine National Park and is also popular with visiting students. Hence, under this action, KMMPA management will establish and operate a camp site, picnic site, and nature trail at the Upper Mpunguti Island to support visitors' recreation needs.

Action 1.4: Offer tourist excursion services

The KMMPA has potential for establishment of a viable sea excursion service. Visitors can participate in excursions to the MPA as well as other destinations e.g. fishing villages along the South Coast. However, the KMMPA lacks a boat with requisite capacity to ferry large numbers of visitors. Hence, to offer organised groups of visitors an opportunity to experience unique maritime adventures and discover marine life, KMMPA

management will liaise with KWS Headquarters in justifying procurement of a large tourist boat to facilitate sea excursions. Once the boat has been procured and is in operation, staff with experience in marine tour guiding will be deployed to KMMMPA to offer interpretation services during the sea excursions

Action 1.5: Liaise with the Ministry of Tourism to establish a tourist circuit that connects South Coast to the mainland

With Likoni ferry being the only link between Mombasa Airport and tourist destinations in Tiwi, Diani and KMMMPA, tourism operators have been complaining about losses incurred as visitors opt for more accessible locations in the North Coast. The Dongo Kundu bypass road, currently under construction, will ease congestion at Likoni Ferry. In view of this development, tourist circuits linking to this new road will be identified and marketed in liaison with the Ministry of Tourism to increase visitation in the South Coast. Further improvement of Shimoni earth road (by County Government) and completion of proposed KWS jetty at Shimoni is expected to enhance KMMMPA visitation. Identification of these circuits will include identifying prominent tourist attractions in the South Coast and inventorying the access roads and tracks.

Action 1.6: Facilitate establishment of board walks

There exists a board walk at Wasini Island that is operated by the Wasini Women Group. This board walk stretches over 500 metres and offers scenic views of the coral gardens and mangrove forest. Visitors enjoy the scenery through interpretation that is provided by a local guide. However, the board walk has maintenance challenges and requires upgrading to ensure visitor safety. On the other hand, there is high potential for establishment of another board walk at Sii Island. The mangroves of Sii Island have in the past been exploited in an unsustainable manner and development of nature-based tourism on this island would encourage the local community to protect the mangrove forest. Consequently, through this action, the KMMMPA will support the local community in constructing a board walk at Sii Island. And to ensure that the community managed board walk projects do not fail, board walk managers and officials will be trained in project management.

Action 1.7: Liaise with National Museums of Kenya (NMK) to develop and maintain historical and cultural resources in the Greater KMMMPA

The greater KMMMPA has several sites of cultural and historical importance. Some of the prominent sites of tourism importance include the Shimoni Slave Caves that were used as slave holding grounds during the slave trade era, and colonial relics such as the ruins of Kenya's first colonial prison and Shimoni Old District Commissioner's (DC) house. Currently, the Shimoni Slave Caves are managed by the local community through the Shimoni Slave Cave Management Committee with technical assistance from the NMK. Tourism revenue accruing from entry charges is used to support diverse community projects including school fees for needy students, buying medicines for health facilities, and paying teachers' salaries. On the other hand, one cultural festival in Shimoni, intertwined with the Muslim religion, is practiced and some of the traditional practices are still alive such as the spirit dance, Ngoma ya Pepo.

As such, KMMMPA management will liaise with NMK management and the local community in improving visitor experience at the Shimoni Slave Caves. One of the major undertakings that will be supported will be desilting some of the inaccessible sections of the caves to facilitate long walks in the caves. The local community will also be supported to establish a cultural centre at one of the historical buildings such as the Shimoni old DC's house.

Action 1.8: Liaise with the Ministry responsible for Tourism in promoting home stays

One of the Vision 2030 flagship projects for tourism is the certification of home-stay facilities to promote cultural tourism in Kenyan homes. To exploit the cultural tourism potential as well as diversify tourism experience

around the KMMPA, KMMPA management will support identification and promotion of home stays in the region as envisaged in the Vision 2030. During home stays, visitors will be able to appreciate the local village culture through shared meals, discussions and language exchange, sightseeing and various activities including: helping with daily tasks, collecting firewood, weaving, shopping, and local Swahili cooking. However, for KMMPA to be promoted as a holiday destination for village home stay, it has to meet the required standards of hospitality and hygiene. Thus, the first step through this action is to identify potential participants in the home stay venture and to liaise with community based tourism organizations and government organizations to facilitate community training and education on the benefits of operating home stay ventures.

Objective 2: Tourism Activities and Attractions Diversified

The future desired state at the KMMPA is where visitor experience is enhanced through visitor participation in a wide range of activities. The KMMPA has potential to support more visitors if only visitor activities and attractions are diversified. Increasing the diversity of the tourist products and providing essential information on these products will increase understanding and appreciation of the exceptional resources in the protected area thereby enhancing visitor experience and satisfaction.

To ensure that this objective is realised, several management actions have been designed. These focus on: developing and maintaining nature trails, promoting ornithological safaris, promoting primate viewing in Shimoni Forest, promoting wreck-diving, promoting canoe safaris, and operating a 2-3 day tourist package. These actions are elaborated in the following sections.

Action 2.1: Develop and maintain nature trails

In order to experience and appreciate the rich biodiversity and scenic values offered by the mix of terrestrial and marine ecosystems around KMMPA, there is need to develop nature trails that can be used by visitors to explore the local forests such as Shimoni and coastal islands such as Mpunguti and Wasini. To facilitate establishment of the nature trails, a trail feasibility survey will be carried out. New nature trails will thereafter be designed and constructed guided by best practices in trail construction. Once established, appropriate trail maps will be produced and disseminated to visitors at KMMPA offices.

On the other hand, to increase the enjoyment of the marine ecosystems by visitors as well as provide a marine education tool, an underwater nature trail representing the diverse marine ecosystems in the area will be developed. The function of this nature trail will be to stimulate interest in the underwater world as well as guiding snorkelers and divers to underwater sites and marine resources of interest.

Action 2.2: Promote ornithological safaris

The KMMPA and its adjacent areas are rich in both resident and migratory birds. Mangroves and sea grass beds are important areas for migrating bird species, such as African spoonbills and yellow-billed storks, due to the availability of food and the adjacent roosting sights in mangroves. Kisite and Mpunguti Islands are important breeding habitats for migratory birds that visit between January to March and July to September. These islands also serve as breeding grounds to resident birds - stints and greenshanks. Kisite Island shelters migratory roseate terns that come in large numbers for breeding and it is for this reason that the island is internationally recognized as an Important Bird Area (IBA) by Birdlife International.

In view of these ornithological values, KMMPA will be marketed as a prime bird-watching destination. To promote KMMPA as an important bird area, especially the migratory birds, research will be conducted on migratory bird species, their migration routes and timings. For this study to be successful, a network of bird-watching sites will be established, local guides trained, and birding routes with trails identified to offer birdwatchers a satisfying experience.

Action 2.3: Promote primate viewing in Shimoni forest

The Shimoni forest is home to four primates i.e. Angolan black and white Colobus monkey, baboons, Vervet and Sykes monkeys. Most notable is the Angolan black and white Colobus monkey, one of the five species of black and white Colobus found in Africa and a flagship species for Kenya's coastal forests. Given the fact that the forest is rarely visited, continuous logging is taking place threatening existence of the Colobus monkey and other primates. Promoting primate viewing will add value to what KMMPA offers and contribute to the conservation of the forest. In view of this, KMMPA management will work with the local community to promote primate viewing in the forest.

Action 2.4: Promote wreck diving

Wreck diving is a type of recreational diving where shipwrecks are explored for the marine diversity they host. Although most wreck dive sites are at shipwrecks, there is an increasing trend to scuttle retired ships to create artificial reef sites thereby creating a habitat for many types of marine life and present adventurous challenges for scuba divers. In Kenya, there are few wreck dive sites. The first ever wreck to be purposefully created on the East African coast is the Alpha Funguo Wreck in Diani where a 48m fishing trawler was sunk.

Given the demand for wreck dives from visitors, the KMMPA management in liaison with the Park Management Committee, dive operators and other stakeholders, will identify potential wreck diving sites and types of wreck diving. Since this process is quite costly, a mechanism for cost-sharing amongst the key stakeholders will be sought. This will require formulation of a Memorandum of Understanding (MoU) for ownership and management of the wreck. One potential wreck location, as suggested by tourism stakeholders is located 300m North of Kisite Island. However, other potential sites in Mpunguti Marine National Reserve will also be explored. Measures will, however, be taken to ensure that the identified locations meet the required standards and the assessment of the potential impacts on the nearby coral reef is carried out before diving activities are approved.

Action 2.5: Promote canoe safaris

Traditional canoes used by local fishermen are an attraction to visitors who seek to be ferried across the Wasini channel in this mode of transport. Hence, to enhance and improve the canoe safari venture, the KMMPA management and relevant stakeholders will identify and support operators of seaworthy canoes to offer canoe safaris along the Wasini channel. Further, to streamline the canoe safaris venture, regulations will be developed, in collaboration with canoe operators, boat operator associations and tour operators, to guide the canoe safaris.

Action 2.6: Introduce two or three-day tour packages

Almost all visitors to KMMPA come from Diani to visit the MPA where they spend 2-3 hours and then go back. As a result, the trickledown economics of tourism to the local community is negligible. Tourism provides lots of benefits, especially if the visitors spend the night in the place of visit. Hence, introduction of a two-three day tour package would encourage overnight stays in the KMMPA. On the first day, for example, visitors could visit the marine park and the reserve for diving, snorkelling and dolphin watching, and then later visit the historical buildings and Kayas in Shimoni, Wasini and Mkwiro villages. For accommodation, visitors could choose to camp at Mpunguti ya Juu or stay at Shimoni lodges, KWS Eden Bandas, KWS Campsite or one of the proposed home stays in Shimoni or surrounding villages. On the second day, visitors could enjoy attractions in Shimoni forest through nature walks and pay a visit to the Shimoni Slave Caves. On the third day they could visit the boardwalks of Wasini or the proposed Community Marine Conservation Areas (Kibuyuni, Wasini, Mkwiro, Shimoni, Majoreni or Vanga). To make it even more appealing, the local community will be encouraged to form a vibrant traditional dance troupe to be performing at the proposed cultural centre and also to entertain guests in the evenings.

Objective 3: KMMPA's Tourism Marketing Improved^{2,3,4}

The future desired state of the KMMPA is where there is increased visitation and enhanced visitor satisfaction. This desired state can be achieved through design and implementation of a robust marketing strategy that combines ecological, social and partnership marketing approaches. Under this objective, therefore, KMMPA management will seek to work with stakeholders in the tourism industry such as tour operators, hoteliers and boat operators to implement marketing strategies that emphasise on attracting, maintaining and increasing visitor numbers as well as increasing public support for KMMPA. This will be accomplished through implementation of management actions outlined in the following sections.

Action 3.1: Conduct market research

Understanding the tourism market segments for a specific protected area is critical in developing an effective tourism marketing strategy. Conducting market research is therefore vital in providing information on various visitor markets and their needs and designing messages and programs to deliver to each market segment. Thus, under this management action, KMMPA management in collaboration with KWS Business Development Department will carry out market research to develop profiles of customers' needs, behaviour and characteristics. This information will be used in developing and targeting marketing materials.

Action 3.2: Upgrade and regularly update the KWS website to improve marketing of KMMPA

The internet is a vital tool for pre-visit research by potential visitors to protected areas. Hence, having a website that has comprehensive and accurate information on a protected area assists visitors to plan their trips in detail. The KWS website does not provide detailed information and facts about KMMPA. Therefore, unique values and attractions in the KMMPA are not elaborated. Indeed most of the KMMPA tourism marketing is done by private tour companies and hoteliers that cover KMMPA extensively in their websites.

As such, to promote the KMMPA through the internet, a link to local stakeholders' web pages will be set up. In addition, the information on the KWS website will be expanded to cover the KMMPA and its adjacent areas. Through this action, the KMMPA Website will be enriched with high quality pictures showing a variety of wildlife species present in the KMMPA. A video clip will also be uploaded to provide detailed information on the KMMPA, its attractions and uniqueness. Furthermore, dolphins will be advertised in the internet as some of the animals that can be adopted through the KWS animal adoption programme as KMMPA has a resident population of bottlenose and humpback dolphins that can be identified and their life histories followed over time. In addition, KWS staff in KMMPA will be encouraged to participate in the KWS Facebook page and share information on activities at the KMMPA.

Action 3.3: Develop and update a tourist map, guide book and brochure

To enhance visitor experience and satisfaction, information materials that can educate the visitor on the KMMPA and its resources are essential. Such information can be conveniently packaged in maps, guidebooks, brochures or leaflets that can be availed to visitors through the internet or at the visitor information centre. Currently, information materials are restricted to the protected areas. There is therefore need to update this information to cover the other key components of the KMMPA ecosystem. Consequently, under this action, a tourist map of the KMMPA ecosystem with summary information on various biodiversity, scenic and cultural resources of touristic importance will be developed. The guide book and brochure will also be updated to capture tourism resources in the terrestrial part of the KMMPA ecosystem.

² See Strategic Adaptive Management (SAM) Objective 8: Increase visitation by 30% for domestic tourists

³ See SAM Objective 9: 100% boat users understand the MPA code of conduct

⁴ See SAM Objective 10: Increase local public awareness of KMMPA

Action 3.4: Install and maintain information materials at strategic locations

There is an opportunity for educating existing and potential visitors regarding tourist attractions in the KMMPA and by so doing influence visitor behaviour. This can be done through provision of information at Shimoni, the point of entry to the KMMPA, or at strategic locations along various routes followed by visitors on their way to the protected area. The current information centre at Shimoni has plenty of information on marine life presented in posters. However, these posters are old and some carry outdated information. To ensure that the information availed to KMMPA customers is up to date; these materials will be updated accordingly.

In addition, to increase dissemination of information on tourism products at the protected area, billboards will be installed at strategic points such as the Moi International Airport, Likoni ferry and the junction of Ukunda and Diani as well as other strategic places. The KMMPA sign board at Kanana junction is in a dilapidated condition and gives no information on what one should expect from the protected area. This signboard will be renovated and information updated. Additional information signage will also be installed at tourist facilities such as gates, campsites and bandas.

Conversely, measures to increase the use of research information for marketing of the protected area will be explored and a stronger liaison between marketing specialists and park managers created.

Action 3.5: Promote domestic tourism⁵

Domestic tourism in KMMPA is very low compared to international tourism. On the other hand, Kenya suffers from intermittent travel advisories that come from its major tourism markets. Therefore, increasing local public awareness of tourism opportunities at KMMPA will go a long way in increasing visitation and enhancing tourism revenues. Hence, KMMPA management will liaise with KWS Business Development and Marketing Department in disseminating information on the KMMPA to the public through the mass media (TV, newspapers and radio).

Action 3.6: Encourage tour companies to include community projects in their tour packages

The KMMPA has several community eco-tourism projects, such as Shimoni Slave Caves, the Wasini board walk and tourism boats that generate income for the local community. To ensure the success of these community initiatives and others that are envisaged and thereby win community support for conservation efforts at the KMMPA, support from tourism stakeholders is needed. Hence, KMMPA management will liaise with tour companies to sell community-based eco-tourism projects in their tour packages. Information on these projects will be posted in the tour companies' websites, KMMPA's Facebook page, website and brochures. Tour companies will also be requested to ensure that tour drivers take visitors to community projects. The collaboration between the community and tour companies is expected to eliminate visitor harassment by community members as there will be no need for aggressive soliciting for customers.

Action 3.7: Liaise with Wildlife Clubs of Kenya (WCK) to develop a marketing strategy targeting schools and citizens

Currently, students in large groups are unable to visit the MPA mainly because of the high cost and low capacity of the available boats. In liaison with KWS HQs, affordable packages will be developed and extended to the WCK to be promoted in schools. WCK will also be approached to assist by providing a bigger boat that can accommodate the needs of large organised groups of students. Moreover, the local community will be invited to invest in this venture.

⁵See SAM Objective 3: Increase local public awareness of KMMPA by 20% by 2014

To capture a larger turnout of domestic tourists including schools, the vernacular FM stations such as Kaya FM will be used to promote the area. There are also a number of meetings and conferences that are held at the coast such as the annual head teachers meeting that are a potential market. Consequently, during such meetings/conferences, promotion materials on KMMPA will be distributed.

Action 3.8: Work with tourism stakeholders to disseminate tourism information

Tourism stakeholders, such as tour operators, travel agents and media are vital in information dissemination to visitors. However, depending on individual interests, the messages presented by a stakeholder may be quite different from that of the KMMPA managers. Hence, there is need to ensure that information that is given to visitors is correct. As such, KMMPA management will work with tourism stakeholders to develop and share tourism information. In addition, KMMPA management will liaise with local journalists to provide coverage of the KMMPA in the newspapers. Towards this, journalists will be provided opportunities to write accurate stories on the KMMPA by offering them free tours of the MPA.

Action 3.9: Organise local promotional events

Organizing park level events, such as boating, cycling, wheel barrow racing, and running, has become common in different protected areas in Kenya. KWS is encouraging each National Park or National Reserve to initiate its own unique promotional event based on the resources and theme of the protected area. Unlike revenue collected from gates, revenue from such events goes directly to the development of the protected area concerned. In view of this, a team composed of KMMPA stakeholders and a representative from the KWS Headquarters Resource Mobilization office will hold a consultative meeting to come up with an appropriate event for KMMPA. Potential events include a seafood festival that could be organised to promote local seafood such as fish, crabs or seaweed products. An annual Kisite Marine National Park Awareness week could include a number of wildlife oriented activities and a sports events such as swimming across Wasini channel, competition for Kisite Dolphin Cup, and a canoe race across Wasini channel. Once a suitable event has been identified and agreed upon by stakeholders, it will be advertised nationally and internationally, and conducted annually.

Objective 4: Visitor Administration and Management Systems Improved

The anticipated increase in visitation after implementation of management actions under objective 1,2, and 3 will need to be matched by a strengthening of the KMMPA's tourism management and administration systems. Objective 4 has therefore been developed to ensure that the management of tourism in the KMMPA is strengthened, so that KWS is able to provide the desired tourism product with minimal impacts on the area's natural environment, and can also meet its obligations to tourism investors. In order to achieve this objective, eight management actions have been developed; these are elaborated in more detail below.

Action 4.1: Review and update the current visitor code

If marine tourism activities are not properly regulated, undesired social and ecological impacts may arise. For instance it is reported that the reef is increasingly being destroyed by boat anchors as well as divers. Hence, to minimize these impacts there is need to review and implement KMMPA-specific code of conduct for each marine recreation activity to ensure appropriate tourist behavior and protection of marine values. The code will include wildlife interaction protocols, in addition to interactions between resource users from different sectors, for example divers and fishers, to avoid conflicts. On the other hand, Mombasa and Coastal Tourism Association (MCTA) has posted general codes of conduct for diving and other tourism related water sports activities within Kenya's territorial waters on its website. These codes will be reviewed and adapted for KMMPA as deemed

appropriate. In addition, the developed codes will be published in brochures and leaflets, which will be availed at Shimoni KWS offices and tourist accommodation facilities in the area.

Action 4.2: Develop local visitor handling standards for tour operators and enhance security enforcement

Tour guiding provides a meaningful opportunity for local community members to benefit from tourism in the KMMPA. However, the current standard of tour guiding services in the KMMPA is generally poor. This is primarily due to the use of untrained guides who are not competent enough to interpret the KMMPA values to visitors. This not only undermines the overall experience of many visitors to the area, but can also contribute to negative impacts on the area's fragile environment. Hence, to ensure that tourism is benefitting the community and visitor satisfaction is enhanced through increased appreciation of KMMPA values, KWS will support training of community tour guides to increase their overall awareness of the area's values, rules, and the various codes that need to be observed by visitors in the KMMPA. In addition, the KMMPA tour guides will be supported to form an association which will be regulating their conduct.

Action 4.3: Develop and implement dolphin watching guidelines

The dolphins are the flagship species of the KMMPA and most visitors come with the aim of watching or swimming with the dolphins. Dolphin tourism, though useful in awareness raising, has sadly led to harassment of dolphins through increased human traffic around dolphin pods. In some instances, some boat operators chase dolphins to please their customers. Research on dolphins has revealed that dolphin tourism negatively affects the life of dolphins by disturbing and damaging their social life if left uncontrolled.

Dolphin-watching tourism is of great importance to the local communities and residents of KMMPA. To safeguard this tourism value, therefore, KMMPA management in liaison with dolphin researchers and boat operators will develop appropriate regulations to guide dolphin watching. Once the regulations are developed, an awareness creation campaign on these regulations will be extended to all residents of KMMPA, and particularly the boat operators and fishermen. A big poster will be placed at the proposed tourism jetty to inform visitors on the Do's and Don'ts of watching dolphins. On the other hand, all boats ferrying tourists to the MPA will have the code of conduct and park regulations placed strategically in the boats where all visitors can read.

Action 4.4: Liaise with the Ministry responsible for tourism to organize regular workshops for boat/beach operators

Boat operators at Shimoni crowd tour vans to solicit for customers. Although efforts have been made in the past to bring order to their operations, scrambling for visitors still continues. It is therefore important that boat / beach operators are educated on the negative impacts of their behaviour to ensure this problem is eradicated. As such, KMMPA management will work with the Ministry responsible for tourism to organise awareness raising workshops for boat/beach operators. The workshops will be used as a forum for the boat and beach operators to air their grievances as well as to develop strategies to deal with the rampant cases of tourism harassment. During the workshops, beach and boat operators will be equipped with tools to form an organisation that will regulate members' behaviour.

Action 4.5: Train local conservation groups in tourism management best practices

There are a number of organized groups practicing ecotourism activities in the KMMPA. Notable among these are the Wasini Women Mangrove Boardwalk and the Shimoni Slave Caves. Poor management and wrangles among the project members have led to poor maintenance and deterioration of these community operated tourism facilities. The project officials that run these facilities have inadequate management and leadership skills which have contributed to the current poor management of these facilities. Through this action, therefore, the

project managers and officials will be trained in project management, marketing and customer handling skills. In addition, community boat crews will be trained in tour guiding to offer quality guided tours to visitors. Local community members will also be encouraged to acquire tour guiding skills as they are well acquainted with diverse tourism resources in the area.

Action 4.6: Minimise effects of waste generated by visitors

Visitors to KMMPA usually spend 3-5 hours at sea as key attractions are located a long distance from the mainland. To enhance the comfort of visitors during boat rides and minimize pollution from poor waste disposal, there is need to have restrooms in tourist boats. In this regard, KMMPA management will liaise with Kenya Maritime Authority (KMA) and relevant stakeholders to have all tour boats fitted with restrooms/cubes installed with receptacles which will be emptied in a septic tank to be constructed at the proposed KWS Shimoni jetty. Additionally, restrooms and changing rooms will be built within the precincts of the proposed jetty to serve tourists.

On the other hand, solid waste management in Shimoni is a major problem that has not been resolved for years. There is neither a dump site nor an incinerator for disposal of solid waste. Therefore, some of the plastic bottles are dumped in the forests or streets and end up in the ocean through surface run-off. To improve solid waste management, local boat owners will be encouraged to use carboys with hand pumps on their boats instead of water bottles. The carboys are more cost effective and do not impact negatively on the environment compared to water bottles since they can be reused.

Further, publicity material will be developed to encourage responsible waste management. KMMPA management will collaborate with tourism industry players in seeking effective ways for getting waste management messages to visitors. And to find out whether waste is being minimised, marine litter, visitor satisfaction and visitor behaviour will be monitored regularly.

Action 4.7: Establish a KMMPA tourism forum

KMMPA lacks a common forum for local tourism industry players. To improve coordination of this useful industry, a tourism forum will be established to oversee the activities of tourism players in the KMMPA as well as assist in resolving tourism related conflicts. Potential members of this forum will include KWS, boat operators, hoteliers, Shimoni Slave Cave, Wasini board walk, Mombasa Coast Tourism Association, Friends of Shimoni Forest among others. Once established, this forum will hold its meetings quarterly.

Action 4.8: Conduct a study to assess the KMMPA's visitor carrying capacity

The pristine environment and rich biodiversity values in the KMMPA attract a substantial number of visitors annually. To ensure that these values are preserved there is need to determine the visitation threshold that, if surpassed, will lead to degradation of the biodiversity values. So far, observations show that the diving industry is relatively unsaturated. However, snorkelling is an extremely popular activity that is mostly concentrated in the south side of Kisite Island. It is therefore important that limits of visitors allowed to participate in various activities at a time are determined to ensure that visitor satisfaction is enhanced. Towards this, the visitor carrying capacity of the KMMPA will be determined through a study to assess environmental, physical, social and economic visitor carrying capacities of the area. For instance, the physical carrying capacity of snorkelling in the reef will consider the availability of boats which ferry divers and snorkelers to the reefs, as well as the number of mooring buoys available and space on the reef. The size and shape of the reef, as well as the composition of the coral communities will also be used to determine the physical carrying capacity. The social carrying capacity will consider the limit to visual contact between divers and snorkelers beyond which they become dissatisfied. Tourism development and management strategies in the KMMPA will thereafter be informed by the carrying capacities for various tourist activities and facilities.

Fisheries
Resource
Management
Programme



Programme Purpose and Strategy

The purpose of the Fisheries Resource Management Programme is to:

Sustainably manage KMMPA's fisheries resources in collaboration with stakeholders

KMMPA has a fringing reef system and a complex of patch reefs running through it. The reefs have erosional fossils extending several kilometres beyond KMMPA both in the North and South directions. The bottom substrate of the reefs consist of algae, sea grass beds, sand, live corals and coral rubbles which provide conducive habitats for various reef fishes including sweet lips, angel fishes, wrasses, parrot fishes, damselfishes and butterfly fishes among others.

Approximately, 75% of the fish catch is derived mainly from shallow coastal waters. The entire geographical scope of KMMPA falls within the realm of shallow coastal waters. Somewhat less rewarding fishing activities within shallow coastal waters is partly caused by lack of technologically advanced fishing vessels capable of venturing into open ocean waters among local fisher folk (Artisanal fishers). Only a few commercial fishers and sport fishers operate off the reefs and in deeper waters. Fishers utilizing fisheries resource within KMMPA use a variety of fishing methods including trap, hook and line, seine nets, gill nets, dynamite and spear gun.

For a long time, fisheries resources have provided a key source of livelihood for majority of coastal communities including the one adjacent to KMMPA. Fisheries resources also serve as basis for water based tourism activities including snorkelling, diving and sport fishing. However, due to increasing fishing effort as a result of growing human population, increased pressure has been exerted on fish stocks resulting to reduced sizes and wet weight of landed fish. Additionally, reduced abundance and distribution of fish stocks have caused fishers to opt more for illegal and unsustainable fishing methods such as use of dynamite and ring nets. Therefore, there is need to put in place measures that would allow rebuilding of fish stocks in KMMPA to facilitate continuous support of fisher folk livelihoods and water based tourism activities such as snorkelling, diving and sport fishing.

The Fisheries Resource Management Programme sets out actions which KMMPA management will implement in the next 10 years. In implementing these actions, KMMPA management hopes to realize both conservation and sustainable utilization of fisheries resources to support both local livelihoods and the national economy. The following sections set out the strategic principles that will guide KMMPA management in implementing the Fisheries Resource Management Programme and in achieving the programme purpose.

Guiding Principles

In implementing the Fisheries Resource Management Programme, KMMPA management will strive to ensure that:

Collaboration with Fisheries resource stakeholders is strengthened

KMMPA fishery resource management involves a wide pool of stakeholders drawn from local community, state and non-state agents. The local community stakeholders comprise of fisher folk, Fish dealers, Beach Management Units (BMUs) and Community Based Organizations (CBOs) with interest in KMMPA's marine fisheries resource. Government agencies include Ministry of Agriculture Livestock and Fisheries (MALF), Kenya Marine Fisheries Research Institute (KMFRI), Kenya Maritime Authority (KMA), Kenya Wildlife Service (KWS) and National Environmental Management Authority (NEMA). Non-state agents on the other hand include Wildlife Conservation Society (WCS), Coastal Ocean Research and Development Organization (CORDIO), and East Africa Wildlife Society (EAWLS) among others.

For long, these stakeholders have been engaged in fishery resource research, conservation efforts or fishery utilization activities in uncoordinated manner. MALF for example has been licensing fishing activities in KMMPA especially so in the reserve without consulting KWS which manages the operations of KMMPA including fishing activities. On the other hand, Beach Management Units (BMUs) have been accepting migrant/foreign fishers (e.g. Tanzania/ Pemba ring netters) to fish in and around KMMPA without seeking input of other stakeholders in regard to the same. This in many occasions has led to multiple conflicts among fisher folks (those in support versus those against ring net fishers) on one hand and environmentalists and BMUs/MALF on the other hand.

While the ring nets yields are high thus economically viable compared to other fishing gears, their impacts on fish stocks and fishery habitat is detrimental since they break the corals besides collecting sea grasses in the course of their operation.

To facilitate achievement of both conservation and sustainable fisheries utilization, it is necessary to promote and enhance wider stakeholder collaboration geared towards ensuring that activities by the different institutions and organizations are coordinated and integrated towards achieving the Fisheries Resource Management Programme purpose. However, stakeholders and other resource users require first to comply with the legislation that has been put in place to support fishery management. While KMMPA management authorities play a primary role in enforcing legislation, compliance will greatly be improved if the stakeholders actively take part. This calls for a common strategy and focus among different stakeholders to ensure utilization of the fishery resource is undertaken in a way that permits both derivation of socio-economic benefits and conservation of the same.

Viable fish stocks and healthy habitats maintained

To achieve a balance between conservation and sustainable utilization of fisheries resources, habitat integrity has to be upheld in addition to controlling fishing pressure. Achieving this implies accomplishing to a large extent, the main goal of Marine Protected Area (MPA) which is to protect and maintain fully functioning ecosystems. Considering the interconnectedness and linkage of marine components, through a complex web of direct and indirect interactions, including nutrient exchange, migration and predator-prey relationship, management of all coastal and marine habitats is crucial. Key habitats of relevance to fish and other marine species include coral reefs, mangroves, sea grass beds, estuaries, lagoons and other coastal wetlands, small islands, beaches and coastal dunes, rocky shores and offshore pelagic and deep sea ocean.

Although protection and management of individual biological elements (e.g. threatened species, sensitive habitats and target fishery species) is challenging in ensuring biodiversity conservation and maintaining productivity, focused status monitoring of keystone species (e.g. their distribution and abundance or loss) is key to characterizing the state of biodiversity in the area at any one time. For instance, loss of keystone species implies greater damage or loss of ecosystem functions and services.

Fisheries ecological components in KMMPA are monitored

Monitoring of fisheries in and around KMMPA is essential in determining the impact of fishing on stock (or populations), species and biodiversity within the marine protected area (MPA) and fishery yields and thus on the livelihoods of the local coastal community. Monitoring data is crucial in stimulating the design of sound management interventions. While KMMPA fishery has fairly retained its species richness, a number of human induced threats with potential to negatively affect its ecological integrity have been noted and include:

- Increase in the number of artisanal fishers in lagoon waters (shallow coastal waters)
- Increased usage of illegal and destructive gears e.g. dynamite fishing
- Growing fishing pressure from migrating fishers (from Tanzania)
- Introduction of high yielding but destructive gears e.g. ring net/beach seine nets
- Fishery habitat alterations and degradation e.g. beach and coastal development, breaking of and harvesting corals for aquarium interests or display- curio selling.

These strategic principles are intended to guide the implementation of the Fisheries Resource Management Programme's five Management Objectives which, when taken together will lead to achievement of the programme's purpose. These objectives are:

MO 1. Regulatory frameworks, enforcement and surveillance capabilities to regulate fishing activities strengthened

MO 2. Linkages between research and fishery management enhanced

MO 3. Stakeholder participation in fishery management enhanced

MO 4. Alternative sources of livelihood to fisher folk developed and implemented

MO 5. Impacts on emerging issues in fisheries resources assessed

The following sections describe these objectives and provide an outline of the management actions needed to achieve them. Under each management objective there is a brief description of the relevant management issues and opportunities, which provide the specific context and justification for the management actions.

Management Objectives and Actions

Objective 1: Regulatory Frameworks, Enforcement and Surveillance Capabilities on Fishing Activities Strengthened

The Wildlife Conservation and Management Act, 2013 of the laws of Kenya is a key legal instrument used by KWS to manage MPAs including their fishery resource. However, while this Act is specific on regulations governing terrestrial parks, it is silent on marine protected areas thus it is largely inadequate to facilitate effective management of fishery resource in MPAs. Additionally, the conduct of fishing activities in marine reserves is vested in Fisheries Act, Cap 378. Accordingly therefore, the licensing of fishing activities and enforcement of fishing regulations in the marine reserve is the responsibility of Ministry of Agriculture Livestock and Fisheries (MALF) whereas KWS performs the management of the same to promote conservation. This arrangement is increasingly perceived to promote mismanagement of the fishery resource in the MPA thus in direct contradiction with its noble goal of enhancing biodiversity conservation and sustainable use of the fishery resource.

For long, there has been inadequate enforcement of fisheries law in and around KMMPA. MALF which is charged with the responsibility of enforcing fishing regulations is generally under capacitated in terms of personnel and work tools (serviceable boats/engines, fuel etc). KWS on the other hand is equally under capacitated besides lacking the mandate to police the fishing activities in marine reserves. Additionally, beach management units (BMUs) which mainly consist of local fisher folk and thus better placed to be ‘watchdogs’ have not been empowered to deal with fisheries issues within their areas of jurisdiction. These conditions have combined to cause increase of illegal, unreported and unregulated fishing practices in KMMPA. This objective seeks to enhance collaboration between state and non-state actors in pooling resources and efforts so as to facilitate effective enforcement of fisheries legal provisions.

Action 1.1: Enhance capacity to facilitate effective law enforcement

Scarcity of appropriate patrol boats and trained personnel are known to contribute to illegal, unreported and unregulated fishing practices in KMMPA. Even in situations where patrol boats and staff are available, other necessary resources such as fuel and serviceable engines could be unavailable thereby giving room for little to no patrols that are necessary to monitor fishing practices deterring unsustainable use. In order to counter this, adequate resources will need to be provided to facilitate fishery surveillance to control against unsustainable utilization of fisheries resources. To cut back on cost and ensure adequate surveillance, joint patrols (involving all relevant stakeholders) will be conducted on a regular basis as indicated in Action 4.3 of the MPA Operations and Security Programme.

Limited capacity among enforcement officers drawn from different stakeholders is another key issue contributing to low policing of fisheries resources. To enhance capacity amongst enforcement officers, refresher or up skilling trainings will be undertaken on a regular basis in order to improve efficiency of enforcement team. In particular, enforcement personnel will be trained on arrest and prosecution procedures. Such training will include building water tight court cases through careful drafting of charge sheets and collection and

preservation of evidence. Further, regular consultative meetings between enforcement personnel and MPA management will assist in reviewing enforcement approaches with intent to improve them in line with changing fisheries crime dynamics.

Government agents (MALF, KWS) charged with the responsibility of enforcing fisheries regulations are usually inadequate owing to government freeze on recruitment or as a result of staff leaving their respective employers through natural attrition e.g. resignations, retirement, dismissals or deaths. To fill up this gap, other stakeholders will be encouraged to nominate their members to beef up the number of enforcement personnel to assist in fisheries enforcement.

Action 1.2: Lobby for the gazettelement of more effective MPA regulations

There's no doubt the Wildlife Conservation and Management Act, 2013 is limited in promoting conservation and sustainable utilization of fisheries resources. For instance, MPA regulations though allowing for the practice of artisanal fishing in the marine reserves, do not explicitly qualify what fishing gears or methods constitute artisanal fishing. Such omission creates a grey area usually used by errant fishers to exploit the fisheries resource within the MPA. Through this action, therefore, efforts will be made to initiate the formulation of additional regulations appropriate for conservation of fisheries resources and their gazettelement for implementation. Such regulations will include the following:

Except with authority from the Director General of Kenya Wildlife Service or an officer of the service dully authorized by the Director General, no person(s) shall:

- Collect or take sardine or ornamental fish, coral, shells, or any vertebrate of whatever description within the marine park and reserve;
- Operate jet skis
- Use ring net, seine net or trawl within five (5) nautical miles or within the marine reserves;
- Use spear fishing in the Marine Protected Areas; and
- Use any explosives, poisonous or noxious substances or electric shock for the purpose of rendering fish easier to catch etc.

Action 1.3: Develop and implement MoU between MALF and KWS to manage areas of overlap within MPA

In marine reserves, fisheries activities are vested in Fisheries Act, Cap 378 though the management of the sites is under the jurisdiction of KWS. In pursuit of their mandate, MALF licences all fishing activities in the reserves many a time without consulting KWS. Subsequently, the usage of some legal but destructive gears e.g. seine nets in marine reserves have always caused conflicts between MALF and KWS with the latter often feeling that the usage of seine nets causes coral breakage, entanglement of sea turtles and destruction of sea grass habitats thus it should rather be declared illegal gear.

Given the overlapping mandates of MALF and KWS over the management of fishing activities in the marine reserves, it is imperative that a memorandum of understanding (MoU) between the two institutions is developed and implemented in order to minimize the adverse implications of such overlap on fishery resource conservation and sustainable utilization in KMMPA. Development of the MoU will enhance harmonization of operations for sustainable development. Existence of a valid MoU between these two institutions will as well facilitate joint and efficient enforcement of fisheries regulations in and around the marine reserve thus facilitating the following:

- KWS officers will become authorized officers in the implementation/enforcement of Fisheries Act;
- KWS will collaborate with MALF in enforcing fisheries regulations beyond KMMPA;

- KWS will become a member of the Fishing licensing committee and will obtain greater control of fishing activities in the marine reserves; and
- The resources of both institutions shall be shared where practicable to enhance marine patrols.

Action 1.4: Create awareness on fisheries resource management issues to the judiciary

Arrests usually do not lead to eventual conviction of perpetrators. In the majority of cases very low penalties are accorded to them in case they are convicted. Hence there is need to create awareness to the judiciary for it to understand the magnitude of the impacts of illegal fishery activities.

The judiciary's support is instrumental in deterring overexploitation of fishery resource and/or related crimes especially if its members are aware of the adverse consequences of fishery stock exploitation. Lack of such knowledge among court prosecutors and judges result in preference of light sentences or penalties to culprits. Such light penalties are not deterrent enough to discourage a repeat of similar crimes.

To ensure offenders get penalties that are deterrent, KMMPA management will endeavour to sensitize the police and the judiciary officials on the implication of exploited fishery stock to both conservation and socio-economic concerns by way of exposure trips, field tours or exchange programmes. Emphasis will be given to the consequences of exploited fishery through use of destructive fishing gears on the livelihoods of local community and tourism prospects (reduced snorkelling, sport fishing) thus national revenue base.

Action 1.5: Empower BMUs to execute their mandate

Currently, the running of BMUs is not up to standard and therefore not delivering as anticipated. Factors responsible for the current condition of BMUs include lack of appropriate training and capacity building on the roles of BMUs in fisheries management. Provision of desirable skills and support to BMU members is a step towards professionalizing fishing fraternity thus improved management of fisheries resources in KMMPA. To this end, MALF is commended for offering relevant training to BMU leaders in Kibuyuni, Wasini, Majoreni, Mkwiro and Shimoni though the training would have been beneficial if it extended to the larger membership of BMUs.

Empowered BMU will be in a position to use its enforcement committee in mapping out and controlling unsustainable fishing practices or gears. This is because BMU members unlike KWS or MALF personnel are numerous and since they are direct users of fisheries resources, they are better placed to passionately guard against destructive fishing methods. Additionally, BMU members being mostly local fisher folk profess some degree of ownership for fisheries resources and as such they will be willing to participate in conserving and utilizing the fishery resource in a sustainable way if given necessary resources (patrol boats, fuel, engines, safety equipment, and communication facilities etc.).

On the other hand, most of the information on illegal activities in the MPA is derived from information provided by BMU. If empowered further, through provision of communication facilities and appropriate security skills, they could dedicate some of their members as scouts to monitor and report illegal fishing practices in the MPA. Security of information is particularly important in guarding against revenge attacks among fisher folk or BMU members.

The BMUs will also be assisted in developing their by-laws to facilitate their transformation into legislation upon signing and certification of the same by Director of Fisheries. The BMUs will also be assisted to have the draft by-laws signed into legislations to avoid fatigue occasioned by long periods of waiting.

Objective 2: Linkages Between Research and Fishery Management Enhanced

Appropriate research on both biological and socio-economic issues is essential for long term effective management of MPAs including its fishery resource. Natural science research is vital to understanding ecosystem

function and change whereas the social science research is essential to identifying the sources of human-caused problems. In KMMPA, fisheries research or monitoring program will be guided to focus on the following key areas:

- **Catch (weight) and catch composition (species and/or families harvested)** - Lengths are important for standard specific fisheries stock assessments;
- **Fishing effort**- This could include type, duration and location of fishing operations; number of boat-days, man-hours or gear hours per unit time; and
- **Costs and revenues**- these cover fish prices, fuel, gear costs and wages

KMMPA has long been used as a study site for various research programs carried out by KWS, Wildlife Conservation Society (WCS), Kenya Marine and Fisheries Research Institute (KMFRI), Coastal Ocean Research and Development in the Indian Ocean (CORDIO), visiting researchers from local and international universities, and local CBOs and NGOs. While the findings of such research programs are critical in guiding management in reaching credible decisions regarding MPA management including its fishery resource, there has been inadequate dissemination of research information to MPA managers and planners; hence science driven management has been minimal.

Additionally, KWS has no resident research personnel within KMMPA and so it relies on research personnel based at Mombasa regional office. Based on this circumstance therefore, KMMPA management at times rely on other stakeholders for scientific information to support planning and management decisions. However, due to inadequate collaborative mechanisms between KWS and other research stakeholders, request for information can either be denied or its provision could be delayed.

This objective has therefore been designed to streamline the conduct of research in KMMPA and the dissemination of findings/outputs among stakeholders. The management actions that will be implemented to achieve this objective focus on establishing a KWS research sub-station in the vicinity of KMMPA, developing and operationalizing a research database; establishing information exchange and advocating for carrying out of priority research. These management actions are elaborated in the following sections.

Action 2.1: Establish KWS research sub-station at KMMPA

KMMPA is large enough to have a designated research officer to oversee, coordinate and prioritise research activities therein including those related to fishery resource. More often than not research needs emanate from day to day running of MPAs. The absence of resident research personnel in KMMPA as it is the case currently implies that the management relies on the research information generated by other stakeholders whose objectives are not necessarily consistent with those of KWS. It is therefore imperative that a Sub-station be established in KMMPA and equipped with the relevant staff and standard research equipment in line with the Biodiversity Research and Monitoring Division's Strategic Plan.

The research officer will team up with staff or individuals from local institutions involved in research and where necessary develop collaborative arrangements with researchers from further afield. Upon the posting of a resident research officer(s) in KMMPA, a field station will be developed and equipped with necessary facilities with guidance of the regional and national research office. The MPA management will in turn charge a fee to cover the use of basic research facilities and facilitation of research work e.g. provision of logistical support where appropriate.

The functions of the research sub-station at KMMPA will be similar to those of other KWS research units elsewhere, but additionally it will perform the following in relation to fishery resource in KMMPA:

- Carry out mapping of fisheries resources and their distribution in KMMPA;
- Conduct a survey to establish the number of fishers, fishing gears and vessels (log frame) operating in KMMPA;

- Carry out assessment of fish catches (wet weight and species composition) in the designated landing sites in and around KMMPA;
- Determine whether KMMPA is contributing to food security and poverty alleviation through analysis of fish catch estimates, marketing and distribution of catch and the number of people using the MPA resources regularly;
- Strive to work with BMU members in research data collection to facilitate easier adoption and implementation decisions based on the same; and
- Undertake keen monitoring of indicator and keystone fish species of economic and biological importance in KMMPA (e.g. trigger fishes).

Action 2.2: Establish a fisheries research data base at KMMPA

Currently, little to no data or information generated from KMMPA is available for use by the management of the same. This seems to work contrary to KWS strategy of pursuing science driven management. With establishment of a research office at KMMPA, a research data base detailing past and on-going research work will be put in place. As a first step, an annotated bibliography of all research work that has been carried out in KMMPA will be done and thereafter, efforts will then be made to solicit for the research outputs (research reports and publications, documents and data) that are not readily available to the public.

In the long term, there will be periodic assessment of research work to be undertaken to ensure research contributes to MPA management effectiveness and there is no duplication of efforts. This will ensure that new research builds on the results of previous research thereby enabling results to be built into the MPA decision making, planning and management processes. The managers, however, will need to understand the limitations of the research results and this will be achieved through regular discussions and feedback sessions with scientists.

Action 2.3: Carry out priority research focused on addressing pertinent fisheries issues

Though fisheries issues are generally of similar nature along the Kenyan Coast, there are also area specific issues. Subsequently, fishery issues that are somewhat synonymous to KMMPA and adjacent areas include dynamite fishing in and around KMMPA especially around Kibuyuni, ring net fishing in Vanga areas adjacent to KMMPA and use of spear gun fishing. These fishery issues have over time been addressed in piece meal through adoption (and frequent lifting) of temporal ban in response to public pressure or administrative and political intervention.

In the interest of long term sustainability of the fishery resource in and around KMMPA, a comprehensive research will be instituted that will focus on fishery issues in this area. In particular, target species will need to be monitored in the context of their biological attributes during and after temporal ban. Alternative methods of fishing will be explored and popularized among the fisher folk in order to stimulate sustainable utilization of fishery resource in KMMPA. Such methods could include use of Fish Aggregation Devices (FADs) at offshore sites. This has two advantages; first it enables fishers to utilize fish stocks at offshore sites thereby easing the fishing pressure in inshore waters and secondly, it lessens the fishing duration since fishers will only be fishing around the FADs where they would likely be able to catch fish. Gear exchange could still serve to reduce use of destructive fishing gears. This was piloted at Shimoni, Kibuyuni and Majoreni in 2008 though up to date there has been no follow-up study to assess the impact of gear exchange project.

Action 2.4: Establish an information sharing programme

Information regarding Kenyan MPAs including KMMPA may at times be available but not accessible to MPA managers. Such information may only be available at the CCA office and KWS headquarters thereby leaving little

to no information/literature/data at MPA level. Also, some information for the MPA gets personalised to the extent that MPA managers go with it in the event of a transfer.

There is therefore need to avail all relevant information to MPA offices to facilitate its use whenever the need arises. Additionally, information of whatever nature should be listed as MPA's asset and thus it should be included in the handing-taking over notes whenever transfers occur. Also, establishment of a forum where MPA managers share information regarding their respective MPAs will enrich information banks among individual MPA managers. One key forum to facilitate information exchange regarding fisheries issues and other conservation matters could make use of newsletters for the protected area. Towards this end, responsible MPA managers would be required to engage BMU members on regular basis in order to bring up issues for discussion and generate appropriate management intervention measures.

Objective 3: Stakeholder Participation in Fishery Management Enhanced

Successful management of MPAs depend partly on active involvement of stakeholders. In regards to fishery resource management, such involvement could include participatory approaches to program assessment, planning, implementation, monitoring and evaluation. Majority of fisheries' challenges in KMMPA require concerted efforts of both state and nonstate agents towards effective fishery resource management. For instance, use of sustainable fishery utilization methods requires a close working relationship between fisher folks and marine conservation players including community based organizations (CBOs), Non Governmental Organizations (NGOs) and Government agents (e.g. KWS).

Currently, there is weak coordination among these stakeholders, at times resulting to duplication of efforts. It is therefore important that working relations between stakeholders are strengthened and coordinated to generate synergy and strengthen unity of purpose. Some of the actions aimed at facilitating achievement of this objective include formalisation of relations between Government and non-government players in environment and natural resource conservation, establishment of a functioning protected area management committee and active participation in County administrative forums.

Action 3.1: Formalise relations between state and non-state players of environment and natural resource management

Several players have varied roles and interests in marine natural resources. The government agencies for example have mandate over different marine natural resources with State Department of Fisheries overseeing fisheries resources, KWS over wildlife, Tourism over tourist related activities, NEMA over environmental issues and Kenya Maritime Authority with oversight role over marine safety and resource utilization within territorial waters. On the other hand, nongovernment agencies take interest in conserving marine resources and advocate for their responsible utilization and research. It is therefore fitting for all stakeholders to enter into a formal agreement with appropriate government agencies to enable them voice their concerns thereby making agencies appreciably accountable to the public in line with their mandates.

Under formalized arrangement setup, it is also expected that responsible government agencies will recognise and support the effort of other non-governmental players in supplementing their roles which such agencies would have laboured to perform. This is particularly so in areas of sensitizing the rural folk on environmental conservation. Additionally, participative management of natural resources inspires ownership of these resources leading to successful conservation outcomes.

Action 3.2: Establish a vibrant MPA management committee

This action will be implemented in conjunction with Action 2.3 of the MPA Operations and security Programme which advocates for establishment of a KMMPA Management Committee. Through this action, the implementers of the fisheries programme and the MPA Operations and security programme will pool resources to form one committee to oversee the management of the KMMPA.

The committee is very important given the fact that there are multiple players in fishery resource management in KMMPA and therefore it will be desirable for the MPA management to put in place a functional MPA Management Committee (MPAMC), with members drawn from relevant government agents, tourism players (sport fishers), NGOs, community representatives, security agents, researchers and other relevant stakeholders. MPAMC's primary role will be to advise on KMMPA management issues related to fisheries, lobby for controlled and planned development of tourism facilities including proper waste disposal and resolve resource based conflicts to ensure sustained utilization of marine resources within KMMPA. The committee once formed will clearly define terms of reference for the MPAMC from inception (in light of prevailing legal provisions) with room to improve over time and circumstances. The MPAMC will hold regular meetings, with KMMPA Warden taking lead in convening committee meetings. The MPAMC will be expected to propose appropriate management measures to address issues in KMMPA relating to fishery resource management. The forum will also be expected to monitor implementation of management actions geared towards solving various fishery related challenges.

In regard to inherent resource based conflicts involving either dive operators or fishers on one hand and sport fishers and artisanal fishers on the other hand, MPAMC will purpose to provide objective measures to address such conflicts to the approval of both conflicting group(s) as much as possible. They will, for example, explore delineation of several points along the reefs and mark them out with marker buoys as dive/snorkelling spots and remainder sites as fishing areas. These points will, however, be agreed upon by both fishers and dive operators. In conflicts involving sport and artisanal fishers, for example, MPAMC could encourage sport fishing companies to register as BMU members or support BMU activities. Additionally, instead of fishing in Marine Reserve for baits (thereby conflicting with artisanal fishers), they could purchase fish baits from artisanal fishers ('chuchungi' fish) and fish only in deep sea waters.

Action 3.3: Participate in County administrative forums

Active participation of KMMPA management in Kwale County administrative meetings will no doubt increase its visibility besides providing opportunity for it to lobby for support from appropriate government agents in their course to push for their fishery related interests. Since County running is partly implemented through a number of committees formed to address specific issues of economic, social, environment, or administrative nature, KMMPA management will endeavour to associate itself with any one or more of such committees.

Participation in different committees will leverage KMMPA management influence in various issues that directly or indirectly relate to utilization of fishery resource within and around KMMPA. Key among such issues includes acquisition of all grabbed landing sites and beach access routes. Successful outcome of such engagement will definitely improve the relations between the general public and KWS.

Other aspects likely to be influenced to the advantage of KMMPA include control of migrant fishers, especially from the neighbouring country of Tanzania, who many a time are associated with destructive fishing methods such as dynamite fishing.

Objective 4: Alternative Sources of Livelihood for Fisher Folk Developed and Implemented

Since time immemorial, the coastal communities have largely relied on fisheries for their livelihood besides mangrove cutting and tourism. However, continuing fall in productivity of near shore fisheries along the Kenyan Coast has made it necessary for alternative sources of livelihood to be explored. Factors for reduced fish catches include concentration of increased fishing effort (large number of fishers, fishing nets, boats etc.) in the inshore waters and lack of efficient fishing technology and vessels capable of utilizing/venturing to deep ocean waters fish stocks. Manifestations of reduced productivity include low catch per unit effort, declined sizes of landed fish stocks and increased uses of destructive fishing methods.

In the interest of conservation and sustainable utilization of the remaining fish stock levels, several options for alternative livelihood for the fishing folk in the Kenyan coast including those living adjacent to KMMPA need to be explored. This objective explores such options including but not limited to the following: fish culture, establishment of community managed marine protected area, seaweed farming, and tapping into devolved funds for other livelihood – support initiatives. These are further explained under the following actions.

Action 4.1: Initiate and implement fish farming

Fish farming (particularly mariculture) is thought to be an appropriate alternative source of income for coastal artisanal fishers in the prevailing conditions of declined wild fish stocks. Three types of mariculture that can be undertaken include pond culture on land behind mangroves, suspension culture (cage and raft) in sheltered waterways that are of sufficient depth, and rack culture in the shallow intertidal areas. Also, Acadja net enclosures utilizing mangrove pools, and down ponds emulating mangrove pools, are preferred for community projects, because they are cheap and easy to manage. Additionally, studies on mud crab farming indicate that low-cost pens that are integrated in mangroves do not require any capital inputs and can exist as long as labor is available.

The local community in the KMMPA-adjacent areas will be assisted to start fish farming as an alternative source of livelihood. Some of fin and shellfish candidate species for culture include milkfish, mullets, shrimps, oysters and mud crabs. Production of cultured fish is hoped to sustain the increasing demand for fish protein among human population adjacent to KMMPA and beyond. By so doing increased use of destructive fishing methods and over-exploitation of wild fish stock would be reduced.

Action 4.2: Support establishment of Community Managed Marine Conservancies (CMMC)

In the spirit of mainstreaming conservation at grass roots, KMMPA management will support establishment of CMMCs. This is in consideration of the fact that KMMPA is only but a fraction of the larger marine ecosystem in the Kenyan coast under conservation (especially in South Coast). To enhance conservation outside KMMPA, CMMCs will be supported since they will function as buffer areas for KMMPA. Their establishment will also in a way demystify the notion that conservation is a preserve of the Central Government – a feeling that has for long nurtured resentments from the adjoining communities.

Additionally, CMMCs would enable local communities to derive the MPAs associated benefits namely, tourism related income. Such arrangement will be indicative to community members that conservation can be a source of livelihood perhaps better-off than traditional methods of resource extraction such as fishing. Subsequently, community members will be persuaded to abandon destructive fishing methods thereby allowing the build up of fish populations in appropriate size and structure that would be a tourist attraction.

Action 4.3: Promote sea weed farming

Currently, sea weed farming is being practiced in Shimoni Kibuyuni and Mkwiro villages. Sea weed farming has shown that it could form a vital source of livelihood if further developed. In fact, research has indicated that the aforementioned areas can support even large scale sea weed farming. The challenge currently in place is lack of proper marketing strategy for the farmed sea weed. The only existing market is Zanzibar but the local farmers have no direct access to this market thereby making them to rely on exploitative middlemen. To support those practicing seaweed farming, KMMPA management will encourage and support locals to establish co-operatives in order to streamline marketing of their seaweed and seaweed products (Sea weed jelly, soup and sauce). By so doing, the accruing income will encourage more fishers to try a hand in sea weed farming thereby decreasing fishing pressure for wild fish stocks.

Additionally, sea weed farming has been reported to have contributed to increased availability of fish in the farmed area. Locals believe seaweed provide food resources for fish besides acting as anti-predatory sites for prey fishes. As such, if well developed, sea weed farming can indirectly maximize fish production.

Action 4.4: Tap into devolved funds to enhance community livelihoods

There seem to be numerous devolved funds currently at community level. Some of these include devolved County Government funds, Constituency Development Funds (CDF), Youth and Women Empowerment funds, Economic Stimulus Funds etc. However, communities living in KMMPA-adjointing areas (just like any other community adjacent to any other protected area) seem to be unaware of existence of such funds (or if aware, they're less interested in applying for the same). In this regard, the KMMPA management will take the role of enabling the adjoining community to access funding to support initiation of livelihood projects and by so doing reduce pressure on wild fish stocks within KMMPA. For instance, KMMPA management could prepare funding proposals for ecotourism initiatives (Dolphin watching ventures, swimming with turtles expeditions, tour guides training etc.) for community members. Successful funding of such initiatives will provide alternative livelihood sources for community members who otherwise could continue with environmentally destructive options in their quest to derive their livelihoods.

On the other hand, KMMPA management while utilizing the KWS social responsibility intervention facility will target projects with direct impact on sustained utilization of fishery resource in KMMPA. Such projects will include provision of appropriate fishing gears in exchange for surrendered destructive fishing gears, provision of advanced vessels capable of venturing into deep sea fishing thereby transforming artisanal fishers to commercial fishers. At basic level, KMMPA managers will use KWS social responsibility interventions to acquire safety equipment for fishers utilizing KMMPA waters. Such equipment include life jackets, life rings/tubes, communication gadgets (at least linking them with BMU office), and fish preservation equipment.

Objective 5: Impacts on Emerging Issues in Fisheries Resources Assessed

As time passes, issues occur at different geographical scales: National, Regional and even Global. Some of these emerging issues may have direct or indirect effect on fishery resource management and general conservation initiatives. Considering that most of the emerging issues are beyond the scope of KMMPA management, planning for such events is important since it lays ground for coping with their implications when they actually occur. Examples of emerging issues include fishery resource management under the new constitution dispensation, new infrastructure development in the Indian Ocean (gas/oil exploration) and new but destructive fishing methods.

Under the new constitution dispensation, fisheries resources are managed by the County Governments. This means that fisheries activities within KMMPA are supervised by the County Government of Kwale. This change in governance of fishery resource issues is likely to necessitate change in strategy to address fisheries resources of KMMPA.

The on-going gas/oil exploration in Indian Ocean and plans for Mombasa Port expansion are examples of massive new infrastructure on Kenyan coast. While these are noble ventures, the implications for these activities on fish stocks and fishery habitat is not yet known. Any negative impacts of these ventures on fish stocks or habitats at designated areas could occasion behavioural responses such as fish migration to alternate areas including KMMPA. This in turn would attract concentration of fishing effort at new fish destination sites thus increased management cost in form of increased surveillance patrols. Awareness programs and general advocacy for sustainable utilization practices, especially if KMMPA will be such new destined sites (for migrating fish groups) will be crucial. Actions to be undertaken to determine impacts of emerging issues include the following: participating in development and review of the Kwale County Fisheries development plan; participating in Environmental Impact Assessments and Audits (EIA and EA) for Government development projects in the Coast and exploration of the impacts of new fishing gears on fish stock levels.

Action 5.1: Participate in development and review of Kwale County fisheries development plan

Past experience indicates that local communities especially the fishing folk harbour ambitions of having marine protected areas de-gazetted to give room for fishing in those areas. Based on this evidence, it will be important for KMMPA management to fully participate in development and review of fisheries resource plans in Kwale County. By so doing, they will be able to influence formulation of by-laws on utilization of fishery resource in the County.

Participation of KMMPA management in other forums where fishery resource management is deliberated is also important since they have an opportunity to correct some misconceptions about sustainable fishery utilization or conservation. Alternatively, such forums could be used to raise specific concerns against resolutions that may jeopardize conservation initiatives. Such concerns will guide control of use of destructive fishing methods under the disguise of community empowerment e.g. legalising fishing at critical ecological grounds say turtle foraging areas, use of spear gun or politicisation of conservation initiatives touching on fisheries issues.

Action 5.2: Involve KMMPA representatives in EIA and EA for major coastal projects

Given the dynamism of the marine environment and the desire to enhance conservation beyond the boundaries of KMMPA, it is important for KMMPA research officers (or managers) to be involved in the EIA and EA for major coastal projects to present their concerns on biodiversity and natural resource management (fisheries), especially if the project sites are close or linked to KMMPA. Whereas there's no obligation for KMMPA representatives to be among the team doing the EIA or EA, they could still participate as part of the general public during scoping stages and other public feedback phases of the EIA and EA processes.

Alternatively, KMMPA representatives could still lobby to be involved during gas/oil exploration expeditions to ensure that the exploration undertakings adhere to environmental concerns as set out in the EIA/EA guidelines and national oil/gas exploration regulations.

To facilitate an informed participation of KMMPA management in future engagement with developers, KMMPA research team would better gather as much baseline data for project target areas in the context of their biological, social and economic status, ecosystem functioning and bio-physical interaction data. Getting such data before hand will be helpful in defining change after project implementation thus forming basis for decision making on project impact.

Action 5.3: Assess the impacts of emerging fishing methods on fish stocks

To guard against temptation by fisher folk to perceive KMMPA management as being malicious about their livelihood sources (fishing) by classifying some gears as destructive, it will be proper for KMMPA management to initiate and implement fishing gear analysis in KMMPA in collaboration with relevant stakeholders namely Fishers, Ministry of Agriculture Livestock and Fisheries, Beach Management Units, Kenya Marine and Fisheries Research Institute and other non-state researchers. Such joint venture would yield results that are likely to be acceptable to all, thus an enabling condition for a common approach to fishery resource management. In the interest of balancing out varied interests of different stakeholders, a win-win situation would be moulded out of such joint approach. One such situation could be zoning of Mpunguti Marine Reserve based on various fishing gear types and characteristics e.g. exclusive trap fishing zone, gillnet fishing zone, fishing line zone and multi-gear fishing zone. With zoning of the fishery based on gears, it will be easier to establish the impact of each gear type on the fishery thereby facilitating quick decision making.



Community
Partnership and
Conservation
Education
Management
Programme



Programme Purpose and Strategy

The purpose of the Community Partnership and Conservation Education Management programme is:

To empower local communities to actively participate in sustainable conservation and management of natural resources

The local communities in the KMMPA-adjacent areas entirely rely on marine resources for their livelihood, key among them being fishing and tourism related activities. A small number is also engaged in subsistence farming. With increase in human population and concomitant increase in demand for marine resources, there have been cases of over exploitation of marine resources as well as encroachment on the marine ecosystem. Consequently, the KMMPA Community Partnership and Conservation Education Programme will work towards mitigation of these adverse impacts; improve awareness of the KMMPA's values; and foster a constructive and supportive relationship between KMMPA management, its adjacent communities and key stakeholders.

The following sections set out guiding principles that underpin the Community Partnership and Conservation Education Programme.

Guiding Principles

In implementing the KMMPA's Community Partnership and Conservation Education Programme, KMMPA Management will strive to ensure:

Enhanced community communication

Effective communication between MPA-managers and local communities is essential to enable both parties to raise and resolve common problems and work towards achieving shared goals. To gain community support for conservation, bottom-up approach to natural resources planning and management should be applied. Thus, under this programme, KMMPA management will aim to enhance community communication mechanisms to improve MPA-community relations.

Stakeholder collaboration in natural resource management

Many of the threats to the ecology and natural resources in the KMMPA stem from resource uses and practices by the local community in the MPA adjacent area (both marine and terrestrial ecosystems). The scale and intensity of these impacts is increasing and, although outside the direct mandate of KWS, these issues cannot be left unaddressed. As such, activities under this programme will pursue partnerships and collaborations with other institutions and organisations (such as BMUs, KMFRI, KFS, Department of Fisheries and NGOs) to address issues of mutual concern outside the core protected area.

Communities are receiving tangible benefits from conservation of natural resources

One of the functions of KWS as specified in the Wildlife Conservation and Management Act, 2013 is to “develop mechanisms for benefit sharing with communities living in wildlife areas”. In addition, Section 39 of the Wildlife Act states that a community that owns land which has wildlife can establish a Wildlife Conservancy. Moreover, one of the initiatives that aims to contribute to realization of Strategic Objective C: 4, “Improve Wildlife Industry governance”, of the KWS Strategic Plan 2.0 focuses on establishing wildlife conservancies. These conservancies are expected to bring tourism related benefits to local communities. As such, under this management programme, MPA management will endeavour to share benefits with the community in line with the benefit sharing guidelines that will be developed. And to increase opportunities for communities to derive benefits from marine wildlife, MPA management will support communities in establishing Marine Wildlife Conservancies for purposes of exploiting tourism opportunities in the MPA-adjacent areas. MPA management will also strive to build the capacity of community groups to enable them exploit diverse tourism opportunities available in the MPA and adjacent areas.

Human-Wildlife conflicts are reduced for improved PA-community relations

World Wildlife Fund (WWF) defines Human-Wildlife conflicts as “any interaction between human and wildlife that results in negative impacts on human social, economic or cultural life, on the conservation of wildlife populations, or on the environment.” In the case of the KMMPA the major human-wildlife conflicts are in the form of poaching of marine resources from the National Park, threatened marine animals that are caught by fishing gears, destruction of marine turtle nesting sites, and pollution of the marine environment. To improve ecological integrity and protect and conserve threatened marine species, this programme will implement intervention measures aimed at reducing human-wildlife conflicts.

Local communities and the Kenyan public are aware of the conservation significance of the KMMPA

One of the core functions of KWS is to provide conservation education and raise awareness on the importance of wildlife and protected areas to gain support for wildlife conservation locally and nationally. One of the key objectives of the KWS Conservation Education Strategy is to “develop conservation education programmes and disseminate information to targeted groups”. Therefore, in line with the KWS Conservation Education Strategy, activities under this management programme will aim at educating the local community on the significance of the KMMPA. Management actions will be designed to ensure that the conservation message reaches different social strata in the community. For example, school children will be reached through wildlife and environmental clubs that have been established in schools; while adults will be educated through conservation seminars and workshops organised by KMMPA management.

These guiding principles are intended to guide the implementation of the Community Partnership and Conservation Education Programme’s three management objectives. These are:

MO 1. Community participation in natural resource management enhanced

MO 2. Resource-use and human-wildlife conflict reduced

MO 3. Awareness of the significance of conserving marine resources improved

The following sections describe these management objectives and provide an outline of the management actions needed to achieve them.

Management Objectives and Actions

Objective 1: Community Participation in Natural Resource Management Enhanced

The local communities have a range of environmental, social and economic factors limiting the enhancement of their livelihoods. The key ones include: widespread poverty, subsistence based lifestyles, climatic variability and seasonality, lack of access to finance and technology, restricted access to resources or assets, and lack of land tenure security. Over dependency on fishing and lack of conservation awareness are some of the factors contributing to over-fishing and poverty in fishing communities. While there is potential for alternative livelihood options, cultural factors as well as limited economic incentives among other factors have inhibited development in local communities. Consequently, this management objective has been designed to empower local communities to exploit diverse opportunities presented by natural and cultural resources in the area, thereby enhancing their livelihoods and at the same time minimizing pressure on marine resources. The management actions that have been designed to achieve this objective are discussed below.

Action 1.1: Strengthen community conservation groups

Sustainability of any community project requires full ownership by the community from project design to implementation. Many of the existing community development projects that have been established in the KMMPA have been donor driven. This has created a ‘dependency syndrome’ and most projects fail soon after the donor project ends because of lack of ownership and accountability. In view of this, to ensure that KWS-supported community projects are sustainable, KMMPA management, through the Community Wildlife Service Department, will facilitate target community groups to organise themselves into cohesive groups. These community groups will have clearly defined goals and objectives that members will be aiming collectively to achieve and group rules and regulations that each member will subscribe to. Once a community group is registered with the Department of Social Services, they will be supported in developing a business plan which will outline the activities that will be implemented to achieve the defined group mission. Further KWS and its partners will support implementation of the participatory business plan with priority being given to activities that will enhance environmental conservation.

Action 1.2: Carry out an evaluation of previous and on-going community projects

Several Income Generating Activities (IGAs) initiated by the community exist in the KMMPA. IGAs are a method for communities to benefit directly or indirectly from the protected area. The success of these IGAs depends on the type of initiatives proposed. It may also require a high degree of community organisation and capacity. Once established, the sustained success of such a venture depends on management capacity of the local community.

To ensure that community projects that contribute to the achievement of the KMMPA’s purpose are initiated and implemented, it is important that a critical evaluation of current and previous projects is carried out to discern what constraints implementation or ensures success. In regard to this, an evaluation of the programmes and projects of selected community groups that KMMPA management intends to partner with will be carried out. The lessons learned from this evaluation exercise will be used to support the design of community projects that will deliver the intended outcomes, improve community livelihoods and enhance conservation of the environment, and especially the marine environment. This evaluation will be carried out by the KWS Community Wildlife Officer in collaboration with community members through a Participatory Rural Appraisal (PRA) that will also identify the community’s aspirations.

Action 1.3: Conduct capacity assessment of existing community groups

The organization structure and culture of a group has a major influence on a group’s potential to achieve its set goals and objectives and ultimately its success or failure. Hence, before KWS engages or partners with an existing community group it is necessary to understand how that group is organised, what its functions, strengths and

weaknesses are. This will enable KMMPA management to make informed decisions on strategies or approaches that are needed to improve the performance of specific community groups. As such, under this management action, KMMPA management will carry out an organization capacity assessment of community groups before offering support or partnering with a group in a conservation or social project. This will be a systematic evaluation of the group's organisational processes, structures, systems and skills aimed at identifying and understanding the group's strengths and weaknesses to enable them to develop effective strategies that turn around the group; hence achievement of mutual conservation goals.

Action 1.4: Train conservation community groups in project management

Once the organisational capacity assessment stipulated in action 1.3 above has been carried out and gaps in the capacity of the community groups have been identified, KMMPA management will support training of community group officials in line with the identified training needs. The training will mainly focus on project design, implementation and maintenance and will be carried out through short training workshops.

Action 1.5: Support community empowerment activities in the KMMPA

In response to the poor socio-economic conditions of the MPA adjacent areas, it is essential that the MPAs exploit all options it has to contribute to sustainable poverty reduction and economic empowerment of communities living in and adjacent to the MPA. In regard to this, KMMPA management will support local community entrepreneurs, through its enterprise department, to establish non-conservation-linked enterprises. This will include supporting establishment of small enterprises e.g. organised groups of crafters who can produce traditional handicraft and art for sale locally and elsewhere in the country.

In addition to empowering community members to exploit alternative livelihoods, KWS will liaise with partners to support education of selected qualified needy students in secondary and tertiary institutions. Further, whenever opportunities for unskilled labour arise at the KWS KMMPA offices, priority will be given to members of the MPA adjacent community.

Action 1.6: Support establishment of community based tourism enterprise projects

The establishment of successful community-based tourism ventures can be difficult and, depending on the type of initiatives proposed, may require a high degree of community organisation and capacity. Some notable community-based tourism initiatives include Shimoni Slave Caves and Wasini Women Boardwalk. The sustainability of these initiatives depends on management capacity, market access, publicity, and effective benefit sharing and involvement within the wider community. Moreover, Shimoni forest is opening up as a tourist destination. A number of trained forest tour guides have been trying to market the area as a key tourist destination. Sii Island is rich in a special species of mangroves and a variety of water birds, hence has a high potential for development of tourism activities. Therefore, under this management action, KMMPA management will collaborate with its partners in supporting community-based organisations in the establishment of viable tourism enterprises. Such activities include development of existing visitor attractions on community land, cultural tours in local villages, and home stays. The support will include training these Community Based Organisations (CBOs) in customer care, tour guiding, and tourism management. Such training will be offered through workshops and in some special cases, where advanced tourism management training is justified, qualified members of the CBOs will be trained at the Kenya Wildlife Service Training Institute.

Action 1.7: Support establishment and registration of a community based tourism operators association

Constant wrangles and poor leadership among members of community associations has led to the dormancy of these associations' activities, a notable example being the Kisite Boat Owners Association (KIBOA). This CBO had 50 members with a total of 22 boats providing tour services in the marine park. However, due to poor leadership and lack of financial management skills, the association collapsed. As a result, boat owners started doing business independently resulting in an unhealthy competition. Later two new groups were formed (Wasini Youth Boat Operators and Kisite Community Boat Operators). Due to lack of an umbrella tourism association to oversee visitor handling standards, it is not uncommon to find boat owners who employ crew that lack health and safety handling experience, which is necessary in case of emergency. As such, to streamline tourist boat services and thereby ensure that the safety of visitors is not compromised, KMMPA management will support boat operators to establish a community based tourism operator's forum which will be registered by the Ministry responsible for Tourism. This forum will set visitor safety standards and resolve conflicts among members.

Objective 2: Resource-Use and Human-Wildlife Conflict Reduced

Destructive fishing practices and over-fishing threatens sustainability of fisheries and consequently the livelihoods of many members of the fishing folk. For instance, dynamite fishing, use of beach seines, small-mesh size nets, spear guns in coral reefs, and ring-nets in shallow inshore waters, which are fishing methods preferred by migrant fishermen is a source of conflict between these fishermen and the local indigenous fishermen. In addition, there is overfishing in the inshore waters as local fishermen lack suitable fishing boats that can be used to fish in deep waters.

On the other hand, the greater KMMPA is community land with a coastline of about 321 Kilometres. This coastline comprises a mix of natural habitats which host diverse wildlife species and farmlands where subsistence farming is the mainstay of the local community. The natural habitats, which include coastal forest patches, harbour problem animals such as elephants, buffaloes, wild pigs and primates, which often raid adjacent farmlands causing losses to farmers. These problem animals are often controlled through scaring but this is only a temporary solution as the crop raiding often recurs. Crocodiles in River Ramisi also attack members of the local community when they are fetching water.

Effective and efficient communication and collaboration mechanisms are essential for building supportive and constructive relationships between MPA managers and surrounding communities. These mechanisms need to ensure that issues can be raised and addressed to facilitate a harmonious working relationship between KMMPA managers and the local community thereby ensuring that shared goals are achieved.

This objective is therefore designed to address resource use and human-wildlife conflicts. The management actions that will be implemented to achieve this objective are discussed in the following sections.

Action 2.1: Document resource use conflict areas within the KMMPA

There is need to identify and document all the conflicts on resource use within the protected area to facilitate design of effective intervention measures to resolve such conflicts. Some of the identified conflicts include the use of ring nets within the reef, use of explosive-dynamite to fish, crop raiding by wildlife, and threat to human life posed by crocodiles in Rivers Ramisi, Uмба and Mwena, which are key sources of fresh water for the local community. Under this management action, therefore, KMMPA management in collaboration with the local community will continuously document all the conflict areas to help design viable solutions. This will also include participatory mapping of all the conflict hot spots to have insights on the local distribution patterns of the conflict areas.

Action 2.2: Control access of migrant fishermen to Kenyan fishery

There are migrant fishermen, mainly from Pemba Island and main land Tanzania, who often fish in the KMMPA. These fishermen are more experienced in fishing, hence most of the time they are contracted by local fish dealers to fish in Kenyan waters. Since these fishermen use ring nets and dynamite fishing they are able to land more fish than the local fishermen creating tension. In addition, the government of Tanzania subsidizes fishing activities of the Pemba fishermen by hiring out cheap boats enhancing efficiency of their fishing operations. To ensure that conflicts between local and foreign fishermen is minimised, KMMPA management will collaborate with the Fisheries and Immigration Departments to ensure that there is vigilance in the fishing permitting system. This collaboration will be extended to monitoring whether both local and foreign fishermen have paid the requisite fishing licensing fees and enforcement of the law regarding illegal fishing methods.

Action 2.3: Support establishment and operationalization of a Community Wildlife Association

Currently, a forum where the local community can communicate its problems and aspirations to KMMPA management is lacking. This has resulted in tense relations between the local community and MPA management due to conflicting approach in the management and utilisation of marine resources in the MPA.

Therefore, to ensure effective communication between the KMMPA management and the local community, a Community Wildlife Association (CWA) will be established in accordance with Section 40 of the Wildlife Conservation and Management Act, 2013. This forum will draw participation from key KMMPA stakeholders including CFAs, BMUs, Boat associations, women groups, and CBOs among others. The CWA, whose main objective will be to discuss management issues of concern at the KMMPA and resolve natural resource use conflicts, will hold regular quarterly meetings which will be convened by the KWS Community Wildlife Officer at KMMPA.

Action 2.4: Evaluate and implement alternative Problem Animal Control (PAC) methods

One of the core functions of KWS is to conserve wildlife and protect people and their property from wildlife damage. At the KMMPA, the problem animals include crocodiles that are a threat to human life, and hippos and primates that damage crops. Methods used to control these problem animals include scaring them with thunder flashes, using water and chilli powder to scare away baboons, or shooting animals that are a real threat to human life. To enhance problem animal control, KMMPA management will explore use of other equally successful methods of controlling problem animals. This will include experimenting with the paintball method used on baboons which is reported to have worked successfully in Kiunga; using wire mesh enclosures to improve safety for those fetching water in crocodile infested rivers; and supporting installation of piped water to villages to minimise the local community's vulnerability to crocodile attacks.

Action 2.5: Improve Human-Wildlife Conflict response time

Prompt response to problem animal incidents can help reduce damage to property and thereby enhance community-KWS relations. In this regard, to effectively and efficiently respond to animal incidents, communication links between frequently affected communities and KMMPA will be initiated. This will involve establishing and maintaining a 24 hour-mobile phone hotline for receiving human-wildlife conflict cases. This mobile phone number will be publicized through public meetings and any other opportunistic community meetings that KWS will be represented. In addition, the problem animal management unit at KMMPA will be strengthened through deployment of additional rangers and provision of adequate tools and equipment to ensure that they are able to respond to reported incidents promptly and efficiently.

Action 2.6: Nominate and recommend gazettement of a KMMPA Honorary Warden

Having a responsible member of the local community who has a passion for conservation working closely with KMMPA management on conservation issues can go a long way in ensuring that community concerns are addressed promptly. Section 12(5) of the Wildlife Act, 2013 provides for gazettement of Honorary Wardens, who have the same powers as the KWS Warden, for purposes of assisting in conservation and management of wildlife. Such Wardens can deal with problem animal management and other conservation-related work that the local KWS Warden may assign them. Hence, the KMMPA management will identify and nominate a local Honorary Warden for gazettement by the Cabinet Secretary responsible for wildlife. Once gazetted, the Honorary Warden will be assigned tasks, including human-wildlife conflict management and conservation awareness creation, and he/she will be reporting progress to the KMMPA management regularly.

Action 2.7: Provide support to enhance the compensation claim process

KWS has standard operating procedures, which are followed in conducting all activities within its mandate. However, there is lack of awareness among the public on the KWS wildlife damage compensation procedures. In view of this, KMMPA management will carry out a sensitization campaign to educate the local community on the wildlife compensation requirements. This will include highlighting cases that can or cannot be compensated, the process and steps involved, and the role of the County Wildlife Conservation and Compensation Committee in the compensation process.

Objective 3: Awareness of The Significance of Conserving Marine Resources Improved⁷

The development and strengthening of programmes to promote conservation education and awareness is one of the major objectives in the KWS Conservation Education Strategy. Environmental education to create awareness among various stakeholders on the importance and urgency of conserving the KMMPA is indispensable, considering the fact that with increasing population density, dependence on the marine resources to sustain livelihoods also grows. Thus, this objective has been designed to increase awareness, understanding and participation of the public in the marine protected areas and thereby promote behavioural change towards reducing the over dependency and pressure on natural resources.

In the KMMPA, the information centre at KWS Shimoni office is supposed to foster education and awareness-raising activities. This information centre has informative posters of marine biodiversity and KMMPA's exceptional resources displayed on the wall. Currently community outreach activities in KMMPA are handled by one JICA volunteer with the assistance of KWS rangers. In order to achieve this objective, seven management actions have been developed; these are elaborated in the following sections.

Action 3.1: Organise outreach and awareness creation activities in the KMMPA-adjacent areas

Most of the human wildlife conflict in the surrounding areas is related to crocodile attacks and usually, this is blamed on human ignorance. The crocodile infested areas are within the river and the flood plains and require that these areas are accessed with a lot of caution. There is need to create awareness on the behaviour and handling of dangerous animals such as crocodiles to minimise incidents of injuries and death. In addition, the KMMPA has unique conservation values which the community is not aware of. Thus, there is a need to raise general awareness on the importance of KMMPA.

Consequently, KMMPA management will collaborate with other government agencies and NGOs in organising conservation events such as annual marine environment day, mazingira competition, species specific awareness

⁷SAM objective 30% of fishers perceive the MPA as beneficial by end 2014

activities like year of the dolphin and year of the turtle as well as forming community and school based wildlife or environmental clubs.

Action 3.2: Liaise with other conservation education stakeholders to improve use of the KMMPA by local schools

KMMPA ranks among the protected areas highly visited by organised groups. However, it still has potential to accommodate more groups if accommodation and education resources envisaged under Action 3.4 and 3.5 of this programme are implemented. Currently, organisations such as Wildlife Clubs of Kenya (WCK) have been carrying out conservation education work in community areas and this has encouraged school groups to organise tours to the KMMPA. To further enhance KMMPA visitation by local organised groups, KMMPA management will boost the conservation education activities of WCK through offering transport to school groups.

Action 3.3: Revive and strengthen conservation clubs

One way of creating conservation awareness amongst the school going age group is through recruiting students into environmental clubs. Currently, the Wildlife Clubs which are promoted by the WCK are active in several schools. Similarly, Dolphin clubs have also been established in some schools. To enhance conservation education in schools, KMMPA management will support establishment of conservation related clubs in the schools that are within KMMPA. In this regard, KMMPA management will work closely with WCK in establishing these clubs.

Action 3.4: Construct a student hostel at KWS Shimoni offices

Currently, the biggest challenge to promotion of conservation education in the KMMPA is lack of adequate accommodation, particularly for large organised school groups. The existing KWS bandas have a capacity of 12 beds making it inappropriate for large groups. Hence, to ensure that large organised groups are adequately catered for, KWS will construct a 60 bed student hostel at the KWS Shimoni offices.

Action 3.5: Construct and equip a resource centre at KWS Shimoni offices

The current education centre at the KMMPA serves the entire South Coast. This facility is small and lacks requisite education tools to effectively convey conservation messages to large organised groups. As such, under this management action, a robust resource centre will be constructed. This resource centre will contain a lecture hall and library and associated facilities. In addition, modern education and outreach equipment will be procured and deployed to the resource centre.

Action 3.6: Upgrade and update KMMPA education and outreach tools

Over the last few years, conservation education volunteers have tried to come up with simple and easy ways to present educational materials. There is however, a constant need to keep conservation educational materials up-to-date to reflect the changing dynamics in the KMMPA and raise interest of the public. To increase awareness on marine issues and thereby enhance public marine literacy, it is essential that the current education and outreach tools are upgraded. Consequently, brochures, leaflets and pamphlets will be designed in such a way that they portray correct information which is specific to the KMMPA and is targeted at various community social strata. On the other hand, the current underwater film on the KMMPA was done with poor quality images hence there is need to engage a professional consultant or train local staff to produce a new underwater film of the unique and pristine marine ecosystems at the KMMPA. Since the improvement and updating of the information is a

continuous process, KMMPA will acquire an underwater camera to ensure that marine video database is regularly updated.

Action 3.7: Strengthen the KMMPA education staff capacity

Currently the KMMPA does not have staff deployed to do conservation education and outreach work. This work is currently carried out by local and foreign volunteers and interns. On the other hand KWS rangers also carry out outreach activities in neighbouring schools. However, given the importance of the biodiversity and recreational significance of KMMPA and the many threats facing it, there is need to have a coordinated approach for implementing the conservation and education programme. In regard to this, KMMPA management will liaise with KWS headquarters human capital department to have a conservation education officer deployed to the KMMPA. This officer will be responsible for developing a robust conservation education programme that when implemented, will lead to increased community support for conservation.



MPA
Operations
and Security
Programme

Programme Purpose and Strategy

The purpose of the MPA Operations and Security Programme is:

To effectively and efficiently support the achievement and delivery of the other programmes set out in this plan

Efficient and effective delivery of MPA operations and security requires that the KMMPA has capacity in terms of human resources, tools and equipment to facilitate implementation of the plan. Hence, this programme identifies operational gaps and outlines the actions required to fill these gaps. The guiding principles underpinning this management programme are set out in the following section.

Guiding Principles

In implementing the KMMPA's MPA Operations and Security Programme, KMMPA Management will strive to ensure:

Staff are motivated and resources are available for effective MPA operations

The KWS Human Capital Manual states that “the Service recognizes that one of the success factors in its efforts in conservation will be the effective management of its Human Capital. This will be attained through recruitment, development and utilization of a professional, well – equipped, competitively remunerated and highly motivated workforce, as well as provision of a working environment that values the contribution of all levels of staff towards attainment of the mandate of the Kenya Wildlife Service”. In addition, the KWS Strategic Plan 2.0 that is based on the Balance Scorecard approach places emphasis on learning and growth and internal business processes perspectives as fundamentally critical to the achievement of the organisation's mission and objectives. Under these two perspectives, activities will be focused towards enhancing staff competencies and capacities while streamlining processes. Through these activities, staff outputs are to be driven by collective goals, team work and the provision of a favourable working environment with a target of enhancing motivation. As such, in line with the Human Capital Manual and the KWS strategic plan, this programme will aim to ensure that KMMPA staff is highly motivated and that staff have adequate resources to enable them perform their tasks professionally.

Good communication and access

KMMPA's management jurisdiction is expansive as it covers the MPAs as well as a large non-protected influence zone where MPA managers carry out outreach and conflict mitigation activities. Thus, good communication and access throughout the KMMPA is essential to support the effective management of the area, particularly with respect to security and community outreach activities. Hence, under this programme, MPA management will strive to ensure that telecommunication is possible in majority of the greater KMMPA. The main mode of communication is by use of the radio, which is used to relay official information within KMMPA. Installation of marine radios in patrol boats will enhance and facilitate effective management of rescue and emergency situations.

Strengthening of collaborative partnerships

The KWS Strategic Plan 2.0 has identified **collaborative partnerships** as one of the three focus areas for KWS from 2012 to 2017. In line with the strategic plan, this programme will endeavour to encourage and promote effective collaborative stakeholder partnerships in the management of KMMPA. This is vital as multiple land uses, primarily fishing and tourism, are practiced in the MPA. This therefore calls for collaboration between government agencies such as Kenya Forest Service (KFS), Fisheries Department (FiD) and Kenya Maritime Authority (KMA) that have mandate for management of different natural resources. In addition, it is important that collaboration between various local community groups such as the Beach Management Units and the Boat Operators Association is strengthened to gain support for conservation. And to grow tourism in the MPA, partnerships with tourism industry players will be encouraged to diversify tourism products.

These strategic principles are intended to guide the implementation of the following four management objectives:

MO 1. Human resource capacity strengthened

MO 2. Strategic collaborative partnerships established

MO 3. Infrastructure to support MPA management developed and maintained

MO 4. MPA security operations strengthened

The following sections describe these management objectives and provide an outline of the management actions needed to achieve them.

Management Objectives and Actions

Objective 1: Human Resource Capacity Strengthened

The desired future state of the KMMPA that this objective aims to achieve is where the MPA has adequate skilled and motivated staff to implement the management actions contained in this plan. Currently, the MPA is experiencing staff shortages in some cadres. The Conservation Education, Research, and Community Wildlife sections lack staff hindering effective implementation of education, research and community programmes. Staff skills, particularly in regard to management of marine resources are lacking among most staff deployed to the MPA. This objective has therefore been designed to address these shortfalls as well as ensuring that staff morale is kept high at all times. The management actions that will be implemented under this objective will focus on deployment of staff with relevant skills, upgrading staff skills, and enhancing staff welfare. These actions are elaborated in the following sections.

Action 1.1: Liaise with KWS Human Capital Department for deployment of staff with skills in marine conservation and management

The KMMPA lacks staff with expertise to protect the marine environment and achieve the management objectives of the protected area. This could be partly attributed to deployment of staff with disregard to the set of special skills and talents required to effectively work in different types of ecosystems. There is therefore need to have capable and sufficient workforce to environmentally manage the KMMPA.

To address the staff shortfall in critical departments, several measures will be adopted. First, essential professional services (e.g. diving, marine research) will occasionally be outsourced in line with the KWS procurement procedures. Second, skilled and unskilled casual labour will also be deployed to fill staff gaps. In order to facilitate, support and reinforce the importance of marine protected areas in the PA network, an appropriately trained and equipped specialised marine ranger section will be deployed to the KMMPA.

Action 1.2: Improve staff skills

In order to improve staff performance and output as well as increase staff motivation, staff training and capacity building is a worthwhile investment for an institution. In promoting skills upgrading for KMMPA, emphasis will be placed on integrating best practice field knowledge and techniques of management rather than the theoretical knowledge in order to reduce overreliance on external expertise. KMMPA management will liaise and collaborate with institutions such as Pilipipa, Manda Bay, and Bandari College to design short programmes that enhance staff knowledge and skills in marine conservation. Additionally, the Park warden will liaise with the KWS Human Capital Division to provide KMMPA staff opportunities for short courses both locally and internationally. The following training courses are priority for KMMPA staff: swimming, diving, search and rescue and first aid. Once trained, KMMPA management will seek internship positions for its staff in diving schools around the KMMPA.

On the other hand, regular range practice is essential for rangers to ensure that their shooting skills are up to date. As such range practice will be carried out at least thrice annually.

Finally, to ensure that the staff applies skills acquired during training, KMMPA will liaise with CCA and KWS Headquarters to deploy staff with marine skills in marine ecosystem management.

Action 1.3: Improve staff welfare

Staff welfare is the basis for great work performance in any organization. Staff issues of importance which need to be addressed at the KMMPA are: prompt payment of salaries and allowances, provision of a decent living and working environment, provision of quality schooling facilities for children, adequate and quality medical facilities,

and sporting and recreation facilities. Currently, staff housing is inadequate. The processing of staff salaries and allowances and provision of staff equipment and uniforms is also not up to scratch, demotivating staff.

To address the aforementioned issues and thereby enhance staff motivation, at least one block of staff housing units will be constructed for junior staff. In addition, staff who qualify to be paid house allowance will be paid to enable them seek alternative housing in the nearby market centres. And to ensure that children of KMMPA staff receive quality education, KMMPA management will support measures geared towards upgrading the education standards at the Shimoni Primary School, which neighbours the KMMPA headquarters. Towards this, through the Corporate Social Responsibility programme, efforts will be made to ensure that the school has adequate and up-to-date textbooks and any other essential school equipment. Further, to improve relations among staff members and promote teamwork, sporting facilities and equipment will be provided.

Action 1.4: Implement staff recognition, reward and appreciation schemes

Studies have correctly shown that staff that is well appraised and appreciated has enhanced productivity and dedication to work. The integration of simple mechanisms for rewarding and appreciating staff that are outstanding in their work performance enhances staff morale and increases productivity. Currently KMMPA management has established an awards committee to monitor and evaluate staff performance for purposes of rewarding outstanding performers. During the plan period, the management of KMMPA will carry out continuous assessment of staff performance and reward outstanding performers through recognizing them as “staff of the month”, giving them letters of appreciation and recommendations or giving them gifts.

Objective 2: Strategic Collaborative Partnerships Established

The future desired state of the KMMPA is where stakeholders are actively participating in natural resource management activities at the KMMPA. Many threats to KMMPA’s integrity can easily be addressed if a robust stakeholder participation strategy is in place. Threats that undermine the ecological integrity of the marine ecosystem such as poaching, use of illegal fishing gear, reef destruction amongst others, can be effectively addressed if KMMPA work in tandem with other key stakeholders such as Fisheries Department and Kenya Maritime Authority. Hence, this objective aims to build a well structured approach of encouraging stakeholder participation in KMMPA’s management. Specific areas that this objective addresses include: coordination, collaboration and networking with other stakeholders; non involvement of KWS by other agencies in licensing resource extraction from the MPA; promoting collaboration with Fisheries Department and KFS; participating in transboundary collaborative issues; and operationalization of the MPA Management Committee. The management actions that will be implemented to realize the desired future state are elaborated below.

Action 2.1: Develop a partnership strategy for management of the KMMPA

The KMMPA management has been collaborating with both government and non government agencies in the management of the MPA. This is in line with KWS’ mission statement which identifies stakeholders as key partners in conserving Kenya’s wildlife. In order to have a well coordinated and easily understood mode of partnering with stakeholders at the KMMPA level, and leverage the resources being brought to bear on the conservation and protection of marine resources in the KMMPA, a partnership strategy will be developed. The strategy will be an overarching guide for KMMPA partners on how to engage in MPA management and it will specify how existing collaborations will be formalized; how local community groups such as boat operators, community wildlife associations, and community marine conservation areas will relate with KWS; and how resource use conflicts will be resolved.

Action 2.2: Develop formal collaborative agreements with key stakeholders

The resources within the KMMPA are managed by different stakeholders from different government institutions. However, there is little information exchange among these stakeholders in regard to resource use and management leading to conflicts in law enforcement activities. At the same time, there are a number of overlapping institutional mandates from the different government institutions (e.g. KWS and Fisheries Department). For example, issuance of fishing licences in Mpunguti Marine Reserve is the preserve of the Fisheries Department while management of the MPA in general is the responsibility of KWS. This presents a challenge in law enforcement as KWS is not involved in the process of issuing the fishing licences and therefore cannot punish those who contravene the fishing regulations.

To streamline operations in the KMMPA among different institutions, KMMPA management will liaise with other institutions to develop and formalize procedures that will ensure participation of KWS in issuance of all permitted uses of natural resources in the KMMPA. The Park Management committee, which comprises key stakeholders in the KMMPA, will be the main actor in ensuring this action is realized and proper working relationships amongst different stakeholders are realized. Regular forums will be held for managers from the different institutions to meet and exchange information on issues concerning their area of interest. Through these forums, the stakeholders will collaboratively develop shared guidelines and explore opportunities for achieving multiple conservation objectives.

Action 2.3: Strengthen the KMMPA Management Committee

One of the most significant challenges to effective management of the KMMPA that was identified by all stakeholders was the lack of a mechanism for actively involving stakeholders in the management of KMMPA. This has contributed to weak coordination, lack of synergy in security and management operations, misunderstanding among stakeholders, prolonged conflict, and weak KMMPA vision, among other problems. To guarantee successful implementation of this management plan and its associated activities, it is important that all KMMPA actors are involved in rolling out management actions. Consequently, the Park Management Committee that has recently been formed will be actively involved in the implementation of actions outlined in this plan. This committee primarily comprises of (KWS, BMU, Friends of Shimoni Forest, association of charcoal dealers, Shimoni Slave Caves, Wasini Board Walk, boat operators, NGOs, private researchers, lodges, tour companies and CBOs. It will work on a voluntary basis but KMMPA will facilitate the meetings.

Responsibilities of the KMMPA Management Committee will include the following among others:

- Implementation of the management plan;
- Coordination of activities of different operators;
- Volunteering information on security issues;
- Development of KMMPA regulations;
- Fundraising to support conservation projects;
- Designing effective waste management strategies for the KMMPA;
- Resolving resource use conflicts;
- Creating conservation awareness; and
- Publicity and marketing the KMMPA.

The committee will develop its own constitution and will be meeting on quarterly basis or whenever there is an urgent need for a meeting. The Park Warden will be the secretary of the committee while the chair and other officials will be from among committee members.

Action 2.4: Work with County Wildlife Conservation and Compensation Committee to address conservation issues in the KMMPA

Section 19 of the Wildlife Conservation and Management Act, 2013 establishes a County Wildlife Conservation and Compensation Committee whose main purpose is to oversee effective implementation of conservation activities at the County level. Given that this committee will be responsible for ensuring positive interactions between wildlife at the County level, it is important that the Committee is supported to ensure that it delivers on its functions. Hence, at the KMMPA level, the KMMPA management will work closely with the Committee in resolving the resource use conflicts experienced in the KMMPA as well as seeking effective mechanisms for addressing human-wildlife conflicts.

Action 2.5: Liaise with KMA and Fisheries Department to inspect sea worthiness of tour boats and fishing vessels

Marine operations, security and tourism are fundamentally dependent on boats and sea vessels. Maritime Legislation and regulation require that all vessels that venture into the sea have to be declared sea worthy and duly licensed by either the Fisheries Department or Kenya Maritime Authority (KMA). All boat operators carrying tourists are supposed to be insured, as well as have tourism trading licenses which are monitored by KWS, Kenya Maritime Police and Fisheries Department. KMA gives licenses allowing vessels to go into the sea (certificate of sea worthiness and certificate to operate) while Fisheries Department and KMA collaborate in fishing licensing.

The license by the Fisheries Department allows a fisherman to fish anywhere in Kenyan waters except in marine parks. However, most vessels that are owned by individuals are not fully compliant with the law and present a risk at sea. Some vessels have no insurance or use non seaworthy boats. Both KWS and the Tourism Department are not involved in the licensing procedures despite having the capacity to enforce and monitor these vessels. This management action, therefore, seeks to address this problem by lobbying for KWS to be included in the boat and fishing licensing.

Action 2.6: Establish and operationalize friends of KMMPA

Establishment of a forum that brings together local, national and international supporters of KMMPA can increase stakeholder participation in realizing the KMMPAs purpose and conservation objectives. In this regard, KMMPA will mobilize relevant stakeholders to establish and register an association, “Friends of Kisite-Mpunguti” that will be lobbying for conservation of the KMMPA and raising funds to support conservation efforts. KMMPA currently boasts of linkages with stakeholders and other international organizations with interest in the area such as Eden Trust. These active Friends of the KMMPA will be approached to lobby other interested parties to form the Friends of Kisite-Mpunguti Association.

Action 2.7: Develop and implement initiatives that will enable effective management of Diani Chale Marine National Reserve

Diani Chale Marine National Reserve is an integral part of the Greater KMMPA and as such the Warden Kisite-Mpunguti is expected to oversee its management. However, the limited staff coupled with weak institutional set up and the wide geographical scope of the KMMPA presents a challenge to effectively manage Diani Chale National Reserve from Shimoni. In order to ensure that this important National Reserve is conserved and managed for the benefit of local as well as national and international stakeholders, KMMPA management will liaise with the Senior Warden Kwale County, Assistant Director Coast Conservation Area and Kwale County Government to develop effective management structures and install relevant management infrastructure and equipment to facilitate management of the National Reserve.

Objective 3: Infrastructure to Support MPA Management Developed and Maintained

An effective and efficient set of infrastructure is crucial for the provision of conservation management services and the facilitation and support of tourism activities within the KMMPA. Marine protected areas have experienced limited resource allocation for infrastructure development when compared to terrestrial parks. This could be attributed to low tourism revenue accruing from the Marine parks which makes policy makers to allocate more funds to protected areas that generate a great deal of revenue. Despite this, large MPAs like KMMPA require specialized and expensive management equipment and other infrastructure for effective management.

The aim of this objective is therefore to achieve a situation where transportation, communication, management and tourism infrastructure, management tools and equipment, and MPA utilities are provided. This will ensure that MPA operations can be implemented smoothly to realize the primary purpose of the MPA: conservation of marine resources. The management actions that have been designed to achieve this objective focus on: providing appropriate transport equipment; liaising with Kenya Rural Roads Board to prioritize tarmacking of Shimoni-Kanana road; constructing and maintaining jetties; renovating and maintaining the KMMPA office; constructing and maintaining a modern visitor information lounge and education center with a state of the art conference facility; providing and maintaining adequate staff housing; supplying fresh water to the MPA Headquarters; providing appropriate office furniture and equipment; improving communication within the KMMPA; marking and maintaining MPA boundaries and acquiring title deeds for all KWS plots in KMMPA adjacent areas; liaising with Kenya Forest Service in Management of Shimoni Forest; installing and maintaining mooring buoys; and removing and preventing marine litter in KMMPA. These management actions are discussed in the following sections.

Action 3.1: Provide appropriate transport equipment

To carry out management activities in the KMMPA effectively, availability of reliable transport is critical. There are only two vehicles and four boats within KMMPA and one of these four boats, although used by KMMPA management, belongs to the Ministry of Health. The vehicles are used for office administration and Problem Animal Control (PAC) activities. However, to effectively address all PAC incidents adequately, an additional vehicle is required for PAC work in the Lung Lunga area. In addition, to ensure that vehicles and boats are repaired on time, a mechanic with vehicle and boat repair skills is required. A summary of vehicle needs is shown in table 15.

Table 15. Summary of vehicle needs

Vehicle type	Purpose
• A boat	Conservation education and outreach
• 4WD heavy duty car	Problem Animal Control and security operations
• A Mini bus (25 sitter)	Staff welfare and Conservation education
• Motorbikes(3)	Problem Animal Control
• A water bowser	Water supply
• Dinghy	Rescue and emergency response

Action 3.2: Construct and maintain jetties

Shimoni has only one jetty that serves all the KMMPA boats. It is utilized by boat operators who ferry visitors to the marine park and reserve and local traders who use the jetty to load their cargo, for example goats or chicken, and passengers to Wasini Island, among other uses. This mix of activities interferes with visitor experience and satisfaction as they take place close to the KMMPA’s visitor entrance gate. Furthermore, occasional congestion

of boats at the jetty interferes with the activities of other jetty users. There is no designated and coordinated mooring system at the jetty compromising navigation and safety around the jetty. In addition, the jetty requires urgent repairs to ensure safety of visitors and local users. Hence, to facilitate tourist activities and ease pressure on the existing jetty, another jetty will be constructed next to the KWS Shimoni office. This new jetty will offer mooring services to local and visiting boats. In addition, shops, office space, restaurants, rescue diving centre and coffee house will be constructed next to the new jetty to generate additional income to support maintenance of the jetty.

Action 3.3: Construct and maintain the KMMPA office buildings

The buildings at the park headquarters are situated on a 15 Ha piece of land. The current office block and utilities are inadequate to serve the current and future office space requirements proposed in this management plan. Appropriate storage facilities for stores and equipment and a wet lab to facilitate marine research are lacking. Hence, to address the aforementioned gaps in office space, the current office block will be upgraded and another office block constructed to host the proposed additional staff, store, wet lab and a library.

Action 3.4: Construct and maintain a modern Visitor Information Center

The current information centre is small and not ideal to showcase KMMPA values adequately. The information centre is not conducive for visitors since the structure is open and is just next to the office block and the car park. On the other hand, the condition of the available conference facility does not meet the required standards. It has a small capacity and can only be utilised during the dry season because the building does not have walls. The roofing is also in a state of disrepair and leaks when it rains. There is a very high demand for an information and education facility in KMMPA given the number of education groups that visit the area. To ensure that KMMPA meets the needs of its customers and offers effective conservation education to visitors, a modern visitor information and education centre will be constructed. The proposed development will be implemented together with the proposed student's hostel (see Action 4.4 of the Community Partnership and Conservation Education Programme). At the same time, a conference facility equipped with state of the art audio visual equipment will be developed. Once the information centre is constructed, the existing information centre will be upgraded to a staff canteen.

Action 3.5: Provide and maintain adequate staff housing

Staff housing continues to hamper efficient operations both at the KMMPA headquarters and field outposts. Resources allocated for rehabilitation and maintenance of staff houses are limited and consequently rehabilitation of houses has not been carried out for a long time. Shortage of staff housing has led to sharing of houses by some of the junior staff, affecting staff morale and productivity. Hence, to address the staff housing shortfall, ranger housing blocks will be constructed (i.e. two 2 flats with a capacity of 12 units). Also, rehabilitation of all staff houses will be a priority item in the long term to support optimal staff numbers at the MPA headquarters and the field outposts.

On the other hand, outposts established at Lunga Lunga and Lower Mpunguti to support PAC and law enforcement respectively are rundown and require urgent maintenance. Consequently, new houses will be constructed at these outposts to enhance security presence and management effectiveness. In addition, an observation tower equipped with a telescope will be constructed at Lower Mpunguti to facilitate marine surveillance activities.

Action 3.6: Supply fresh water to the MPA Headquarters

Water bowsers are used to pump water to overhead tanks and it is thereafter distributed to houses through gravity. This mode of water supply is not sustainable due to financial constraints. To ensure reliable and efficient water supply at the MPA headquarters, a feasibility study will be conducted to ascertain the best option for supplying water. The potential water sources include rainwater catchments (Djabia), ground water, or sourcing water from River Ramisi.

Action 3.7: Provide appropriate office furniture and equipment

In order for efficient and effective service provision to be undertaken, office equipment and furniture are required. At present, office equipment in the KMMPA is shared between staff while limited office space has meant that no furniture can be provided. Staff work shifts in order for them to utilize existing space, equipment and furniture contributing to lower per capita productivity. To address this problem, an assessment of existing and required equipment and furniture will be conducted and the shortfall provided.

Action 3.8: Improve communication within the KMMPA

Effective communication both within and outside the KMMPA is essential for efficient management, and it is key to improving KMMPA management's response to urgent issues. The KMMPA office has phone and e-mail facilities but these have a limited range. A communication radio network also serves the entire KMMPA. Through this action, communication will be improved further through; improved internet access and upgrade of VHF radio communication as well as installing VHF maritime radios in all boats. According to KMA, it is mandatory for all boats to have communication radios. The hand held radios are not adequate to facilitate internal communication and additional ones will be availed during the plan period. At the same time, all outposts will be provided with sufficient radios to effectively carry out their duties and facilitate emergency responses.

Action 3.9: Mark and maintain MPA boundaries and acquire title deeds for all KWS Plots in KMMPA-adjacent areas

Increased encroachment on the KMMPA by foreign and artisanal fishermen and land speculators can partly be attributed to unclear and unmarked protected area boundaries. Cases of unscrupulous persons selling the islands within the park and marine reserve have been recorded. To reduce these incidences and stem illegal activities in the KMMPA, the KMMPA boundary will be demarcated. The demarcations will clearly mark the boundaries of the protected areas to inform people when they are in the protected area. Through liaison with KWS headquarters, title deeds for all KWS land parcels in KMMPA will be acquired.

Action 3.10: Liaise with Kenya Forest Service in the Management of Shimoni Forest

Despite its enormous ecological, social, cultural and economic benefits it possesses, the Shimoni forest is being depleted at an alarming rate. The principal threats to the survival of Shimoni forest and biodiversity conservation include charcoal burning, commercial timber cutting, poaching of wildlife, poorly regulated allocation of land to private landowners, private and commercial development and slash-and-burn clearance for agriculture. As such, and for the benefit of the present and future generations, urgent measures are required to prevent the wanton destruction and start a reforestation programme.

Currently, the Friends of Shimoni Forest Group is overseeing the management of the forest and trying to prevent further destruction despite lacking legal instruments to do this. To augment these efforts KWS will work closely with KFS to initiate the process of gazetting the forest to enhance its protection. However, since the process of

gazetting the forest can take long, KMPA will work closely with Friends of Shimoni Forest to reduce further destruction by organizing joint patrols and assisting in apprehending those caught conducting illegal activities. Through the County Wildlife Conservation and Compensation Committee, friends of Shimoni forest Group will be encouraged to register a Community wildlife Association or a Community Forest Association to enable them to legally manage the forest.

Action 3.11: Install and maintain mooring buoys

Environmentally safe mooring buoys have been shown to be effective management tools in minimizing human-caused damage to coral reefs and other sensitive marine habitats. In addition to minimizing anchor damage, the mooring buoy can also help to identify areas for specific activities. Consequently, under this management action, expressly marked (colour-coded and inscribed) buoys will be deployed in specific areas to mark general mooring areas, research mooring areas, recreational diving/snorkeling areas, and fishing areas. This measure of setting up additional mooring in specific areas will help relieve pressure and destruction of coral beds. Once the buoys have been deployed they will be maintained regularly.

Action 3.12: Remove and prevent marine litter in KMPA

Litter from many sources is a problem throughout the KMPA, but particularly close to the shore and tourist attractions. The environmental impact of litter can be considerable not only in terms of aesthetic impact but also as a threat to wildlife. Discarded cans and bottles can trap marine wildlife whilst many plastic are harmful when ingested. Marine debris such as fishing lines, netting, and plastics are a hazard to dolphins and turtles. Thus management will conduct a public awareness campaign on the impacts of litter; carry out litter surveys and regular beach clean-up campaigns; install an incinerator to burn collected litter; and liaise with the County Government in establishing appropriate waste disposal facilities.

Objective 4: MPA Security Operations Strengthened

Security is crucial for safety of the marine resources and visitors in KMPA. It is therefore important to ensure that supportive resources are provided to help counter security threats. These resources include vehicles, firearms, and other equipment necessary for security operations. Although there has not been a serious security incident within KMPA, there are a number of minor incidences that make visitor security an important element of management. Incidences and cases of visitor harassment have become increasingly rampant at points of entry (i.e. the jetty); overcrowding and an unregulated hawking of curio which results in various operators jostling for the attention of tourists has been reported. Unless visitor security is guaranteed, tourism investment within the area will be severely affected. A number of proactive measures need to be taken which include liaising with all security agencies to ensure that law and order is maintained.

This objective therefore aims to make certain that the safety of the KMPA's natural resources, staff, visitors and assets is ensured, through the delivery of efficient, effective and adequate security services. In order to achieve this aim, KMPA management will implement four management actions. These actions are elaborated in the following sections.

Action 4.1: Control poaching in collaboration with stakeholders

KMPA is a refuge to some of the rare, endemic, vulnerable, threatened and endangered species of wildlife such as hawksbills and green turtles, whale shark, the spotted ground thrush and Hildegard's Tomb Bat, among others. Poaching of wild animals is increasingly becoming rampant and commercial in many parts of the Greater KMPA, especially in terrestrial areas of Msambweni Sub County. De-snaring activities in and around Shimoni forest have shown the pervasiveness of the situation. Poaching, if uncontrolled, could lead to extinction of

the rare and endangered species. Consequently, KMMPA will strengthen its response to poaching problems in collaboration with stakeholders by strengthening wildlife intelligence gathering, deploying remote surveillance systems and conducting anti-poaching campaigns. To register success in the implementation of these activities, support and involvement of the local community is critical. Consequently, local community members will be involved in intelligence gathering as well as community policing of natural resources. Additionally, poaching hotspots will be clearly identified and mapped to guide security operations.

Action 4.2: Upgrade outposts and provide appropriate equipment to security personnel

Currently, KMMPA security staff lack essential field equipment such as binoculars, night vision goggles, marine torches, first aid kits, diving kits, GPS (water proof). Hence, under this management action existing KMMPA outposts will be upgraded to enhance patrols in the Sub-county of Msambweni. Each outpost will be assigned a patrol area and it will be optimally staffed and provided with basic equipment such as binoculars, GPS and where necessary, a vehicle, to facilitate ground patrols.

Action 4.3: Collaborate with police and judiciary in enhancing prosecution of wildlife offences

KMMPA management uses considerable financial and human resources in an effort to curb illegal activities taking place within the area. When arrests are made they often do not lead to conviction of perpetrators, or result in low penalties accorded to culprits. This does not act as sufficient deterrent to perpetrators of wildlife crime.

Lack of awareness among the magistrates on the impacts of wildlife offences on wildlife populations at times leads to dismissal of cases, or minimal penalties meted out to culprits. There is therefore need for KMMPA management to step up its collaboration with the police and judiciary to improve prosecution rates. Under this action, security rangers will be trained in the arrest and prosecution process. The training will include drafting effective charge sheets that can sustain a case in court, and handling and producing evidence in court. This training will be offered through rangers' workshops with resource persons drawn from the Kenya Police Force and KWS Headquarters, Security Division. This action is expected to increase the number of successful prosecutions and deter repeat offenders.

Action 4.4: Conduct joint enforcement activities

To cut back on cost and ensure adequate surveillance, joint patrols involving government agencies that participate in enforcement activities such as the Fisheries Department, the Maritime police, customs police and the KWS will be conducted regularly. Joint patrols will complement the lack of/ or limited capacity among enforcement officers from different institutions. Further, regular consultative meetings between enforcement personnel and MPA management will be organised to review enforcement approaches for purposes of improving security strategies.

Apart from government institutions operating in the area, there are other organized groups and NGOs that participate in enforcement activities. Some of these groups include the BMUs and the Turtle Watch Group. For example, the turtle conservation groups are engaged in protecting the endangered sea turtle in collaboration with KWS and Fisheries Department. As such, regular joint operations will be organized, especially in areas where good relationship already exists between KWS and the local community. KMMPA management will also be holding periodic public meetings with the aim of raising awareness and gathering intelligence on poaching techniques and approaches.

Recorded cases of spear gun and dynamite fishing in the Mpunguti Marine Reserve and surrounding waters show that there is need for sustained enforcement measures to reduce and eliminate this illegal activity. The

prevalence of this practice is blamed on foreign fishermen who encroach on the national territorial waters. Lack of proper fishing gear and lack of resources to facilitate enforcement patrols further exacerbates this problem. Hence, joint patrols will be organised to curb these illegal activities.



Plan
Monitoring

Plan Monitoring Framework

The plan monitoring framework set out in the following tables has been designed to provide guidance for the assessment of the impacts resulting from the implementation of each of the five management programmes. The framework sets out the potential positive as well as negative impacts that may possibly occur during the implementation of each programme. The framework also includes easily measurable indicators for assessing these impacts, and potential sources of the information needed. Monitoring the impacts of the plan implementation will ensure that timely changes to management approach are made when the situation demands.

Table 16. Ecological Management Programme Monitoring Plan

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Sources and means of verification
Objective 1: Rare, endemic or threatened species are protected and restored	<ul style="list-style-type: none"> The turtle population in the KMMPA is increasing and breeding sites are protected Increased functional nests Increased population size 	<ul style="list-style-type: none"> Population size Turtle nests 	<ul style="list-style-type: none"> Population counts Turtle nesting monitoring reports
Objective 2: Marine ecosystems are maintained in a healthy functioning state	<ul style="list-style-type: none"> The endangered dugong species population is increasing Coral reef damage in KMMPA is reduced 	<ul style="list-style-type: none"> Population size Abundance of coral fishes Population size of coral fishes Coral cover Coral mortality rate Coral recruitment Extent of degradation Water quality 	<ul style="list-style-type: none"> Population counts Coral reef fisheries monitoring report Mangrove forest monitoring reports Water quality reports
Objective 3: Marine biodiversity is understood and appreciated	<ul style="list-style-type: none"> Threats to the Mangrove ecosystem are reduced Pollution is reduced and clean ups conducted regularly Marine biodiversity is being conserved Improvement in information availability Knowledge and skills improved 	<ul style="list-style-type: none"> Species diversity and population size Functional database Training in relevant areas 	<ul style="list-style-type: none"> Population counts

Table 17. Tourism Development and Management Programme Monitoring Plan

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Sources and means of verification
Objective 1: Sufficient tourism support infrastructure and equipment provided	<ul style="list-style-type: none"> Increased number of visitors to the KMMMPA Improved visitor satisfaction and retention Increased tourism revenue 	<ul style="list-style-type: none"> Annual visitor numbers Revenue data Amount of revenue Customer satisfaction Number of repeat visitors 	<ul style="list-style-type: none"> KWS HQ visitor and revenue database KWS customer feedback reports
	<ul style="list-style-type: none"> Environmental degradation from increased tourist use 	<ul style="list-style-type: none"> Amount of dumped waste Amount of worn of eroded ground surface 	<ul style="list-style-type: none"> Targeted inspections by KMMMPA staff
	<ul style="list-style-type: none"> Increased number of visitors to the KMMMPA 	<ul style="list-style-type: none"> Annual visitor numbers 	<ul style="list-style-type: none"> KWS HQ visitor database
Objective 2: Tourism activities and attractions diversified	<ul style="list-style-type: none"> Increased length of stay in the KMMMPA 	<ul style="list-style-type: none"> Average number of nights spent in the KMMMPA per visitor 	<ul style="list-style-type: none"> Bed occupancy reports of visitor accommodation facilities in the KMMMPA- adjacent areas
	<ul style="list-style-type: none"> Increased revenue 	<ul style="list-style-type: none"> Amount of KMMMPA revenue 	<ul style="list-style-type: none"> Revenue database
	<ul style="list-style-type: none"> Improved visitor satisfaction 	<ul style="list-style-type: none"> Visitor satisfaction level 	<ul style="list-style-type: none"> Visitor satisfaction survey reports
Objective 3: KMMMPA's tourism marketing improved	<ul style="list-style-type: none"> Improved public awareness about KMMMPA Increased number of visitors to the KMMMPA Increased public support for KMMMPA 	<ul style="list-style-type: none"> Annual visitor numbers 	<ul style="list-style-type: none"> KWS HQ visitor database
	<ul style="list-style-type: none"> Increased collaboration between KWS, tour operators and KMMMPA investors 	<ul style="list-style-type: none"> Number or value of support initiatives 	<ul style="list-style-type: none"> External linkages report
	<ul style="list-style-type: none"> Improved visitor handling standards 	<ul style="list-style-type: none"> Number and participation at tourism stakeholder and KMMMPA management meetings Period taken to accomplish customer tasks 	<ul style="list-style-type: none"> Meeting minutes Visitor satisfaction survey reports
Objective 4: Visitor administration and management systems improved	<ul style="list-style-type: none"> Improved visitor handling standards 	<ul style="list-style-type: none"> Period taken to accomplish customer tasks 	<ul style="list-style-type: none"> Visitor satisfaction survey reports

Table 18. Fisheries Resource Management Programme Monitoring Plan

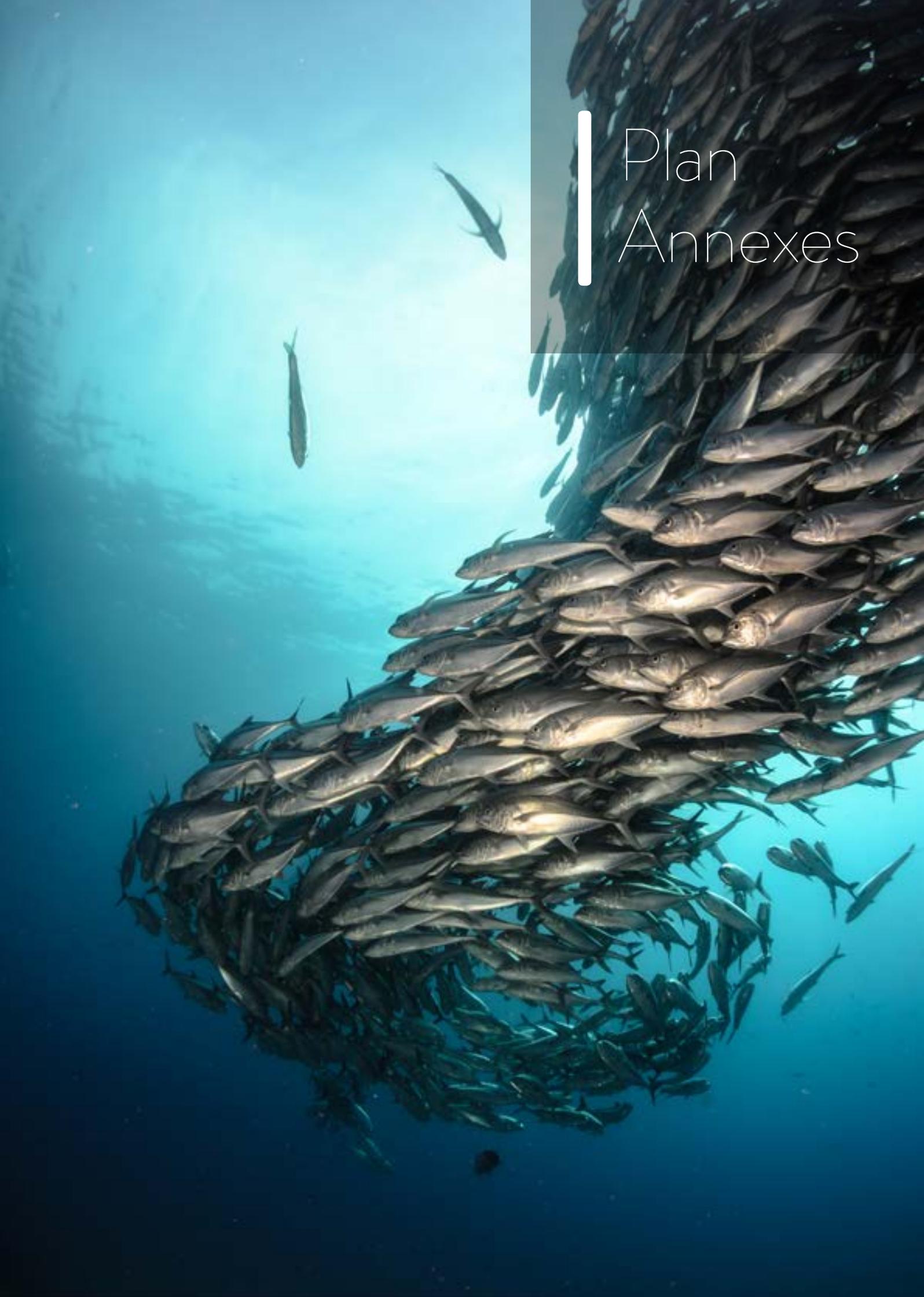
Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Sources and means of verification
Objective 1: Regulatory frameworks, enforcement and surveillance capabilities to regulate fishing activities strengthened	<ul style="list-style-type: none"> Improved state and non-state actors collaboration Improved enforcement of fisheries laws Reduced illegal natural resource use in the KMMPA 	<ul style="list-style-type: none"> Number of management and enforcement collaborations 	<ul style="list-style-type: none"> KMMPA management and enforcement records
Objective 2: Linkages between research and fishery management enhanced	<ul style="list-style-type: none"> Reduced illegal natural resource use in the KMMPA Improved allocation/sharing and use of fisheries resources Improved marine research coordination and dissemination of findings Improved community awareness of importance of the KMMPA 	<ul style="list-style-type: none"> Number of illegal natural resource use incidences in the KMMPA Number of recommended fishing methods in use Number of research reports disseminated Number of number of local community members educated on conservation of KMMPA 	<ul style="list-style-type: none"> KMMPA enforcement records Fisheries utilisation records and KMMPA enforcement records KMMPA management and research reports KMMPA community education and outreach reports
Objective 3: Stakeholder participation in fishery management enhanced	<ul style="list-style-type: none"> Less activity/role gaps and duplicates in fishery sector 	<ul style="list-style-type: none"> Number of functional collaborative units 	<ul style="list-style-type: none"> Community Wildlife Service and Fisheries Department records
Objective 4: Alternative sources of livelihood to fisher folk developed and implemented	<ul style="list-style-type: none"> Provision of alternative sources of community livelihoods Pressure on fisheries reduced 	<ul style="list-style-type: none"> Number of initiated successful non-fishing income generating activities 	<ul style="list-style-type: none"> Community Wildlife Service and Fisheries Department records
Objective 5: Impacts on emerging issues in fisheries resources assessed	<ul style="list-style-type: none"> Number of understood and mitigated negative environmental impacts of marine activities 	<ul style="list-style-type: none"> Number of Environmental Impact Assessments and audits 	<ul style="list-style-type: none"> Environmental Impact Assessment and Audit reports

Table 19. Community Partnership and Education Programme Monitoring Plan

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Sources and means of verification
Objective 1: Community participation in natural resource management enhanced	<ul style="list-style-type: none"> Reduced illegal natural resource use in the KMMMPA Improved allocation of fish-eries resources 	<ul style="list-style-type: none"> Number of illegal natural resource use incidences in the KMMMPA Number of recommended fishing methods under use 	<ul style="list-style-type: none"> KMMMPA enforcement records Fisheries utilisation records and KMMMPA enforcement records
Objective 2: Community environmental education and outreach programmes enhanced	<ul style="list-style-type: none"> Improved understanding of the KMMMPA's conservation importance 	<ul style="list-style-type: none"> Number of local community members involved in KMMMPA conservation initiatives 	<ul style="list-style-type: none"> Community Wildlife Service records
Objective 3: Resource-use and human-wildlife conflict (HWC) mitigation measures enhanced	<ul style="list-style-type: none"> Reduced costs of wildlife to KMMMPA adjacent communities Increased value and importance of the KMMMPA to surrounding communities 	<ul style="list-style-type: none"> Number of human-wildlife conflict incidences around KMMMPA Income from activities linked to the conservation of the KMMMPA 	<ul style="list-style-type: none"> Community Wildlife Service records (monthly reports and occurrence books) Community Wildlife Service and Fisheries Department records

Table 20. MPA Operations and Security Programme Monitoring Plan

Objective	Potential Impacts (Positive and Negative)	Verifiable Indicator	Sources and means of verification
Objective 1: Human resource capacity strengthened	Improved efficiency of KMMPA staff undertaking their roles	Staff performance against 3-Year Activity Plan “mile-stones”	<ul style="list-style-type: none"> • KMMPA quarterly reports
	Improved morale of KMMPA staff	Number of poor morale related incidences	<ul style="list-style-type: none"> • KMMPA quarterly reports
	Enhanced management collaboration between KWS and its partners	Percentage of joint responsibility 3-year activity plan milestones achieved	<ul style="list-style-type: none"> • KMMPA annual reports
	Increased external financial support for KMMPA management	KMMPA revenue sources	<ul style="list-style-type: none"> • KMMPA annual budget reports
Objective 2: Strategic collaborative partnerships established	Increased stakeholder support for management of the KMMPA	Number of KMMPA advisory meetings or other stakeholder collaboration events held	<ul style="list-style-type: none"> • Meeting minutes or KMMPA management records
	Improved efficiency in management operations	Ratio of operational to non-operational land and sea vehicles	<ul style="list-style-type: none"> • KMMPA management records and/or periodic surveys
	Improved management response to security or HWC incidences due to improved communications	Number of security and HWC incidences successfully responded to	<ul style="list-style-type: none"> • Community surveys and investor feedback
	Enhanced ability of management to implement the plan	Percentage of 3-Year Activity Plan milestones achieved	<ul style="list-style-type: none"> • KMMPA quarterly reports
Objective 3: Infrastructure to support MPA management developed and maintained	The establishment of the KMMPA as a safe and secure destination for visitors and investors	Number of visitor security incidences in the KMMPA	<ul style="list-style-type: none"> • KMMPA Security Section records (incident reports)
	Increased efficiency of law enforcement efforts	Number of arrests made per law enforcement effort	<ul style="list-style-type: none"> • KMMPA Security Section records
	Increased disincentive for undertaking illegal activities in the KMMPA	Number of repeat offenders caught in the KMMPA	<ul style="list-style-type: none"> • KMMPA Security Section records
Objective 4: MPA security operations strengthened			



| Plan
Annexes

Annex 1. Three Year Activity Plan 2015 – 2018

The following pages set out the first 3-Year Activity Plan for the KMMPA plan. The activity plan details the activities, responsibilities, timeframes and milestones necessary for the delivery of each management action over the first 3-year timeframe of this management plan.

Ecological Management Programme

Management Actions and Activities	Persons Responsible	Timeframe												Milestones
		FY 2015-16				FY 2016-17				FY 2017-18				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 1: Rare, endemic or threatened species are protected and restored														
1.1: Map and conduct surveys on turtle nesting sites and habitat utilization														
1.1.1 Map and assess turtle habitats including nesting, foraging and migratory habitats	SRS-CCA	X	X	X	X	X	X	X	X	X	X	X	X	Turtle nesting sites monitored regularly
1.1.2 Update the status of the sea turtle populations	“	X	X	X	X	X	X	X	X	X	X	X	X	
1.1.3 Secure and monitor turtle nesting sites	“	X	X	X	X	X	X	X	X	X	X	X	X	
1.2: Disseminate information and increase public awareness on sea turtles conservation and management														
1.2.1 Scale up linkages with the sea turtle conservation groups in Kenya	“													
1.2.2 Develop programmes for education and awareness on sea turtles	“													
1.2.3 Develop and implement a sea turtle conservation and education programme	“													
1.2.4 Enhance support for conservation among the stakeholders	“													
1.3: Conduct inventories of key species														
1.3.1 Undertake a thorough assessment of biodiversity in the area in collaboration with other researchers										X				Biodiversity assessment report available by December 2017
1.3.2 Develop a monitoring strategy that takes into consideration the key species, habitats and processes											X			
1.3.3 Update and monitor habitats status and species movements														

Management Actions and Activities	Persons Responsible	Timeframe												Milestones
		FY 2015-16				FY 2016-17				FY 2017-18				
		1	2	3	4	1	2	3	4	1	2	3	4	
1.4: Implement the national survey of dugong report detailed by the CMS														
1.4.1 Conduct an economic valuation to ascertain the value of the current population of dugong	SRS-CCA	X	X	X	X	X	X	X	X	X	X	X	X	Proceedings of consultative meetings available by December 2016
1.4.2 Consult with local and international dugong research experts on the development of a National Marine Mammal Conservation Strategy	“	X	X	X	X	X	X	X	X	X	X	X	X	
1.5: Disseminate information and raise awareness about dugong in the area														
1.5.1 Collate information to be used to develop education and awareness programmes	“	X	X	X	X	X	X	X	X	X	X	X	X	Education and awareness materials for Dugong available by December 2016
1.5.2 Promote awareness among the general public about dugongs	“	X	X	X	X	X	X	X	X	X	X	X	X	
1.5.3 Seek support for awareness creation on the conservation of the dugong in the South Coast.	“	X	X	X	X	X	X	X	X	X	X	X	X	
1.6: Lobby for and contribute to the development of a National Marine Mammal Conservation Strategy														
1.6.1 Initiate the process of developing a strategy that will incorporate all relevant stakeholders	“													
1.6.2 Come up with national mechanisms in which to domesticate and implement conservation conventions	“													
1.7: Develop a research and monitoring programme on species conservation targets														
1.7.1 Create close collaborations with conservation minded stakeholders outside the KMMMPA	“	X	X	X	X	X	X	X	X	X	X	X	X	Dolphin habitat and its geographic extent defined by June 2017
1.7.2 Map the area to determine the geographic boundaries of dolphin populations	“									X	X	X	X	
1.7.3 Identify hotspots, prime habitat requirements and possible threats to the successful survival of populations	“									X	X	X	X	
1.8: Assess the level of human and marine mammals (dolphin and whale) interactions and raise awareness about potential threats through training and education														
1.8.1 Review the level of interactions between humans and marine mammals and their impacts	“													
1.8.2 Generate information for review of the current code of conduct	“													
1.8.3 Develop education and awareness programmes on human-marine mammals interactions	“													

Management Actions and Activities	Persons Responsible	Timeframe												Milestones			
		FY 2015-16				FY 2016-17				FY 2017-18							
		1	2	3	4	1	2	3	4	1	2	3	4				
1.8.4 Train and sensitize boat owners and operators on the conservation and wise management of whale-dolphin watching activities	SRS-CCA																
1.9: Conduct economic valuation of Dolphin and Whale watching industry																	
1.9.1 Conduct an economic valuation of watching dolphins in the KMMPA	“																
Objective 2: Marine ecosystems are maintained in a healthy functioning state																	
2.1: Implement measures to reduce coral reef damage																	
2.1.1 Undertake an assessment to identify, map and zone coral reef ecosystems within KMMPA	“					X	X	X	X	X	X	X	X	X	X	X	
2.1.2 Develop key indicators of coral reef condition and benchmarks against which change will be assessed	“					X	X	X	X	X	X	X	X	X	X	X	
2.1.3 Communicate research and monitoring information to the community and other stakeholders to enhance coral reef conservation awareness	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Coral reefs of KMMPA mapped by June 2017
2.1.4 Promote wise use of the resource	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.2: Mainstream the implementation of the national coral reef and sea grass conservation strategy																	
2.2.1 Develop effective conservation and management strategies for coral reefs in KMMPA by provision of information on the distribution, abundance, composition and health of these ecosystems	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.2.2 Implement recommended strategies contained in the already formulated national coral reef and sea grass conservation strategy for managing these ecosystems	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.3: Support the restoration and rehabilitation of KMMPA mangrove ecosystem																	
2.3.1 Partner with other institutions to develop mangrove restoration and monitoring programmes	“													X	X	X	Degradation of mangrove forest mapped by June 2018
2.3.2 Identify and map degraded areas for implementation of restorative measures	“													X	X	X	
2.3.3 Monitor the regeneration process	“													X	X	X	
2.4: Enhance the conservation and rehabilitation of Shimoni and Wasini forests																	
2.4.1 Support re-forestation initiatives	“																
2.4.2 Promote community alternative livelihoods projects to ease pressure on the forests	“																

Management Actions and Activities	Persons Responsible	Timeframe												Milestones	
		FY 2015-16				FY 2016-17				FY 2017-18					
		1	2	3	4	1	2	3	4	1	2	3	4		
2-5: Conduct research on the ecology of sea grass beds														Sea grass extent and distribution mapped by June 2017	
2-5.1 Promote good land management practices that address the erosion problem causing siltation on sea grass beds and coral reefs	SRS-CCA	X	X	X	X	X	X	X	X	X	X	X	X		X
2-5.2 Assess the status and trends of sea grass distribution in the MPA	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2-5.3 Monitor marine water and sediment quality	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2.6: Control access to critical habitats (coral reefs, sea grass and mangrove forest)														Rules on access to critical habitats are available by June 2016	
2.6.1 Raise awareness on the impacts of human activities on critical habitats to key stakeholders	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2.6.2 Assist key stakeholders in developing and implementing mitigation measures	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2.6.3 Restrict access to critical habitats which have been zoned as protection zone through implementation of the prescription provided in the zoning scheme	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2-7: Conduct research on restoration and rehabilitation of critical habitats														Pilot studies on restoration of critical habitats conducted by June 2018	
2.7.1 Conduct pilot studies on restoration and rehabilitation of critical habitats	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2.7.2 Use available manuals used for restoration or rehabilitation of critical habitats (e.g. mangrove restoration, artificial coral transplantation, sea urchins and crown of thorns control manuals) in the pilot projects	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2.8: Control harvesting of aquarium fish														A report on the status of aquarium fish available by June 2016	
2.8.1 Assess and gauge the level and extent of aquarium fish trading, the percentage of fishers involved and the impacts on the habitat	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2.8.2 Assess live rock collection to determine the level of damage to the corals	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2.8.3 Conduct an assessment on the impact of harvesting on aquarium fish to determine its sustainability	“	X	X	X	X	X	X	X	X	X	X	X	X		X
2.8.4 Liaise with the fisheries department to review the Fisheries Act and other policies that govern the trade to ensure sustainability of the fishery industry	“	X	X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones
		FY 2015-16				FY 2016-17				FY 2017-18				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 3: Marine biodiversity is understood and appreciated														
3-1: Conduct a review of existing information and research on climate change														
3.1.1 Review existing information on climate change, targeted research on climate change indicators and potential climate change mitigation and restoration measures	SRS-CCA	X	X	X	X	X	X	X	X	X	X	X	X	Climate change study reports available by December 2017
3.1.2 Conduct regular surveys and research activities to identify degraded or threatened marine resources	“	X	X	X	X	X	X	X	X	X	X	X	X	
3.1.3 Develop consensus and prioritize research that aims at reducing, minimising or halting resource damage	“					X	X	X	X	X	X	X	X	
3.1.4 Partner with institutions involved in research to synthesize information on climate change	“					X	X	X	X	X	X	X	X	
3-2: Raise awareness on impacts of climate change and the possible mitigation and adaptation measures														
3.2.1 Partner with research institutions to raise awareness on results and recommendations of climate change studies in KMMPA	“					X	X	X	X	X	X	X	X	Information from the climate change study disseminated by June 2018
3.2.2 Synthesize and package awareness information in an easy to understand format	“					X	X	X	X	X	X	X	X	An economic valuation study is carried out by December 2017
3-3: Conduct an economic valuation study of the area														
3.3.1 Carry out an economic valuation study to assist in understanding and quantifying the value of resources in the protected area	“									X	X	X	X	Monitoring of critical species done regularly
3-4: Conduct long-term and short term surveys of all critical habitats and species														
3.4.1 Carry out surveys on critical species and their habitats regularly to determine trends	“	X	X	X	X	X	X	X	X	X	X	X	X	
3.4.2 Link data from the survey with a GIS database to visualize changes over temporal and spatial perspectives	“					X	X	X	X	X	X	X	X	
3-5: Conduct studies on fishing vessels, gear use, and their catch levels														
3.5.1 Conduct a study to generate information on gear use and impacts of individual gears, in order to understand the level of damage caused	“					X	X	X	X	X	X	X	X	A study on gear use conducted by June 2017

Management Actions and Activities	Persons Responsible	Timeframe												Milestones
		FY 2015-16				FY 2016-17				FY 2017-18				
		1	2	3	4	1	2	3	4	1	2	3	4	
3.6: Conduct a study on damage left by visitors and develop enforcement action														
3.6.1 Assess the extent of damage caused by inappropriate boating, recreational visitors and fishing activities	SRS-CCA	X	X	X	X	X	X	X	X	X	X	X	X	Damage to habitats assessed by June 2017
3.6.2 Estimate the visitor carrying capacity for reef tourism to determine optimal levels of use, avoid overuse or crowding, and maintain visitor satisfaction	“			X		X								
3.6.3 Carry out studies on tourism trends, dive operations, boat use and commercial and recreational fishing	“				X	X								
3.7: Develop a formalized mechanism for networking														
3.7.1 Form a forum between researchers, managers and the KMMMPA community	“					X				X	X	X	X	Stakeholders are made aware of activities regularly
3.7.2 Enhance existing regional mailing lists	“													
3.7.3 Initiate an annual research forum	“													
3.7.4 Update key stakeholders of relevant activities going on in KMMMPA	“	X	X	X	X	X	X	X	X	X	X	X	X	
3.8: Increase networking with managers in the region														
3.8.1 Establish a forum for managers to share experiences of their work	“													
3.8.2 Include researchers operating in the region in the forum to give presentations on their research work	“													
3.9: Develop collaborative research projects														
3.9.1 Ensure collaborative effort between scientists and resource managers in developing research proposals	“													
3.9.2 Enhance and improve management and planning in the area through collaboratively identified targets and indicators	“													
3.10: Conduct an assessment and develop an inventory of research needs														
3.10.1 Identify and document all the areas of research and prioritize them to help guide researchers conduct studies efficiently	“	X	X	X	X									Priority research areas are documented by June 2016
3.10.2 Disseminate this inventory widely to research and educational institutions	“					X	X	X	X					
3.10.3 Develop an inventory research needs with relevant regional and international institutions to facilitate exchange programmes	“													

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
3-11: Develop a central data and information management system																		A database management system for research and management information developed by June 2018
3-11.1 Develop a monitoring and assessment system to get information that can be used to respond to threats and to tailor management interventions to the changing environment	SRS-CCA					X				X				X			X	
3-11.2 Collate, analyse, interpret and make available information that is collected	“													X			X	
3-11.3 Develop a database which will be upgraded into comprehensive information and an archiving system with linkages to national and international data systems	“																	
3-11.4 Train managers and stakeholders on usage information retrieval systems	“																	
3-12: Disseminate information widely to research and educational institutions as well as to the local community																		Stakeholders are updated on activities regularly through workshops and seminars
3-12.1 Update stakeholders regularly on ongoing research activities, results and recommendations using appropriate media	“																	
3-12.2 Promote public appreciation of conservation efforts leading to increased support	“																	
3-13: Develop an ecological monitoring programme and build capacity to implement the programme																		An ecological monitoring system developed by June 2016
3-13.1 Implement an ecological monitoring programme	“																	
3-13.2 Establish baseline data, record changes in resources and evaluate effectiveness of the Marine Protected Areas	“																	
3-14: Review and revise management practices effectiveness with managers																		Management effectiveness report availed annually
3-14.1 Review analyzed data and determine whether modifications to management practices are necessary	“																	

Tourism Development and Management Programme

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
Objective 1: Adequate tourism support infrastructure and equipment provided																		
1.1: Liaise with other stakeholders in the development of tourist accommodation facilities																		
1.1.1 Identify an eco-lodge site at Shimoni Forest	KMMPA Warden					X												Eco-lodge sites identified by December 2015
1.2: Upgrade and maintain Shimoni cottages																		
1.2.1 Upgrade all the bandas to self contained and provide air conditioning and fresh water	“									X						X	X	Bandas upgraded by June 2018
1.2.2 Construct a Swahili guest house of 20 self contained rooms with air conditioning and two simple hostels for lady and male students with a capacity of 100 beds	“																	
1.3: Develop and maintain public campsites, picnic sites, nature trails																		
1.3.1 Establish nature trails with interpretation signs in Shimoni forest	“													X	X	X	X	Nature trails established by June 2018
1.3.2 Upgrade the public campsite to have a kitchen and toilet	“													X	X	X	X	
1.4: Offer tourist excursion services																		
1.4.1 Liaise with KWS Headquarters in procuring a large tourist boat to facilitate sea excursions	“																	
1.4.2 Deploy staff with experience in marine tour guiding to KMMPA to offer interpretation services during the sea excursions	“		X	X	X	X	X	X	X					X	X	X	X	
1.5: Liaise with the Ministry of Tourism to establish a tourist circuit that connects south coast to the mainland																		
1.5.1 Identify and market tourist circuits linking to the new Dongo Kundu bypass road														X	X	X	X	Tourist attractions in the South Coast mapped by June 2016
1.5.2 Improve the Shimoni earth road																		
1.5.3 Identify prominent tourist attractions in the South Coast and inventory the status of roads and tracks that can be used to access these attractions		X	X	X	X													

Management Actions and Activities	Persons Responsible	Timeframe												Milestones	
		FY 2015-16				FY 2016-17				FY 2017-18					
		1	2	3	4	1	2	3	4	1	2	3	4		
1.6: Facilitate establishment of board walks															
1.6.1 Support the local community in constructing a boardwalk at Sii Island	KMMPA Warden														Tourist attractions in the South Coast mapped by June 2016
1.6.2 Train board walk managers and officials in project management	“														
1.7: Liaise with NMMK to develop and maintain historical and cultural resources in the Greater KMMPA															
1.7.1 Liaise with NMMK and the local community in improving visitor experience at the Shimoni Slave Caves	“					X				X					
1.7.2 Desilt some of the inaccessible sections of the caves to facilitate long walks in the caves	“					X				X					Caves are fully accessible by June 2018
1.7.3 Support the local community to establish a cultural centre at one of the historical buildings such as the Shimoni old DC's house	“														
1.8: Liaise with the Ministry responsible for Tourism in promoting home stays															
1.8.1 Identify potential participants in the home stay venture	“			X		X									Awareness on home stays created by June 2017
1.8.2 Liaise with Kenya Community Based Tourism and government Organizations to facilitate community training on the benefits of home stay ventures	“					X				X					
Objective 2: Tourism activities and attractions diversified															
2.1: Develop and maintain nature trails															
2.1.1 Develop a nature trail at the KWS Shimoni forest	“														
2.1.2 Carry out a survey on the feasibility of an underwater nature trail	“					X				X					Feasibility report on an underwater nature trail available by June 2017
2.1.3 Produce maps showing trail routes and interpretation locations and market them	“												X		
2.1.4 Initiate guided safari walk, birding, mangrove walks, and self walk safaris	“														

Management Actions and Activities	Persons Responsible	Timeframe												Milestones
		FY 2015-16				FY 2016-17				FY 2017-18				
		1	2	3	4	1	2	3	4	1	2	3	4	
2.2: Market KMMPA as a bird watching destination														
2.2.1 Develop bird watching marketing strategy	KMMPA Warden	X	X	X	X	X	X	X	X	X	X	X	X	Bird watching sites and trails are identified and developed by June 2017
2.2.2 Conduct more research on migratory bird species to inform management and tourists	"	X	X	X	X	X	X	X	X	X	X	X	X	
2.2.3 Establish bird watching sites and trails	"									X	X	X	X	
2.2.4 Develop guide books for birders	"													
2.2.5 Train community naturalists in bird watching and guiding skills	"									X	X	X	X	
2.3: Explore possibility of butterfly farming to promote tourism														
2.3.1 Conduct a study to establish butterfly species found in KMMPA	"									X	X	X	X	
2.3.2 Create awareness and train local community on butterfly farming	"					X	X	X	X	X	X	X	X	Awareness on butterfly farming is created by June 2017
2.3.3 Assist community groups to construct butterfly cages for tourist watching and release to the wild	"													
2.3.4 Develop marketing and export strategy for butterfly and pupae	"													
2.4: Identify potential sites for wreck diving														
2.4.1 Conduct a feasibility study for potential of wreck diving	"	X	X	X	X	X	X	X	X					Report on potential for wreck diving is available by June 2017
2.4.2 Conduct an EIA for potential effect of the wreck	"							X	X					
2.4.3 Mark the wreck site	"													
2.5: Procure a big boat for tourist excursions														
2.5.1 Identify the appropriate vessel	"													
2.5.2 Conduct community sensitization for procurement of the boat	"													
2.5.3 Tender for the services of tour operators	"													
2.5.4 Initiate procurement process for a 40 pax boat	"													
2.6: Organize and promote local events														
2.6.1 Form a committee to deliberate on potential events for KMMPA	"					X	X	X	X	X	X	X	X	Potential events for KMMPA are identified and piloted by December 2017
2.6.2 Conduct consultative meetings with stakeholders to plan and organize the proposed events	"					X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones	
		FY 2015-16				FY 2016-17				FY 2017-18					
		1	2	3	4	1	2	3	4	1	2	3	4		
Objective 3: KMMPA's tourism marketing improved															
3-1: Conduct market research															
3-1.1 Develop profiles of customers' needs, behaviour and characteristics	KMMPA Warden						X								Marketing materials are available by June 2018
3-1.2 Design and develop marketing materials	"									X				X	
3-2: Upgrade and regularly update the KWS website to improve marketing of KMMPA															
3-2.1 update Kisite website and set up a link to local stakeholders' web pages	"	X	X	X	X	X	X	X	X	X	X	X	X	X	
3-2.2 Expand KWS website to cover the KMMPA and its adjacent areas	"	X	X	X	X	X	X	X	X	X	X	X	X	X	KMMPA website is updated regularly
3-2.3 Upload a video clip to provide detailed information on the KMMPA, its attractions and uniqueness	"	X	X	X	X	X	X	X	X	X	X	X	X	X	
3-3: Develop and update a tourist map, guide book and brochure															
3-3.1. Develop content for the information materials										X	X	X	X	X	KMMPA information materials are available by June 2018
3-3.2 Update the guide book and brochure to cover both marine and terrestrial tourism resources										X	X	X	X	X	
3-4: Install and maintain information materials at strategic locations															
3-4.1 Install billboards at strategic places										X	X	X	X	X	Signboards and billboards installed by June 2018
3-4.2 Renovate, add information and install signboards at strategic locations and tourist facilities										X	X	X	X	X	
3-5: Promote domestic tourism															
3-5.1 Liaise with KWS Business Development and Marketing Department and other stakeholders in disseminating information on the KMMPA to the public to increase visitation and revenue										X	X	X	X	X	Domestic tourism has improved by June 2018
3-6: Encourage tour companies to include community projects in their tour packages															
3-6.1 Liaise with tour companies to sell community-based eco-tourism projects in their tour packages and post information on these projects on the their social networks		X	X	X	X	X	X	X	X	X	X	X	X	X	Visitation to community projects increases by 20% by June 2018
3-6.2 Encourage and motivate tour companies to ensure that tour drivers take visitors to community projects		X	X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe																Milestones
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
3-7: Liaise with Wildlife Clubs of Kenya (WCK) to develop a marketing strategy targeting schools and citizens																		
3-7.1 Work with WCK to reach more schools	KMMPA Warden																	Visitation by schools increases by 20% by June 2018
3-7.2 Market KMMPA through vernacular FM stations such as Kaya FM	“																	
3-7.3 Give talks and disseminate promotion materials during conferences/meeting held in the coast region	“																	
3-8: Work with tourism stakeholders to disseminate tourism information																		
3-8.1 Work with tourism stakeholders to develop and share tourism information	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	At least 2 newspaper stories/articles on KMMPA written annually
3-8.2 Work with Journalists to write accurate stories on the KMMPA	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3-9: Organise and promote local events																		
3-9.1 Hold a consultative meeting with KWS Hqs to initiate a unique local promotional event based on the resources and theme of the protected area	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A promotional event is being held annually
3-9.2 Advertise the annual event locally, nationally and internationally	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Objective 4: Visitor administration and management systems improved																		
4.1: Review and update the current visitor code																		
4.1.1 Review and implement KMMPA specific codes of conduct for each marine recreation activity	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Revised codes availed to the public by June 2018
4.1.2 Publish brochures and leaflets which will be availed at Shimoni KWS offices and tourist accommodation facilities	“												X	X	X	X	X	
4.2: Develop local visitor handling standards for tour operators and enhance security enforcement																		
4.2.1 Support training of community tour guides to increase their overall awareness of the area's values, rules, and the various visitors codes	“									X	X	X	X	X	X	X	X	Community tour guides are continuously trained
4.2.2 Support tour guides to form an association which will be regulating their conduct	“												X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
4-3: Develop and implement dolphin watching guidelines																		
4-3.1 Liaise with dolphin researchers and boat operators to develop appropriate regulations to guide dolphin watching	KMMPA Warden									X				X				Awareness on dolphin watching guidelines is created by December 2017
4-3.2 Conduct awareness creation campaign on these regulations to all residents of KMMPA, boat operators and fishermen	“													X				
4-3.3 Install a big poster at the proposed tourism jetty to inform visitors on the Do's and Don'ts of watching dolphins	“															X		
4-3.4 Place the code of conduct and park regulations strategically in all boats ferrying tourists to the MPA	“															X		
4-4: Liaise with the Ministry responsible for tourism to organize regular workshops for boat/beach operators																		
4-4.1 Organize a workshop with relevant stakeholders to raise awareness to boat/beach operators and give them a platform to air their grievances	“									X	X	X	X	X	X	X	X	Tourism workshops held regularly
4-4.2 Facilitate formation of an organisation that will regulate members' behaviour	“													X	X	X	X	
4-5: Train local conservation groups in tourism management best practices																		
4-5.1 Facilitate training of the project members in project management, marketing and customer handling skills.	“											X	X	X	X			Community members are trained by June 2017
4-5.2 Train community boat crews, Wasini board walk and cave guides in tour guiding	“									X	X	X	X					
4-6: Minimise effects of waste generated by visitors																		
4-6.1 Liaise with Kenya Maritime Authority (KMA) and relevant stakeholders to have restrooms installed with receptacles in all tour boats	“																	
4-6.2 Build restrooms and changing rooms within the environs of the proposed jetty	“																	Restrooms provided by June 2017
4-6.3 Encourage local boat owners to use carboys with hand pumps on their boats instead of water bottles to improve solid waste management	“									X	X	X	X					
4-6.4 Develop publicity material to encourage responsible waste management	“													X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones					
		FY 2015-16				FY 2016-17				FY 2017-18									
		1	2	3	4	1	2	3	4	1	2	3	4						
4.7: Establish a KMMPA tourism forum																			
4.7.1 Establish a tourism forum to oversee the activities of tourism players in and around the KMMPA including all key tourism players	KMMPA Warden													X			X	X	A tourism forum is formed by December 2017
4.7.2 Hold quarterly meetings with the tourism forum	“																		
4.8: Conduct a study to assess the KMMPA's visitor carrying capacity																			
4.8.1 Determine the visitation threshold that, if surpassed, will lead to degradation of the biodiversity values	“													X			X		



Fisheries Resource Management Programme

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
Objective 2: Linkages between research and fishery management enhanced																		
1.1: Enhance capacity to facilitate effective law enforcement																		
1.1.1 Carry out capacity needs assessment	KMMPA Community Warden and Warden	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	KMMPA enforcement team is adequately trained by June 2018
1.1.2 Mobilize financial resources to procure required equipment, facilities, and/or tools of work	“					X	X	X	X	X	X	X	X	X	X	X	X	
1.1.3 Constitute joint enforcement programs involving relevant players of fishery resource	“																	
1.1.4 Provide refresher courses to update skills of enforcement personnel	“													X	X	X	X	
1.1.5 Undertake exchange programs to improve on enforcement efficiency	“																	
1.2: Lobby for the gazettement of more effective MPA regulations																		
1.2.1 Constitute a task force to take audit of existing regulations and their efficacy	“	X	X															MPA regulations are gazetted by December 2015
1.2.2 Organize a stakeholders workshop to solicit ideas on desired MPA regulations in support of fishery resources	“	X	X															
1.2.3 Prepare workshop proceeding and submit to KWS HQs for adoption and gazettement of suggested regulations	“	X	X															
1.3: Develop and implement MOU between MAF and KWS on management areas of overlap within MPA																		
1.3.1 Formulate a committee to look into issues surrounding ineffective implementation of the current MoU between MAF and KWS	“							X	X	X	X	X	X					
1.3.2 Organize a workshop for KWS and MAF to report on committee findings and devise the way forward	“									X	X	X	X					
1.3.3 Finalize the MoU and implement as stated	“													X	X	X	X	
1.4: Create awareness on fisheries management issues to the Judiciary																		
1.4.1 Organise study tours for Judicial officers	“																	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones
		FY 2015-16				FY 2016-17				FY 2017-18				
		1	2	3	4	1	2	3	4	1	2	3	4	
1.5: Empower BMUs to execute their mandates														
1.5.1 Carry need assessment for BMUs	KMMPA Community Warden and Warden	X	X	X	X	X	X	X	X	X	X	X	X	BMUs are trained by June 2018
1.5.2 Mobilize financial resources to address the BMUs capacity needs on priority basis	“	X	X	X	X	X	X	X	X	X	X	X	X	
1.5.3 Organize specific need trainings from time to time	“					X	X	X	X	X	X	X	X	
1.5.4 Undertake exchange program for BMUs to enrich their experience	“									X	X	X	X	
Objective 2: Linkages between research and fishery management enhanced														
2.1: Establish a KWS research sub-station at KMMPA														
2.1.1 Identify an appropriate site for the research sub-station	“	X	X	X	X	X	X	X	X	X	X	X	X	Plans for construction of a sub-station are underway by June 2018
2.1.2 Solicit for funds to construct and equip the sub-station	“	X	X	X	X	X	X	X	X	X	X	X	X	
2.1.3 Lobby for posting of competent staff to the sub-station	“	X	X	X	X	X	X	X	X	X	X	X	X	
2.1.4 Prepare budget for operationalization of the research sub-station	“					X	X	X	X	X	X	X	X	
2.1.5 Devise a program for interaction between research and the park management team	“													
2.2: Establish a fishery resource data base at KMMPA														
2.2.1 Seek funding for appropriate database establishment (Computers, servers, software and support wares)	“	X	X	X	X	X	X	X	X	X	X	X	X	A data sharing platform is available by June 2018
2.2.2 Liaise with local research bodies and MALF to share existing fisheries data bank for KMMPA	“	X	X	X	X	X	X	X	X	X	X	X	X	
2.2.3 Design fishery data collection protocol or program	“									X	X	X	X	
2.2.4 Train staff on data collection techniques, analysis, storage and retrieval of the same from data base	“									X	X	X	X	
2.3: Carry out priority research focused on addressing pertinent fisheries issues														
2.3.1 Profile fisheries issues of concern for KMMPA	“	X	X	X	X	X	X	X	X	X	X	X	X	Research on fisheries is conducted by June 2018
2.3.2 Seek funding to actualize research for identified research priorities	“	X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones	
		FY 2015-16				FY 2016-17				FY 2017-18					
		1	2	3	4	1	2	3	4	1	2	3	4		
3-3: Participate in County administrative forums															
3-3.1 Participate in County level meetings	KMMPA Community Warden and Warden														County officials are actively involved in resource management by June 2017
3-3.2 Organize a meeting for County officials to sensitize them on role played by fishery resource in supporting livelihoods, conservation and tourism	“					X	X	X	X					X	
3-3.3 Submit fishery related reports to County administration on regular basis and seek feedback where appropriate	“														
Objective 4: Alternative sources of livelihood for fisher folk developed															
4.1: Initiate and implement fish farming															
4.1.1 Undertake fish farming campaign among the fisher folk	“	X	X	X	X	X	X	X	X	X	X	X	X	X	Fish farming is being practiced by December 2017
4.1.2 Mobilize financial resources to implement fish farming on pilot basis at demonstration sites	“	X	X	X	X	X	X	X	X					X	
4.1.3 Organize a workshop to publicize the success story of farmed fish and highlight challenges faced	“					X	X	X	X	X	X	X	X	X	
4.1.4 Liaise with MALF for follow-up and technical input	“									X	X	X	X	X	
4.1.5 Prepare funding proposals to roll out fish farming	“									X	X	X	X	X	
4.2: Support establishment of community managed marine conservancies															
4.2.1 Consult to find whether any existing legislation allows for the establishment of CMMPAs	“	X	X	X	X										Establishment of a new CMMPAs by June 2017
4.2.2 Carry out an outreach program to encourage fisher folk to embrace CMMPAs outside gazetted areas	“					X	X	X	X						
4.2.3 Organize for field visits to already established CMMPAs (if any in place so far)	“														
4.2.4 Provide technical support from time to time for fisher folk intending to embrace CMMPAs	“														
4.3: Promote seaweed farming															
4.3.1 Liaise with individuals/institutions that previously studied the potential for seaweed farming in/around KMMPA	“	X	X	X	X	X	X	X	X	X	X	X	X	X	A new seaweed farming project initiated by December 2017
4.3.2 Undertake market research for seaweed	“	X	X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones		
		FY 2015-16				FY 2016-17				FY 2017-18						
		1	2	3	4	1	2	3	4	1	2	3	4			
4-3-3 Encourage formation of co-operatives for seaweed farmers to connect to alternative market outlets	KMMPA Community Warden and Warden							X				X	X	X	X	A new seaweed farming project initiated by December 2017
4-3-4 Train some fisher folk on seaweed farming techniques and associated skills	“							X				X	X	X	X	
4-3-5 Publicize seaweed farming through BMU to wider forum and the implication of such on wild fish stock levels.	“											X	X	X	X	
4-4: Tap into devolved funds to enhance community livelihoods																
4.4-1 Sensitize the fishers on existence of alternative government funding sources besides KWS	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Funds for fisheries production are available by June 2018
4-4-2 Seek funds to train BMU leadership on proposal writing skills to enable fishers seek funds on their own	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4-4-3 Prepare funding proposal for fish projects	“							X	X	X	X	X	X	X	X	
Objective 5: Impacts of emerging issues in fisheries resources assessed																
5.1: Participate in development, review and implementation of Kwale County Fisheries Development Plan	“															
5.1.1 Participate in planning meetings	“															
5.1.2 Participate in plan review meetings	“															
5.2: Involve KMMPA representatives in EIA and EA for major coastal projects																
5.2.1 Train staff in EIA and EA	“											X	X	X	X	
5.2.2 Sensitize communities to be involved in EIA making process for projects in and around KMMPA	“											X	X	X	X	
5.2.3 Participate actively in EIA making process for coast development project within and around KMMPA	“															
5.2.4 Help in enforcing the KMMPA provisions by reporting non-conformities by project implementers	“															

Management Actions and Activities	Persons Responsible	Timeframe																Milestones	
		FY 2015-16				FY 2016-17				FY 2017-18									
		1	2	3	4	1	2	3	4	1	2	3	4						
5-3: Assess the impacts of emerging fishing gears on fish stocks																			
5-3.1 Take stock of old and emerging fishing gears operating in and around KIMMPA	KIMMPA Community Warden and Warden	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5-3.2 Organize a meeting with stakeholders to assess the impacts of emerging gears against the old ones	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A report on impacts of fishing gears is available by June 2018
5-3.3 Solicit funds to undertake gear impact survey within and around the area.	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5-3.4 Undertake collaborative stock levels and habitat status before and after adopting the usage of emerging gears.	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5-3.5 Allow usage of emerging gears in specified areas for specified period	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Community Partnership and Conservation Education Programme

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
Objective 1: Community participation in natural resource management enhanced																		
1.1: Strengthen community conservation groups																		
1.1.1 Identify conservation-based community groups	Community Warden	X	X	X	X													A new community conservation group is supported by June 2017
1.1.2 Organise a meeting for conservation groups to identify their strengths and weaknesses	“		X															
1.1.3 Support the conservation groups in developing business plans and proposals to solicit funding from potential donors	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.1.4 Monitor the conservation activities of the conservation groups	“																	
1.2: Carry out an evaluation of previous and on-going community projects																		
1.2.1 Identify donor funded community conservation projects implemented in the greater KMMPA in the last 5 yrs	“	X	X	X	X													An evaluation report on community projects is available by June 2016
1.2.2 Select a sample of projects for evaluation	“		X															
1.2.3 Conduct PRAs in villages where selected projects have or are being implemented	“		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.2.4 Support implementation of selected activities from the community actions plans	“			X														
1.3: Conduct capacity assessment of existing community groups																		
1.3.1 Assess the organisation structures of potential partner conservation groups	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	A report on community capacity needs prepared by December 2016
1.3.2 Assess the financial capability of the conservation groups	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.3.3 Assess the skills of the conservation groups	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.3.4 Identify training needs	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.4: Train conservation community groups in project management																		
1.4.1 Identify community group members who can be trained in project design and management	“			X	X													Community group members trained by December 2017
1.4.2 Organise training workshops and seminars for identified community members	“							X	X			X	X					

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
1.5: Support community empowerment activities in the KMMMPA																		
1.5.1 Identify community livelihood projects that can be supported	Community Warden		X	X														At least two community livelihood projects supported by December 2016
1.5.2 Support community members in developing funding proposals	“					X				X	X			X	X		X	
1.5.3 Work with partners in providing funding support to viable projects	“									X	X			X	X		X	
1.6: Support establishment of community based tourism enterprise projects																		
1.6.1 Work with community groups in identifying viable tourism projects	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	At least one tourism project initiated by June 2017
1.6.2 Develop funding proposals for feasible projects	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.6.3 Work with other conservation partners in supporting community tourism projects	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.7: Support establishment and registration of a community based tourism operators' association																		
1.7.1 Organise a meeting for boat operators to discuss formation of tourism operator's forum	“									X	X							A tourism forum established by June 2017
1.7.2 Support registration of the tourism forum	“											X	X					
1.7.3 Hold regular tourism forum meetings	“																	
Objective 2: Resource-use and human-wildlife conflict mitigation measures enhanced																		
2.1: Document resource use conflict areas within the KMMMPA																		
2.1.1 Maintain a KMMMPA-level human-wildlife conflict and resource use conflict database	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Fewer resource-use conflicts incidences recorded
2.1.2 Map conflict hot spots	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.1.3 Support development and implementation of community-based action plans to address conflicts	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.2: Control access of migrant fishermen to Kenyan fishery																		
2.2.1 Intensify boat patrols in and around KMMMPA	“									X	X	X	X	X	X	X	X	A reduced number of migrant fishermen reported
2.2.2 Install boundary markers (solar powered buoys)	“									X	X	X	X	X	X	X	X	
2.2.3 Carry out joint patrols with other security agencies	“																	

Management Actions and Activities	Persons Responsible	Timeframe																Milestones
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
2.3: Support establishment and operationalization of a Community Wildlife Association																		
2.3.1 Organise a meeting for all KMMPA stakeholders to discuss formation of the CWA	Community Warden		X	X														CWA operational by June 2017
2.3.2 Oversee election of CWA officials	“					X	X											
2.3.3 Support registration of the CWA	“							X	X									
2.3.4 Support quarterly CWA meetings	“							X	X									
2.4: Evaluate and implement alternative Problem Animal Control (PAC) methods																		
2.4.1 Establish the status and distribution of problem animal	“		X	X			X	X										Effective PAC methods available by December 2016
2.4.2 Evaluate efficacy of different PAC methods	“		X	X			X	X										
2.4.3 Based on outcome of activity 2.4.2, implement the most effective methods	“						X	X		X	X	X	X	X	X	X	X	
2.5: Improve Human-Wildlife Conflict response time																		
2.5.1 Establish and maintain a 24-hour mobile phone hotline	“			X	X		X	X		X	X	X	X	X	X	X	X	Less HWC incidences recorded by June 2017
2.5.2 Create awareness about hotline through public meetings and KMMPA signages and website	“			X	X		X	X		X	X	X	X	X	X	X	X	
2.5.3 Liaise with KWS headquarters for deployment of adequate rangers and drivers	“			X	X		X	X		X	X	X	X	X	X	X	X	
2.5.4 Liaise with KWS Headquarters for provision of a reliable PAC vehicle and motorbike	“			X	X		X	X										
2.6: Nominate and recommend gazettement of a KMMPA Honorary warden within the area																		
2.6.1 Identify potential local honorary wardens	“									X	X							Honorary wardens gazetted by December 2016
2.6.2 Recommend the identified honorary wardens for gazettement	“													X	X	X	X	
2.6.3 Develop a collaborative framework for working with the honorary wardens	“													X	X	X	X	
2.7: Provide support to enhance the compensation claim process																		
2.7.1 Organise meetings for community leaders on wildlife compensation procedures	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Awareness workshops on compensation organised regularly
2.7.2 Organise public Barazas to sensitize the community on Wildlife compensation	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
2.7.3 Prepare and disseminate wildlife compensation information through radio, TV, and leaflets	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones	
		FY 2015-16				FY 2016-17				FY 2017-18					
		1	2	3	4	1	2	3	4	1	2	3	4		
Objective 3: Awareness of the significance of conserving marine resources improved															
3-1: Organise outreach and awareness creation activities in the KMMPA community areas															
3-1.1 Participate in the annual marine environmental day and wetlands day	Community Warden														Awareness of marine resources by the community improved by June 2017
3-1.2 Participate in mazingira competition	"														
3-1.3 Organise dolphin awareness events	"		X	X	X	X	X	X	X	X	X	X	X	X	
3-1.4 Support formation of wildlife clubs in local schools	"		X	X	X	X	X	X	X	X	X	X	X	X	
3-2: Liaise with other conservation education stakeholders to improve use of the KMMPA by local schools															
3-2.1 Work with WCK in providing transport to local wildlife clubs to facilitate visits to KMMPA	"	X	X	X	X	X	X	X	X	X	X	X	X	X	Visits to KMMPA by local schools increases by 10% by December 2017
3-2.2 Work with CORDIO-EA in promotion of conservation of education	"	X	X	X	X	X	X	X	X	X	X	X	X	X	
3-3: Revive and strengthen conservation clubs															
3-3.1 Organise conservation talks in local schools	"	X	X	X	X	X	X	X	X	X	X	X	X	X	Conservation clubs operational by December 2016
3-3.2 Assist schools in promoting wildlife clubs	"	X	X	X	X	X	X	X	X	X	X	X	X	X	
3-4: Construct a student hostel at KWS Shimoni offices															
3-4.1 Prepare a proposal justifying the construction of a student hostel and forward the proposal to KWS Executive Committee for approval	"														
3-4.2 Solicit for funds to construct the hostel from KWS headquarters and other stakeholders	"														
3-4.3 Award hostel construction services competitively	"														
3-5: Construct and equip a resource centre at KWS Shimoni offices															
3-5.1 Prepare a proposal justifying the construction of the Resource Centre and forward the proposal to KWS Executive Committee for approval	"	X													
3-5.2 Solicit for funds to construct the Resource Centre from KWS headquarters and KCDP	"	X	X	X	X	X	X	X	X	X	X	X	X	X	Resource Centre constructed by June 2016
3-5.3 Award construction services competitively	"														
3-5.4 Prepare information and educational materials to be displayed at the Resource Centre	"														

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
3.6: Upgrade and update KMMPA education and outreach tools																		
3.6.1 Prepare a film on KMMPA's exceptional resources	Community Warden	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Education tools available by June 2017
3.6.2 Acquire and maintain cameras (underwater, video)	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3.7: Strengthen the KMMPA education staff capacity																		
3.7.1 Deploy a conservation education officer to KMMPA	"	X	X	X	X													An education officer deployed to KMMPA by December 2017
3.7.2 Develop and implement a KMMPA conservation education and outreach strategy	"					X	X	X	X	X	X	X	X					

MPA Operations and Security Management Programme

Management Actions and Activities	Persons Responsible	Timeframe																Milestones
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
Objective 1: Human resource capacity strengthened																		
1.1: Liaise with KWS Human Capital Department for deployment of staff with skills in marine conservation and management																		
1.1.1 Outsource essential professional services (e.g. diving) occasionally in line with the KWS procurement procedures	Community Warden	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Marine rangers deployed by December 2016
1.1.2 Deploy skilled and unskilled casual labour to fill staff gaps	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.1.3 Deploy an appropriately trained and equipped specialised marine ranger	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.2: Improve staff skills																		
1.2.1 Liaise and collaborate with institutions to design short programmes that enhance staff knowledge and skills in marine conservation	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Staff trained regularly
1.2.2 Liaise with the KWS Human Capital Division to provide opportunities for short courses both locally and internationally to KMMPA staff	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.2.3 Carry out range practice at least thrice in annually	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.2.4 Liaise with CCA and KWS Headquarters to deploy staff with marine skills in marine ecosystem	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.3: Improve staff welfare																		
1.3.1 Construct at least one block of staff housing units for junior staff	"																	Fewer staff complaints recorded by June 2018
1.3.2 Pay house allowance to staff who qualify to enable them seek alternative housing in the nearby market centres	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.3.3 Support measures geared towards upgrading the education standards at the Shimoni Primary School	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.3.4 Ensure that the school has adequate and up-to-date textbooks and any other essential school equipment	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
1.3.5 Provide sporting facilities and equipment	"													X	X	X	X	
1.4: Implement staff recognition, reward and appreciation schemes																		
1.4.1 Carry out continuous assessment of staff performance	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Staff appraisal is conducted regularly
1.4.2 Reward outstanding performers	"	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones
		FY 2015-16				FY 2016-17				FY 2017-18				
		1	2	3	4	1	2	3	4	1	2	3	4	
Objective 2: Strategic collaborative partnerships established														
2.1: Develop a partnership strategy for management of the KMMPA														
2.1.1 Develop a partnership strategy with stakeholders at the KMMPA level	Community Warden	X	X	X	X	X	X	X	X	X	X	X	X	A partnership strategy developed by December June 2016
2.1.2 Guide KMMPA partners on how to engage in MPA management	"	X	X	X	X	X	X	X	X	X	X	X	X	
2.1.3 Specify how existing collaborations will be formalized	"	X	X	X	X	X	X	X	X	X	X	X	X	
2.2: Develop formal collaborative agreements with key stakeholders														
2.2.1 Identify areas of collaboration	"					X	X	X	X					Stakeholder meetings held regularly
2.2.2 draw relevant memorandum of agreements	"	X	X	X	X	X	X	X	X	X	X	X	X	KMMPA management committee is strengthened by June 2018
2.3: Strengthen the KMMPA Management Committee														
2.3.2 Develop the committee's constitution	"													
2.3.3 Hold quarterly committee meetings	"													
2.4: Work with County Wildlife Conservation and Compensation Committee to address conservation issues in the KMMPA														
2.4.1 Work closely with the Committee in resolving the resource use conflicts experienced in the KMMPA	"	X	X	X	X	X	X	X	X	X	X	X	X	Fewer resource use conflicts recorded by December 2016
2.4.2 Seek effective mechanisms for addressing human-wildlife conflicts	"	X	X	X	X	X	X	X	X	X	X	X	X	
2.5: Liaise with KMA and Fishery Department to inspect sea worthiness of tour boats and fishing vessels														
2.5.1 Lobby for KWS to be included in the boat and fishing licensing	"					X	X	X	X					KWS is included in boat and fishing licensing activities
2.6: Establish and operationalize friends of KMMPA														
2.6.1 Mobilize relevant stakeholders to establish and register an association, "Friends of Kisite-Mpunguti" to lobby for conservation of the KMMPA and raise funds	"	X	X	X	X	X	X	X	X	X	X	X	X	A conservation group is established by June 2017
2.7: Develop and implement initiatives that will enable effective management of Diani Chale Marine National Reserve														
2.7.1 Liaise with the Senior Warden Kwale County, Assistant Director Coast Conservation Area and Kwale County Government to develop effective management structures	Community Warden					X	X	X	X					A management strategy and structure is in place by June 2016
2.7.2 Install relevant management infrastructure and equipment to facilitate management of the National Reserve	"	X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
Objective 3: Infrastructure to support MPA management developed and maintained																		
3.1: Provide appropriate transport equipment																		
3.1.1 Procure additional vehicles for PAC work in the Lunga Lunga area	Community Warden													X	X	X	X	Patrol vehicles are procured by June 2018
3.1.2 Hire a mechanic with vehicle and boat repair skills	“															X	X	X
3.2: Construct and maintain jetties																		
3.2.1 Construct another jetty next to the KWS Shimoni office	“	X	X	X	X	X	X	X	X	X	X	X	X					Jetty constructed by December 2016
3.2.2 Construct shops, office space, restaurants, rescue diving centre and a coffee house next to the new jetty to generate additional income to support maintenance of the jetty	“																	
3.3: Construct and maintain the KMMPA office buildings																		
3.3.1 Upgrade the current office block	“																	
3.3.2 Construct another office block to host the proposed additional staff, store, wet lab and a library	“																	
3.4: Construct and maintain a modern Visitor Information Center																		
3.4.1 Construct , a modern visitor information and education centre	“																	
3.4.2 Develop a state of the art conference facility will be developed with a capacity of at least 150 people	“																	
3.4.3 Upgrade the existing information centre to a staff canteen	“																	
3.5: Provide and maintain adequate staff housing																		
3.5.1 Construct ranger housing blocks	“																	
3.5.2 Rehabilitate all staff houses at the park headquarters and the field outposts	“																	
3.5.3 Construct new houses at outposts to enhance security presence and management effectiveness	“																	
3.5.4 Construct an observation tower equipped with a telescope at Lower Mpunguti to facilitate marine surveillance activities	“																	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones
		FY 2015-16				FY 2016-17				FY 2017-18				
		1	2	3	4	1	2	3	4	1	2	3	4	
3-6: Supply fresh water to the MPA Headquarters														
3-6.1 Conduct a feasibility study to ascertain the best option for supplying water to the concerned areas	Community Warden	X	X	X	X	X	X	X	X	X	X	X	X	Offices are well equipped by December 2017
3-6.2 Encourage rain water harvesting either through roof or land surface catchments	“	X	X	X	X	X	X	X	X	X	X	X	X	Infrastructure for communication is installed by December 2017
3-7: Provide appropriate office furniture and equipment														
3-7.1 Conduct an assessment of existing and required equipment and furniture	“					X	X	X	X					
3-7.2 Provide the shortfall of furniture and equipment	“									X	X	X	X	
3-8 Improve communication within the KMMPA														
3-8.1 Improved internet access and upgrade VHF radio communication as well as installing VHF maritime radios in all boat	“									X	X	X	X	
3-8.2 Avail additional hand held radios	“									X	X	X	X	
3-8.3 Provide all outposts with sufficient radios to efficiently carry out their duties and facilitate emergency responses	“									X	X	X	X	
3-9: Mark and maintain MPA boundaries and acquire title deeds for all KWS Plots in KMMPA-adjacent areas														
3-9.1 Demarcate the KMMPA boundary to inform people when they are in the protected area	“	X	X	X	X	X	X	X	X	X	X	X	X	KMMPA boundary is clearly demarcated by June 2017
3-9.2 Liaise with KWS headquarters to acquire title deeds for all KWS land parcels in KMMPA	“	X	X	X	X	X	X	X	X	X	X	X	X	
3-10 Liaise with Kenya Forest Service in the Management of Shimoni Forest														
3-10.1 Initiate the process of gazettement the forest to enhance its protection	“	X	X	X	X	X	X	X	X	X	X	X	X	
3-10.2 Work closely with Friends of Shimoni Forest group to reduce further destruction	“	X	X	X	X	X	X	X	X	X	X	X	X	Deforestation is drastically reduced
3-10.3 Register a Community Wildlife Association or a Community Forest Association to enable Friends of Shimoni Forest Group to legally manage the forest	“	X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe																Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18												
		1	2	3	4	1	2	3	4	1	2	3	4									
3.11: Install and maintain mooring buoys																						
3.11.1 Identify areas that require mooring buoys within KMMPA	Community Warden					X	X	X	X													Buoys are maintained regularly
3.11.2 Develop buoy maintenance programme	“													X	X	X	X	X	X	X	X	
3.11.3 Facilitate the deployment of an appropriate number of buoys including expressly marked (colour-coded) buoys	“													X	X	X	X	X	X	X	X	
3.11.4 Provide and disseminate clear information to all the stakeholders on the coding of the buoys and the zonation	“													X	X	X	X	X	X	X	X	
3.12: Remove and prevent marine litter in KMMPA																						
3.12.1 Conduct a public awareness campaign on the impacts of litter	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Reduced marine littering recorded in KMMPA by June 2016
3.12.2 Carry out litter surveys and regular beach clean-up campaigns	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3.12.3 Install an incinerator to burn collected litter	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3.12.4 Liaise with the County Government in establishing appropriate waste disposal facilities	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Objective 4: MPA Security operations strengthened																						
4.1 Control poaching in collaboration with stakeholders																						
4.1.1 Establish security intelligence, remote surveillance systems, and anti-poaching (de-snaring) teams in collaboration with stakeholders	“													X	X	X	X	X	X	X	X	Poaching incidences reduced by 70% by June 2018
4.1.2 Clearly identify and map out poaching hot-spots to guide the security operations	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4.2: Upgrade outposts and provide appropriate equipment to security personnel																						
4.2.1 Upgrade existing KMMPA outposts to enhance patrols	“									X	X	X	X	X	X	X	X	X	X	X	X	Outposts are optimally equipped and functional by June 2017
4.2.2 Assign each outpost a patrol area that will be optimally staffed and provided with basic equipment	“									X	X	X	X	X	X	X	X	X	X	X	X	

Management Actions and Activities	Persons Responsible	Timeframe												Milestones				
		FY 2015-16				FY 2016-17				FY 2017-18								
		1	2	3	4	1	2	3	4	1	2	3	4					
4-3: Collaborate with police and judiciary in enhancing prosecution of wildlife offences																		
4-3.1 Step up collaboration with the police and judiciary to improve prosecution rates	Community Warden	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Awareness on impacts of wildlife crime on the marine ecosystem created among police and judiciary by June 2016
4-3.2 Create awareness on the impacts of wildlife offences to the population	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4-3.3 Train security rangers and relevant KWS staff in the arrest and prosecution process	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4-4: Conduct joint enforcement activities																		
4-4.1 Organize regular joint operations	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Joint patrols conducted monthly
4-4.2 Hold periodic public meetings within the local communities to raise awareness and gather intelligence on poaching	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4-4.3 Collaborate in policing and enforcement with agencies	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4-4.4 Source more personnel and equipment to facilitate inspection of fishermen’s vessels and contribute to joint patrols	“	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	

Annex 2. Stakeholder participation in plan development

Name	Organisation	SPW	SPEM	CPT	EWG	TWG	FWG	CWG	OS
Abdi Hassan	Admin Police	X							
Abdul Amir	Shimoni Conservation group		X						
Abdul Bast Ahmed	Heat Salter								
Abdul Hamid	Coral Spirit	X							
Abdulbasi Ahmed	Head teacher	X							
Abdullahi Tato	OCS - Shimoni		X						
Abeid O. Mohamed	Wasini Youth Boat Operators		X						
Abubakar Mohammed	BMU Wasini	X							
Abubakar Mohammed	BMU WASINI								
Adan H. Kala	K.W.S.-KCDP		X	X					
Adini M. Mgeni	Asst.Chief	X					X		
Agatha Ogada	KWS	X				X	X	X	X
Ahmed M. Abubakar	Wasini BMU		X						
Albert Gamoe	CCA			X					
Ali Bakari	Shimoni Village	X							
Ali Bakari	Camp site-K.W.S-Kisite		X						
Ali Omari	Boat Owner		X						
Ali Vuyaa	County W/C & Compensation committee		X						
Amir Juma	BMU Kibuyuni	X							
Andrew Hayes	GVI							X	
Apollo Kariuki	KWS-Biodiversity Planning		X	X					
Athumani F. Ali	Friends of Shimoni Forest	X						X	
Athumani.F.Ali	Friend of Shimoni								
Bartholomeo Righa	WCS	X							
Benedict Kiilu	Fisheries						X		
Bey Hemed	Assistant Chief	X							
Boniface Ligolo	KWS								X
Brenda Chepkurui	Ranger-K.W.S – Kisite		X						
Daniel Ocharo	KMFRI	X							
Dario Urbani	Mwazaro Beach		X						

Name	Organisation	SPW	SPEM	CPT	EWG	TWG	FWG	CWG	OS
Darius Kayago	KWS	X		X				X	
David M. Mulwa	Base Titanium		X						
Dickson Korir	Watamu MPA			X				X	
Dishon Murage	EAWLS								
Dorothy Akinyi	Ranger-K.W.S – Kisite		X						
Easter Simei	KMA	X							
Edita Magjieviciute	KWS			X	X	X	X		X
Elizabeth Woresha	Store Suppliers-K.W.S- Kisite		X						
Emmanuel Somi	Attachment – Kisite Marine Park		X						
Esther Simei	KMA	X							
Fadhili Ali Abdallah	Mkwiro/Wasini Committee		X						
Fatuma Bilal	Wasini Women Group		X						
Festus Rawolu	KWS						X		
Florence Nyadita	KFS								X
Florence Zau	Charlie Claws	X							
Francis Kenga	K.W.S –CCA HQS		X						
Francis Mangee.	KFS			X					X
Francis Mutuku	KWS	X						X	
Francis Olake	KWS-Mombasa HQ	X							
Gabriel Mutsochi	Kenya Wildlife Service-Kisite		X						
Gamoe Albert	Parks & Reserves			X					
George Kipkoros	OCS (Police Msa)	X							
Halifa Omari	Shimoni BMU		X						
Hamadi Mwaywayya	Ex. GVI Shimoni		X						
Hannah M. Paul	Head teacher Shimoni	X						X	
Haodo Mwanamisi	KWS Shimoni	X		X					
Harithi Mohamed	Kwale County Wildlife Conservation		X						
Hassan Ali	C/P.K.W.	X							
Hassan Banje	Corporal – K.W.S- Kisite		X						
Idza Dzilla	KWS HQ	X							
Israel Makau	KWS HQ			X					
Jackline Mutwiri	KWS HQ			X					
Jackson Maremo	KRA	X							

Name	Organisation	SPW	SPEM	CPT	EWG	TWG	FWG	CWG	OS
Jane Gitau	Mombasa MPA			X					
Jane Ochieng	Kenya Wildlife Service-CCA		X						X
Janet Ntobo	WCS	X							
Japheth Oubaro	KMA	X							
Jelvas Mwaura	KMFRI HQ	X		X					
Jim Mwangi	Fisheries							X	X
Joan Kawaka	WCS	X		X	X			X	
John Chebii	Maritime	X							
John Njuguna	Fisheries Department						X	X	
John Wambua	Warden - K.W.S – Kisite		X	X					
Josphine Mutiso	KWS	X		X	X			X	
Judith Bwire	Ranger-K.W.S – Kisite		X						
Judith Nyunja	KWS			X			X		
Juliet Karisa	KMFRI				X				
Julius Ngeti	KWS Shimoni	X		X				X	
Kairo J. G.	KMFRI				X				
Kenn Esau	EIA			X				X	
Kenneth Omondi	KMFRI						X		
Kipkirui Mutai	Ranger – K.W.S-Kisite		X						
Leakey Maina	Attachment- Kisite Marine Park		X						
Lillian Ajuoga	KWS	X		X					
Majaliwa Salim	MTCG		X						
Manami Lida	KWS Kisite							X	
Mark Kinyua	KWS-Kisite			X					
Martin Kiogora	Fisheries Department-Kwale		X						
Marvin Sigunga	NIS	X							
Masud Salim	HCA-K.W.S – Kisite		X						
Mercy Ngatuu	K.W.S-CCA HQS		X						
Midori Matsuoka	KWS						X		
Mohamed Ali	Elder Wasini	X		X					
Mohamed Ali Mohamed	Wasini Youth Boat Operators		X						
Mohamed D. Maow	DO-Msambweni	X							
Mohamed Hassan	Vanga BMU		X						

Name	Organisation	SPW	SPEM	CPT	EWG	TWG	FWG	CWG	OS
Mohamed Hassan Jasho	Kibuyuni BMU		X				X		
Mohamed Jabir	CPT	X		X					
Mohamed Kheri	Senior Warden -K.W.S-Kwale County		X	X					
Mohamed Maganyo	Camp Site Att.-K.W.S-Kisite		X						
Mohamed Namuna	Corporal K.W.S - Kisite		X						
Mohamed Omar	KWS		X	X	X				
Mohamed Rashid				X					
Mohamed Shebwana	Kisite Community Boat Operators		X						
Mohamed.D.Maow	D.O Msambweni	X							
Mohammed Jabir	CPT	X							
Moses Minchil	K.W.S – KCDP		X						
Mshamanga Amin	Coxswain – K.W.S-Kisite		X						
Mshemanga Hamisi	CPT	X		X		X			
Mtengo Juma	Head teacher	X							
Mtengo Omari	Chairman Mkwiro	X					X	X	
Mwalimu Ali Mkasha	Chairman B.O.A	X							
Mwanambu Ali	Mkwiro W. Group	X							
Mwanamisi Mkungu	KWS Shimoni	X	X	X					
Mwasiti Mohamed	Wasini W. Group	X							
Mwinyi Haji Abdalla	CPT	X		X					
N'tindi Kasim	KWS	X							
Nancy Kireu	Pact Kenya							X	
Ndalu Mshee Mbwana	Shimoni Slave Cave	X							
Ngonga Issa	Shimoni	X							
Ntindi Kassim	KWS	X		X				X	
Nyawira Mutegi	WCS MSA					X			
Oku J.N	KMFRI				X				
Omari Ali Muhidini	Kisite Community Boat Operators		X						
Omari Mshamanga Mshaali	Kisite Private Boat Community		X						
Pandu A. Khattan	CPT	X							
Pandu Ahmed	Boat Operators			X					X
Pandu Ali Omari	Kisite Community Boat Owner		X						
Pandu. A. Khagau	CPT								

Name	Organisation	SPW	SPEM	CPT	EWG	TWG	FWG	CWG	OS
Pascal Thoya	WCS							X	
Pastor Nelson Mwangona	Free Pentecost-Church-Shimoni		X						
Patrick .M.Musyimi	P.H.O	X							
Patrick M. Musyimi	D.H.O	X						X	
Paul Njoroge	KWS Kisite		X		X	X			
Pauline Tatua	CANCO		X						
Peter Murimi	KWS HQ	X		X	X	X	X	X	X
Peter Wanjohi	KWS	X		X	X	X	X	X	X
Rachel Matunda	Charlie Claws					X			
Rashid Hemed	Wasini Youth Boat Operators		X						
Rashid J. Hamisi	Wasini Youth Boat Operators	X	X						
Rashid M. Rashid	Village Elder	X							
Richard Lemarkat	KWS	X		X	X	X	X	X	X
Rishad Iki	Shimoni	X		X			X		
Rita M. Rusteau	Shimoni Reef	X							
Ropa Mohamed Hassan	BMU Mkwiro	X	X						
Roselyn Okumu	CCA			X					
Saeed Balala	KWS Shimoni					X		X	
Salim J. Mwachako	Head Teacher-Mkwaju	X							
Sammy Katash	Shimoni Reef Lodge		X						
Sammy Towett	KWS					X			
Seif Ali	KWS	X							
Shebwana Ali	CPT	X		X					
Shee Ali Mohamed	Wasini Youth Boat Operators		X						
Shee Yusuf	Jimbo BMU		X						
Shetty Abdallah	Kisite-Shimoni Hawkers		X						
Silas B. Tsuma	KFS				X				
Simon Agembe	KMFRI						X		
Simon Gitau	KWS	X				X	X	X	
Simon Hemphil	Big Game Association			X					
Simon M. Gichoki	KMA								
Simon Masanga	K.WS. – Shimba Hills		X						X
Solomon Juma M	Director- Subrooms	X							

Name	Organisation	SPW	SPEM	CPT	EWG	TWG	FWG	CWG	OS
Steve Kamerino	KWS								X
Suleman Mwangare	Fisheries						X		
Swabra M. Ahmed	CPT	X		X				X	
Tandu A. Utafari									X
Thomas Onkundi	KWS	X							
Twahir Kassim	K.W. S- Kisite		X						
Twamimu Omari	Shimoni			X				X	
Victor Tsenga	WWF					X			
Vutaa Ali	Sea Turtle Fund	X							
Walter Kemboi	Ministry Of Tourism					X			
Wycliffe Mutero	KWS	X							
Yatin Patel	Pilli Pipa	X	X	X		X			
Zeno Wytten	GVI Shimoni	X			X				X

Abbreviations for the Stakeholder Planning Meetings

CPT	Core Planning Team	TWG	Tourism Working Group
SPEM	Stakeholder Plan Endorsement Meeting	FWG	Fisheries Working Group
SPW	Stakeholder Planning Workshop	CWG	Community Working Group
EWG	Ecology Working Group	OS	Operations and Security Working Group



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