




Scoping Study on the Status of Marine Spatial Planning in Kenyan Waters

Consultancy Report

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Prepared by Dr Julian Roberts
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Acronyms

ASCLME	Agulhas and Somali Current Large Marine Ecosystem
BGI	[FAO] Blue Growth Initiative
BMU	Beach Management Unit
CCA	Community Conserved Areas
CCRF	Voluntary Code of Conduct for Responsible Fishing
CDA	Coast Development Authority
CMA	Co-management Area
EAf	Ecosystem Approach to Fisheries
EBM	Ecosystem Based Management
EEZ	Exclusive Economic Zone
EMCA	Environmental Management and Coordination Act, 1999
FAO	UN Food and Agriculture Organization
GoK	Government of Kenya
ICZM	Integrated Coastal Zone Management
KCDP	Kenya Coast Development Project
KEMFSED	Kenya Marine Fisheries and Socio-Economic Development Project
KES	Kenya Shilling
KFS	Kenya Forestry Service
KMA	Kenya Maritime Authority
KMFRI	Kenya Marine and Fisheries Research Institute
KWS	Kenya Wildlife Service
LAPSSET	Lamu Port, South Sudan, Ethiopia Transport Corridor
LMMA	Locally Managed Marine Area
LOSC	United Nations Convention on the Law of the Sea
MCA	Marine Conservation Areas
MPA	Marine Protected Areas
MSP	Marine Spatial Planning
NEMA	National Environmental Management Authority
NGO	Non-Governmental Organisation
NTZ	No-Take Zone [Fisheries]
SD-FABE	State Department for Fisheries and Aquaculture and the Blue Economy
SEA	Strategic Environmental Assessment
SWIOFC	South West Indian Ocean Fisheries Commission
ToR	Terms of Reference
WCPA	IUCN World Commission on Protected Areas
WIO	Western Indian Ocean

Contents

Executive Summary.....	vi
1 Introduction.....	1
1.1 Background.....	1
1.2 Project Overview	2
1.3 Methodology	2
1.4 Scope and Elements of the Report	3
2 Overview of Marine Space Use in Kenya.....	4
2.1 Regional setting	4
2.2 Marine habitats and resources.....	4
2.3 Marine uses and activities.....	6
3 Marine Spatial Planning – A Primer	12
3.1 Overview	16
3.2 Characteristics of MSP	16
3.3 Requirements for MSP	19
3.4 Assessing the State of MSP in Kenya.....	20
4 Existing Marine Governance Arrangements in Kenya	22
4.1 Policy and planning framework	22
4.2 National policy initiatives	26
4.3 Legal Framework	26
4.4 Institutional Arrangements	32
5 Current Status of MSP in Kenya	34
5.1 Drivers & Issues	34
5.2 Geographic Scope and Boundaries	35
5.3 Governance	41
5.4 Data collection and management.....	45
5.5 Multi-objective Planning Process.....	48
6 MSP Needs Analysis	52
6.1 Drivers and Issues	52
6.2 Geographic scope and boundaries.....	53
6.3 Governance	53
6.4 Data collection and management.....	56
6.5 Multi-objective Planning Process.....	59
7 Conclusions and Next Steps.....	61
7.1 Governance Arrangements	61
7.2 Data collection and management.....	61
7.3 Multi-objective Planning Process.....	62

8	References.....	63
	Annex A – Terms of Reference	66
	Annex B – Key Stakeholders Interviewed During the Scoping Study Preparation	69
	Annex C - Activity-Specific Spatial Management Measures	70
	Annex D – Summary of National Policy Relating to Marine Environment.....	71
	Annex E – Sample Conflict Matrix for Kenya’s Maritime Space	76
	Annex F – Overview of Marine Spatial Data Availability for Kenya	78
	Annex G - List of Reference Materials	81

List of Tables and Figures

Table 1: Key ecosystems found in Kenya and their extent.	4
Table 2: Analytical Framework for Scoping Study.....	21
Table 3: Summary of institutional mandates with respect to management of maritime space.....	33
Table 4: Spatial management measures under Kenyan legislation.....	36
Table 5: Existing marine protected areas in Kenya	37
Figure 1: Kenya’s maritime boundaries including the overlapping claim area with Somalia.....	1
Figure 2: Overview of Kenya’s Coastal Environments	5
Figure 3: Major international traffic routes from the Port of Mombasa’s illustrated with AIS data.....	9
Figure 4: Kenya petroleum concessions map showing offshore blocks	10
Figure 5: Submarine cables landing in Kenya.....	11
Figure 6: A Blue Economy Framework	13
Figure 7: Outputs of marine spatial planning)	17
Figure 8: Essential elements of a marine spatial planning process.....	19
Figure 9: MPAs and joint co-management areas along the Kenyan coast.....	39
Figure 10: Example coverage (non-exhaustive) of marine scientific expedition navigation tracks. Data acquired ranges from single beam bathymetry to geophysical, seismic, gravity and magnetic data.	48
Figure 11: Extract from the Lamu County Spatial Plan showing the planning area	49
Figure 12: Example of zoning from Malindi Marine Protected Area.....	50
Figure 13: Pate Island and adjacent areas showing zonation and co-management areas	50
Figure 14: SeaSketch screenshot showing a multi-use marine planning project in New Zealand	58

Details of Consultant

This report was prepared under a short consultancy contract issued by SDFA-BE to Dr Julian Roberts, of Blue Resources Ltd (UK). With a PhD in international maritime policy, Julian has over 20 years of experience working on a broad range of issues related to marine resource management and ocean governance, particularly in small island states. Julian has extensive experience in developing capacity building activities relating to ocean governance and has published widely on the subject of ocean governance and the blue economy. Julian was formerly a senior advisor and acting director of the Commonwealth Secretariat's Oceans and Natural Resources Advisory Division.

Executive Summary

Overview

Recognising the significant *per capita* marine resource base that Kenya's maritime space offers for realising sustained, environmentally-sound, socially inclusive economic [blue] growth, the Government of Kenya has started prioritizing the "blue economy" as the seventh sector to drive the achievement of Vision 2030 development agenda.

While the potential of Kenya's maritime space to help realise these benefits is significant, however, it is under increasing pressure from many uses and threats resulting from overexploitation and multi-user conflict. If Kenya is to effectively develop its ocean space to meet these needs in a sustainable way, an approach is needed that integrates environmental management directly with economic development, fiscal policy and social goals. In recent years, marine spatial planning (MSP) has been the focus of considerable interest as a practical way to create and establish a more integrated management and decision making for the use of marine space.

A number of international and regional instrument, to which Kenya is a party, either implicitly or explicitly require states to adopt integrated ocean governance and tools, including marine spatial planning.

Purpose and Methodology

This report represents the final contracted deliverable for the *Scoping Study on the Status of Marine Spatial Planning in Kenyan Waters*, being undertaken by Dr Julian Roberts on behalf of the State Department of Fisheries and Aquaculture and the Blue Economy. The scoping study provides a baseline of existing MSP activities in Kenya, and identify gaps that require intervention to ensure sustainable management of marine fisheries resources and achievement of broader environmental objectives including potential areas of current and future conflict. The scope of the assignment includes the inshore waters in Kwale, Mombasa, Kilifi, Lamu, and Tana River Counties, territorial seas and the exclusive economic zone as defined under the United Nations Convention on the Law of the Sea.

The scoping study forms part of the preparation of the proposed Kenya Marine Fisheries and Socio-Economic Development Project (KEMFSED), being prepared by the State Department for Fisheries, Aquaculture and the Blue Economy (SDFA-BE) with support from the World Bank in the form of a Project Preparation Advance towards the KEMFSED project. The scoping study was undertaken within a ten-week period (22nd May 6th to 27th July 2018)

In order to prepare the 'MSP Baseline' that is a requirement of this scoping study, a high-level 'Analytical Framework' was prepared, against which to assess the current MSP baseline in Kenya.

Elements of Analytical Framework	
1) Drivers & Issues	<ul style="list-style-type: none"> • Drivers for MSP • Prioritisation of Management issues
2) Geographic Scope and Boundaries	<ul style="list-style-type: none"> • Planning area and geographic boundaries • Spatial management measures in use • Future activities and uses being addressed
3) Governance	<ul style="list-style-type: none"> • Goals for MSP • Institutional arrangements • Implementation mechanisms
4) Data Collection and Management	<ul style="list-style-type: none"> • Availability of key data sets • Data management and mapping • Science input
5) Multi-objective Planning Process	<ul style="list-style-type: none"> • Existing spatial planning processes • Multi-use stakeholder engagement

Conclusions

This Scoping Study report presents a snapshot of the status and application of spatial planning tools in Kenya, insofar as they relate to maritime space. The overall picture that emerges is that Kenya is not badly placed to undertake MSP activities, due, in part, to the existing knowledge base relating to critical inshore resources and to the extensive community and scientific engagement that a number of well-established local institutions have undertaken. The implementation of MSP for Kenya is considered both timely and necessary.

Moreover, Kenya is not unfamiliar with the concepts of spatial planning. Several government agencies have been involved in spatial planning at different levels, both land-based and marine-based. Notable examples include the development of the National Spatial Plan and the ongoing reviews of management plans for the countries established marine protected areas.

More recently a number of community-based initiatives have undertaken comprehensive planning and zoning of key fishery areas, under the jurisdiction of Beach Management Unit. While this activity has so far been limited to a small number of BMUs, the lessons learned are highly relevant and transferable to any future MSP initiative.

While there is every reason to be optimistic, however, there are numerous challenges to be addressed before an MSP initiative can be successfully implemented.

A broad range of issues and gaps are identified as well as a set of high level recommendations, (summarised below), with the aim of creating the enabling environment to support implementation of an MSP initiative in Kenya.

Element	Recommendations
1. DRIVERS AND ISSUES	Drivers for MSP
	1. Undertake a broad assessment of the future potential development opportunities that the blue economy presents to Kenya, with a view to ensuring that any MSP initiative can take account of, and remain adaptive to, new and emerging uses of Kenya's maritime space that so far may not have been anticipated.
	2. Undertake a comprehensive shipping risk assessment, taking into account projected increases in shipping from the Lamu port and shipping interactions with offshore petroleum development and coastal users such as fishermen.
	3. Integrate the outputs prepared by the FAO (aquaculture) into any broader MSP initiative to ensure that aquaculture planning is undertaken in a strategic and holistic manner.
	Management Issues Prioritised
	4. Undertake an EEZ-wide strategic environmental assessment (SEA) process as a precursor to undertaking MSP.
2. GEOGRAPHIC SCOPE AND BOUNDARIES	Planning area and geographic boundaries
	5. With respect to the disputed boundary area with Somalia, it is recommended that MSP activities be undertaken sensitively so as to avoid raising transboundary tensions further.
	6. Clarify the jurisdiction of Counties with respect to internal waters and determine the practical seaward extent of Counties planning authority for County-level spatial plans.
3. GOVERNANCE	Goals for MSP
	7. Consider the development of a comprehensive framework to guide the development and implementation of MSP, similar to the MSP Framework adopted by South Africa.
	Institutional arrangements

4. DATA COLLECTION AND MANAGEMENT	8. To facilitate any MSP initiative, the Government of Kenya should establish a formal MSP Project Governance structure.
	Implementation mechanisms
	9. Undertake a review of current legal provisions to determine under which existing instrument MSP implementation should best be situated. This is to ensure that any MSP process is implementable and enforceable.
	10. Undertake an assessment of capacity needs across the key implementing agencies and stakeholders with a view to building the requisite capacity to support the development and long-term implementation of MSP in Kenya.
	11. Explore mechanism to develop alternative, sustainable sources of funding to ensure that implementation of MSP can continue on completion of the KMSFED project.
	Availability of key data sets
	12. Prepare a comprehensive marine spatial data needs assessment and gap analysis, including, but not necessarily limited to: <ul style="list-style-type: none"> – Define critical data needs for MSP based on international experience and the MSP Framework – Undertake a comprehensive audit of existing marine spatial data sets held in Kenya – Identify critical data needs and gaps – Undertake a hydrographic data audit, using the IHO standard national assessment format
	13. Develop a comprehensive data capture/procurement programme including, but not limited to: <ul style="list-style-type: none"> – Identify and map all traditional fishing grounds – Identify and map all coastal tourism use zones – Undertake a hydrographic data audit and gap analysis, using the IHO standard national assessment format, to assess the current status of nautical charting and hydrography in Kenya – Identify, compile, merge and verify all existing data sets relating to the distribution of key marine habitats and species distribution/abundance – Identify, compile, merge and verify all existing data sets relating to the distribution and abundance of key commercial fish stocks – both inshore and offshore – Develop a detailed seabed habitat map of the entire coast and EEZ – Develop detailed impact maps for the LAPSET project to identify key impact zones from the development and zones of influence around the development that may affect other marine users in the vicinity – Develop a representative spatial data set of international shipping movements throughout the EEZ (AIS data) – Identify critical data gaps (e.g. seagrass distribution, offshore pelagic fishery resources)
	Data management and mapping
	14. Establish protocols to allow for the sharing of data between different institutions and organisations.
	15. Establish a national level marine spatial data clearing mechanism and web based data visualisation.
	Science Input

	<p>16. Undertake an audit of international MSR undertaken in Kenyan waters and determine how to capture data from researchers.</p> <p>17. Review and, where appropriate, revise data capture processes under the licencing of MSR activities.</p>
5. MULTI-OBJECTIVE PLANNING PROCESS	<p>Existing spatial planning processes</p> <p>18. Any MSP initiative undertaken for Kenya should be done so at two different scales:</p> <ul style="list-style-type: none"> – A broad EEZ scale, led at the national level and focussing on EEZ-wide activities and matters of national significance; and – A finer resolution MSP activity undertaken at the coastal level. While this should involve close interaction of County governments and local stakeholders, the initiative should be undertaken at a national level to ensure consistency of approach between different Counties. Coastal MSP should identify potential areas that require further protection using the existing mechanisms. <p>19. Using the small number of Joint Co-Management Areas that have successfully established area-specific management plans, initiate a comprehensive programme to engage with BMUs and to develop and approve CMAs or Joint CMA plans for each BMU as a matter of priority. As part of this, an audit should be undertaken of all existing BMUs, their management status and spatial coverage, with a final authoritative list of BMUs being agreed between relevant parties.</p> <p>20. Adopt a more systematic approach to marine conservation planning that fully utilises and integrates the broad range of spatial management measures currently available. In particular the GoK should:</p> <ul style="list-style-type: none"> – Consider how other biodiversity objectives can be served using CMAs and linking these to other spatial management mechanisms. – Through the MSP process, undertake an EEZ-wide assessment of conservation values (with a particular focus on offshore waters) to determine further candidate sites for protection to achieve Kenya's biodiversity conservation objectives.

Chapter 6 of this report provides more detail on these specific recommendations for each of these five elements of the analytical model.

I Introduction

I.1 Background

The extent of Kenya's maritime waters¹ is estimated to be 142,400 square kilometres. Kenya has also claimed an additional 103,320 square kilometres of extended continental shelf area,² although this is subject to dispute (Figure 1 below). These waters support a broad range of resources, livelihoods and activities. This significant per capita marine resource base offers Kenya new opportunities for realising sustained, environmentally-sound, socially inclusive economic [blue] growth.

In this context Kenya has started prioritizing the "blue economy" as the seventh sector to drive the achievement of Vision 2030 development agenda. This is also in-line with the African Union's Agenda 2063, which includes, under Goal 6 on blue/ocean economy for accelerated economic growth, a priority focus on marine resources and energy, ports operations and marine transport. The need to develop the blue economy is also consistent with achievement of several of the Sustainable Development Goals.³

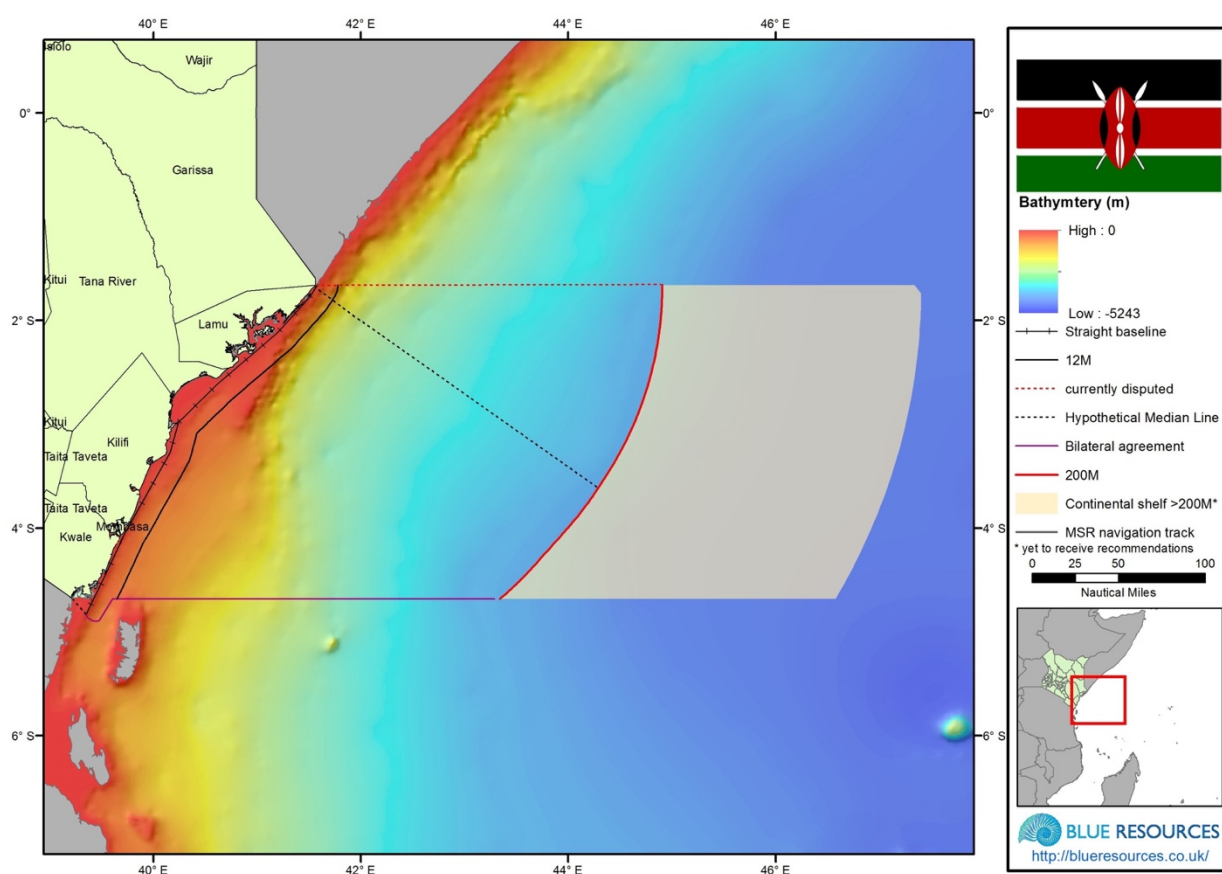


Figure 1: Kenya's maritime boundaries including the overlapping claim area with Somalia

However, while the potential of Kenya's maritime space to help realise these benefits is significant, it is under increasing pressure from many uses and threats resulting from overexploitation and multi-user conflict. If Kenya is to effectively develop its ocean space to meet these needs in a sustainable way, an approach is needed that

¹ Measured from the baseline to the limits of the exclusive economic zone (EEZ) as defined under the United Nations Convention on the Law of the Sea, 1982.

² Submission to the Commission on the Limits of the Continental Shelf (06/05/2009) - http://www.un.org/depts/los/clcs_new/submissions_files/submission_ken_35_2009.htm.

³ <http://kippra.or.ke/kenyas-agenda-in-developing-the-blue-economy/>

integrates environmental management directly with economic development, fiscal policy and social goals; and which secures the support of international development partners to assist Kenya to build the enabling environment for a national blue economy.

In recent years, marine spatial planning (MSP) has been the focus of considerable interest as a practical way to create and establish a more rational organisation of the use of marine space. MSP seeks to address the interactions between different uses of marine space, to balance demands for development with the need to protect marine ecosystems, and to achieve social and economic objectives in an open and planned way (Ehler and Douvère, 2009).

As such, comprehensive MSP has the potential to greatly improve the management of maritime space, reduce the loss of ecosystem services, help address or avoid conflict, and create economies of scale and efficiencies for enforcement and management. MSP has great potential as an organising framework and serves as a worthwhile investment through which national (and transboundary) marine management can be strengthened (CBD, 2012).

1.2 Project Overview

To attain economic benefits from the coastal and marine resources, the Government of Kenya (GoK) through the State Department for Fisheries and Aquaculture and the Blue Economy (SD-FABE) has requested the World Bank to support the proposed Kenya Marine Fisheries and Socio-Economic Development Project (KEMFSED). In this regard, the GoK has received a Project Preparation Advance from the World Bank towards the KEMFSED project. The KEMFSED project covers a period of 5 years and will be implemented by the SD-FABE on behalf of the Government.

The overall goal of KEMFSED is to enhance economic benefits and coastal livelihoods from marine fisheries and coastal aquaculture while safeguarding associated ecosystems' integrity. Five counties along the coast have been selected to be beneficiaries for the project, namely: Kwale, Mombasa, Kilifi, Tana River and Lamu.

The purpose of this assignment is to undertake a scoping study on the status of marine spatial planning in Kenya's nearshore and offshore waters, in the context of effective management of fisheries and other competing uses of marine resources for blue economy development (see the Terms of Reference in Annex A).

The scope of the assignment includes the inshore waters in Kwale, Mombasa, Kilifi, Lamu, and Tana River Counties, territorial sea and the exclusive economic zone (EEZ) as defined under the United Nations Convention on the Law of the Sea (LOSC) (Figure 1) (hereafter referred to as "Kenya's maritime waters"). The scoping study will characterise a baseline of existing MSP activities, and identify gaps that require intervention to ensure sustainable management of marine fisheries resources. These gaps will consider the broader environment including potential areas of current and future conflict.

1.3 Methodology

The scoping study was undertaken within a ten-week period (22nd May 6th to 27th July 2018) and followed two distinct project phases:

1. Data gathering phase, (in UK and Kenya); and
2. Analysis and reporting phase (in UK and Kenya).

The research approach used a collaborative and participatory approach throughout the assignment. Specifically, the consultant undertook the following:

- A comprehensive review and documentation of:
 - Kenya's existing legal instruments relating to fishing and marine protected areas;
 - Kenya's existing publicly available data relevant to fisheries, including information published by the UN Food and Agriculture Organization (FAO), and to MPAs, including data published by the IUCN World Commission on Protected Areas (WCPA);
 - Kenya's existing publicly available data relevant to ICZM and marine protected area, including information published by the World Database on Protected Areas;

- International agreements, national frameworks and industry best practices that Kenya can be benchmarked against;
- Existing policy documents relating to ICZM, ocean governance and the blue economy;
- Wide consultation with the KEMFSED Project Team, officials in the State Department of Fisheries and Aquaculture and the Blue Economy, relevant line-Ministries and stakeholder groups;
- An audit of Kenya’s available marine spatial data relevant to existing and planned marine uses out to the 200-nautical mile limit of the EEZ;
- Identify and document existing gaps in the available data and identify options to address these gaps including making recommendations on how the existing policy and legal frameworks can be improved to enable better data capture;
- Preparation of a detailed report for presentation to, and discussion with, the Project Team and relevant stakeholders.

1.4 Scope and Elements of the Report

The findings contained in this report have been prepared having regard to a number of face-to-face interviews as well as documents and materials provided to the consultant by the GoK or otherwise collected through the review process. These include a broad range of policy and legal documents, technical reports and analysis relating to the status and management of ocean space in Kenya. A list of key stakeholders interviewed during the preparation of this scoping study is included in Annex B.

This report is divided into seven (7) chapters, as set out below:

- Following this introduction, **Chapter 2** provides an overview of the current marine environmental context of Kenya, as well as an overview of the various maritime uses and activities currently undertaken in Kenya’s marine waters;
- **Chapter 3** provides a brief introduction to marine spatial planning including the features of MSP and an analytical framework against which to evaluate Kenya’s current status with regard to implementing MSP;
- **Chapter 4** provides a review of the existing governance arrangements in place in Kenya, insofar as they relate to MSP, with specific reference to the current policy and legal framework and existing institutional arrangements;
- Using the analytical framework presented in Chapter 3, **Chapter 5** provides an analysis of the current situation in Kenya with respect to: (a) the application and effectiveness of [marine] spatial management tools; and (b) the possible implementation of MSP in the future including identifying the key gaps and challenges that exist in Kenya, with respect to marine spatial planning and management.
- **Chapter 6** provides recommendations on specific activities necessary to overcome the challenges identified in Chapter 5. It provides recommendations within five thematic areas, 1) project steering/mandate, 2) geographic scope and boundaries, 3) governance, 4) data collection and management, and 5) multi-use planning process.
- In conclusion, **Chapter 7** provides a summary of the scoping study findings and makes recommendations on suggested next steps.

It should be noted that, while the analysis is comprehensive, given the short timeframe within which the assignment was undertaken, it is not an exhaustive analysis of all the issues, gaps and opportunities that may exist in Kenya. Instead, the scoping study has focused on those issues that are seen as most pressing and which were identified most consistently during the consultation and research phase. Further, while a broad range of activities should be taken into account in any future MSP process, the ToR for this assignment focussed primarily on the fisheries and aquaculture sector. As such, while the full range of sectors is discussed in this report, the focus is mainly on the fisheries and aquaculture sector.

2 Overview of Marine Space Use in Kenya

2.1 Regional setting

The Kenyan coastline extends some 640 km from Somalia's border at Ishakani in the north, to Tanzania's border at Vanga in the south. Kenya has declared a 12 nautical mile territorial sea and a 200 nautical mile EEZ, pursuant to the United Nations Convention on the Law of the Sea. Kenya's sedimentary shelf area is relatively narrow, covering an area of about 19,120 sq. km, generally extending between 5 and 10km, although it widens significantly in Ungwana Bay where in some places it exceeds 15km. The water depths off the coast drop below 200m within less than 4km. Beyond the shelf the seabed slopes away to depths in excess of 4,000 m (ASCLME, 2012a).

The coastal area can be differentiated into two broad but distinct geomorphological regions: (i) the southern half (from the Tanzanian border to Malindi), consists of tiers of Pleistocene limestone that form low coastal cliff terraces and reefs below sea level; and (ii) the northern half (from Malindi to the Somali border) which is drained by the two largest rivers in Kenya, the Tana and Athi. Here, the rocky reef terraces give way to broad sedimentary plains, long stretches of sandy beaches and dunes, and a predominantly soft marine substrate. There are an estimated 27,000ha of beach and dune lands in Kenya (Kibiwot, 2008).

Deltas and estuaries found in the northern coastal region include the Tana delta and Sabaki Estuary in Malindi. The Tana Delta presents true features of a typical delta as it is characterised by several distributaries that discharge turbid water into Ungwana Bay. The distributaries within the Tana Delta such as Kipini and Mto Kilifi are also estuaries in their own right. Other well-developed estuaries along the Kenya coast include those found at the mouths of Mwache, Kombeni, Ramisi and Uмба. The shores of deltas and estuaries are characterized by the presence of mangrove forest ecosystems (ASCLME, 2012a).

Under the new constitution, Kenya is now divided into 47 counties for administrative purposes, including five that border the coast: Kilifi, Kwale, Malindi, Lamu, Tana River and Mombasa. An estimated 62 percent of coastal residents live below the poverty line, resulting in inevitable over-exploitation of natural resources. Depletion of coastal and mangrove forests, as well as the destruction of sea grass beds, threaten vital ecosystems which, in the long run, will worsen poverty levels along the coast. This cycle of over-exploitation has also been attributed to population growth, urban migration and inadequate property rights, all of which place even further strain on the country's coastal resources.

This notwithstanding, there is wide recognition of the importance of coastal livelihoods, particularly evident with the government's Integrated Coastal Zone Policy, which promotes the protection of coastal resources and the empowerment of local communities. (ASLME 2012b).

2.2 Marine habitats and resources

Coastal and shallow shelf ecosystems are among the most productive in Kenya's waters, supporting a broad range of uses and activities as well as providing important services that support livelihoods and protection of coastal communities. These ecosystems include mangroves, coastal forests, estuaries, sandy beaches and sand dunes, coral reefs, and seagrass beds that support a host of marine and coastal species (Figure 2 and **Table 1**).

Ecosystem	Area (ha)	Number of Species	Important Locations
Mangroves	54,000	9	Lamu, Tina Delta, Gazi, Tudor, Port-Reitz, Kilifi, Mida, Funzi-Shirazi
Coral Reefs	63,000	237	Diani-Chale, Kisite-Mpunguti
Seagrass Beds	3,400	12	Diani-Chale, Kiunga, Malindi, Mombasa
Coastal Forests	139,000	-	Arabuko Sokoke, Diani, Shimba Hills

Table 1: Key ecosystems found in Kenya and their extent. (Source: ASCLME, 2012a)

These coastal ecosystems are closely interlinked and constitute an important life-support system for local communities, maintaining biodiversity and supplying vital resources that support livelihoods and economic development.

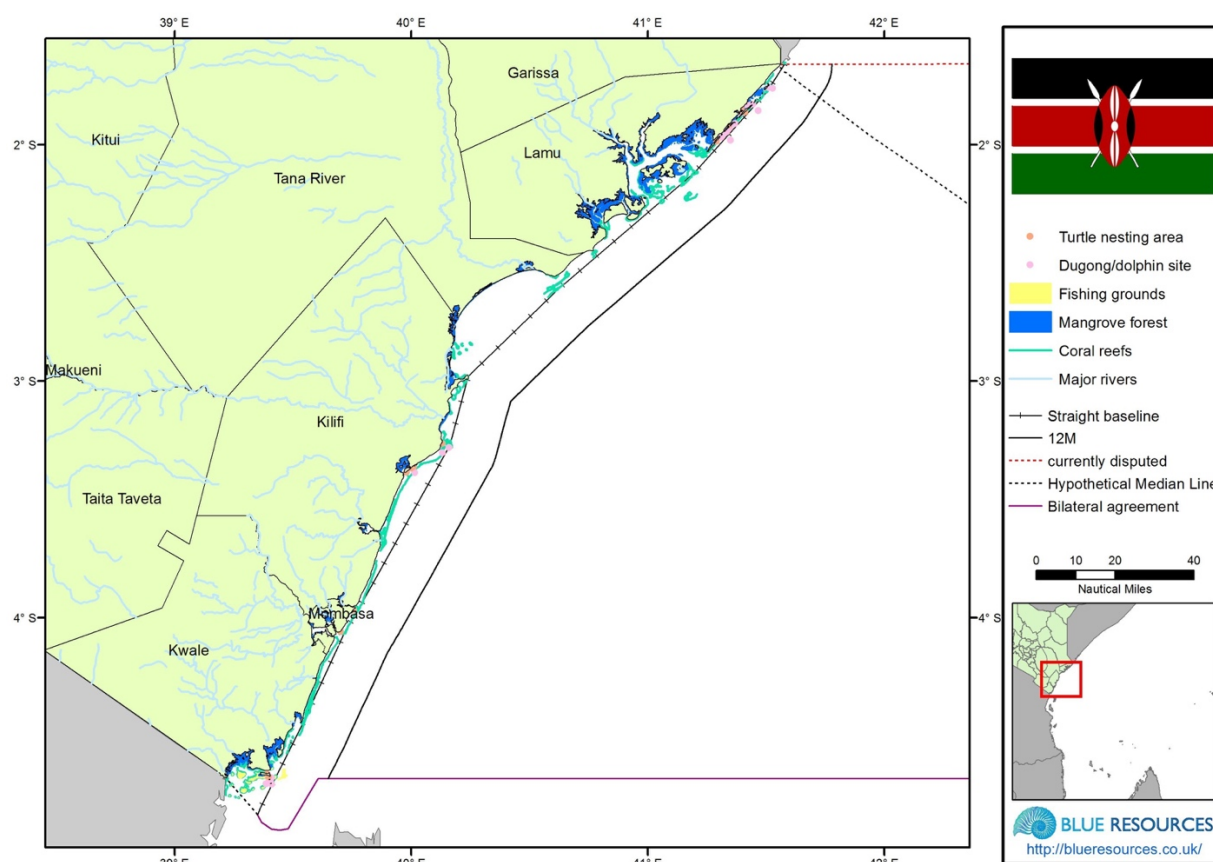


Figure 2: Overview of Kenya's Coastal Environments

2.2.1 Coral

Coral reefs are among the most productive of all marine ecosystems, providing a habitat for numerous species, including turtles, dugong, whale sharks and others. Their essential ecosystem services, such as protecting the coastline from ocean waves, and high biodiversity and productivity make them highly valuable ecosystems (ASCLME, 2012a), but also numerous threats. (GoK, 2009). In general, the reef communities are similar to those in other parts of the Western Indian Ocean (Weru, 2005).

The coral reefs existing along most of the Kenya coast occur as coral flats, lagoons, reef platforms, and fringing reefs. The total area of coral reef is estimated at 63,000 ha. Coral reef communities in Kenya extend from shallow inshore waters to about 20–25 m depths. Where present, however, deeper rocky knolls and relict reefs support corals down to 35 m.

The best reef development is found in the fringing reefs in the southern part of Kenya at Diani-Chale and Kisite-Mpunguti MPA. Reduced reef development in the northern part of the Kenya coast is attributed to the large areas of loose sediment and significant fresh water inputs from Tana and Athi-Sabaki rivers. Fringing reefs are also found off Lamu Archipelago and along many of the barrier islands to the north.

2.2.2 Mangroves

Mangroves are found at the intersection between land and the marine environment. They protect shorelines by trapping sediments eroded from the land and also against wave erosion and provide protection to the extensive

coral reef system. Nine mangrove species have been identified in Kenya occupying a total area of 54,000 ha. About 70 percent of these forests occur in the Lamu County. Smaller mangrove areas occur in the mouths of semi-perennial and seasonal coastal rivers in Vanga, Funzi, and Gazi Bay, as well as in creeks such as Tudor, Port-Reitz, Kilifi and Mida.

Mangroves in Kenya have been heavily impacted by human activities particularly through the removal of wood products, land conversion pressure, and pollution (Abuodha and Kairo 2001). Recent estimates indicate a 20 percent decline in mangrove area over the last two decades.

2.2.3 Seagrass

Seagrass habitats provide shelter for small and juvenile fish and invertebrates, as well as serving as important foraging grounds for charismatic species such as dugongs and turtles. Seagrasses occur in extensive beds that cover the largest proportion of shallow reef slopes, and form an important habitat for many species living in them and adjacent systems. Seagrass beds cover large areas of shallow waters, with the most important sites being Kiunga, Malindi, Mombasa, and Diani-Chale Island. Twelve seagrass species are found in Kenya, with *Thalassondendron ciliatum* being the dominant one.

Seagrass coverage is not as well described or mapped for Kenya as coral reef and mangrove ecosystems, due to the difficulty of undertaken in-situ measurements. Hence, knowledge of seagrasses in Kenya is limited.

2.2.4 Benthic habitats

Sandy sub-tidal habitats dominate the shoreline from Malindi to Lamu, supplied with sediment from the Tana and Sabaki Rivers to the south, and extensive creek systems to the north. Kenya's soft-substrate communities are not well described, but support significant shrimp and bottom fish populations. There is an active trawling industry exploiting these habitats, particularly from Malindi northwards to Ungwana Bay, at the mouth of the Tana river. (GoK, 2009).

The Kenya coastline from Ngomeni southwards, and the islands from Lamu northwards is made up of fossil Pleistocene reef rock formations, resulting in large areas of intertidal reef platform below cliffs of 4–6 m in height.

Further offshore, the continental shelf is predominantly soft sediment which is generally considered to be of low productivity in terms of demersal biomass (Fennessy and Green, 2015).

2.2.5 Offshore pelagic resources

Large schools of migratory pelagic stocks are known to be present in the offshore waters during the SE monsoon period. These include tuna, skipjack, travelly, sardinella, mackerel, marlin, sailfish and swordfish. Reproduction in pelagic and demersal (bottom-dwelling) fish is highest during the SE Monsoon period. Distinct seasonal changes in finfish catches in Kenya have been observed, with the calm NE monsoon allowing more effective operation of the pelagic fishery, particularly for non-powered vessels. However, only about 18 percent of the total marine production in Kenya is from the pelagic fishery.

Several species of whales and dolphins are known to frequent Kenya's coastal waters and five of the world's seven species of marine turtle are also known to nest along the Kenya coast.

However, by and large there is a dearth of information relating to Kenya's offshore pelagic environment and resources and the open ocean and deep-sea biota of the WIO, in particular, are poorly known (Obura, 2015).

2.3 Marine uses and activities

2.3.1 Fisheries

Kenya has important, well-defined and well-developed marine and freshwater fisheries. The marine fisheries can be classified into two sub-sectors: (i) the coastal artisanal fishery; and (ii) the offshore (EEZ) fishery. It is estimated that approximately 80 percent of the total marine products come from shallow coastal waters and reefs, while only 20 percent is from off-shore fishing.

A basic feature of the coastal fishery is the largely subsistence and artisanal nature of the fishers who operate small craft. Since local fishers lack the capacity to exploit deeper water resources, overfishing in inshore areas has caused a decline in fish catches, while the deeper territorial waters remain underexploited.

Coastal artisanal fishery⁴

Coral reefs support the artisanal fishery dominated by local and migrant fishers. A total of 2,913 fishing craft were actively used in the marine capture fishery in 2014. As a result of the obvious limitation in fishing craft technology, fishing effort is mainly constrained within the reef and is hardly undertaken outside territorial waters. This fishery mainly targets crustaceans, molluscs, rock cod, bêche-de-mer, dry shark fins, marine shells, livers and roes and other sea products.

Lobsters, crabs and octopus, are increasingly targeted for their high internal and external market value. The crab fishery thrives mainly in Mombasa, Malindi, Kilifi and Watamu, and is very active in Ngomeni-Marereni area, especially during the peak tourist season. Lobsters are mostly caught between October and March at the North-east Monsoon period.

Medium-sized trawlers and modern technological fishing equipment including prawn seine, are employed for industrial prawn fishing. The prawn trawling fleet current consists of four vessels. The single prawn fishing ground of commercial importance is located in the Ungwa Bay at the mouth of River Tana and is one of East Africa's largest, targeting various shrimp species.

Offshore fishery

While the inshore fishery is exploited by the local artisanal fishers, the offshore distant waters are targeted by Distant Water Fishing Nations (DWFN) with a major focus on the tunas (skipjack, yellowfin and bigeye). Foreign fishing fleet are authorized to operate in Kenya's EEZ through a licencing system, in accordance with the Regional and International Agreement and Cooperation provision of the National Oceans and Fisheries Policy. There are currently 34 international vessels licensed to fish in Kenyan waters and only four Kenyan flagged vessels (Kennedy, pers. comm.). Due to the lack of fishing related infrastructure, only a small quantity of catch from the EEZ is landed in Kenya, primarily tuna for export.

2.3.2 Mariculture

Aquaculture has grown rapidly in Kenya over the last decade and plays an increasingly important role in national fish supply, although freshwater fish account for close to 98 percent of current aquaculture production. Kenya's Vision 2030, together with other policy frameworks, recognises aquaculture as a source of food security, poverty reduction, and employment creation.

The most commonly farmed marine finfish species is milkfish, which accounts for about 90% of production, followed by mullet contributing about 10% of aquaculture production, all of which is currently for domestic consumption. Juveniles of these species are found in the mangrove systems and are in high demand due to local community interest in mariculture.

Shellfish culture in coastal Kenya has mainly been the culture of Mud Crabs, Prawns, and Artemia. (KMFRI, 2017). There are also numerous candidate species, suitable for both small and large-scale operations, that hold great potential for future development. Many mariculture operations, particularly crab and finfish, are being developed as community-based initiatives.

Issues of land tenure, and conflict with other coastal users are, however, constraining the development of community-based initiatives in prawn farming, and suitable conflict-free culture space is limited for the development of seaweed farming. Environmental issues have also been reported, with the destruction of mangrove habitats being witnessed in prawn farming, while crablets are being harvested from the wild with little regard for resource status. (ASCLME, 2012b).

The GoK and the FAO have in place the Blue Growth Initiative (BGI), which is aimed at helping select areas of the coastal region to develop fisheries and aquaculture. BGI, in Kenya's case, aims to address mariculture, and is to be

⁴ Summarised from FAO. <http://www.fao.org/fishery/facp/KEN/en>

implemented through the Ecosystem Approach to Aquaculture (EAA). In this respect, FAO has developed two projects worth a total of USD 1 million, namely “In Support of Food Security and Nutrition, Poverty Alleviation and Healthy Oceans” and “In Support of Implementation of Mariculture in Kenya Within an Ecosystems Approach”.⁵

At the time of drafting this report the FAO had just delivered a final version of the Atlas of Aquaculture Potential in Kenyan Waters, a coast-wide spatial analysis of areas that may be suitable for future aquaculture development (FAO, 2018).

2.3.3 Tourism

Tourism is deeply integrated into Kenya’s economy, contributing about 10 percent of GDP (direct and indirect), making it the country’s third-largest contributor to GDP (ASCLME, 2012b). The sector makes up 4 percent of total employment in the country. Much of the direct and indirect activity that is induced by tourism generates significant benefits for the poor, especially in rural areas where poverty incidence is high.

Recognizing the potential of the sector to drive development, the country’s Vision 2030 identifies tourism as one of the drivers of economic growth. Kenya’s Vision 2030 sets a target of five million tourists — which would require a four or five-fold increase in tourist numbers. The endemic coastal forests, marine parks, and wildlife sanctuaries are clear attractions for international tourists and increased numbers of this magnitude call for careful consideration of the economic and ecological consequences. (World Bank, 2017)

2.3.4 Ports and shipping

Kenya has five ports, the main ones being Mombasa in the south, and Malindi and Lamu in the north, while smaller fishing ports exist at Kilifi and Shimoni. All the ports are administered by the Kenya Port Authority, although increasingly private sector investment is funding new port infrastructure.

Mombasa is the largest port in the East Africa region, and Kenya’s only international port. Cargo traffic in Mombasa is dominated by imports which account for 90 percent of total cargoes handled at Mombasa Port in 2014. This trend has remained steady in the past decade. Out of total import cargoes, about 30 percent is transit cargoes destined to hinterland countries, such as Uganda and Rwanda, and shows a gradual steady increase over the past decade. Since 2012, cargo throughput has registered a steady annual growth of 5.7 percent from 21.92 million tons to 27.36 million tons in 2016. Similarly, container traffic has registered an impressive growth over the last five years. To improve the cargo throughput of the Port, a new container terminal was commissioned in 2016.

Mombasa also supports the region’s only oil refinery. However, since 2014 this has not operated as a refinery but is currently operating only as a storage facility for refined products entering Kenya.

International maritime traffic in the WIO region is relatively light compared with the most heavily trafficked regions of the world. Different vessel types follow dedicated routes and these are largely offshore from the coast. The major routes that are relevant to Kenya transit from south Asia and the Persian Gulf, south/south-west around the Cape of Good Hope. Much of this traffic appears to transit inside the Mozambique Channel (**Error! Reference source not found.** below).

⁵ <http://www.fao.org/fishery/facp/KEN/en>



Figure 3: Major international traffic routes from the Port of Mombasa's illustrated with AIS data (Source: <https://www.shipmap.org/>)

Cruise traffic is also on the rise in Kenya following declines due to piracy in the WIO region (although it is still a very small sector). In late 2016, construction began on a new \$3.4 million cruise ship terminal at Mombasa, financed under a public-private partnership between the government of Kenya and Trade Mark East Africa. At the time construction began, the seaport said that it hoped to boost cruise tourism arrivals by 140,000 more visitors annually - an order of magnitude over historic levels.⁶

Economic growth in the Northern Corridor Region has contributed significantly to the increased cargo throughput at the Port of Mombasa. However, the port is constrained by the number of berths it has and the ability for further expansion.

To this end, one of the flagship infrastructure projects identified by the Government in Kenya Vision 2030 is the development of a new transport corridor - the Lamu Port-South Sudan-Ethiopia-Transport (LAPSSET) Corridor, Eastern Africa's largest and most ambitious infrastructure project bringing together Kenya, Ethiopia and South Sudan. The aim of the project is to cut over-dependence on Kenya's main port of Mombasa as well as open up Kenya's largely under-developed northern frontier, through creation of a second transport corridor.

The project consists of seven key infrastructure projects starting with a new 32 Berth deepwater port at Lamu and includes new road and rail links between Kenya, South Sudan and Ethiopia, a new oil refinery and oil pipelines between the three countries. The first of the 32 berths is scheduled to be completed in June 2018.

The plan is to construct 21 berths at the Lamu port by 2030, a development that will see the new facility exceed the capacity of Mombasa, whose 18 berths are unable to handle rising amounts of cargo, by ten times. Eventually Lamu port will be able to handle up to 20 million TEU and handle crude oil carriers up to 200,000 DWT.

2.3.5 Petroleum Exploration and Production

While petroleum exploration in Kenya began in the 1950s, within the Lamu Basin, the first commercially viable oil discovery was made in 2012 in the Tertiary rift, followed by significant gas discoveries in the offshore Lamu basin.⁷

⁶ <https://www.maritime-executive.com/article/cruise-traffic-rebounds-at-port-of-mombasa#gs.J8SWjYA>

⁷ <http://nationaloil.co.ke/upstream/>

The US Geological Survey recently completed an assessment of four geologic provinces in the east Africa region, including Kenya (as an extension of the Tanzania Coastal Geological Provinces). The results of the assessment estimate mean undiscovered, technically recoverable conventional resources as follows: 2,806 million barrels of oil, 67,174 billion cubic feet of gas, and 2,212 million barrels of natural gas liquids, in the Tanzania Coastal province (Brownfield *et al*, 2012). Evidence of a working petroleum system offshore Kenya is also inferred by petroleum shows in exploration wells.

Petroleum exploration is being undertaken both on-shore and off-shore in the country's four major sedimentary basins: Anza, Lamu, Mandera and the Tertiary Rift. The Lamu basin extends offshore (Figure 4) (Deloitte, 2013). Following recent successes in Mozambique and Tanzania, offshore exploration has increased. Between 2012 and January 2015, three exploration wells (Mbawa, Kiboko and Kubwa) were drilled off-shore. A discovery of natural gas was made in Block L8, Lamu, though it was not commercially viable.

As at January, 2015, Kenya had a total of 46 exploration blocks. Of these 24 extend either partially or entirely offshore, out of which 22 have been licensed to oil exploration and production companies.

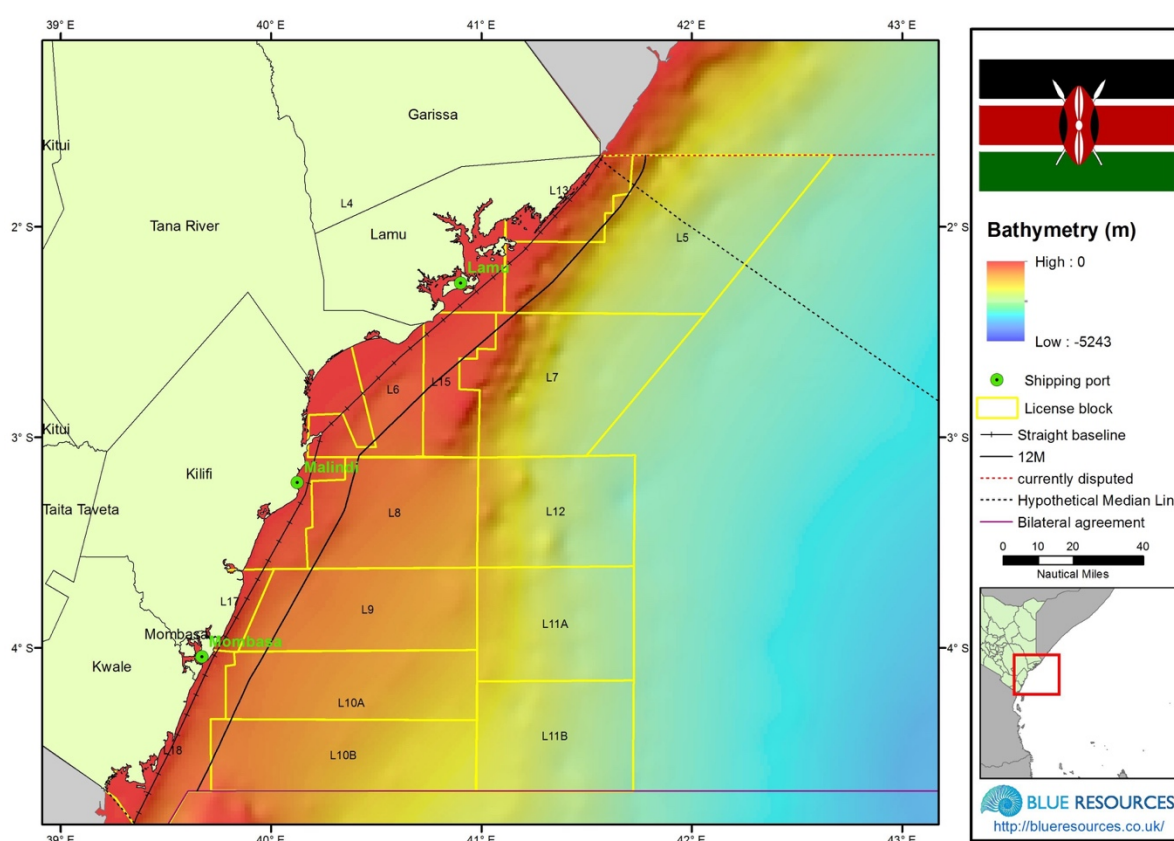


Figure 4: Kenya petroleum concessions map showing offshore blocks

2.3.6 Dredging and coastal aggregate mining

Historically the coastal area has been an important source of aggregates for construction, with sand, gravel and coral rubble being extracted. However, as a result of improved regulation and the availability of onshore supplies, coastal aggregates mining is limited with small amounts of sand extracted. Aggregates are still extracted for major capital infrastructure projects on a case-by-case basis.

Mining activity in the coastal zone is largely focused on cement for local construction, with production concentrated in coral limestone, shale, and sand. The three largest cement mines are located in Mombasa, while informal mining is prevalent in the Kilifi and Kwale districts. Overall, coastal mining is clearly not a dominant sector along Kenya's

coast, however, the environmental issues around the sector, particularly erosion from sand and coral mining, could become problematic in the future if not attended to.

The port of Mombasa currently undertakes maintenance dredging of its channels under a five-year maintenance dredging programme. Capital dredging is also undertaken on an ad hoc basis, when the need arises. Dredging is undertaken under a permit issued by NEMA and dredge spoil is dumped offshore at a recognise offshore spoil site (Delta 16) approximately 16 nautical miles to the south-east of the port approaches, and lying in water depths of approximately 350 m.

A significant capital dredging programme is also underway for Lamu as part of the LAPSSET project. A dedicated disposal site has also been identified for this waste and is operated, under authorisation from NEMA.

2.3.7 Submarine cables

The past few years has seen a proliferation of submarine telecommunications cables servicing the WIO region. Submarine cables are landed onshore while the cable itself is laid on the seafloor. The cable traversing the intertidal zone is generally buried before connecting to land-based telecommunications networks. There are potential environmental concerns relating to the deployment of the cable, as well as the presence of the cable within the ecosystem it traverses. Some of the concerns include:

A number of such cables traverse the Kenyan EEZ and make landfall in Mombasa (Figure 5). There is, therefore, a need to take these into account when considering multi-use marine planning.

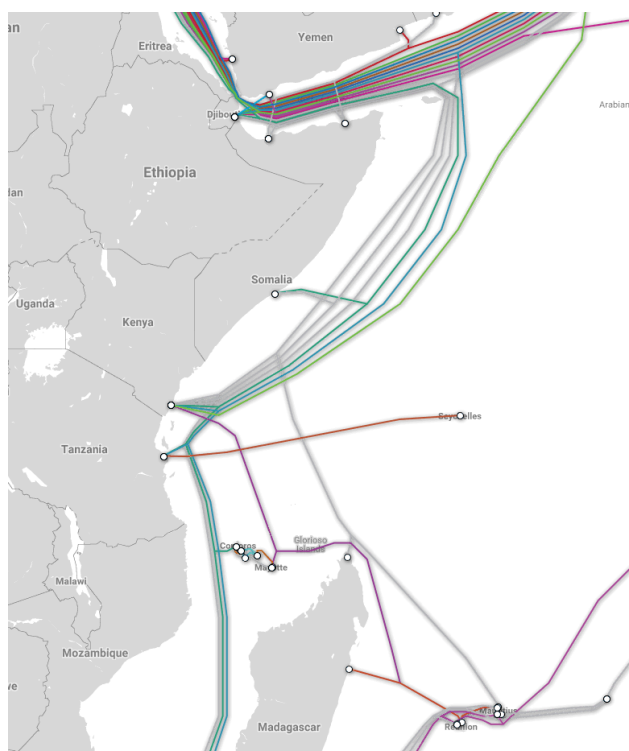


Figure 5: Submarine cables landing in Kenya (Mombasa)⁸

The broad range of activities highlighted above, particularly the significant industrial developments, both inshore and offshore, all highlight the critical need for MSP at this point. As such, it is considered extremely timely that the GoK should be considering MSP at this point in time.

⁸ Source: <https://www.submarinecablemap.com/>

2.4 The Potential for a Kenyan Blue Economy

As noted in section 1.1 above, The GoK has prioritized the “blue economy” as a key pillar of its Vision 2030 development agenda. Recent estimates suggest that the annual economic value of goods and services in Kenya’s blue economy could be worth than KES440 billion (\$4.4 billion), beating the tourism sector share with more than KES410 billion (\$4.1 billion) (UNDP, 2018).

2.4.1 The blue economy concept

The blue economy concept (**Box 1**) considers the ecological systems that provide so many of the services linked to the ocean economy as underlying and sometimes invisible natural capital assets. Natural capital includes: (a) living resources (renewable stocks) harvested for use, such as fisheries; (b) non-living resources (non-renewable stocks) harvested for use, such as seabed minerals; and (c) ecosystems and ecosystem processes that consist of interactions between the living and non-living environment as a functional unit (e.g., coral reef ecosystems and mangrove ecosystems). Many of these natural capital assets are renewable and if properly managed, could yield benefits sustainably over time. As such, the ocean economy and ecological systems should be considered together as one unit in policy design.

Box 1: Definition of the Concept of the Blue Economy

“A sustainable ocean economy emerges when economic activity is in balance with the long-term capacity of ocean ecosystems to support this activity and remain resilient and healthy.” (Economist Intelligence Unit 2015)

Essentially, the blue economy concept is a lens by which to view and develop policy agendas that simultaneously enhance ocean health and economic growth, in a manner consistent with principles of social equity and inclusion.

Oceans provide services in three main categories. First, the marketed economic activities such as fisheries, shipping, communications, tourism and recreation, etc. Secondly, other tangible ecosystem services vital to human life such as the 50 percent of atmospheric oxygen produced by microscopic marine plants, the natural carbon sinks in mangroves and sea grasses and the coastal protection to businesses and communities provided by coral reefs and mangroves from storm surges and wave attack. Thirdly, there are intangible ecosystem services for aesthetic, cultural or religious purposes. All of these marine ecosystem services have substantial economic value estimated in the trillions of US dollars annually and about three-quarters provided from coastal areas.

A conceptual framework for the blue economy shows the complex relationship between marine natural assets and the economic activity in the region. Figure 6 illustrates the entry points for policy reforms in order to change the flow of inputs from natural assets to the ocean economy over time, or to reduce its outputs (e.g., pollution).

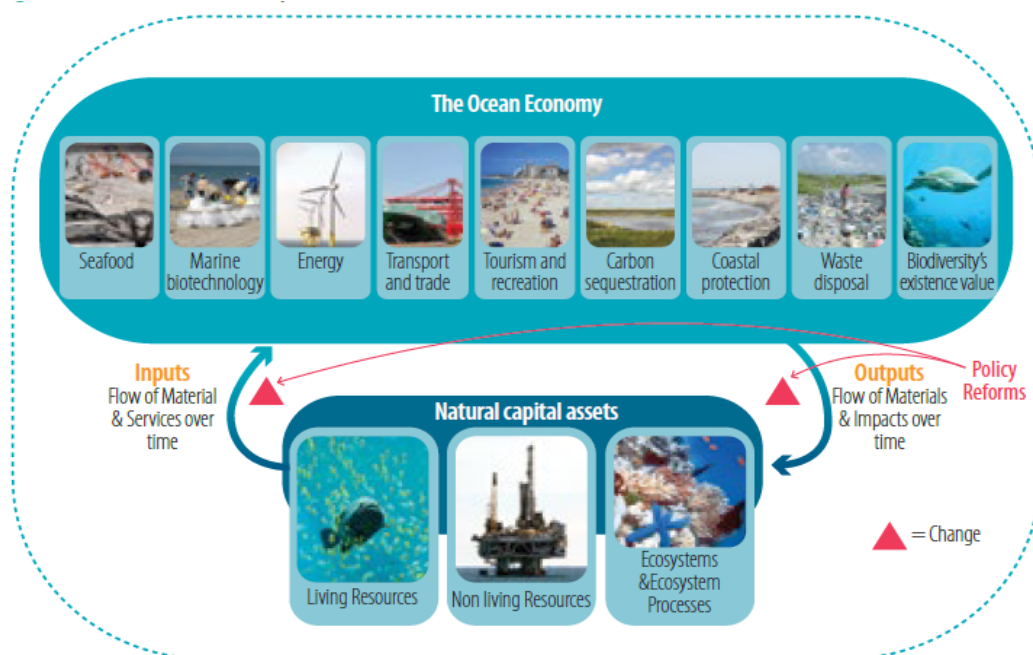


Figure 6: A Blue Economy Framework - Source: Patil *et al.* 2016

Sustainable economic development opportunities lie at the heart of the Blue Economy concept. The GoK appears optimistic that the ocean offers Kenya further potential for economic benefit to be derived from the sea – both from living and non-living resources – and that there is a need to explore ways of realising this potential in a measured and sustainable way.

To realise this potential, the Presidential Blue Economy Committee was established in September 2016 to oversee development of the blue economy as a cross-government initiative. While recognising the many blue economy sectors, the Committee has prioritised fisheries & aquaculture and maritime shipping & logistic services as priority sectors that would deliver fast socio-economic benefits to the communities in the coastal areas. The establishment of the State Department of Fisheries and Aquaculture and the Blue Economy (SD-FABE), which is mandated to steer development and guide policy development and implementation on matters of blue economy,⁹ demonstrates Kenya's commitment to developing the blue economy.

2.4.2 Blue growth opportunities

It is generally difficult to appreciate the potential for new economic pursuits to generate value and national economic growth. However, what is important is to inform the development of a strategic framework that will enable innovation to expedite value creation from whatever opportunities present themselves, subject to sustainability tests. Thus, a key benefit of MSP, in terms of the blue economy, is to provide such a strategic framework with which to guide future development of Kenya's maritime space.

Notwithstanding the specific priorities identified by the Blue Economy Committee, the potential of the oceans is manifold and complex. Economic sectors active on or near the seas are interacting with other sectors in complex value chains. In terms of future uses of the marine environment and their contribution to a Blue Economy, mariculture, renewable energy, ocean-related tourism and leisure activities and marine biotechnology are among the activities that may have greater potential in Kenya. Many of these future opportunities have an essential technological component that will, in some cases, require substantial capital investment. Proactive promotion by the GoS is necessary because the level of investment risk is probably well beyond the domestic capital market. Foreign investment will no doubt form an important component of the realisation of new sources of value. The

⁹ According to Executive Order No.1 of 2018.

existence of a robust strategic development framework will provide a degree of certainty to investors that the GoK has clearly identified development priorities under the blue economy.

Mariculture

Worldwide demand for fish and fishery products is expected to surge in the coming years across all continents. However, capture fisheries production is set to remain rather static, so that most of the growth will need to come from mariculture with growth in this sector over the next decade projected to expand by a third, reaching almost 80 Mt by 2021 (OECD, 2012). Most of the future expansion in mariculture production capacity will probably occur in the ocean, with some of it moving increasingly off-shore to escape the constraints of coastal waters. However, there are many constraints affecting the prospects of aquaculture production. These include the growing scarcity of suitable water, limited opportunities for sites for new operations along increasingly crowded, multiple-user coastal areas, limited carrying capacity of the environment for nutrients and pollution, and more stringent environmental regulations.

Ocean-based renewable energy

Ocean-based energy refers to all sources of energy that are obtained by either harnessing certain characteristics of ocean power (wave, tidal, thermal conversion, salinity gradient) or by utilising ocean space (offshore wind energy). The ocean is a rich source of potential energy resources, and with growing Future of the Ocean Economy concern over climate change and increasing global interest in renewable energy, investment in ocean-based energy is expected to grow over the next few decades.

The offshore wind energy industry is the most mature of the ocean-based energy sources. Other ocean-based sources of renewable energy include:

- Wave
- Tidal (rise & fall, currents)
- Ocean currents
- Ocean Thermal Energy Conversion (OTEC)
- Salinity gradients (osmosis)
- Marine-based biomass, e.g. algae.

The potential for ocean power is significant and widespread, though the technologies are at various stages of development. Nonetheless, the sector faces significant challenges, on the technological, regulatory and supply chain management fronts (OECD, 2012).

Ocean related tourism and leisure

Against a global background of rising incomes, ageing populations, growing leisure time, and the declining image of cruises as the preserve of the wealthy, the long-term prospects for ocean cruise tourism appear healthy.

Looking a couple of decades ahead, there is the question not only of new destinations but also of new forms of ocean-related tourism. Underwater hotels and sea-floor/floating resorts already exist in places as far-flung as Florida, China, and Fiji, and many more are currently in the planning stage. Deep sea tourist expeditions are another such activity with significant potential. Several companies around the world already offer mid-range dives of between 500 and 1,000 metres, and one specialist operator organises dives of up to 3,000 m.¹⁰

Biotechnology

Marine biotechnology has the potential to address a raft of major global challenges such as sustainable food supplies, human health, energy security and environmental remediation, and to make a significant contribution to green growth in many industrial sectors. At the same time, marine bio-resources also provide a number of important ecosystem services for the planet and its inhabitants which must be maintained.

¹⁰ <http://www.cnn.com/2012/03/19/travel/deep-sea-tourism/>

- On the health front, there has been increasing interest in marine microbes, particularly bacteria, with studies demonstrating that they are a rich source of potential drugs.
- Marine biotechnology has also displayed widespread commercial potential in industrial products and processes, and in the life sciences industry as a novel source of enzymes and polymers.
- On the energy front, algal biofuels appear to offer promising prospects. Within the last two years billions of dollars have been injected into alga-culture or algal farming right around the world.

Blue carbon opportunities, climate change mitigation and resilience

Information made available within the last four years shows how the natural carbon capacity and green infrastructure of key ecosystems at the coast can be used to help tackle the increasing problems being encountered from climate change. The revelation to many people that coastal ecosystems such as mangroves and seagrass meadows trap and store vast quantities of carbon has created new interest for exploring the role of these ecosystems in climate change adaptation and mitigation schemes.

These same ecosystems are already known to provide many other services to humanity, such as protection from coastal erosion and buffering storm surges and tsunamis. So the addition of carbon sinks opens up new opportunities for valuing the services provided by these ecosystems. Recognising the value of natural capital at the coast is now seen as one of the essential elements for coastal and island States in building a successful green economy. Acting to conserve these habitats now is critically important and represents a shift to the Green Economy built on ocean resources by developing new carbon markets, creating new investment streams, new jobs, and delivering on biodiversity targets.

Approaches that recognise the true 'carbon' value of coastal ecosystems as part of ecosystem-based mitigation also fit well with global best practices emerging for planners and managers on tackling climate change, and display characteristics that suggest effective uptake can result in reforming of often inadequate existing policy, legislation and decision making.

3 Marine Spatial Planning – A Primer

3.1 Overview

Coastal areas attract a variety of competing uses which sometimes overlap causing conflicts between different users and adverse effects on the coastal marine environment. As a consequence, many countries are making attempts to manage conflicts between coastal resource users. Integrated coastal zone management (ICZM) and Ecosystem-based management (EBM) are among the approaches that have been used to implicitly address the management of conflicts among different coastal resource users. These approaches emphasize integration and balancing of multiple objectives in ecosystem planning process (Tuda *et al*, 2014).

As demand for coastal resources increases, however, more efficient ocean use strategies are needed that balance economy, environmental protection and social demands. During recent years, marine spatial planning (MSP) has been promoted as one tool that can help address complex conflicts in coastal and marine areas, particularly in heavily used marine areas.

According to the Blue Economy definition for Africa (UNECA, 2016) MSP is essential for implementing the Blue Economy. The 2050 AIMS (African Union, 2012), a mechanism for the implementation of the Blue Economy in Africa, establishes a framework for strategic actions including maritime governance and the future role of MSP. The 2050 AIMS confirms the importance of MSP as a tool for the implementation of the Blue Economy, and proposes MSP as a mechanism to balance competing sector-based interests (Nairobi Convention Secretariat, 2017).

MSP is a planning process that enables integrated, forward looking, and consistent decision-making on the human uses of the sea and the interactions between those uses (Ehler and Douvère, 2009). MSP also provides a way to balance demands for development with the need to protect marine ecosystems, and to achieve social and economic objectives in an open and planned way. In this regard, MSP is increasingly being applied to develop marine zoning and allocation plans that address multiple-use conflicts (Tuda *et al*, 2014).

Comprehensive MSP provides an integrated framework for management that provides a guide for, but does not replace, single-sector planning. For example, MSP can provide important contextual information for marine protected area management, ecosystem-based fisheries management, or climate change adaptation plans, but does not replace them. Individual decisions made within individual sectors (for example, the fisheries or tourism sector) should be based on the zoning maps and the comprehensive spatial plan.

The most widely used definition of MSP is the one found in the UNESCO/IOC guide to ecosystem-based marine spatial planning (Ehler and Douvère, 2009):

The public process of analyzing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social goals and objectives that are usually specified through a political process.

3.2 Characteristics of MSP

The characteristics of MSP, many of which are common to other planning approaches including integrated coastal management and ecosystem-based management, are that it is:

- Integrated and multi-objective, across sectors and agencies, and among levels of government, and including social and economic objectives as well as ecological ones;
- Place-based or area-based, focused on a specific marine area or place; and
- Participatory, stakeholders actively and effectively involved in the process;
- Strategic and anticipatory, focused on the long-term;
- Ecosystem-based, balancing ecological, economic, and social goals and objectives toward sustainable development;
- Continuing and adaptive, capable of learning from experience (Ehler, 2013).

A review of the relevant literature suggests that the key elements on which to base MSP could include:

- A well-functioning institutional and legal framework;
- Knowledge about current uses, activities and pressures for change, including future trends;
- Access to marine and coastal information for decision support purposes;
- Mechanism for stakeholder involvement;
- Identification of the shared values of the region, including environmental, economic, social and cultural (heritage) values;
- Conflict resolution tools and cumulative impact assessment;
- Strategic environmental assessment (SEA) for the marine area as a whole; and
- Coherence of MSP with terrestrial spatial planning and sound management and control of the seas.

MSP is not a plan, but rather a planning process often utilizing spatial planning tools. The principal output of MSP is a comprehensive spatial management plan for a marine area or ecosystem (Figure 7). It sets out priorities for the area and defines what these priorities mean in time and space. The comprehensive marine spatial plan is often implemented through tools such as ocean zoning and mapping, permit systems, education and encouragement as well as having an institutional framework, which links planning, policies and regulations (See **Box 2** below).

It should also be understood that MSP is not a one-off activity, but rather an iterative process that is revised and refined over time. The initial MSP may be undertaken at a fairly coarse level, but this can be refined over time as more information becomes available or if circumstances change.

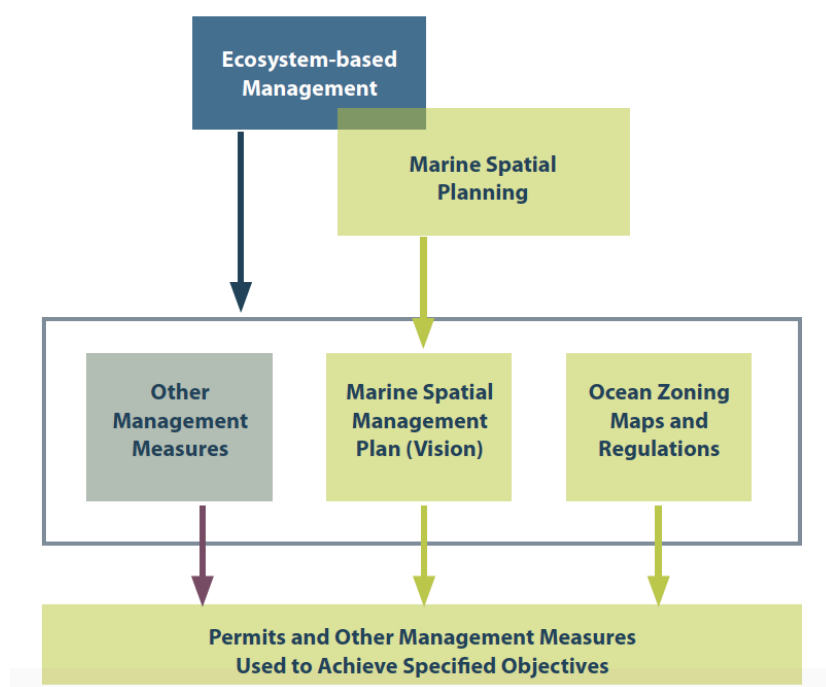
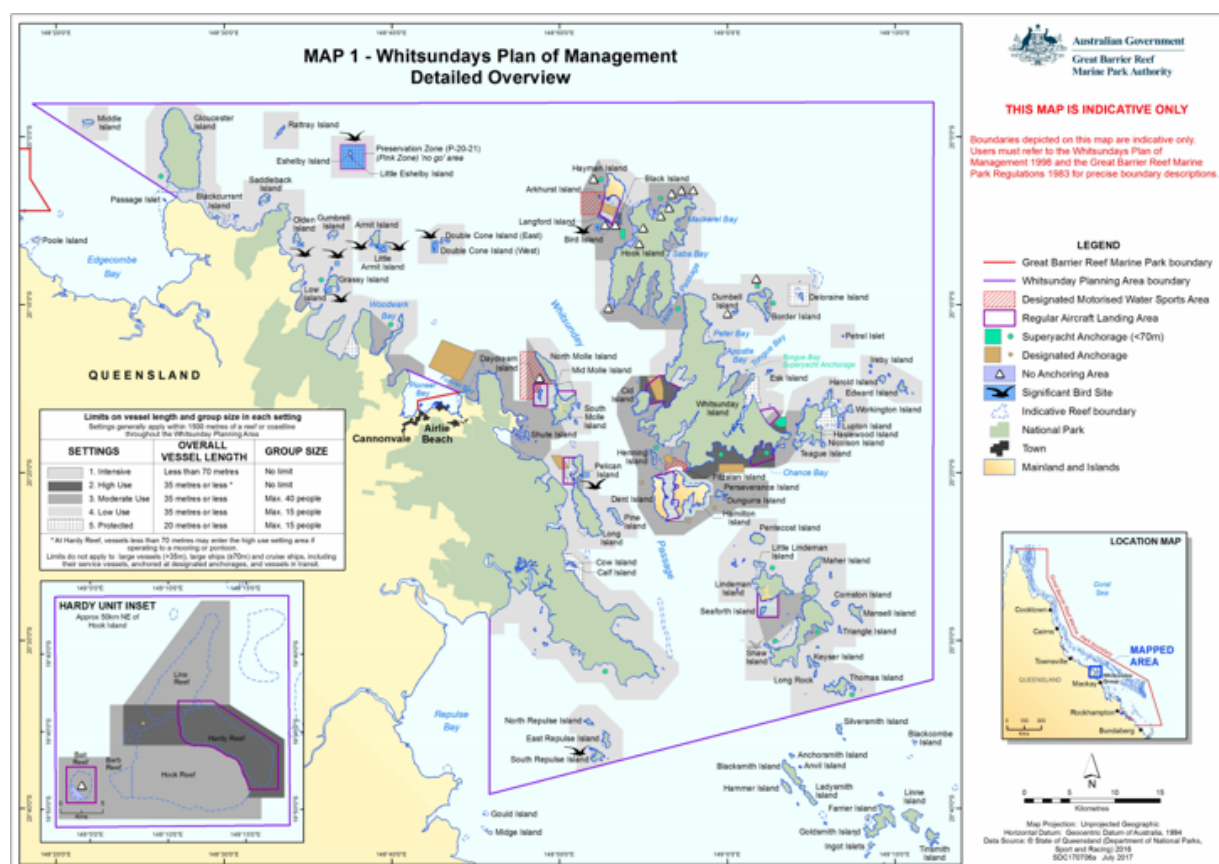


Figure 7: Outputs of marine spatial planning (Source: Ehler and Douvere, 2009)

Box 2 : Marine Spatial Planning for the Great Barrier Reef Marine Park



One of the earliest and best-known examples of marine zoning is Australia's Great Barrier Reef Marine Park (GBRMP), off the northeastern coast of Australia, encompassing and stretching along 2,300km of coastline.

Spatial management in the GBRMP is based on eight zones, ranging from the least restrictive "general use zone" in which shipping and most commercial fishing are allowed, to the most restrictive "preservation zone" where virtually no use is permitted. The zones, designed to protect the Marine Park's range of biodiversity, operate as a connected network and deliver a range of benefits, including benefits to society.

The GBRMP Zoning Plan and associated regulations are the foundation of management plans of management complement zoning by addressing issues specific to an area, species, or community in greater detail than can be accomplished by the broader reef-wide zoning plans. There are currently four plans of management within the Great Barrier Reef Marine Park. A permit system is used to implement the zoning plans.

Using zoning as the principal tool with which to implement marine spatial planning is not essential, and in some countries MSP has been implemented without zoning. In fact, some activities are better managed using other spatial and temporal tools, including:

- Permits, often tied to specific areas within zones
 - Enforceable management plans
 - Site plans/special management areas
- Other spatial restrictions, e.g., defence training areas (See Annex C).

3.3 Requirements for MSP

While there is no single model for MSP, the development and implementation of MSP involves a number of steps, and MSP consists of at least three ongoing phases (Figure 8).

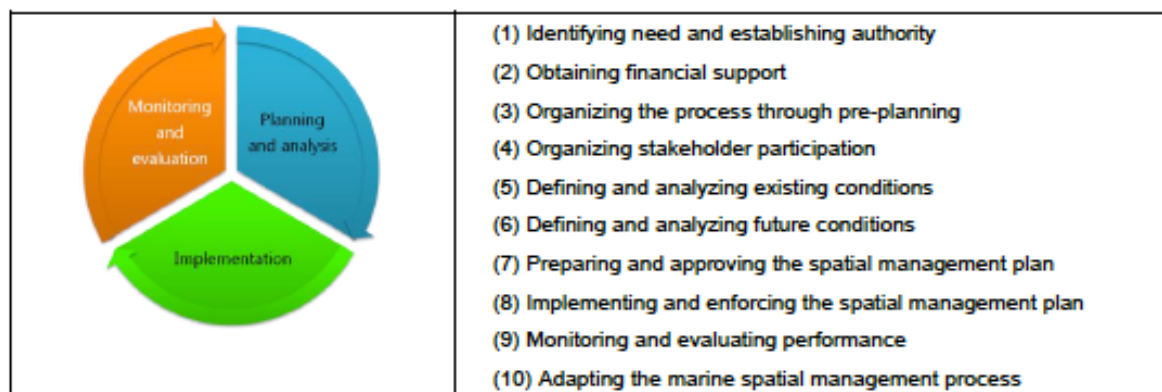


Figure 8: Essential elements of a marine spatial planning process (Source: Choi, 2014).

These 10 steps are not simply a linear process that moves sequentially from one step to another. Many feedback loops should be built into the MSP process. For example, goals and objectives identified early in the planning process are likely to be modified as costs and benefits of different management actions are identified later in the planning process. Analyses of existing and future conditions will change as new information is identified and incorporated in the planning process. Stakeholder participation will change the planning process as it develops over time. Planning is a dynamic process and planners have to be open to accommodating changes as the process evolves (Ehler, 2013). The most effective plans are those developed in response to very clearly stated, very specific objectives. Goal-setting is, therefore, a necessary first step in all marine spatial planning exercises.

A recent study, undertaken for the EU (Carneiro *et al*, 2017) on international best-practices of [cross-border] maritime spatial planning identified the following lessons that are highly relevant to Kenya as it moves forward with MSP:

- Having a clear driver generated and helped to keep the momentum for the planning effort, as well as focus the minds and actions of the many actors involved.
- A competent, engaged and multi-faceted team with a broad scope of skills and knowledge is necessary to deal with complex and lengthy marine planning processes.
- The extent and outcomes of the interactions between different organisations engaged in planning depends on the relationships between the individuals involved, especially those in positions of authority.
- Because marine planning implies making important decisions that can affect the lives of people negatively, those leading the planning need to ensure objectivity and impartiality of process and deliberations, so that they can gain the trust of plan stakeholders.
- A clear process that was regularly communicated to all involved parties helps generate commitment and a sense of urgency that enables a planning process to keep to schedule and maintain the commitment of those involved.
- Planning is likely to yield better results and be easier to implement if it has the backing of affected stakeholders.
- Open, transparent and inclusive processes are a pre-condition for building trust and gaining the support of stakeholders who expect to participate in planning and implementation processes.
- Elaborating complicated systems for progress monitoring and periodic evaluation that are too demanding and do not address the needs of managers during implementation is likely to be a worthless exercise and create expectations among stakeholders that end up not being met.

- If a plan is to be implementable, it needs to have clear mechanisms that commit specific actors to a given course of action.
- Working with existing policy and regulatory frameworks simplifies and shortens the planning process.
- The planning and implementation authority needs to be accepted by stakeholders.

3.3.1 Strategic environmental assessment and MSP

One of the key tools available to planners in determining goals for MSP is the application of strategic environmental assessment (SEA) techniques. SEA is a systematic process for evaluating the environmental consequences of proposed policy, programme or plan initiatives and their alternatives in order to ensure they are fully included and appropriately addressed at the earliest suitable stage of the decision-making process.

In terms of MSP, the purpose of SEA should be to ensure that the implications of the plan or programme are comprehensively determined, described and evaluated by means of standardized principles at an early stage and that the results of the evaluation are taken into consideration in establishing and changing plans. SEA should incorporate both socio-economic assessments and can involve habitat mapping, risk analysis, and sensitivity mapping and thus be used to facilitate decision-making for spatial planning.

SEA can therefore help to increase integration of environmental issues in the development of policies, planning and programme decisions. It can be used on a national, regional or local basis, especially prior to opening of new areas to activities, but also for areas where activities are ongoing.

Effective mapping and spatial enabled data is central to the success of MSP. Maps of environmental characteristics, species and habitat distributions, ecosystem goods, services and vulnerabilities, the ways society values marine and coastal space, human activities or pressures and their cumulative impact are data demanding.

MSP involves not only developing plans, but examining stakeholder preferences and trade-offs, as well as developing scenarios that can help raise awareness about the consequences of decisions regarding access to and use of ocean and coastal space and resources.

The fabric that makes up MSP is based in social, institutional, legal and political threads and can therefore be a very complicated process in order to achieve a successful agreed upon plan. In addition, MSP takes into account spatial and temporal conditions which require this tool to be relatively flexible in its application. The consequences of implementing a spatial management plan (both negative and positive – e.g. displacing fishers, adding costs for industrial users, reducing user conflicts) should be anticipated and evaluated, either through trade-off analysis, scenario development, or by simple stakeholder discussions on possible outcomes (CBD, 2012).

Unfortunately, many MSP initiatives tend to focus on the management of the marine ecosystems, paying little regard to land-sea planning. The impact of land-based sources needs to be considered in order to have a holistic approach to the planning process.

3.4 Assessing the State of MSP in Kenya

Elements of marine spatial planning and zoning, and the spatial management regimes that flow from it, already occur at various scales throughout Kenya: from small locally-managed marine areas established by Beach Management Units and marine spatial planning undertaken as part of the development of MPA management plans, to broader scale spatial planning and management at the County level and planning of ocean uses throughout EEZs.

Clearly there is a significant variance in the scale of MSP initiatives, methodologies for engaging stakeholders along with planning and associated tools, as well as in the stated goals and objectives of these initiatives.

In order to prepare the 'MSP Baseline' that is a requirement of this scoping study, a high-level 'Analytical Framework' was prepared, against which to assess the current MSP baseline in Kenya. The framework is adapted from several sources¹¹ and is outlined in Table 2.

¹¹ Beck *et al* (2009); Choi, H.J. (2014); McCann *et al*, (2014).

Elements of Analytical Framework	
1) Drivers & Issues	<ul style="list-style-type: none"> • Drivers for MSP • Prioritisation of Management issues
2) Geographic Scope and Boundaries	<ul style="list-style-type: none"> • Planning area and geographic boundaries • Spatial management measures in use • Future activities and uses being addressed
3) Governance	<ul style="list-style-type: none"> • Goals for MSP • Institutional arrangements • Implementation mechanisms
4) Data Collection and Management	<ul style="list-style-type: none"> • Availability of key data sets • Data management and mapping • Science input
5) Multi-objective Planning Process	<ul style="list-style-type: none"> • Existing spatial planning processes • Multi-use stakeholder engagement

Table 2: Analytical Framework for Scoping Study

4 Existing Marine Governance Arrangements in Kenya

4.1 Policy and planning framework

The Western Indian Ocean governance framework is characterised by a collection of multilateral environmental agreements, political agreements, non-binding agreements, programmes, projects and national policies and laws, which exist at various levels. There are numerous regional and sub-regional organisations with some level of engagement in governance of the ocean and its resources operating in the region. They include UN organisations and regional intergovernmental organisations, oriented towards all aspects of ocean governance and marine resource management, although integration across them is poor resulting in both gaps in implementation and duplication of effort. A number of key agreements and organisations are outlined below.

4.1.1 International policy framework

Kenya is signatory to several international conventions and protocols that advocate the implementation of MPAs as a tool for biodiversity conservation and regulation of fisheries. Notable among these are: the 1982 United Nations Convention on the Law of the Sea; the 1992 Convention on Biological Diversity, the Jakarta Mandate of which outlines the program of action for marine and coastal biodiversity within the CBD (Tuda and Omar, 2012); maritime pollution and safety conventions under the International Maritime Organization; and fisheries related agreements and instruments such as the 1993 FAO Compliance Agreement, the 1995 UN Fish Stocks Agreement and the FAO Voluntary Code of Conduct for Responsible Fishing.

All these policy and management instruments bring in a diversity of policy and governance mechanisms, many of which are regional or sectoral and if not harmonized may lead to reduplication of efforts and to conflicts, resulting in unsustainable management of the marine and coastal resources.

United Nations Convention on the Law of the Sea

The principal international law framework governing the oceans is provided by the 1982 United Nations Convention on the Law of the Sea (LOSC), which establishes a comprehensive scheme for the use and development of the oceans.

The LOSC defines the extent of various jurisdictional zones in offshore areas and sets out the rights and obligations of countries on the basis of those zones. Countries have sovereignty over their internal waters, territorial seas and archipelagic waters, while in the EEZ, states have sovereign rights for exploration, exploitation, conservation and management of natural resources and over other economic activities and jurisdiction over the protection and preservation of the marine environment. On the continental shelf, states have sovereign rights for exploration and exploitation of non-living resources and sedentary living resources on the seabed.

The LOSC establishes an overall framework of governing principles and general obligations for the future protection and governance of the ocean. These include a general, and unqualified, obligation to protect and preserve the marine environment, including the obligation to protect and preserve rare or fragile ecosystems, as well as the habitat of depleted, threatened or endangered species and other forms of life as well as obligations relating to marine scientific research, conservation of living marine resources, monitoring risks or effects of pollution, and to minimize pollution and accidents to the fullest possible extent.

Convention on Biological Diversity

The Convention on Biological Diversity (CBD) is also especially relevant as an international treaty that calls for conservation of all biodiversity. At the tenth meeting of the Conference of the Parties, parties adopted a revised and updated Strategic Plan for Biodiversity, including the Aichi Biodiversity Targets, for the 2011-2020 period. This Plan provides an overarching framework on biodiversity, not only for the biodiversity-related conventions, but for the entire United Nations system and all other partners engaged in biodiversity management and policy development. Parties agreed to translate this overarching international framework into revised and updated national biodiversity strategies and action plans within two years.

Included in the Strategic Plan, the following Targets are of particular to spatial management in the marine environment:

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits; and

Target 11: By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures and integrated into the wider landscape and seascapes.

Agenda 21

Chapter 17 of Agenda 21 is devoted to the protection of the ocean, seas and coastal areas as well as the protection, rational use and development of their living resources. It proposes a plan of action and how to implement the principle of sustainable development that governments and local authorities can use.

While Agenda 2 does not refer to MSP specifically, Programme Area A addresses *Integrated management and sustainable development of coastal areas, including exclusive economic zones*. In this regard, Objective 17.5 of Agenda 21 requires that coastal states commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction, including, *inter alia*:

- a) Providing for an integrated policy and decision-making process, including all involved sectors, to promote compatibility and a balance of uses;
- b) Identifying existing and projected uses of coastal areas and their interactions;
- c) Applying preventive and precautionary approaches in project planning and implementation, including prior assessment and systematic observation of the impacts of major projects; and
- d) Providing access, as far as possible, for concerned individuals, groups and organizations to relevant information and opportunities for consultation and participation in planning and decision-making at appropriate level.

FAO Voluntary Code of Conduct for Responsible Fishing

Voluntary Code of Conduct for Responsible Fishing (CCRF) was adopted by all FAO Member States on 31 October 1995. It contains a series of principles and articles promoting best practices for conducting fishing and aquaculture in a responsible and sustainable way. The Code emphasizes that fisheries management shall promote maintenance of the quality, diversity and availability of fishery resources and that management measures shall also take wider ecosystem considerations into account. In this regard, the Code is an important tool to give practical effect to the Ecosystem Approach to Fisheries (EAF).

The Code is directed towards all stakeholders in the fishing and aquaculture sectors: States, fishing entities, international organizations (including NGOs IGOs and RFBs), entities involved in the management, conservation, trade and utilization of fisheries resources. The Code is intended to help countries and groups of countries to develop or countries improve their fisheries and aquaculture, whilst ensuring the long-term sustainable use of fisheries resources and habitat conservation and guaranteeing food security and alleviating poverty in fishing communities.

As a general principle, the Code requires that all critical fisheries habitats in marine and fresh water ecosystems, such as wetlands, mangroves, reefs, lagoons, nursery and spawning areas, should be protected and rehabilitated as far as possible and where necessary, noting that: *Particular effort should be made to protect such habitats from destruction, degradation, pollution and other significant impacts resulting from human activities that threaten the health and viability of the fishery resources.*¹²

The Code further requires that States should ensure that their fisheries interests, including the need for conservation of the resources, are taken into account in the multiple uses of the coastal zone and are integrated into coastal area management, planning and development.¹³

¹² Paragraph 6.8.

¹³ Paragraph 6.9.

Although the Code is non-binding, by endorsing it, governments commit themselves to operating according to its values and standards and in conformity with international law, the provisions of which form an international law, integral part of the Code. The Code has proved forward-looking and helped shape policy with concepts such as precautionary, participatory and ecosystem based – concepts that today are integral to the responsible management of fisheries and aquaculture.

2030 Agenda for Sustainable Development

The last twenty years have seen tremendous increase in environmental awareness, which culminated with the adoption, in 2015, of the 2030 Agenda for International Development, and its 17 Sustainable Development Goals (SDGs). Of these, Goal 14 (Life Below Water) is particularly relevant to the Blue Economy since it addresses many of the issues that need to be addressed for Kenya to realise its blue economy ambitions (See **Error! Reference source not found.**).

Box 3: SDG 14: Life Below Water

- 14.1 By 2025, prevent and significantly reduce marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution.
- 14.2 By 2020, sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.
- 14.3 Minimize and address the impacts of ocean acidification, including through enhanced scientific cooperation at all levels.
- 14.4 By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and unregulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics.
- 14.5 By 2020, conserve at least 10 per cent of coastal and marine areas, consistent with national and international law and based on the best available scientific information.
- 14.6 By 2020, prohibit certain forms of fisheries subsidies which contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing and refrain from introducing new such subsidies, recognizing that appropriate and effective special and differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation.
- 14.7 By 2030, increase the economic benefits to Small Island developing States and least developed countries from the sustainable use of marine resources, including through sustainable management of fisheries, aquaculture and tourism.
- 14.8 Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health and to enhance the contribution of marine biodiversity to the development of developing countries, in particular small island developing States and least developed countries.
- 14.9 Provide access for small-scale artisanal fishers to marine resources and markets.
- 14.10 Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want.

4.1.2 East African Action Plan and Nairobi Convention

The East Africa Region is one of the 18 Regional Seas Programmes administered by UNEP. The region is managed for the countries of the East Africa Region (including Kenya) through the *Action Plan for the Protection, Management and Development of the Marine and Coastal environment of the Eastern Africa region*. The Action Plan led to the 1985 adoption of the *Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region* (Nairobi Convention).

The Convention, which covers the combined EEZs of its East Africa region parties, provides a mechanism for regional cooperation, coordination and collaborative actions in the Eastern and Southern African region, that enables the Contracting Parties to harness resources and expertise from a wide range of stakeholders and interest groups towards solving interlinked problems of the coastal and marine environment including critical national and transboundary issues. The Convention offers a regional legal framework and coordinates the efforts of the member states to plan and develop programmes that strengthen their capacity to protect, manage and develop their coastal and marine environment sustainably. It also provides a forum for inter-governmental discussions that lead to better understanding of regional environmental problems and the strategies needed to address them; and promotes sharing of information and experiences in the WIO region and with the rest of the world.

As well as requiring the adoption of measures aimed at preventing and controlling marine pollution from all sources, the Convention also requires parties to take appropriate measures to protect and preserve fragile ecosystems and to assess the environmental impacts of activities under their jurisdiction. The Convention is supplemented by the following protocols:

- Protocol Concerning Co-operation in Combating Marine Pollution in Cases of Emergency in the Eastern African Region, adopted in 1985;
- Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region, adopted in 1985; and
- Protocol for the Protection of the Marine and Coastal Environment of the Western Indian Ocean from Land-Based Sources and Activities, adopted in 2010.

The establishment of the regional coordination unit in Seychelles has strengthened the Nairobi Convention and related protocols in a number of ways. It has also helped develop and update the programme of action and provide a regional framework for the implementation of regional and global action plans of conventions such as the Convention on Biological Diversity and the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities.

At its 2015 Meeting of the Contracting Parties to the Nairobi Convention, the parties adopted Decision CP8/10: Blue and Ocean Economy (4) which urges “Contracting Parties to cooperate in improving the governance of areas beyond national jurisdiction, building on existing regional institutions including the Nairobi Convention and developing area based management tools such as marine spatial planning to promote the blue economy pathways in the Western Indian Ocean Region.”

The Secretariat is currently exploring the application of MSP across the parties and is actively seeking to establish one or two pilot MSP projects in the region. The Convention and its Protocols therefore could provide a framework for the implementation of MSP in Kenya, particularly where transboundary issues are relevant.

4.1.3 Large Marine Ecosystem (LME) Initiatives

The two major ecosystems in the Western Indian Ocean (WIO) region, i.e. the Agulhas and Somalia Current Large Marine Ecosystems (ASCLME), contain important critical habitats such as sea grass beds, coral reefs and mangrove forests. These habitats are areas of high diversity and are critical fish spawning and nursery areas that provide other vital ecological services, such as shoreline shelter from ocean swells.

The Global Environment Facility (GEF), with the support of the Contracting Parties to the Nairobi Convention and their development partners, have embraced the ecosystems approach and have invested significantly to support LME projects in the Western Indian Ocean.

The three main projects include;

1. The Agulhas and Somalia Current Large Marine Ecosystem (ASCLME) project, implemented by UNDP;
2. The South West Indian Ocean Fisheries Project (SWIOFP), implemented by The World Bank;
3. Project addressing land-based activities in the Western Indian Ocean (WIO-LaB) implemented by UNEP.

South West Indian Ocean Fisheries Commission

The South West Indian Ocean Fisheries Commission (SWIOFC) was formally established in November 2004 in response to concerns that 75 percent of fishery resources in the West Indian Ocean were being fished at their maximum biological productivity. The other 25 percent were overexploited and required better management. The Commission covers the sea areas off the shores of East Africa and several island states of the region. Though SWIOFC's mandate focuses primarily on coastal fishing and non-tuna like demersal stocks, a parallel agreement on regional cooperation on high seas fishing of non-tuna resources is being negotiated. The Commission's members include 14 coastal states, including Seychelles, whose territories are situated wholly or partly within the SWIOFC area of competence.

The governing body of SWIOFC is the Commission, composed of all Members. In addition, the Commission has established a Scientific Committee to consider the state of fisheries in the area of competence and to advise on the scientific basis for possible regulatory measures to be considered for adoption by the members of the Commission. The Scientific Committee focusses on fisheries data collection and on providing resource managers with much-needed information on the status of stocks and to advise on the scientific basis for possible regulatory measures to be considered for adoption by the individual member states of the Commission – for the Commission itself has no power to adopt collective binding regulatory measures. In this context, the Commission has established one working party on fisheries data and statistics.¹⁴

4.2 National policy initiatives

Kenya Vision 2030 is the country's overarching development programme from 2008 to 2030. Its objective is to help transform Kenya into a "newly industrializing, middle-income (country providing a high quality of life to all its citizens by 2030 in a clean and secure environment."

Vision 2030 is based on three "pillars": Economic, Social, and Political. It is to be implemented in successive five-year plans. Vision 2030 recognizes the contributions of the fisheries sector towards transforming the country into an industrializing middle-income nation

Although Kenya has a National Oceans and Fishery Policy, in practice this policy document is focussed entirely on the fisheries sector and does not address broader issues of ocean governance. As such, it could be argued that Kenya has no overarching national ocean policy. This notwithstanding, a number of sector specific policies and management frameworks have been prepared (or are in preparation) that are highly relevant for the management of marine resources and MSP.

These include the National Ocean and Fisheries Policy (2008), the Integrated Coastal Zone Management (ICZM) Policy (2015) and the ICZM National Action Plan (currently under review); the National Land Use Policy (2017); the National Environmental Policy (2013); The National Land Use Policy (2017); The National Wildlife Conservation and Management Policy (2017); the National Spatial Plan (2015-2045); and, the DRAFT National Energy and Petroleum Policy (2015).

It is unnecessary to summarise these policies individually for this report. However, Annex D provides a summary of the key elements of each sector-specific policy, insofar as they relate to protection of the marine environment and the management of marine resources.

4.3 Legal Framework

4.3.1 Overview

Kenya does not currently have a single policy or legal instrument to adequately address problems or conflicting uses in the marine environment on a comprehensive basis. Currently, relevant regulation is found in diverse sectoral legislation. While the existing legal framework is considered to be up to date and comprehensive, there are clearly some areas where legal reforms are required to support MSP. In some instances, the legislation for different sectors is ambiguous and duplicates functions of different sectoral agencies, which creates administrative confusion for agencies and stakeholders alike.

¹⁴ Further information can be found at: <http://www.swiofp.net/>.

According to Samoilys *et al* (2011) Kenya has a total of 48 legal instruments addressing management of the marine environment, administered by at least 14 line ministries and their subsidiary bodies. While these precise numbers will have undoubtedly changed since publication, they are illustrative of the challenge facing many countries in the management of their marine space – resource management remains highly ‘balkanized’. The existing marine governance framework in Kenya emphasises a traditional sector-specific approach to management and planning. Such approaches have generally proved ineffective and have been unable to respond to the cumulative and synergistic impacts and pressures from human activities.

This section provides a brief summary only, of the most relevant instruments relating to management of marine uses and spatial planning activities.

4.3.2 Maritime claims and legislation

Under the 1982 Convention, coastal States, benefit from the conferral of a range of rights in respect of extensive areas of ocean space that are divided up into zones – commonly referred to as ‘maritime zones’ – measured by reference to a ‘baseline’ constructed along the coast. In this regard, Kenya has enacted domestic legislation to establish its principle maritime zones under the *Maritime Zones Act, 1989*.

The Act consolidates the law relating to the territorial waters; provides for the establishment and delimitation of the EEZ of Kenya; and provides for the exploration, exploitation, conservation and management of resources in the maritime zones. *The Continental Shelf Act, 1975* vests the rights in the government in respect of the continental shelf, and the resources thereon, therein and thereunder.

4.3.3 The Wildlife Conservation and Management Act, 2013

The *Wildlife Conservation and Management Act* was passed in 2013 replacing the previous act, under which all existing marine parks and marine reserves were enacted. The Act aligns the law to the provisions of the 2010 Constitution, and includes robust provisions for involvement of local communities in the management of wildlife resources and for wildlife conservation outside protected areas (Odote, 2015). Under the Act, ‘wildlife’¹⁵ extends to the marine environment and both animals and plants in the marine environment.

The Act provides for the establishment of the Kenya Wildlife Service (KWS) to provide for overall protection, conservation, sustainable use and management of wildlife in Kenya. KWS’s functions include the conservation and management of national parks, wildlife conservation areas and sanctuaries under its jurisdiction.

In terms of spatial management and planning, the Act provides for a number of important conservation mechanisms, namely:

Marine protected area

Subject to S. 31(1)(b) the Cabinet Secretary may, in consultation with the competent authority, by notice in the *Gazette* declare an area to be a ‘marine protected area’, defined as meaning:

any park or reserve covering the area of intertidal or sub-tidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law, and includes any dry land found within the gazetted boundary.

The Act defines both marine park (being a protected area where no fishing is permitted without the written permission of the Director-General) and marine reserve (being an area where subsistence fishing is permitted) but does not explicitly provide for their designation.

Effective management of MPAs is provided through the adoption and implementation of a comprehensive management plan (S 32(2)). Such plans provide for a system of zoning that caters for multiple uses. As such, while the Act does not refer to MSP, it implicitly provides for it as a planning tool for MPAs.

¹⁵ The Act defines wildlife as “any wild and indigenous animal, plant or microorganism or parts thereof within its constituent habitat or ecosystem on land or in water, as well as species that have been introduced into or established in Kenya.”

Marine conservation areas

Marine conservation areas (MCA) may be established by the Cabinet Secretary, pursuant to S.36(1) of the Act, and upon recommendation of the relevant county government where the area is either: (a) rich in biodiversity or harbours endangered and threatened marine species; or (b) a critical habitat for a variety of marine resources.

MCAs are managed at the relevant county level. As with MPAs, MCAs require the approval of a management plan “prepared through a consultative process with the relevant lead agencies and communities”.

Marine conservation areas are also required to adopt a system of multi-use zoning so again the application of MSP is an implied requirement for marine conservation areas.

Protected wetland

An area of wetland that is an important habitat or ecosystem for wildlife conservation may be designated as a protected wetland pursuant to S.33(1) of the Act which shall be managed in accordance with an Integrated Wetland Management Plan, for the conservation and management of the protected wetland, prepared through a public consultative process.

Given that the definition of wetland includes areas of marine water the depth of which does not exceed six meters at low tide, a protected wetland under the Act could certainly construed to be a spatial management tool for MSP.

Establishment of conservancy or sanctuary

One further mechanisms that could conceivable be applied as a spatial management tool for MSP is the establishment of a wildlife conservancy or sanctuary (S. 39). Such measures may be established by any person or community who own land on which wildlife inhabits.

4.3.4 The Fisheries Management and Development Act, 2016

The *Fisheries Management and Development Act, 2016* and its various subsidiary regulations is the instrument for fisheries management in Kenya, addressing all aspects of the fishery sector (capture fishery and aquaculture). The Act replaces the previous *Fisheries Act, 1989* and was amended to reflect *inter alia* the requirements for the EAF.

The Act establishes the Kenya Fisheries Services as the preeminent body responsible for the development and management of the fisheries sector in Kenya.

An important aspect of the Act is that it defines fishery resources as including any fishery or stock, species or habitat of fish or part thereof. This broadens the scope of fishery management measures to include critical habitats.

Part V of the Act – *Fisheries Conservation, Management and Development* is of most relevance to this discussion.

Various provisions under this Part provide the Director General of the Kenya Fisheries Service to impose management measures for fisheries including *inter alia* spatial and temporal closures and restriction so the use of certain types of vessels and fishing gear (S. 40). These management measures are enforceable under the Act with strong penalty provisions.

Management plans are also a key feature of Part V and may be established both at the County level (S. 34) or the national level, where a fishery is declared a “designated fishery” (S. 39). The Act defines “designated fishery” as being: (a) important to the national interest; and (b) requiring special conservation and management measures for effective sustainable use of the fisheries resources.

Pursuant to S.47 of the Act, the Cabinet Secretary may, in consultation with the Kenya Fisheries Advisory Council, stakeholders and the Board, by notice in the Gazette, declare any area of the Kenya fishery waters to be a Marine Protected Area. However, no definition for MPAs is included for the purposes of this Act.

An important aspect of the Act is that it provides for the establishment of Beach Management Units (BMUs) (S.37). The *Fisheries (Beach Management Units) Regulations, 2007*, give effect to this provision and are discussed below.

In terms of aquaculture, S.62 of the Act requires the Director General to develop a national aquaculture development plan including *inter alia*:

- a description or identification of any area of water which is suitable for aquaculture and the type of aquaculture for which the area is suitable;
- a description of suitable methods for undertaking any type of aquaculture;

In planning for aquaculture development, the Act requires the Director-General to collaborate with County authorities and relevant bodies to ensure that: (a) development is ecologically sustainable and allows rational use of the resource shared by aquaculture and other activities; and (b) the livelihood, culture and traditions of local communities and their access to fishing grounds are not affected by aquaculture development.

Furthermore, the Act explicitly prohibits the development of any aquaculture activity that would deprive a local community of its traditional access to fishing grounds without good cause and without first consulting the affected community (S.64). Thus, planning for aquaculture must be undertaken with regard to existing fishery interests, therefore necessitating the need for some form of spatial planning.

4.3.5 Fisheries (Beach Management Unit) Regulations, 2007

The *Fisheries (Beach Management Units) Regulations, 2007* establishes the Beach Management Units (BMUs) as “an organization of fishers, fish traders, boat owners, fish processors and other beach stakeholders who traditionally depend on fisheries activities for their livelihoods.” Following the 2010 Constitution, the current Act recognises County governments as having the authority to establish BMUs, although the Regulations still recognise the Director as having this authority. This ambiguity will need to be addressed for the BMUs to fully operate effectively in the future.

Regulation 3 defines the objectives of BMUs as being to:

1. strengthen the management of fish-landing stations, fishery resources and the aquatic environment;
2. support the sustainable development of the fisheries sector;
3. help alleviate poverty and improve the health, welfare and livelihoods of the members through improved planning and resource management, good governance, democratic participation and self-reliance;
4. recognise the various roles played by different sections of the community, including women, in the fisheries sector;
5. ensure the achievement of high quality standards with regard to fish and fishery products;
6. build capacity of the members for the effective management of fisheries in collaboration with other stakeholders; and
7. prevent or reduce conflicts in the fisheries sector.

The regulations require that each BMU must have a specific administrative structure including: (a) an assembly; (b) an executive committee; and (c) such sub-committees as may be specified in the by-laws of the beach management unit (Reg. 4). Each BMU also has a defined area of jurisdiction, for which it is responsible. BMUs are to be created for each landing station, although in practice BMUs often cover more than one beach landing site.

In the context of MSP, a critical tool that is often applied for BMUs is the establishment of co-management areas. These are defined under the regulations as:

an area in which the beach management unit shall undertake fisheries management activities jointly with the Director.

Pursuant to Regulation 7(1), each BMU is required to have such an area designated by the authorised fisheries officer. A co-management area may apply to an individual BMU, or, where fishing is undertaken by the members of

more than one BMU, a joint co-management area may be designated in which more than one BMUs shall share responsibilities for fisheries management.

Each co-management area is required to have a co-management plan, developed by the BMU(s) and approved by the Director General. The co-management plan shall address:

- a) the designation of closed areas in which all fishing activities or specified fishing activities are prohibited;
- b) the designation of closed seasons either throughout the Co-management area or in respect of specified areas;
- c) the marking of fishing vessels;
- d) restrictions on the type of nets or other fishing gears that may be used; and
- e) restrictions on the number of fishing vessel licences or fishing licences that may be issued.

These provisions implicitly require the zoning of CMAs with respect to the different measures.

Enforcement of the co-management plan is given effect to through by-laws established by the BMU. However, past research on the operation of the BMUs has indicated that they have not been operating efficiently and optimally (Muigua, 2017). This is largely because very few co-management areas have established approved management plans. The lack of effective management planning has, in many cases, created confusion among fishing communities and prevented management measures being enforced, since the by-laws are not in place.

4.3.6 Environment Management and Coordination Act, 1999

The *Environmental Management and Coordination Act, 1999* (EMCA) is the framework law on the environment in Kenya. The Act provides a framework for coordination in the management of the environment through the National Environment Management Authority (NEMA). It underscores the need for integration in the management of the environment and its components.

The Act creates the NEMA with two primary aims:

- 1) Supervise and coordinate all aspects of environmental matters; and
- 2) Act as the principal agency for implementing all government policies on the environment.

The Act elaborates tools and procedures (such as environmental impact assessments) to enable NEMA to carry out the above task. In the context of MSP, S.55 of EMCA institutionalises ICZM as a tool for the management and conservation of the coastal and marine environment. The ICZM policy finds a legal anchor in the Act, which obliges NEMA “in consultation with the relevant lead agencies” to undertake a survey of the coastal zone and prepare “an integrated national coastal zone management plan, based on the survey.”

It should, however, be noted that, pursuant to Executive Order No. 1 of 2018, the responsibility for ICZM has now been transferred to SD-FABE.

For the purposes of MSP, Part V of the Act is most relevant since it contains provisions relating to planning and protection of coasts and seas. S. 42 prohibits certain activities from being undertaken without approval.

Pursuant to S42(2) of the Act, the Cabinet Secretary may declare a coastal zone to be a protected area and impose such restrictions as necessary, to protect the coastal zone from environmental degradation. In doing so, the following factors shall be taken into consideration:

- a) the geographical size of the coastal zone; and
- b) the interests of the communities resident around the coastal zone concerned.

Having declared it a protected area and considered the above factors, the Minister can issue regulations or standards for the management of a coastal zone, which may include *inter alia*:

- the development of an overall environmental management plan taking into account the relevant sectoral interest;

- the conservation of mangrove and coral reef ecosystems;
- plans for the harvesting of minerals within the coastal zone, including strategies for the restoration of mineral sites;
- the regulation of harvesting of aquatic living and non-living resources to ensure optimum sustainable yield;
- special guidelines for access to and exploitation of living and non-living resources in the continental shelf, territorial sea and the Exclusive Economic Zone;
- promotion of environmentally friendly tourism; and
- the management of biological resources.

4.3.7 The Forest Conservation and Management Act, 2016

The *Forest Conservation and Management Act, 2016* applies to all forests and woodlands on state, local authority and private land. The essence of applying the Forest Act to all forests is to transform all types of forests into viable production systems capable of supporting forest industries besides conservation.

The Act establishes the Kenya Forestry Service (KFS) as the primary agency tasked with the management and protection of the nation's forest resources.

The Act has recognised mangrove areas and those covered by coastal forests as indigenous forests which are to be managed on a sustainable basis for purposes of *inter alia*:

- a) conservation of water, soil and biodiversity;
- b) cultural use and heritage;
- c) carbon sequestration and other environmental services; and
- d) habitat for wildlife in terrestrial forests and fisheries in mangrove forests.

The Act also provides for the establishment of nature reserves for any area of forest for the purposes of:

- 1) the conservation of forestland of particular environmental, cultural, scientific or other special significance;
- 2) the preservation of biological diversity and threatened or endangered species.

This links mangroves to fisheries resources and also brings mangroves within the purview of the management objectives of community conservation areas (Odote *et al* 2015).

Community participation is recognized as a key element of the conservation of forests. Community Forest Associations (CFAs) registered under the Societies Act (45(1)) are enshrined in the Act to allow communities living within and around forests to sustainably manage forest resources. This provides opportunities for communities to form associations to manage mangrove forest areas at the Coast.

4.3.8 The Coast Development Act, 1990

This brief Act (17 sections) provides for the establishment of the Coast Development Authority (CDA). S. 8 of the Act lists the function of the Authority including, for the purposes of this analysis:

- to plan for the development of the Area¹⁶ and initiate project activities identified from such planning in the development and through the Government generally;
- to develop an up-to-date long-range development plan for the Area; and

¹⁶ Area means the coastal province within Lamu, Mombasa, Kilifi, Tana River, Kwale and Taita Taveta Counties.

- to plan and liaise with the relevant authorities as necessary in the exploration and development of the extensive fishing and marine activities in Kenya especially within the EEZ.

More generally, the Act gives powers to the Authority to plan, coordinate, gather and disseminate information, and to generally manage and develop coastal resources in a sustainable manner.

To date, the CDA has completed a strategic Coastal Zone Master Plan and has plans to undertake a Master Plan for the EEZ. (CDA, pers. comm.).

4.3.9 Merchant Shipping Act, 2009

The *Merchant Shipping Act, 2009* makes provision for, among other, the registration and licensing of Kenyan ships and ancillary matters; the prevention of collisions and pollution, the safety of navigation and cargoes, maritime security; the control, regulation and orderly development of merchant shipping and related services, and generally consolidating the law relating to shipping and for connected purposes.

The Act is implemented by the Kenya Maritime Authority, established pursuant to the *Kenya Maritime Authority Act, 2006*. As a result, the KMA has a crucial role in regulating shipping activities in the inshore areas and extending to the EEZ, providing for maritime safety and security and pollution control and environmental conservation, insofar as it relates to maritime traffic.

4.3.10 The Physical Planning Act, 1996

The *Physical Planning Act, 1996* provides rules for physical planning in Kenya. It provides for the appointment of the Director of Physical Planning and requires national and County authorities to adopt Physical Development Plans in accordance with this Act and provides for control of development and subdivision of land

Part IV of the Act provides for the preparation and implementation of physical development plans with respect to any land. The Act provides for spatial planning of areas and this could conceivably apply, *inter alia*, to coastal ecosystems.

4.4 Institutional Arrangements

The approach to the management of ocean issues in Kenya is highly sectoral. Institutions with mandates on coastal and marine environment management have evolved with time. The numerous organizations that have competence in this area are located within a governmental structure, which leads to mostly top-down and segmented decision-making processes, conflicts of mandates and duplication of efforts. The agencies with a significant mandate for marine management and conservation are listed below in Table 3.

INSTITUTION	MANDATE WITH RESPECT TO MARINE MANAGEMENT	ENABLING ACT
Kenya Fisheries Service (State Department for Fisheries and Aquaculture and the Blue Economy)	<ul style="list-style-type: none"> • Manage and develop fisheries resources • License fishing and fish marketing activities • Promote aquaculture • Enforcement of Fisheries Act • Coordinating maritime spatial planning and ICZM 	Fisheries Conservation and Management Act, 2016
Kenya Wildlife Service (Ministry of Tourism and Wildlife)	<ul style="list-style-type: none"> • Protect and conserve marine parks and reserves • Enforce Wildlife Conservation Management Act 	Wildlife Conservation & Management Act
Coast Development Authority	<ul style="list-style-type: none"> • Promote sustainable economic exploitation of coastal and marine resources 	Coast Development Authority Act
National Environment Management Authority (Ministry of Environment and Forestry)	<ul style="list-style-type: none"> • Coordination of environmental management activities • Implement ICZM 	
Kenya Forest Service (Ministry of Environment and Forestry)	<ul style="list-style-type: none"> • Management of mangrove forests 	Forest Conservation and Management Act, 2016
Kenya Maritime Authority (State Department for Shipping and Maritime)	<ul style="list-style-type: none"> • Manage maritime vessel standards; registration and licencing of ships; safety of navigation; maritime training management. 	Kenya Maritime Authority Act Maritime Zone Act Merchant Shipping Act
Kenya Ports Authority	<ul style="list-style-type: none"> • Manage ports and harbours which includes fishing ports 	Kenya Ports Authority Act
Ministry of Lands and Physical Planning	<ul style="list-style-type: none"> • Mapping the boundaries of the maritime zone • Spatial planning 	Physical Planning Act, 1996 Maritime Zones Act
State Department for Petroleum (Ministry of Petroleum and Mining)	<ul style="list-style-type: none"> • Regulates the Petroleum and Mining Sectors in Kenya • Overseas the National Oil Corporation of Kenya 	Petroleum Exploration and Production Act, 1985

Table 3: Summary of institutional mandates with respect to management of maritime space

Despite the good intentions of each sector institution, overlapping and uncoordinated jurisdictions often leads to duplication of efforts and wasted resources. Government control, inadequate public participation with the private sector, civil society, donors and others, are the other factors which compound the problem. Operating in ministerial or sectoral disciplines excludes coordination, making it difficult to give focused attention to the addressing issues that require multi-juridical involvement.

5 Current Status of MSP in Kenya

Using the analytical framework presented in section 3.4 above this section presents an assessment of the current status of MSP arrangements in Kenya, providing both an indication of Kenya's current ability to implement MSP at a national level, and an indication of the critical gaps that will need to be addressed.

5.1 Drivers & Issues

5.1.1 Drivers for MSP

On May 2, 2016, in the Executive Order No. 1/2016, the Government of Kenya made a clear commitment towards a new approach, the blue economy, and taking into cognizance the importance of the sector to fuel the country's economic growth, created the State Department for Fisheries and the Blue Economy. The Presidential Blue Economy Committee established in September 2016, while recognizing the many sectors in blue economy prioritized fisheries and aquaculture; and maritime shipping and logistic services as priority sectors.

A comprehensive review, undertaken in 2006 on the status of Kenya's marine fisheries and opportunities, considered the prevailing constraints and challenges that need to be addressed at both national and regional level for Kenya to benefit from the shared offshore resources in the EEZ and International Waters. The review recognised that various conflicts exist, not only between small scale artisanal fishers and semi-industrial fishers, but a variety of stakeholders undertaking various activities e.g. hotel industry, marine protected areas, water-sports etc.

Although not busy by international standards, Kenya's marine space is under increasing pressure from an increasing number of uses and demands: the GoK is actively pursuing the development of an upstream petroleum sector, both onshore and offshore and an increasing number of oil companies are undertaking exploration activities in the EEZ; the development of the port of Lamu, as part of the LAPSET project, is certain to increase ship traffic movements through the EEZ and into the northern part of Kenya, which has to date experienced very little shipping traffic; associated with LAPSET are a number of activities that will also impact the coastal and marine environment (dredging and offshore disposal of dredge spoil); the government also wishes to develop the offshore fishery sector.

To be able to address specific ocean management challenges and advance Kenya's goals for economic development and conservation, the GoK has, therefore, recognised the need for future marine planning and management to be undertaken in a more integrated manner, in order to support the development of a sustainable blue economy. To this end, it has recognised the need for MSP to assist in making informed and coordinated decisions about how to use marine resources sustainably.

5.1.2 Prioritisation of management issues

Through the Presidential Blue Economy Committee, the GoK has clearly prioritised fisheries and maritime transport as the key priorities within the blue economy. However, there are clearly broader issues that must be addressed through any MSP process including the impact that the LAPSET project will have any implications of any future offshore petroleum development has clearly prioritised the Blue Economy as a key pillar for Kenya's economic development.

One way to assess these broader impacts and to identify key priorities for MSP is to undertake an assessment of conflicts and compatibility between different users and activities. Annex E provides a simple conflict analysis based on the activities outlined in section 2.3 above.

Notwithstanding the commitment to undertake MSP in the future, to date no EEZ-wide strategic assessment has been undertaken of Kenya's maritime use or the cumulative impacts on the marine environment. While MSP will address this gap to some extent, the application of EEZ-wide SEA should be considered as an essential precursor to defining the priorities for future development of Kenya's maritime space.

SEA would involve defining an overarching environmental vision and objectives for Kenya's maritime space. This would then allow a broad range of alternative scenarios, to achieve those objectives, to be developed, with each scenario being assessed against specific criteria, such as sustainability measures and acceptable levels of environmental change for particular species, habitats and ecosystems. On the basis of this assessment, the optimal development scenario can be selected and implemented.

5.2 Geographic Scope and Boundaries

5.2.1 Planning area and geographic boundaries

The geographic scope of the proposed MSP initiative clearly extends from the coastline to the outer limits of the EEZ. More specifically, the waters included under any future MSP initiative will comprise: all of Kenya's internal waters; the territorial sea; and the EEZ, as defined under the LOSC. Furthermore, given that the GoK is awaiting the outcome of recommendations on its application for an extension to its continental shelf, arguably, any future MSP could also include areas of continental shelf beyond the limits of the EEZ (see Figure 1).

With respect to the extent of the EEZ, there remains the outstanding issue of the northern boundary dispute with Somalia. Given that the matter is now before the International Court of Justice, while Kenya remains of the view that the boundary declared in 2005 is valid, the outcome of this dispute remains unclear.¹⁷ As such, any MSP initiative should be sensitive to this issue.

Notwithstanding the need for EEZ-wide MSP, at a finer level the limits of the coastal zone remain unclear in terms of the scope of MSP to address coastal/land-based issues, although these are clearly an important component of any future MSP initiative.

Pursuant to Article 62 of the Constitution of Kenya, all of Kenya's maritime waters are considered to be "public land" which is to be vested in and held by the national government in trust for the people of Kenya and shall be administered on their behalf by the National Land Commission. As such, according to the Constitution, Counties have no legal jurisdiction for any areas of the territorial sea or EEZ as these are under the jurisdiction of the national government. Whether Counties have jurisdiction for internal waters is unclear and would require clarification.

Moreover, the Fourth Schedule of the Constitution defines the functions of the national government as *inter alia*:

- The use of international waters and water resources
- National economic policy and planning
- Transport and communications, including marine navigation and telecommunications
- General principles of land planning and the co-ordination of planning by the counties
- Protection of the environment and natural resources with a view to establishing a durable and sustainable system of development, including fishing, protection of animals and wildlife, water protection and energy policy.

Correspondingly, the functions of Counties include, *inter alia*:

- Agriculture including fisheries
- County transport including ferries and harbours, excluding the regulation of international and national shipping and matters related thereto
- Trade development and regulation, including local tourism

Arguably, however, since Counties are responsible for spatial and development planning at the County level, and since this must be coordinated closely with any national level planning, there is the potential for a clear overlap of responsibilities for MSP within the coastal zone. This is particularly the case where County governments are responsible for regulating land-based activities that may impact the marine environment. Furthermore, the split between the national government and Counties with respect to the management and development of fisheries is unclear, if not ambiguous, with national governments and Counties being responsible for 'fishing' and 'fisheries' respectively.

The scale of spatial and development planning at the Country level is arguably much finer than it is at the national level. This is necessarily so and the same argument could equally be applied with respect to planning in the marine

¹⁷ <http://www.statelaw.go.ke/press-statement-on-the-status-of-kenya-somalia-maritime-boundary-dispute-at-the-international-court-of-justice-in-the-hague-the-netherlands/>.

environment at the national (EEZ) scale and at the County (coastal or inshore waters level. Furthermore, since some of the existing Joint Co-Management Areas extend out to the 12 nm limit of the territorial sea, it is clear that local level planning is being undertaken broadly across the coastal zone.

Hence, while it seems clear that MSP at the EEZ level is a national responsibility it is arguable whether the Counties should not play a significant role, since it is an important element of their more detailed County level spatial and development planning.

A number of possible models could be adopted to address this situation. For example, in many Commonwealth countries, regional government bodies (analogous to Counties) have responsibility for maritime space at different distances from the coast (for example, 3 nautical miles in Australia, and the UK and 12 nautical miles in New Zealand) whereas the national government retains control over all waters beyond those limits, as well as controlling certain activities (e.g. petroleum development in the case of NZ) within those waters controlled by the regional government.

It is understated that at least one County has started to consider whether it can take control of its maritime waters out to the 12 nautical mile limit, so consideration of this issue is both timely and necessary. How this occurs in practice remains unclear at this stage and will require detailed consideration and the establishment of a coordinating institutional mechanism between the two levels of government.

5.2.2 Spatial management measures in use

Although a broad range of spatial management measures are available under different legal instruments (Table 1), to date, only a limited number of such measures, that could be included in a MSP initiative, have been applied. These include existing MPAs administered by KWS and co-management areas under the BMU regulations (and the associated management areas defined within these).

LEGAL INSTRUMENT	TYPE OF SPATIAL MEASURE	MANAGEMENT MEASURE
Forest Conservation and Management Act (2016)	Nature Reserves (S. 39)	Management Plan (S. 47)
Fisheries Management and Development Act (2016)	Marine Protected Area (S. 47)	Declaration as a “Designated fishery” (S. 39) Management Plans (S. 34; S. 39)
Fisheries (Beach Management Unit) Regulations, 2007	Co-Management Areas (Reg. 7)	Co-management plan (Reg. 7(4)).
Wildlife Conservation and Management Act (2013)	Marine Protected Area (S.32(1)(b))	Management Plans with Zoning) Enforceable
	Marine conservation area (S. 36)	Management Plans with Zoning) (S. 36(2))
	Wildlife Conservancy (S. 39)	
	Sanctuary (S. 39)	
Environmental Management and Coordination Act (1999)	Protected area (S.42(2))	Gazette notice. Restrictions imposed by Cabinet Secretary
	Protected Zone (S.55)	National Coastal Zone Management Plan
Coastal Development Authority Act (1991)	None specific	Development of a long-range development plan (S.8(b))

Table 4: Spatial management measures under Kenyan legislation

Marine protected area

Existing MPAs in Kenya have all been established under the *Wildlife Conservation and Management Act, 2013*. To date, a total of six MPAs have been established (**Table 5** below).

With the exception of Diani-Chale, all of the above MPAs have current management plans that define their management objectives and operating rules.

Experience to date with MPAs in Kenya has been, on the whole, very positive. Most of the MPAs are reported to be well implemented and functioning as they should, with significant benefits being realised in terms of improvements to marine biodiversity. In many cases these benefits extend to economic benefits being realised through increased revenue being gained through tourists visiting the areas (Chrigo *et al*, 2017; Tuda and Omar, 2012).

The exception to this is the MPA at Diani-Chale, which is designated only as a marine reserve – there is no no-take zone associated with this MPA. From its establishment, the local community have not supported the designation of this MPA because they felt that they were not consulted and have realised no benefits. As a result, KWS have struggled to fully implement the MPA or to establish more robust measures for its protection. At this stage, Diani-Chale is a paper MPA only.

NAME	ESTABLISHED	ZONATION	SIZE (SQ. KM)	MANAGEMENT PLAN
Diani-Chale Marine National Reserve	1995	None	75	No
Kisite-Mpunguti MPA	1978	Core Protection Zone (No Take)	28	Kisite-Mpunguti MPA Management Plan 2015-2025
		Partially Protected Use Zone	11	
Kiunga National Reserve and MaB Reserve	1980	Marine National Reserve (Multi-Use Zone)	287	Kiunga-Boni-Dodori Conservation Area Management Plan (KBDCA), 2013-2023
Malindi MPA	1968	Marine National Reserve (Artisanal Fishing Zone)	213	Malindi MPA Management Plan 2016-2026
		Marine National Park (No Take Zone)	6	
Mombasa MPA	1968	Partially Protected Use Zone	200	Not known
		Core Protection Zone	10	
		(No Take)		
Watamu MPA	1968	Marine National Reserve (Artisanal Fishing Zone)	32	Watamu MPA Management Plan 2016-2026
		Marine National Park (No Take Zone)	6	

Table 5: Existing marine protected areas in Kenya

Beach Management Units and co-management areas

The concept of the BMUs was established under the *Fishery (Beach Management Unit) Regulations, 2007*. The original concept of the BMU was to regulate the activities at the fish landing sites and the onshore activities. While BMUs do have Monitoring Control & Surveillance (MCS) Committees that focus on compliance with fishing 'rules' they were not originally envisaged as fishery management mechanisms.

Initial controls were therefore focussed on landing sites and not areas of jurisdiction on sea. For example, some BMUs banned the landing of beach seine catch and aquarium fish thinking that this would prohibit the use of this illegal gear and their capture. However, other BMUs using the same fishing grounds did not impose the restriction so aquarium fish could still be harvested and landed at different BMUs, with use of the same illegal and destructive beach seine nets.

A BMU may include one or more landing sites, but there is no direct link between a BMU and a fishing ground, since this is linked to the villages. The only legal right of access to exploit fisheries resources at gazetted and designated landing sites is through joining a BMU. As such, fishers not joining BMUs are not able to operate legally in fisheries.

Under the regulations, each BMU is required to define a co-management area (CMA) and develop a plan for that area. Members of a BMU may fish in the CMA of another BMU, but they must comply with the controls imposed by that BMU. The idea being to give local communities rights and control over their traditional fishing grounds through each BMU.

In practice implementation of these requirements has been highly variable across different BMUs. BMUs at the Kenyan coast have not been performing well in marine resource management due to some factors such as limited understanding of BMU and co management concepts, non-compliance to rules and regulations, lack tangible benefits (benefits of joining BMUs), poor networking, lack of a dedicated manager instead of relying on BMU executive, limited financial and infrastructural resources and inadequate fisheries field staff supervisory capacity. These have contributed greatly to failure of co management and the promotion of unsustainable fishing practices (George Maina, pers. comm.).

Another problem with BMUs is that they are seen by catchment communities as a 'fishermen only' organisation. This alienates a larger part of the communities who do not directly engage in fishing activities for livelihood. In many community situations, there needs to be a more holistic understanding of community needs and their livelihoods, and how BMUs fit into this broader perspective of the entire village. BMU networks may need strengthening and application of a combination of different community-led management frameworks to help address gaps/challenges experienced by one form of devolved unit. For instance, Community Wildlife Associations (under the WCMA) in Pate Island are working cohesively with BMUs in Pate Island and Kiunga thereby helping strengthening functioning of BMUs. This provides for a more dedicated management team to oversee the management of the entire area, and to address fishery related issues within the BMUs.

In practice CMAs are defined by the clustering of fishing grounds around each BMU although, very few BMUs have actually defined their CMAs in a spatial context making it hard to discern where the CMAs are. The BMU can establish a range of spatial, temporal, equipment and species-specific restrictions. Provided the CMA has been established, the BMU has adopted By-Laws for that CMA, these measures can be enforced.

Several segmented efforts in the past have tried to address fisheries management challenges with one of the most common approaches being designation of CMAs where local communities undertake fisheries management measures, such as no-take and multiple use management zones, as an alternative to government managed MPAs, a departure from the unpopular top-down approach, and have greatly helped catalyse adoption of fisheries co-management at the Kenya Coast. Initially, there was confusion in terminologies in the development of the co-management plans. Community Conserved Areas (CCAs), Locally Managed Marine Areas (LMMAs) and Tengefu¹⁸

¹⁸ Tengefu roughly translates to something that is set aside.

(Kawaka *et al*, 2017; McClanahan *et al*, 2016) have all been used to refer to areas under the BMUs which included both no-take and local multiple use management zones. Many of these measures apply to quite small areas.

However, none of these designations appear in the Kenyan legislation. Instead, the accepted term of Co-management areas (CMAs) is the term used in the Beach Management Unit (BMU) Regulations, 2007. Thus, to legally enforce any management measure, it must be contained within a CMA, or at least be defined in the BMU by-laws. One of the most well established BMUs is the Kuruwitu BMU, which includes 6 landing sites within a 12 sq. km area of coast. Having defined its CMA in 2017 (in conjunction with the WCS and the Kuruwitu Conservation and Welfare Association) the BMU is currently preparing the management plan and by-laws.

In many areas, there is a high degree of overlap of fishing areas within and between individual CMAs (which may in and of themselves be quite small). The need to consider focal fisheries species, and their ecology (the habits they use, how far they move, and how long they take to recover) and how that should influence how fishers design their CMA zoning plans is important. Hence, in many cases, individual CMAs do not make sense from socio-economic and an ecosystem/fisheries management perspective.

A total of 15 BMU co-management areas (CMAs) plans, and 3 joint co-management area plans have been established along the Kenya coast mainly concentrated in Lamu and Kwale Counties. Many of these include networks of management zones (CCAs/LMMAs). Notable examples include Pate-Shanga (3 BMUs) and Faza-Siyu-Mbwajumwali (3 BMUs) in Pate Island; Shimoni-Vanga (7 BMUs); and Malindi-Ungwana (8 BMUs) (see Figure 9). These three CMAs cover areas of 1,080 sq. km, 868 sq. km and 3370 sq. km respectively.

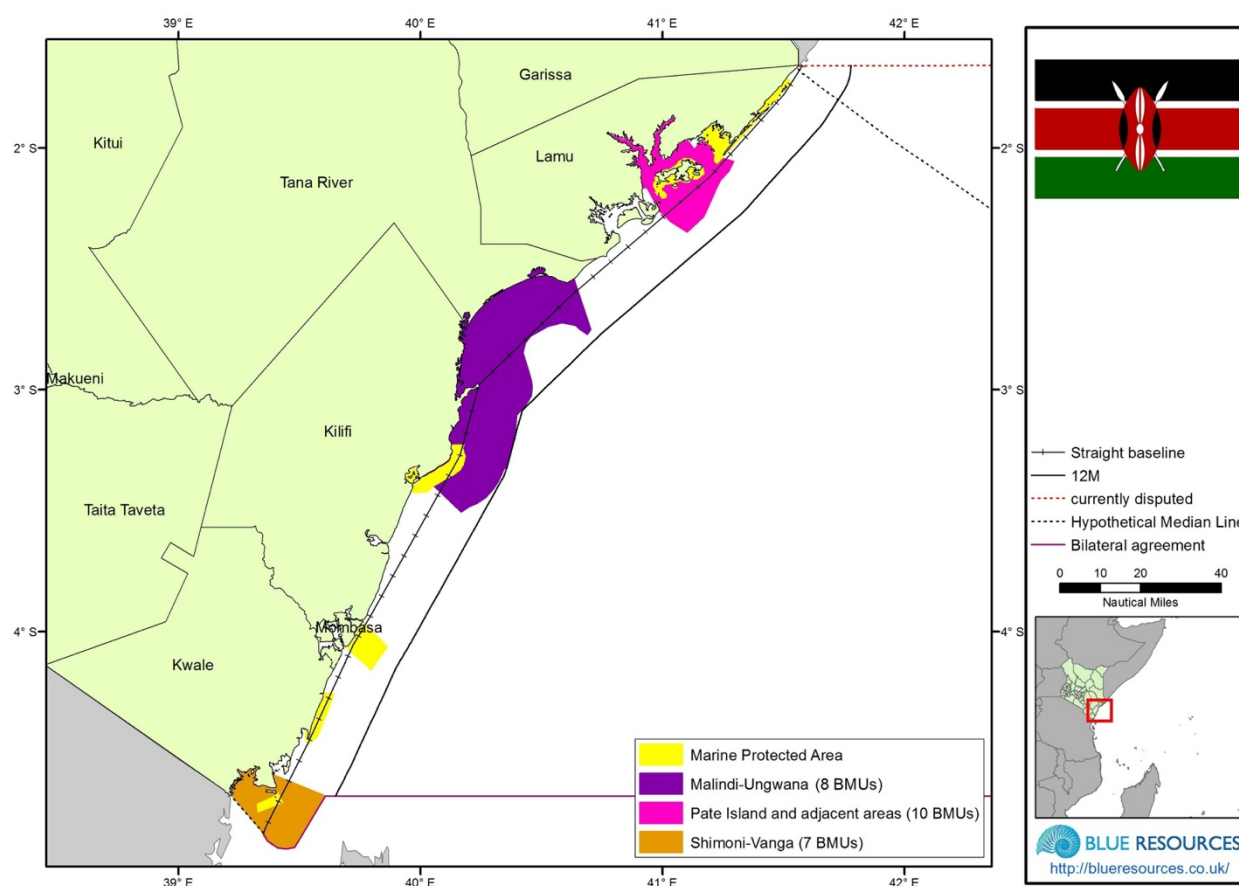


Figure 9: MPAs and joint co-management areas along the Kenyan coast

In 2016, The Northern Rangeland Trust (NRT) and the Nature Conservancy (TNC) spearheaded the development of six co-management area plans within Pate Marine Conservancy covering Kizingitini, Mtangawanda, Ndau, Tchundwa, Pate-Shanga (joint) and Faza-Siyu-Mbwajumwali (joint). Earlier in 2011, the East African Wild Life Society led the development of seven draft CMA plans (formally CCAs) in Kwale County covering Shimoni, Mkwiro, Wasini,

Kibuyuni, Majoreni, Vanga and Jimbo. Others are Malindi-Ungwana Bay Joint Co-management Area plan (2016) that spreads across Kilifi and Tana River counties; Kuruwitu CMA plan (2017) in Kilifi County; Kiwayu (2016) CMA plan in Lamu County; and Munje (2015) and Mkunguni (2015) CMA plans, both in Kwale County. These CMAs plans cover natural ecosystems that provide important ecosystem services as well as harbour biodiversity and cultural values where local communities, through BMUs, manage in collaboration with national and county governments (Source: Shimoni-Vanga Management Plan).

These plans are required to be “approved” to be fully operational. However, in practice this approval occurs at different levels, and it is lengthy, cumbersome and expensive for BMUs to independently finalize without determined external support. The BMU Executive approves the plan initially, and then the County endorses it. Only then can it be presented to the Kenya Fisheries Service, at which point negotiations begin over the scope and content of the plan. Since no plans have yet gone through the national process it is hard to know what will happen but if nationally important issues have not been taken into account by the BMU then this could cause problems. Various BMUs have however gone ahead to implement the zonation measures within their CMA as they wait approval process at higher levels.

Overall Kenya’s experience with government and community-managed areas has indicated mixed results, where some have shown increases in fish biomass and coral cover, while others have not. Poor responses are attributable to insufficient planning with regards to managed area placement, poor agreement and compliance, and weak governance (Maina *et al*, 2015).

This then highlights the important role that such fisheries BMU co-management initiatives could play in helping mainstream bottom-up or local level planning into national level MSP process.

5.2.3 Future activities and uses being addressed

While fisheries and maritime transport have been highlighted as the key blue economy priorities, the full scope of activities that either are, or are planned to be undertaken, must be addressed in the MSP as listed below:

- Inshore artisanal fisheries
- Offshore fisheries
- Shipping
- Coastal and marine tourism
- Marine biodiversity conservation and habitat protection
- Coastal livelihoods (associated with coastal habitats such as mangroves)
- Climate change adaptation
- Ports and port development
- Offshore petroleum exploration and production
- Dumping of waste at sea
- Maritime security and defence
- Subsea cables – international telecommunications

Many of these activities have analogous spatial management measures associated with them (Annex C).

Furthermore, as highlighted in section 2.4 above, the development of a blue economy provides opportunities not only to further develop existing activities and sectors, but to explore new opportunities to diversify the resource base upon which the blue economy is founded.

If Kenya is fully embrace the concept of the blue economy, there is a need to undertake an assessment of all potential uses of Kenya’s maritime space, and to include these in any future MSP framework.

5.3 Governance

5.3.1 Goals for MSP

There are no clearly articulated goals for MSP in Kenya and, in the absence of a dedicated national oceans policy, it could be argued that neither is there a clear policy guidance on the matter of oceans.

However, numerous sectoral policies do refer to the marine environment and marine resources. In the absence of a national policy statement on oceans, therefore, the most relevant policy direction relating to the marine environment generally and MSP specifically can be found in the National Land Use Policy, that was formally released by the GoK in June 2018. Policy 3.17 (Coastal and Maritime (Blue Economy) Environmental Management and Conservation) relates solely to the marine environment (Box 4 below).

In the absence, of a dedicated National Ocean Policy, Policy 3.17 therefore does provide a policy basis for the sustainable development of marine resources and the implementation of an EEZ-wide MSP to support this. While there is no requirement to develop such a national policy framework, there is considerable merit in defining the overarching vision, goals, principles and objectives specifically for MSP, since this underpins the future implementation of MSP. A such, some form of guiding framework for MSP would be a sensible first step in developing a MSP initiative for Kenya (e.g. see Box 5).

Box 4: Policy 3.17 of the National Land Use Policy - Coastal and Maritime (Blue Economy) Environmental Management and Conservation

In order to ensure sustainable coastal environmental management and blue economy, the Government shall:

- (i) Identify, map and gazette critical river deltas, mangroves, coral reefs, and other important coastal habitats;
- (ii) Ensure the formulation and implementation of an integrated coastal land use plan;
- (iii) Harmonize and coordinate the roles of regulatory and enforcement agencies including the county governments, NEMA, Kenya Maritime Authority, State Department of Fisheries, Water Resources Management Authority as well as Ministry of Lands and Physical Planning;
- (iv) Promote and protect sustainable utilization of marine resources;
- (v) Establish and implement a framework for beach management that ensures public access to the beaches, protection and conservation of the beaches;
- (vi) Ensure enforcement of environmental protections within Exclusive Economic Zones, including multilateral environmental agreements on pollution, sea-mining and fishing;
- (vii) Protect, maintain and restore marine species, habitats and ecosystems of national and international importance, including islands within coastal and marine protected areas;
- (viii) Establish convenient public utility plots along the coast line to serve as fish landing sites and for public recreation;
- (ix) Provide a framework and capacity for the management of spills and waste emanating from the marine industry;
- (x) Plan, manage and effectively govern the use of marine space and resources, applying inclusive methods and the ecosystem approach;
- (xi) Formulate and implement laws and agreements that support a sustainable blue economy;
- (xii) Develop and apply standards, guidelines and best practices that support a sustainable blue economy. National and County governments shall develop and apply the global sustainability standards, guidelines and best practices;
- (xiii) Set out statutory responsibilities for sound spatial planning of the marine resource and ensure that these are fully integrated with the terrestrial planning system.

Box 5: South Africa's National Framework for Marine Spatial Planning¹⁹

In order to guide the development of marine spatial planning in South Africa, the Government has developed the South African Marine Spatial Planning Framework, which provides high-level direction for undertaking MSP in the context of the South African legislation and policies, as well as existing planning regimes. It describes the process for the preparation of Marine Area plans and their implementation, in order to ensure consistency in MSP across the South African ocean space.

The framework defines MSP as:

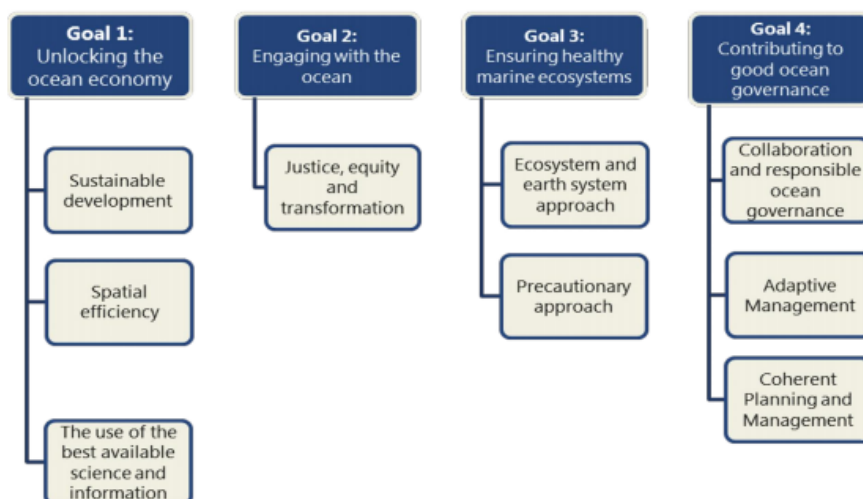
the governance process of collaboratively assessing and managing the spatial and temporal distribution of human activities to achieve economic, social and ecological objectives.

The framework defines a number of characteristics that will define MSP in South Africa, namely: (i) Area-based; (ii) Integrated; (iii) Multi-objective; (iv) Participatory and coordinated; (iv) Ecosystem-based; (v) Strategic and future-oriented; and (vi) Continuing and adaptive.

The framework also sets out the following Vision for MSP:

A productive, healthy and safe ocean that is accessible, understood, equitably governed and sustainably developed and managed for the benefit of all.

This is to be realised through the achievement of the following four goals, underpinned by 9 MSP principles:



5.3.2 Institutional arrangements

Authority to lead MSP

The establishment of the Presidential Blue Economy Committee highlights the high level, across government importance that the GoK places on the Blue Economy.

According to Executive Order No 1 of June 2018, "Organization of the Government of the Republic of Kenya" issued by the President on 5th June 2018, the State Department for Fisheries, Aquaculture and the Blue Economy, under the Ministry of Agriculture, Livestock, Fisheries and Irrigation, is given authority for *inter alia*:

1. Co-ordination of development of policy, legal framework and institutional framework for the fisheries industry and the Blue Economy; and
2. the coordination of Marine Spatial Planning and Integrated Coastal Zone Management.

¹⁹ The Republic of South Africa National Framework for Marine Spatial Planning in South Africa Government Gazette, 26 May 2017.

Thus, although the Ministry of Lands and Physical Planning has the overarching responsibility for land use planning and national level spatial planning, it seems clear that the intention is for the SD-FABE to be the single lead agency with respect to MSP.

Given the cross-cutting nature of MSP, it is good practice for some form of multi-agency steering committee to have project oversight. Several relevant MSP projects in other countries have applied this institutional approach (See for example Seychelles - Box 6 below).

Box 6: Governance framework for the Seychelles MSP project

The Seychelles commenced an EEZ-wide MSP process in February 2014. The process uses integrated, multi-sector engagement within an ecosystem-based framework to improve ocean management in Seychelles and address three main objectives: expand marine protected areas to 30 percent of the EEZ and Territorial Sea; to develop the Blue Economy; and to address climate change adaptation.

The MSP Initiative is a Government-led process, with planning and facilitation managed by The Nature Conservancy (TNC) in partnership with Government of Seychelles. The project Governance Framework has a number of components, including an Executive Committee, Steering Committee, Technical Working Groups and stakeholder engagement groups. The Framework was developed in 2014 and is updated and adapted to ensure an effective decision-making structure, stakeholder representation on all committees, and to update representatives for member positions.

High level decisions for the MSP Initiative are taken by the MSP Executive Committee. This Committee was formed in October 2016 in response to recommendations from stakeholders to improve integration and communication at the Ministerial and CEO level. The MSP Steering Committee was formed in August 2014 and provides technical and sectoral advice, provides input and review of draft technical outputs, and makes recommendations to the Executive Committee for finalising MSP outputs. The MSP Technical Working Group was formed in July 2014 to develop planning tools for the MSP process, and is comprised of three sectoral groups: socio-economic, marine ecological and terrestrial ecological. Each group has a Chair and Vice-Chair, and the Socio-Economic TWG has three co-chairs to represent fisheries, tourism and petroleum. The TWG Chair and Vice-Chairs sit on the MSP Steering Committee.

All of the MSP Committees and Working Groups have representation from government, scientists, environmental non-governmental organisations, and private sector representatives for the five thematic areas of the MSP, namely: fishing, biodiversity, infrastructure & public utilities, non-renewable resources, and tourism & recreation.

Source: <https://seymsp.com/>

In the case of Kenya, the Presidential Blue Economy Committee already has such an oversight function and includes senior officials from all of the key line ministries with management responsibilities for marine management. As such, notwithstanding the Presidential mandate for MSP to sit within SD-FABE, the Blue Economy Committee would be an obvious choice for such a cross-cutting oversight mechanism.

Capacity of teams to implement MSP

One of the key lessons learned from the KCDP was that the existing capacity for undertaking true MSP is extremely limited within Kenya. Although the Ministry of Lands and Physical Planning has the capacity and competence to undertake land use and land-based spatial planning, this capacity does not extend to marine areas and activities. As a result, KCDP stopped short of undertaking MSP.

The GoK does have experience of implementing ICZM, primarily through NEMA and the Counties, and a number of broader spatial planning initiatives have been undertaken, albeit applied to land. However, despite being given the institutional mandate for MSP, the SD-FABE does not have any experience of undertaken MSP to date.

A number of the NGOs that are active in Kenya have been involved in MSP activities at both the local and international levels. This, perhaps, represents the most significant body of expertise for MSP within Kenya and should be recognised when considering agencies and organisations to support implementation of MSP in Kenya.

It is noted that KMFRI is providing training courses in MSP for EA countries, with a 5-day course scheduled for September. Furthermore, the Nairobi Convention Secretariat has identified MSP as a key priority for the region and is actively exploring opportunities to run two, country-level, pilot projects in the region.

These findings lead to the inevitable conclusion that any future MSP initiative must include a significant component of capacity building for those agencies and technical partners who will be involved in both the development and subsequent implementation of an MSP framework.

It is not envisaged that an MSP framework will be developed by Government officials in isolation. The most likely model, based on experience from other countries and regions (e.g. Seychelles and the Caribbean) is that a strong technical partner (most likely from outside Kenya) will be recruited to lead and develop the MSP work. Through this technical partner, teams will be established to work on different areas of MSP.

Attempts to develop capacity in a broad range of institutions based on a “quota” of officials to be trained should be avoided as such an approach is both expensive and inefficient. Capacity needs will need to be realistically assessed by the project Steering Committee, in conjunction with the technical partner, and a capacity needs assessment undertaken and implemented based on the identified need. This notwithstanding, however, there are clearly some key areas of capacity building that can be identified at the outset:

Stakeholder Group	Scope of Capacity Building
Presidential Blue Economy Committee	Sensitisation on MSP and the process to develop and implement.
Officials from SD-FABE	Comprehensive training in MSP commensurate with their role in leading the development and implementation of MSP.
Officials from MLPP	Comprehensive training in MSP commensurate with their role in supporting the planning process at the national level.
Officials from coastal Counties	Comprehensive training in MSP commensurate with their role in supporting the planning process at the county level.
Stakeholders from the scientific community	Sensitisation on MSP and the role and importance of marine research and data to ensure that they are fully engaged in the process of data gathering and provision to support MSP.
Stakeholders from coastal communities, marine users and the private sector.	Sensitisation on MSP and how they should engage in the process to determine priorities, trade-offs and to represent their specific interests

5.3.3 Implementation mechanisms

The single most important aspect when creating authority to plan for MSP is to make sure that the MSP outputs (e.g. zoning and spatial management plan) will be enforceable. A variety of countries follow different paths to establish authority to carry out MSP and to ensure an enforceable output.

One way to establish authority for MSP planning is through the creation of new legislation. The United Kingdom, for example, opted to create new legislation to provide authority for MSP under a newly established Marine Management Organization, with the mandate to specifically develop marine spatial plans. A similar approach was taken in the 1970s in Australia when new legislation established the Great Barrier Reef Marine Park Authority that developed its MSP plans. In both examples, legal status of MSP outputs is derived from the respective new legislation (Ehler and Douvère, 2009).

While there is no requirement for MSP to sit under one piece of legislation, there is a need to ensure that any future MSP has a robust legal framework to support implementation. It is understood that parliament is currently considering a new bill to replace the existing Physical Planning Act. This bill, once passed, will provide a high-level framework for different types of planning framework, although it will not be able to address the specifics of marine spatial planning. To address this, there is a need to determine whether the existing legal framework is adequate for the purposes of MSP implementation and, if not, to draft appropriate legislative amendments to create a harmonised legal framework for MSP implementation.

5.3.4 Sustainable finance for long-term implementation

One critical element for the implementation of a MSP initiative should be the finance mechanisms to support ongoing implementation and development. While the initial funding for this initiative will be provided through the KMSFED project, this World Bank funding will be for a finite period of the project life. Once completed, there will be a need to identify alternative sources of funding that will sustain MSP activities in the long-term.

Precedent for such mechanisms already exists in Kenya. The Wildlife Act of 2013 calls for the establishment of a Wildlife Trust Fund. The Act lists a number of possible sources for this Fund, including: (i) moneys appropriated by Parliament; (ii) a proportion of such moneys as may be levied for payment of environmental services by beneficiaries in productive and service sectors; (iii) income from investments of an Endowment Fund; and (iv) grants, donations, bequests or other gifts.

One example from the WIO region, that may be appropriate for Kenya, is the Seychelles Conservation & Climate Adaptation Trust (SeyCCAT); an independent, nationally based, public-private trust fund, established through the Conservation and Climate Adaptation Trust of Seychelles Act of 2015. With the support of NatureVest, the conservation impact investing unit of The Nature Conservancy (TNC), a debt conversion for marine conservation and climate adaptation was initiated and structured with the Seychelles government. As a result, SeyCCAT was created to manage the blended capital proceeds from the debt conversion and, in exchange, the Seychelles government committed to improved policies and increased investment around marine conservation and climate adaptation.²⁰

The current Seychelles MSP initiative is benefiting from funds drawn from SeyCCAT to support specific projects under the MSP implementation.

5.4 Data Collection and Management

Planning and management decisions should be based as far as possible on the best available information concerning of the natural, social, and economic processes that affect the marine environment.

Thus, to ensure effective governance of marine space, a whole array of information and knowledge will need to be called upon. The process requires knowledge of geographical occurrence and abundance of ecosystems as well as information on how human actions affect these ecosystems.

Although at first it may appear that very little marine spatial data exists for Kenyan waters, it is clear that this is not the case. However, most of the data that is available is not readily accessible, since it is held by individual agencies, researchers or NGOs and mechanisms for identifying and sharing data are poorly developed in Kenya at present.

This notwithstanding, at a coarse level, spatial data and knowledge exists for many of the marine uses, resources and activities that occur within the shallow coastal waters of Kenya's territorial sea. There is, however, a paucity of marine spatial data relating to the offshore waters, especially with respect to biodiversity and marine living resources. This paucity of information hampers the potential development of new fishery resources and also means that little, if any, monitoring and compliance effort is focussed on this area.

5.4.1 Availability of key data sets

Numerous data sets are available for Kenya's coastal and marine waters and the activities undertaken therein. These include the delineation of maritime boundaries, information relating to the distribution of critical coastal habitats, information relating to key species and their distribution and information relating to the various uses of Kenya's marine space.

Annex F provides a coarse inventory of the datasets that were identified through this scoping study and highlights critical data gaps that should be filled as part of an MSP initiative:

5.4.2 Data management and mapping

Notwithstanding the availability of the above-mentioned datasets, the accessibility of marine spatial data in Kenya is highly problematic. Numerous government institutions and NGOs hold spatial data relating to different marine

²⁰ See: <https://seyccat.org/> for further information.

resources, uses and activities. However, very little data appears to be openly shared among different organisations. Even once key data holdings have been identified, and the individual data holder approached with a request for sharing that data, some of that data has not been forthcoming during this analysis.

The largest data holder, KMFRI tends not to share the core data it holds, but rather prepares mapping products for clients using that data. These mapping products normally take the form of paper maps created using a GIS system.

Some agencies do have comprehensive spatial data management capabilities. For example, KWS has a dedicated spatial mapping team to support the management of protected areas. The Ministry of Lands and Physical Planning also had a dedicated spatial data mapping team to support the development and implementation of the National Spatial Plan. This is not, however, replicated across all agencies.

It is noted that there are currently two open source data portals for spatial data in Kenya.

Integrated Coastal Biodiversity Information Management System (ICBIMS).²¹ This system is hosted by KMFRI and was a key output from the KCDP project. At present the system is lightly populated with only 16 data layers included. Only two of those layers are strictly marine.

ICBIMS only supports spatial data and provides a data visualisation tool, although only one dataset can be viewed at a time. Data layers can be downloaded individually in different data formats. Metadata for the existing data sets does appear to be limited however.

Kenya Open Data Portal²² hosted by the Kenya ICT Authority. The portal makes public Government datasets accessible for free to the public in easy reusable formats. County Governments and Ministries, Departments and Agencies of the Central Government are encouraged to provide their developmental, demographic, statistical and expenditure data, which can then be availed in a useful digital format to various stakeholders and the general public. The portal supports both spatial and non-spatial data, which can be downloaded

Both of these portals could be developed further to provide a national marine spatial data visualisation and sharing capability that acts as a single repository for all Kenya marine spatial data.

More broadly, a number of other initiatives may be worth exploring as options to host national marine spatial data sets:

Nairobi Convention Clearinghouse and Information Sharing System,²³ hosted by the Secretariat of the Nairobi Convention/UNEP to which Kenya is a party. The stated objectives of this initiative are: (1) development of a comprehensive national data inventory with common standards and built-in functions; (2) provision of basic, selected and/or critical datasets by participating institutions; and (3) internet data dissemination and automation of the data to information and information to knowledge process.

Marine Spatial Atlas for the Western Indian Ocean (MASPIO Geo-Portal)²⁴ hosted by established by CORDIO (EA) and IUCN which provides access to a broad range of marine spatial data with coverage across the WIO.

5.4.3 Science input

Indigenous research capacity

Kenya already has a relatively strong indigenous marine science capability and a track record of undertaking marine scientific research and data collection, albeit focussed largely on coastal waters.

The lead research agency in Kenya is the Kenya Marine and Fisheries Research Institute (KMFRI). KMFRI's mandate is to undertake research in "marine and freshwater fisheries, aquaculture, environmental and ecological studies, and marine research including chemical and physical oceanography", in order to provide scientific data and information for sustainable exploitation, management and conservation of Kenya's fisheries and other aquatic

²¹ <http://icbims.kmfri.co.ke/>

²² <http://www.opendata.go.ke/>

²³ <http://web.unep.org/nairobiconvention/nairobi-convention-clearinghouse-and-information-sharing-system>

²⁴ <http://maspawio.net/>

resources, and contribute to National strategies of food security, poverty alleviation, clean environment and creation of employment as provided for under Vision 2030.²⁵

Specifically, the roles of KMFRI are to:

- Conduct multidisciplinary and collaborative research on fish ecology, population dynamics, stock assessment and general aquatic ecology;
- Collect and disseminate scientific information on fisheries and other aquatic resources and related natural products;
- Study and identify suitable species for culture including development, adoption and transfer of rearing technology and procedure;
- Study chemical and physical processes that affect productivity of aquatic ecosystems;
- Monitor water quality and pollution in fresh and marine water environments;
- Carry out socio-economic research on aspects relevant to fisheries, environment and other aquatic resources;
- Establish a marine and freshwater collection for research and training purposes;
- Offer training facilities to aquatic scientists;
- Conduct research on fish quality control, post-harvest preservation and value addition technologies and
- Conduct research on blue economy.

To support these functions KEMFRI has a scientific complement of some 200 researchers, across a range of different disciplines.

In addition to KMFRI, a number of local NGOs have established a strong track record of independent marine environment research in Kenyan waters. Notable examples include the Wildlife Conservation Society and CORDIO (EA). Both of these organisations have developed a comprehensive time-series of research and data relating to areas such as: coastal fisheries management and livelihoods; marine biodiversity and conservation; coastal habitats and ecosystem services; and coastal livelihoods. This capacity needs to be fully recognised and integrated into any future MSP initiative.

It is also noted, from the literature, that a number of Kenyan university researchers have been involved in marine research studies in Kenya. While no attempt has been made to assess the academic science capacity in Kenya, this does imply that there is at least some research capacity within the tertiary education sector in Kenya.

International marine scientific research

Given the paucity of data that exists for Kenya's offshore waters, a key focus of any MSP initiative will be to identify possible sources of data to fill the current knowledge gaps.

Numerous international research cruises are undertaken around the world each year. The purpose and application of the research varies on a case-by-case basis but in most cases the data acquired during the research cruises may be used for a number of different purposes. Under international law, such researchers are obliged, upon request, to provide copies of their data to the host country. However, this is rarely proactively shared and, in most cases, requires a formal request from the host country. However, such a request can only be made if the host country is aware of data that may be available in respect of their waters.

A very cursory search of databases with global data coverage indicates that a considerable amount of MSR activity has been undertaken in the Kenyan EEZ and adjacent continental shelf (see Figure 10 below). Whether the GoK is aware of the extent of this activity, and whether it has received copies of the data acquired is, at this stage, unknown.

²⁵ <http://www.kmfri.co.ke/index.php/about-us/mandate-of-the-institute>

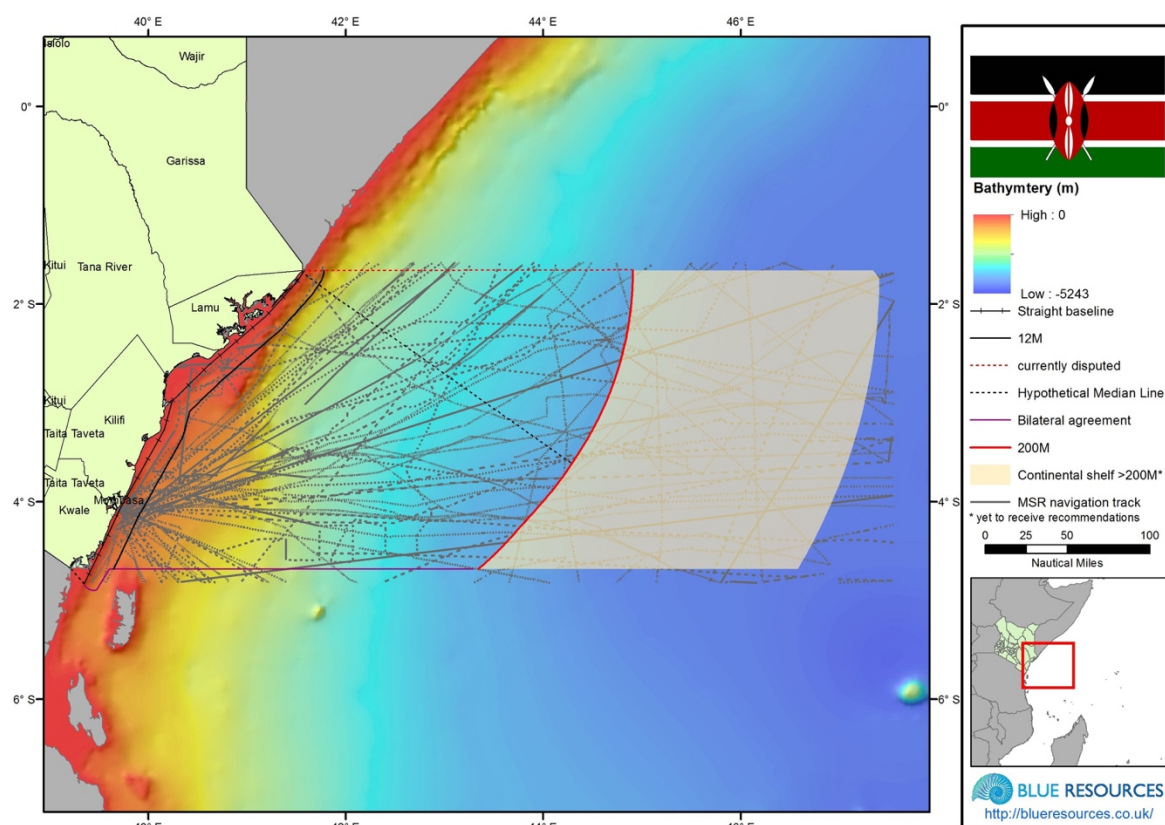


Figure 10: Example coverage (non-exhaustive) of marine scientific expedition navigation tracks. Data acquired ranges from single beam bathymetry to geophysical, seismic, gravity and magnetic data.

5.5 Multi-objective Planning Process

5.5.1 Existing spatial planning processes

Despite the apparent lack of marine spatial planning in Kenya, spatial planning, in general, is a well-established tool in Kenya, operating at different jurisdictional levels and geographic scales.

Pre-eminent among these is the National Spatial Plan (2015-2045), as well as County level spatial plans. Spatial planning is an implicit component of ICZM, a well-established concept in Kenya. At a more local level, elements of spatial planning and zoning are applied at the level of specific protected areas.

National Spatial Plan

The preparation of the National Spatial Plan was a key recommendation of Kenya Vision 2030 and is recognised as one of the foundations for socio-economic transformation. The National Spatial Plan is a strategic vision that defines the general trend and direction of spatial development for Kenya. Its geographic scope includes all forty-seven counties and the EEZ. It is a long-term Plan spanning a period of thirty (30) years with 10-year periodical reviews.

The purpose of the National Spatial Plan is to provide a national spatial structure that defines how the national space is utilized to ensure optimal and sustainable use of land. The Plan is anticipated to promote the attainment of national, social, economic and environmental goals and objectives. The Plan recognises that, to date, national development planning was undertaken with little or no regard for spatial/physical planning. This major disconnect has led to uncoordinated and unguided development resulting not only in duplication of efforts but also in resource wastage and unbalanced development. The Plan will thus provide a spatial framework upon which the various sectoral plans and policies will be anchored.

County Spatial Plans

Pursuant to the County Government Act, 2012, Counties are obliged to prepare a ten-year GIS-based County Spatial Development Plan in respect of their area of jurisdiction. The plan is to be a broad framework for organizing and distributing population and activities in the county; This is to achieve both national and county development objectives. It also serves the purpose of enabling the county government to strengthen the coordination of sectoral projects, programmes and to mitigate duplication of efforts and waste of resources.

To date, only one of the coastal Counties has completed its Spatial Plan. The Lamu Spatial Plan (2016–2016) is a comprehensive plan addressing the broad range of development needs for the County. Although it is not a marine spatial plan per se, the plan does address the needs of coastal resource users and activities. The GIS maps indicate clearly that a significant amount of marine focussed planning has been included in the overall plan (Figure 11).

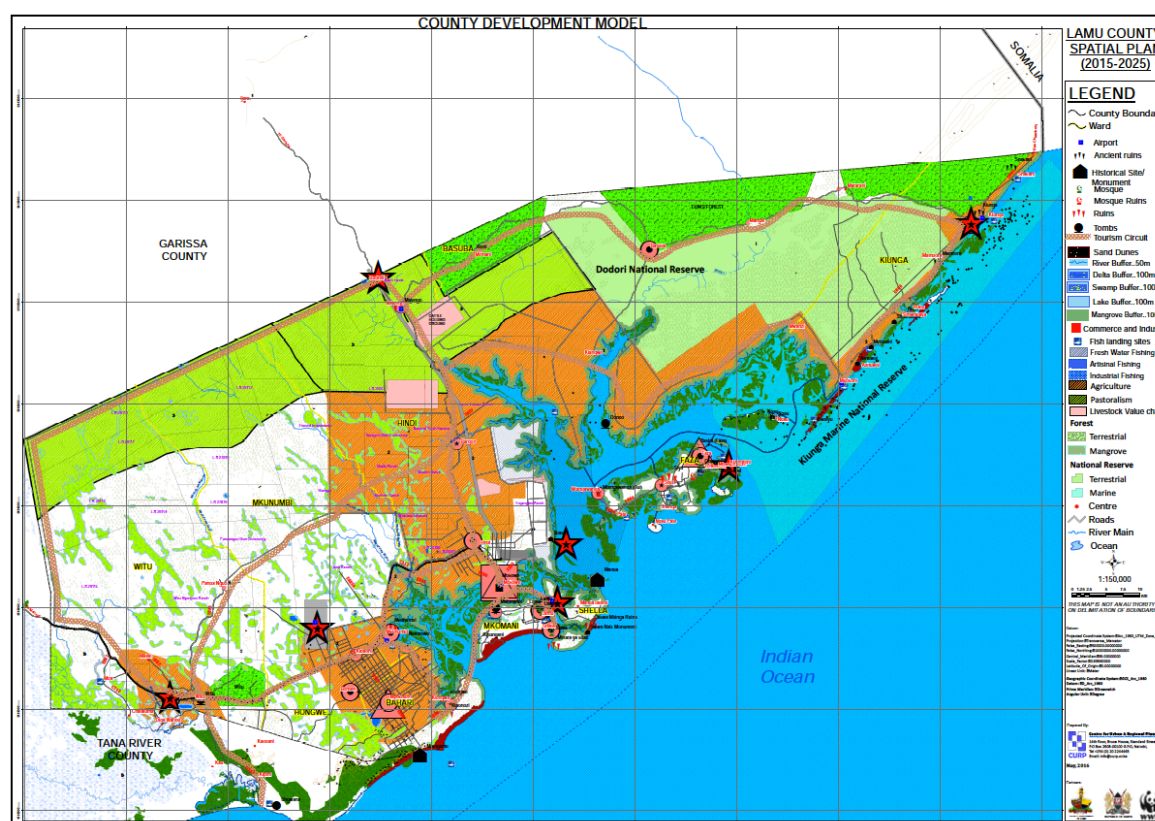


Figure 11: Extract from the Lamu County Spatial Plan showing the planning area

The County Spatial Development Plan provide a broad planning framework at the County level, within which more detailed sector plans are to be developed as well as County Integrated Development Plans. These 5-year plans set out strategic projects for development. The plans are updated on an annual basis.

Marine zoning activities

While there have been no national level MSP activities in Kenya, a number of MSP/Zoning projects have been undertaken in specific areas and numerous spatial management measures have been established under a range of different legal instruments. Most experience has been gained with the development of management plans for MPAs, since these all include some element of zoning (Figure 12).

In the case of MPAs, two main types are recognised, namely Marine Parks which are strict no-take zones, and Marine Reserves, which are recognised as multiple use areas, open to artisanal fishing. In the context of Kenya's international obligations to conserve marine biodiversity, the current network of MPAs covers a total area of 868 sq. km, of which 50 sq. km is designated strict no take. In the context of Kenya's maritime space this represents a total MPA coverage of approximately 0.6 percent and 0.035 respectively, compared with the global target of 10%.

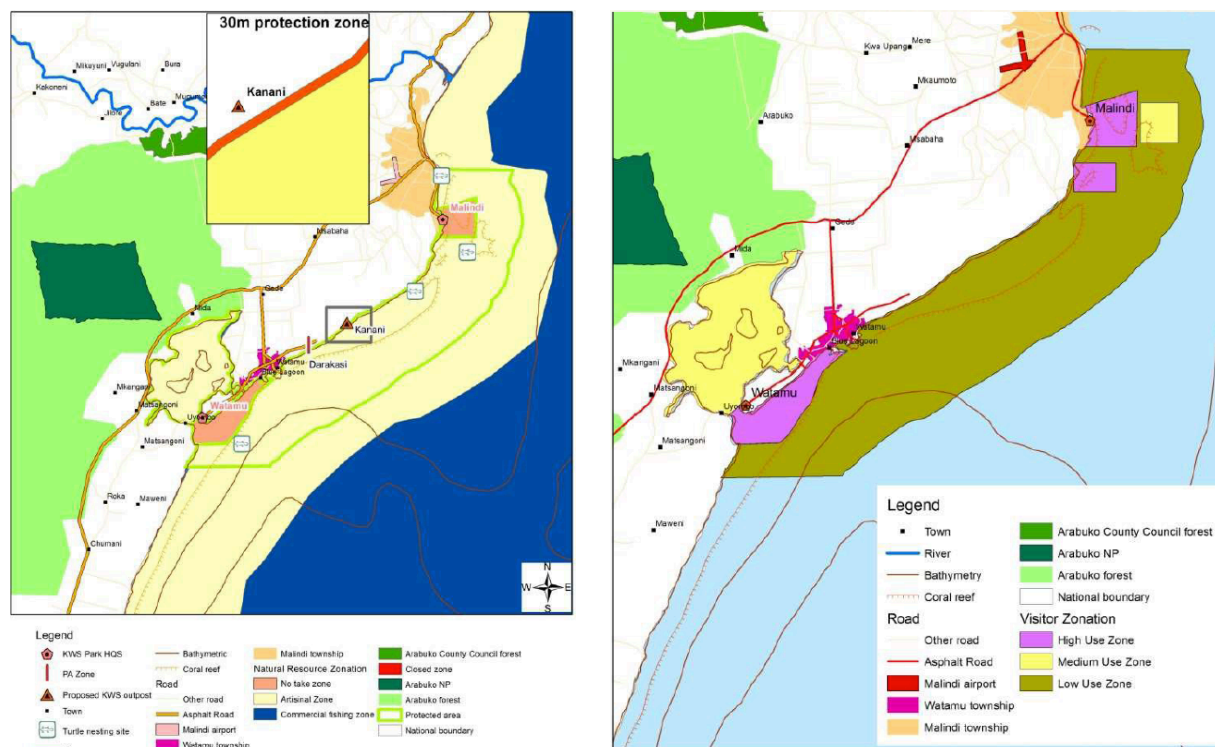


Figure 12: Example of zoning from Malindi Marine Protected Area (Source: KWS)

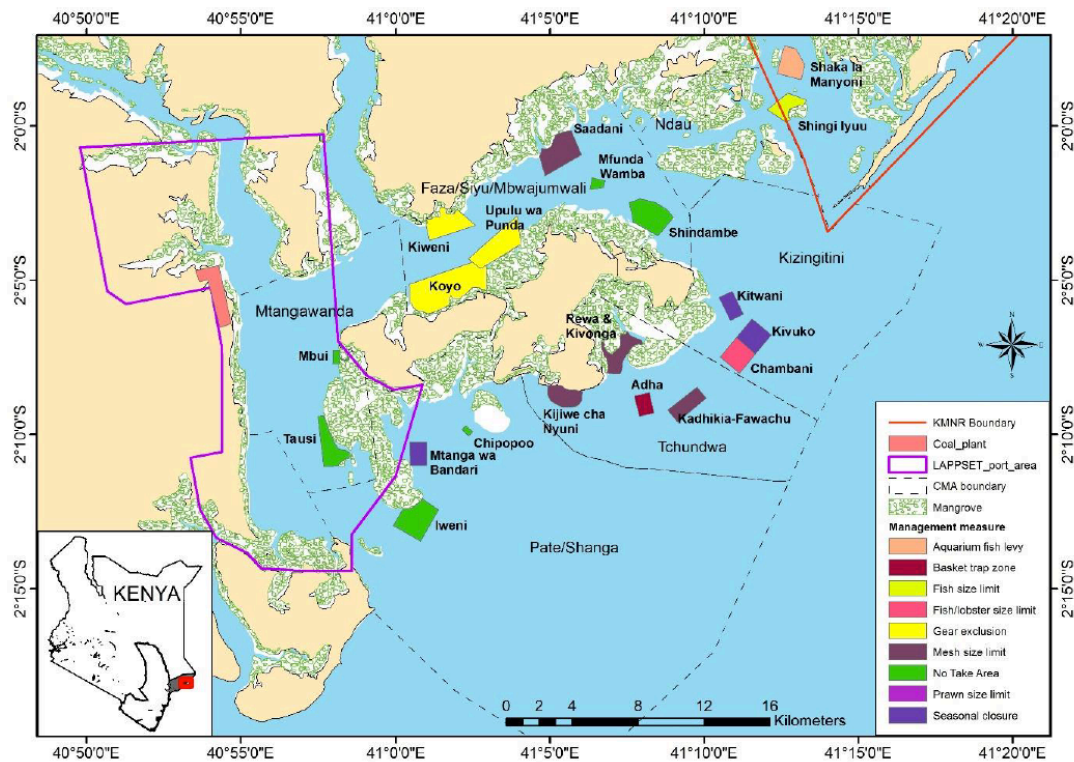


Figure 13: Pate Island and adjacent areas showing zonation and co-management areas (Source: Pate-Shanga Fisheries Joint Co-Management Area Plan)

Furthermore, the three joint co-management area plans, developed for Shimoni-Vanga, Pate-Shanga and Malindi-Ungwana, all included elements of zoning in their development (e.g. see Figure 13 above).

5.5.2 Multi-use stakeholder engagement

A key feature of any MSP initiative is that it must address and resolve areas of incompatibility and contestation. Decisions on access rights, allocation and use of resources are rarely unanimous and universally supported and require compromises to be negotiated between stakeholders. Trade-offs recognise individual priorities and complementing/ conflicting outcomes and are an essential feature of arriving at an effective outcome for MSP that delivers an overall national vision for the future use of the ocean space and resources that all stakeholders can sign up to.

Trade-offs must address not only the priorities that individuals or organisations currently hold but how they perceive these might change in the future. It is the opportunities/threats of the future that are most likely to influence the trade-offs needed to adjust priorities held by individuals for the future development of the ocean space and resources.

One of the tools that can assist with assessing trade-offs is the use of scenario-based planning to explore risks and opportunities available from the multiple uses of maritime space and determine possible strategic directions for future outputs from the perspective of both a national interest and different interest groups. It allows users to devise and then analyse several scenarios of plausible futures, then filter strategic decisions through these scenarios to ensure

The process of developing a scenario encourages an assessment of sensitivity and risk associated with development of different options, evaluate options to make strategies and activities more robust and resilient to change and ensure that planning develops strategies now with a series of defined steps to move from the current situation to the desired future situation.

The support of stakeholders in the formulation and implementation of any national MSP initiative is therefore crucial to its success. An inclusive form of stakeholder engagement that adopts a broader partnership approach whereby stakeholders are involved throughout the process with transparency and accountability between all parties, will be required. Partnerships between government, the private sector and civil society must be built in order to ensure co-responsibility for coastal management and to empower stakeholders to participate effectively

Kenya already has considerable experience of undertaking comprehensive stakeholder engagement and participatory processes in the development of national planning and policy initiatives. Furthermore, there is a considerable body of experience with NGOs, County level resource management agencies and County governments of working with local communities on the development and implementation of local-level marine management initiatives. This further highlights the critical role that Counties should play in the development of any national led MSP initiative and the need for integrating a broad range of different organisations into the planning process. The experience gained by NGO's working with local communities, in particular, will be particularly valuable when it comes to engaging with communities at the coastal level.

Whether formal scenario-based planning and trade-off analysis have been used previously in Kenya for planning is unclear but it is considered unlikely that it has been used in a rigorous institutional setting. There are, however, some examples of the applications of similar techniques by NGOs in Kenya.

6 MSP Needs Analysis

6.1 Drivers and Issues

Recommendation 1: Undertake a broad assessment of the future potential development opportunities that the blue economy presents to Kenya, with a view to ensuring that any MSP initiative can take account of, and remain adaptive to, new and emerging uses of Kenya's maritime space that so far may not have been anticipated.

Rationale

Although the Presidential Blue Economy Committee has identified a number of clear priorities within the blue economy, the concept of the blue economy should be used to identify the broadest possible development opportunities and to plan for their potential development. Unless this is undertaken at the outset, and considered in a broad scale planning process, there is a risk that the potential to develop significant future opportunities may be reduced or even negated by poor planning decisions.

Recommendation 2: Undertake a strategic environmental assessment (SEA) process across all of Kenya's maritime waters, as a precursor to undertaking MSP.

Rationale

With the development of the LAPSET project, offshore petroleum activities and the GoK's interest in developing offshore fisheries, there is considerable scope for both conflict and cumulative impacts on the marine environment. To date, no comprehensive assessment has been undertaken of the broad range of activities undertaken across the entirety of Kenya's maritime waters or their individual and cumulative impacts. Such an assessment could be achieved through the application of strategic environmental assessment tools to define the GoK's strategic priorities for the future use of maritime space.

Ideally, a SEA process should precede the development of any MSP initiative. The SEA vision and objectives will then provide some overarching parameters for MSP, including guiding principles for the MSP initiative. It should be noted that MSP will be a more fine-grained process and, in some cases, a more localised process than SEA.

Recommendation 3: Undertake a comprehensive shipping risk assessment, taking into account projected increases in shipping from the Lamu port and shipping interactions with offshore petroleum development.

Rationale

Very little information exists with respect to the overall movement of shipping within Kenya's maritime space. Given the projected increase in shipping that will be associated with the LAMSET project it is considered that a comprehensive assessment of shipping and associated risks is warranted.

An automatic information system (AIS) was installed towards late 2012, in a region-wide project facilitated by the World Bank through the Global Environment Fund and extended to Kenya, Mozambique, South Africa, Tanzania, Somalia, Madagascar, Comoros, Mauritius, Seychelles, and France (La Réunion) within the scope of the Western Indian Ocean Highway Project. Following an independent evaluation in 2015, however, the project was suspended because the design failed to meet the expected outcomes.

Had the project been fully implemented, it would have provided basic AIS coverage over Kenya's immediate Coastline and EEZ. The unit in Mombasa Regional Marine Coordination Centre today continues to operate as a stand-alone outfit, but with coverage that does not extend beyond the Mombasa Port approach.

To this end, consideration should be given to undertaking a national shipping risk assessment for Kenya, with particular regard to the impact of increase shipping from Lamu and the shipping/E&P and E&P/fisheries interactions. Such an assessment should assess risks posed by vessels transiting and visiting Kenya and the range of spatial and other measures that could be adopted to mitigate these risks.

Based on such a risk assessment, measures for the spatial separation of vessels should be considered for adoption through the International Maritime Organisation. These may include the definition of specific routes, areas where shipping should be excluded or areas where certain activities are prohibited (such as anchoring).

Recommendation 4: Integrate the outputs prepared by the FAO (aquaculture) into any broader MSP initiative to ensure that aquaculture planning is undertaken in a strategic and holistic manner.

Rationale

The FAO recently concluded a comprehensive spatial analysis of mariculture potential along the entire Kenyan coast (FAO, 2018). The analysis and associated outputs appear to have been undertaken largely in isolation of broader marine planning needs. Furthermore, at this stage, the GoK does not hold the spatial data outputs from the project, having only been sent a hard copy of the FAO report.

There is a need both for the spatial data to be provided to the GoK, and for the planning for future mariculture activities to be integrated into any MSP activity to ensure that the impacts and potential conflicts with other marine users are fully taken into account.

6.2 Geographic scope and boundaries

Recommendation 5: With respect to the disputed boundary area with Somalia, it is recommended that MSP activities be undertaken sensitively so as to avoid raising transboundary tensions further.

Rationale

The northern maritime boundary between Kenya and Somalia has been the subject of dispute between the two countries for many years. Both parties claim rights to the area and the resources therein and over the years, bilateral negotiations and diplomatic exchanges between Kenya and Somalia on the maritime dispute have failed.

In 2014, Somalia sued Kenya at the International Court of Justice (ICJ) in The Hague. The court represents one way of solving border conflicts in maritime areas if bilateral or regional attempts fail. In a 2017 decision, the ICJ ruled that it did have the authority to adjudicate on the boundary dispute. Despite Kenya's objections to the case brought by Somalia, this ruling means that Somalia's boundary demarcation claim against Kenya can proceed.

The dispute with Somalia makes undertaking MSP within the disputed area a sensitive issue, given that the matter is currently before the ICJ. It is therefore recommended that MSP activities for the disputed area are undertaken sensitively so as to avoid raising transboundary tensions further.

Recommendation 6: Clarify the jurisdiction of Counties with respect to internal waters and determine the practical seaward extent of Counties planning authority for County-level spatial plans.

Rationale

It is accepted that any MSP initiative will be broad in scope, extending to the limits of the EEZ. However, given Kenya's previous experience with ICZM, and the obvious linkages between ICZM and MSP, there is a need to define the landward boundary of any MSP initiative, insofar as coastal zone activities interact with marine based activities. This is particularly relevant for large scale activities such as LAPSET.

To this end, while it is accepted that MSP is a national government led activity, under the leadership of the SD-FABE, the critical marine resource user interactions in the coastal zone make it imperative that Counties play a major role in any future MSP initiative. The need for Counties to undertake county-level spatial planning reinforces this need, since the MSP and County spatial plan must not be inconsistent. As such, consideration should be given to whether the County spatial plans should include a component of MSP at the coastal level.

6.3 Governance

Recommendation 7: Consider the development of a comprehensive framework to guide the development and implementation of MSP, similar to the MSP Framework adopted by South Africa.

Rationale

Given the complexities of the marine environment, and the range of stakeholders with an interest in the way it is managed, the development of an overarching policy framework to improve governance of countries' marine space is increasingly being seen as vital. To this end, many countries have embarked upon the development of national

ocean policies which respond to these needs by applying integrated and ecosystem-based management approaches. The development of a national ocean policy should articulate the government's priorities for its maritime space.

An ocean policy is that ocean policy is an element of the broader governance of the oceans, and serves as base to develop all of the activities that are carried out within the oceanic realm. An ocean policy should define the Vision, Principles, Goals and Objectives and policy guidance for the future management of the marine areas and marine resources to which it relates. In other words:

- The nation ocean policy is a statement of intent for the government in terms of the future management of ocean space; whereas,
- The Strategy is a statement of action to fulfil that policy/intent.

It sets in place the framework for integrated and ecosystem-based planning and management and defines strategies for achieving the goals and objectives defined in the process. In this regard, the policy sets the overarching direction for the development of the MSP initiative.

There is clearly no requirement for the establishment of such a policy, and given the time it takes to develop policy, it may be seen as an unnecessary bureaucratic step. However, as a minimum the GoK should give consideration to the development of an overarching guiding framework for MSP, similar in scope to the MSP Framework that was recently adopted by the Government of South Africa.

Recommendation 8: To facilitate any MSP initiative, the Government of Kenya should establish a formal MSP Project Governance structure.

Rationale

Coordination of ocean governance requires a mechanism that captures the contribution and interests of all stakeholders who have an interest in the management of ocean space and activities. However, it is important to distinguish between:

1. Those whose role is to '**Coordinate**' the design and formulation of the MSP, set the governance direction and direct how management is delivered through centralised and devolved authority. This group may or may not incorporate all government entities that have an interest in aspects and features of ocean management. However, more commonly, a 'core' group of government ministries, departments and agencies (e.g. fisheries, environment, transport, foreign affairs) who formulate an ocean governance process and framework is formed.
2. Those who will be instrumental in the success of MSP either as;
 - a. A statutory authority/agency that has jurisdiction over the management of ocean activities and have a role in contributing to the knowledge-base, upon which the MSP is designed and/or implemented.
 - b. Those whose activities and opportunity are managed and/or have an interest in the outcome of MSP. This group may include representatives from the private sector, environmental interest organisations and NGOs, research organisations and academic institutes, local communities and the broader public.

It is critical to recognise the dependency of the two groups on each other, and the need for partnership to ensure compliance and agreement with the aims and objectives of a governance process for ocean management. Both have a significant role to play in the successful implementation of ocean governance.

While it is noted that SD-FABE has been given the mandate for MSP and ICZM pursuant to Executive Order No 1 of 2018, MSP is, by necessity, a multi-agency activity since it transcends the mandate of any single agency.

As such, it is recommended that, to facilitate any MSP initiative, the Government of Kenya establishes a formal MSP Project Governance structure. The key features of such a governance structure should include, inter alia:

An Executive Committee – to be the Presidential Blue Economy Committee. The purpose of the Executive Committee is not to directly deliver MSP, but rather to provide the strategic direction that determines future scenarios and a vision to define the scope of the MSP initiative, as well as to provide a forum to resolve complex issues that may arise between different sectors.

A Steering Committee – to be chaired by the DG and include representatives from all key agencies, Counties and key stakeholder groups. The purpose of the Steering Committee is to oversee the day-to-day technical delivery of the MSP initiative, to ensure the efficient allocation of resources and to provide a responsive decision-making forum for the working groups and project consultants.

As a minimum, the Steering Committee should include representatives from the following organisations:

- Technical partner nominated to lead the project
- State Department for Fisheries and Aquaculture and the Blue Economy
- Ministry of Lands and Physical Planning
- State Department for Shipping and Maritime
- Ministry of Petroleum and Mining
- Kenya Wildlife Service
- National Environmental Management Authority
- Kenya Navy
- Kenya Marine and Fisheries Research Institute
- Tourism Regulatory Authority

A Technical Working Group focusing on the following key thematic areas: 1) marine spatial data management; 2) technical MSP delivery; 3) Coastal users; 4) Offshore users. The technical working group should include, as a minimum, MSP technical experts (most likely international experts), representatives from key user groups, marine scientific research experts (from government, academia and NGOs) and spatial data management experts. The purpose of the Technical Working Group is to provide the relevant technical input to undertake the MSP initiative. It will most likely comprise experts both from within and outside of Kenya.

A Stakeholder Reference Group through which to undertake consultation with key stakeholders. A reference group should establish a process of stakeholder engagement and participation that achieves:

- Meaningful involvement of stakeholders: at a time when they can be genuinely influential on the plan (e.g. in the selection of options or alternative strategies).
- Identifies the relationships and interactions between different stakeholders in order to resolve conflicts of use and interest.
- Outreach making materials available (e.g. reports, issue papers, surveys, etc.) and providing meaningful opportunities for interested individuals/groups to express their views in an open and non-adversarial setting.

Recommendation 9: Undertake a review of current legal provisions to determine under which existing instrument MSP implementation should best be situated. This is to ensure that any MSP process is implementable and enforceable.

Rationale

As noted above, while one output of MSP is the zoning plan, MSP is far broader than just zoning. Well implemented zoning plans include implementation plans that have policies and rules that reflect the different levels of protection required by the different zones. These mechanisms must be enforceable for MSP to be meaningful. This implies the need for a legal instrument to underpin the implementation of MSP, which, at present, is lacking in Kenya.

While there is no requirement for MSP to sit within only one legal instrument, there is a need to ensure that the various implementation and enforcement mechanisms are available within the existing legal framework, and that any gaps and jurisdictional conflicts are addressed at the outset.

Recommendation 10: Undertake an assessment of capacity needs across the key implementing agencies and stakeholders with a view to building the requisite capacity to support the development and long-term implementation of MSP in Kenya.

Rationale

As noted above, while capacity exists in specific institutions for terrestrial spatial planning and some elements of marine zoning related to fisheries and conservation, current capacity to develop and implement MSP is largely absent in Kenya. While it is assumed that the development of MSP in Kenya will be supported by technical experts (consultants), in order to ensure that MSP activities are sustainable in the long term, there is a need to develop the capacity of Kenya's institutions to work on MSP at different levels. The scope of such capacity building will be broad and will not be same across all different stakeholders or organisations. As such, there is a need to define, early on in the project, what those capacity needs will be.

Recommendation 11: Explore mechanism to develop alternative, sustainable sources of funding to ensure that implementation of MSP can continue on completion of the KMSFED project.

Rationale

While the KMSFED project provides the opportunity to make significant progress in the development and implementation of MSP, it is, by definition, for a finite time and funding will cease at project end. Given the timeframes required to establish and implement MSP fully, and the ongoing iterative nature of MSP, unless a long-term source of finance is secured, there is a risk that the MSP will fail to deliver in the long-run due to a lack of resources and investment.

6.4 Data Collection and Management

Recommendation 12: Prepare a comprehensive marine spatial data needs assessment and gap analysis including, but not necessarily limited to:

- Define critical data needs for MSP based on international experience and the MSP Framework
- Undertake a comprehensive audit of existing marine spatial data sets held in Kenya
- Identify critical data needs and gaps
- Undertake a hydrographic data audit, using the IHO standard national assessment format:

Annex F provides a baseline against which to develop this audit.

Recommendation 13: Develop a comprehensive data capture/procurement programme including, but not limited to:

- Identify and map all traditional fishing grounds
- Identify and map all coastal tourism use zones
- Undertake a hydrographic data audit and gap analysis, using the IHO standard national assessment format, to assess the current status of nautical charting and hydrography in Kenya
- Identify, compile, merge and verify all existing data sets relating to the distribution of key marine habitats and species distribution/abundance
- Identify, compile, merge and verify all existing data sets relating to the distribution and abundance of key commercial fish stocks – both inshore and offshore
- Develop a detailed seabed habitat map of the entire coast and EEZ
- Develop detailed impact maps for the LAPSSSET project to identify key impact zones from the development and zones of influence around the development that may affect other marine users in the vicinity
- Develop a representative spatial data set of international shipping movements throughout the EEZ (AIS data)
- Identify critical data gaps (e.g. seagrass distribution, offshore pelagic fishery resources)

Rationale

Mapping the marine resources and uses of an area by consolidating existing data and information allows planners and decision-makers to consider the cumulative effect of maritime industries on key features that may be particularly sensitive. In so doing, it provides a spatial understanding of conflicts and potential compatibilities of operations with marine ecosystems and their values – the risks or opportunities of undertaking a given activity in a given location.

The ultimate objective of marine spatial planning is to achieve such an integrated management of a marine area – marine spatial data is the fundamental basis that allows this to happen.

While it is considered that sufficient information exists to inform and support management strategies and priorities for the future, the information base could be improved in terms of accuracy and coverage. Furthermore, some critical data gaps have been identified that should be filled to comprehensively undertake MSP at an EEZ-wide scale. In this regard, it is recommended that a number of steps be taken now focused on seabed mapping and the development of an appropriate spatial information framework to support MSP.

A number of steps should therefore be taken to collate a comprehensive, nationally consistent, marine spatial dataset

Recommendation 14: Establish protocols to allow for the sharing of data between different institutions and organisations

Recommendation 15 Establish a national level marine spatial data clearing mechanism and web based data visualisation

Rationale

While it is acknowledged that a considerable body of marine spatial data does exist for Kenya, this data is fragmented and distributed across multiple data holders. Much of the data exists in formats that are inaccessible to decision makers and data holders appear to be extremely reluctant to share data (although it is acknowledged that data was provided to the consultant during the preparation of this report).

Data availability and data accessibility are “two sides of the same coin” and while much data is available in Kenya, it is clearly not readily accessible in a form that would support MSP at this point. Experience from overseas indicates that when this happens, agencies often create their own mechanisms for accessing data. This leads to duplication of effort, non-standardisation of data and does nothing to address the issues relating to data sharing.

As such, every effort needs to be made to improve data sharing among existing data holders in Kenya. The MSP initiative can create a forum for dialogue that could facilitate such a transition but formal checks and balances will be required to provide data holders with certainty that their data will be protected and only used for specific purposes.

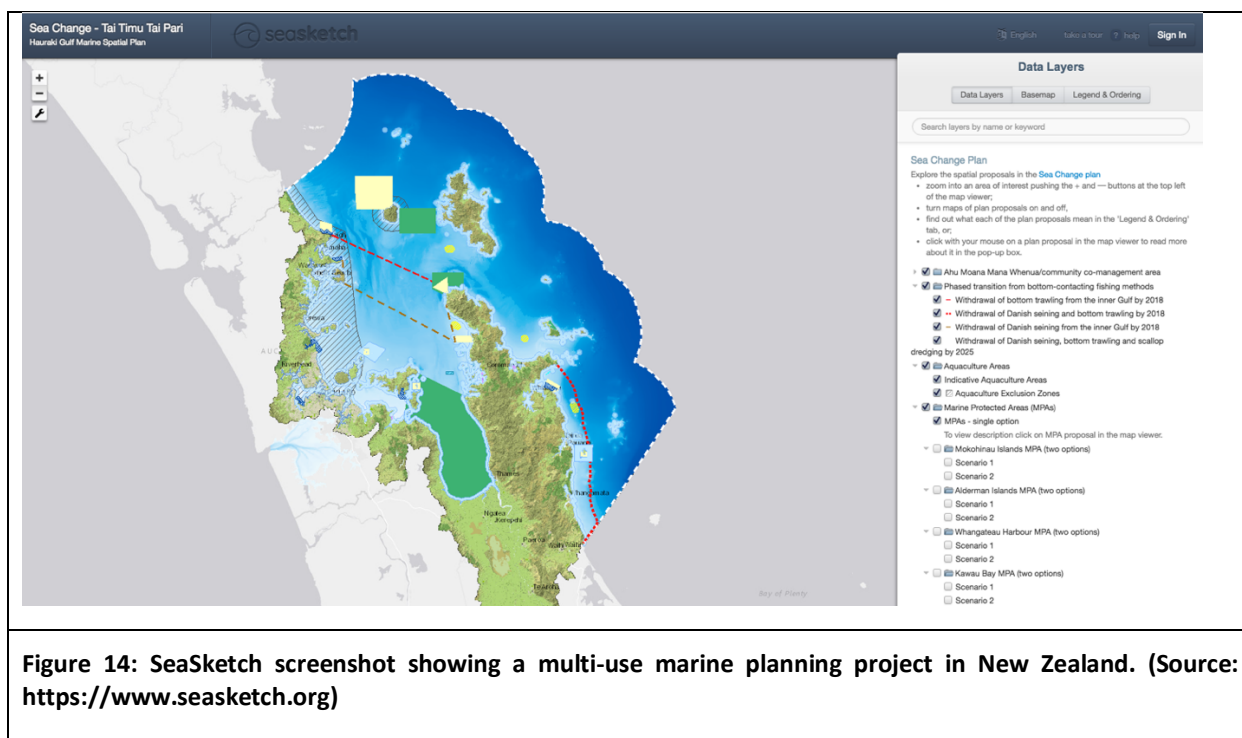
Multi-agency approaches to addressing data inaccessibility also represents a significant waste of resources (both human and financial). A far better approach for Kenya would be to establish a single, centrally managed data clearing house and portal.

Data portals designed to meet ocean planning needs tend to share three basic characteristics. They are: ocean-focused, map-based, and publicly-accessible. This enables planners, managers, and stakeholders to access common sets of sector-specific, place-based information that help to visualize spatial relationships (e.g., overlap) among various uses and the marine environment and analyse potential interactions (e.g., synergies or conflicts) among those uses and natural resources. This data accessibility also enhances the transparency of the planning process, arguably an essential factor for its overall success.

Given that KMFRI has already established the Integrated Coastal Biodiversity Information Management System, it would be a logical host organisation for the provision of such a mechanism. However, KMFRI will require technical assistance to develop its current system further and to collate and manage the large body of data that will ultimately be hosted in such a system.

Several possible partners may be worth exploring to assist with the development and hosting of such a portal:

1. Regional Centre for Mapping of Resources for Development (RCMRD) based in Nairobi.²⁶ RCMRD is an inter-governmental organization established under the auspices of the United Nations Economic Commission for Africa (UNECA) and the African Union (AU). It provides a comprehensive range of geospatial data services including infrastructure, data management and capacity building.
2. SeaSketch.²⁷ SeaSketch is a US-based organisation that provides dedicated marine spatial hosting, mapping and analysis tools specifically for marine planning purposes. The system provides access for multiple users and is hosted centrally thus avoiding the need for multiple agency-specific systems. The system has been deployed around the world on a number of major MSP projects and continues to be developed and improved.



3. Nairobi Convention Clearinghouse and Information Sharing System. Kenya is already a participating member of this Nairobi Convention led regional initiative that promotes the advertising, discovery, access, dissemination and use of the increasingly diverse and comprehensive data using the decentralized capabilities of the Internet. Through a clearinghouse and a Web interface, the initiative aims to provide an integration of information held by numerous departments, institutions and organizations in order to deal with the vast array of policy, management, scientific and other practical issues of the coastal and marine environment.²⁸

Recommendation 16: Undertake an audit of international MSR undertaken in Kenyan waters and determine how to capture data from researchers.

Recommendation 17: Review and, where appropriate, revise data capture processes under the licencing of MSR activities.

Rationale

²⁶ <http://www.rcmrd.org/about-us/about-rcmrd>

²⁷ <https://www.seasketch.org>

²⁸ <http://web.unep.org/nairobiconvention/about-clearinghouse-mechanism>

Provisions contained within Part XIII of the LOSC enables a State the right to request a copy of data acquired during marine scientific research within that States' maritime area. It is, however, becoming increasingly apparent that such provisions are alien to many States. As a result, data that are key to enabling responsible use of marine waters are not being made available to the appropriate responsible agencies. A programme of identifying marine data, in particular bathymetry, via a number of academic and other sources will help address this shortcoming.

To this end searches of databases with global data coverage, consultation with the agencies responsible for diplomatic clearances for marine scientific research as well as reviews of other academic sources will provide an understanding of data availability and provide an overview of how best to administer future scientific research expedition applications. This would provide an appreciation of what data may be available for further assessment of their marine environment, or in absence of any significant data coverage, inform the State as to the effort required to address the shortfall. Once this has been established, action can be taken to obtain copies of the relevant data from the researchers.

6.5 Multi-objective Planning Process

- **Recommendation 18:** Any MSP initiative undertaken for Kenya should be done so at two different scales:
 - A broad EEZ scale, led at the national level and focussing on EEZ-wide activities and matters of national significance; and
 - A finer resolution MSP activity undertaken at the coastal level. While this should involve close interaction of County governments and local stakeholders, the initiative should be undertaken at a national level to ensure consistency of approach between different Counties. Coastal MSP should identify potential areas that require further protection using the existing mechanisms.

Rationale

While there is a need to assess activities throughout the entire EEZ, it is clear that most activities, and most knowledge, is focussed in the relatively narrow coastal zone. The lack of information for offshore waters makes detailed planning more difficult, and it is clear that those areas that are subject to greater activity, and therefore pressure, warrant greater scrutiny.

This notwithstanding, throughout this scoping study it has become apparent that planning and decision making for CMAs, in particular, is being undertaken largely in the absence of a broader understanding of national development priorities for Kenya's maritime space. This was particularly apparent in Lamu, where the potential conflict between the Pate Island fishing communities and the LAPSET project has been hard to determine without critical planning information for the port development being available to fishermen.

The undertaking of a national EEZ-scale MSP process would address this gap and provide local communities with an indication of those national development priorities that they must consider at the local planning level.

Recommendation 19: Using the small number of Joint Co-Management Areas that have successfully established area-specific management plans, initiate a comprehensive programme to engage with BMUs and to develop and approve CMAs or Joint CMA plans for each BMU as a matter of priority. As part of this, an audit should be undertaken of all existing BMUs, their management status and spatial coverage, with a final authoritative list of BMUs being agreed between relevant parties

Rationale

While there is a need to assess activities throughout the entire EEZ, it is clear that most activities, and most knowledge, is focussed in the relatively narrow coastal zone. The lack of information for offshore waters makes detailed planning more difficult, and it is clear that those areas that are subject to greater activity, and therefore pressure, warrant greater scrutiny

Recommendation 20: Adopt a more systematic approach to marine conservation planning that fully utilises and integrates the broad range of spatial management measures currently available. In particular the GoK should:

- *Consider how other biodiversity objectives can be served using CMAs and linking these to other spatial management mechanisms*
- *Through the MSP process, undertake an EEZ-wide assessment of conservation values (with a particular focus on offshore waters) to determine further candidate sites for protection to achieve Kenya's biodiversity conservation objectives*

Rationale

Despite the apparent success of Kenya's existing networks of spatial management measure in maintaining a significant proportion of "living" habitats, which are associated with higher biodiversity that underpins the small-scale fisheries, recent research (Maina *et al* 2015) indicates the need for rezoning in order to establish MPA's that are representative, anticipatory to climate change and to the current and future uses, and that are effective in enhancing fish biomass recovery. There is a need to adopt a more systematic approach to marine conservation planning in Kenya that fully utilises and integrates the broad range of spatial management measures currently available

As experience grows with the implementation of BMUs and more CMAs become formalised, this planning needs to be integrated in broader conservation and resource planning for the Kenyan coast. Furthermore, Kenya's existing network of spatial management measures comprise entirely inshore measures. If the GoK is to develop the offshore fishing sector, a commensurately greater focus needs to be placed on the conservation management needs of those offshore waters. This would ensure that any future fisheries development takes account of any potential conflicts with biodiversity values in the offshore waters.

7 Conclusions and Next Steps

This scoping study report presents a baseline of Kenya's current preparedness to undertake comprehensive, EEZ-wide marine spatial planning. During the preparation of the report, the consultant has reviewed a broad range of sources and interviewed a number of representatives from key agencies and stakeholder groups.

The overall picture that emerges is that Kenya is not badly placed to undertake MSP activities, due, in part, to the existing knowledge base relating to critical inshore resources and to the extensive community and scientific engagement that a number of well-established local institutions have undertaken. The implementation of MSP for Kenya is considered both timely and necessary.

Moreover, Kenya is not unfamiliar with the concepts of spatial planning. Several government agencies have been involved in spatial planning at different levels, both land-based and marine-based. Notable examples include the development of the National Spatial Plan and the ongoing reviews of management plans for the countries established marine protected areas.

More recently a number of community-based initiatives have undertaken comprehensive planning and zoning of key fishery areas, under the jurisdiction of Beach Management Unit. While this activity has so far been limited to a small number of BMUs, the lessons learned are highly relevant and transferable to any future MSP initiative.

While there is every reason to be optimistic, however, there are numerous challenges to be addressed before an MSP initiative can be successfully implemented.

7.1 Governance Arrangements

While Kenya does have a broad policy base to support management of the marine environment, there is currently no comprehensive policy framework that specifically address integrated ocean management, under which MSP could be developed. This, in and of itself, is not a serious problem, but the result is that no broad strategic direction has yet been defined for the management of Kenya's maritime space. As a result, ocean planning decisions continue to be made without consideration of the broader impacts of those decisions on ocean users. The development of the LAPSET project is one such example, which will impact a broad range of marine uses in Lamu county. This lack of a broad strategic direction for the management of maritime space highlights the need for MSP at this time.

The fact that authority for MSP and the Blue Economy has now been vested in the State Department for Fisheries and Aquaculture and the Blue Economy may also cause concerns for other marine user groups, with the perception created that the Blue Economy and MSP are principally about fishing. There is, therefore, a need to establish, at the earliest opportunity, a multi-agency governance framework that both reflects the range of activities undertaken in Kenya's maritime waters and integrates the needs and concerns of the broad range of marine users in Kenya.

Given the limited capacity that exists within Kenya for MSP, to support the development and long-term implementation of MSP there is a need to address these capacity gaps early on in the project cycle.

The current devolved governance arrangements between the national and County governments is also a matter that should be explored further since, while it appears that the Counties have no jurisdiction over maritime space, they are responsible for planning in the coastal zone, which has a considerable influence over the quality of the marine environment. There therefore need to be a practical agreement over roles and responsibilities, vis-à-vis MSP, between national government agencies and their County counterparts.

7.2 Data Collection and Management

A considerable body of marine spatial data already exists for Kenya's maritime waters, albeit focussed largely on the inshore/coastal waters. Nevertheless, it is considered a sufficient basis upon which to undertake broad based MSP, with a number of caveats.

- There are clearly some gaps in data for specific sectors (e.g. shipping) that will need to be filled in order to gain a better understanding of the risks and interaction associated with certain sectors

- While data exists, it is not readily accessible, since data sharing between data holders does not appear to be well developed or encouraged. In order to maximise the benefits of the existing spatial data, mechanisms need to be put in place that facilitate data sharing and the consolidation of data into a central, accessible data portal.
- The GoK needs to more fully recognise and utilise the broad marine science capability that exists in the numerous NGOs operating in Kenya.
- Further effort is required to better understand the quality and extent of the existing data, with a view to improving the current core data sets, and procuring new data sets where critical gaps are identified.
- The lack of data for offshore waters does present a problem for making informed decision about offshore planning and management. Opportunities might exist to procure data that has been collected by international research cruises operating in Kenya's EEZ but mechanisms will need to be put in place to facilitate this.

7.3 Multi-objective Planning Process

Kenya does already have a basis for multi-sectoral spatial planning, having prepared the National Spatial Plan in 2015. Furthermore, all Counties are now required to develop County-level spatial plans, which includes coastal activities. However, to date none of these processes have been extended to include marine areas. Those planning and zoning activities that have focussed on marine areas have been sectorally focussed, without any consideration of broader resource users. Their focus has also been exclusively on inshore coastal waters.

Thus, while these existing mechanisms do provide a good basis for marine planning activities, there is a need to adopt a more systematic approach to marine planning that fully utilises and integrates the broad range of spatial management measures currently available. The focus needs to extend beyond the inshore coastal waters to include the entire EEZ. In this regard, this report recommends that Kenya adopts a "nested" approach to MSP whereby broad scale planning is undertaken across the entire EEZ - taking account of key offshore maritime activities – while a more focussed level of planning is undertaken across the entire coastal zone. This reflects both the greater intensity of activity taking place in the coastal zone as well as the different levels of knowledge about the coastal versus offshore waters.

To address these concerns, therefore, this report makes a total of 20 recommendations aimed at improving Kenya's current capability to implement MSP.

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Annex A – Terms of Reference

1 Background

Rationale of the Assignment

A review was undertaken in 2006 on the status of Kenya's marine fisheries and opportunities which also took into consideration other regional matters relevant to the management, sustainable exploitation, conservation and research on fisheries, biodiversity and environment on which fisheries depend. The review considered the prevailing constraints and challenges that need to be addressed at both national and regional level for Kenya to benefit from the shared offshore resources in the EEZ and International Waters. In inshore waters there are various conflicts not only between small scale artisanal fishers and semi-industrial fishers, but a variety of stakeholders undertaking various activities e.g. hotel industry, marine protected areas, water-sports etc. Restraining of movement or access to fishing grounds and lack of alternatives including improved infrastructure is also a very significant challenge as it affects large numbers of coastal fishers.

To be able to address specific ocean management challenges and advance Kenya's goals for economic development and conservation, there is need to undertake marine spatial planning (MSP) as it is a process that brings together multiple users of the ocean and will assist in making informed and coordinated decisions about how to use marine resources sustainably.

3. Objectives of Assignment

The purpose of this consultancy is to undertake a scoping study on the status of marine spatial planning (MSP) in Kenya's nearshore and offshore waters, in the context of effective management of fisheries and other competing uses of marine resources for blue economy development; meeting Kenya's national goals and international obligations to develop nearshore and offshore marine protected areas, including under the Convention of Biodiversity (CBD) and the Convention on Migratory Species (CMS).

The consultant will be expected to characterize a baseline of existing marine spatial planning, and identify gaps that require intervention to ensure sustainable management of marine fisheries resources. These gaps should consider the broader environment including potential areas of current and future conflict and overlap of use of the marine environment such as oil and gas, mining of the coastal areas and offshore, transportation, coastal erosion possibly exacerbated by climate change effects and to consider the need for strategic environmental assessment(s).

4. Scope of Work

The assignment will be carried out with regards to KEMFSED project intervention areas namely: inshore waters in Kwale, Mombasa, Kilifi, Lamu, and Tana River Counties, territorial seas and the exclusive economic zone (EEZ). The key tasks will include:

- 4.1. Review the status of marine protected areas (MPAs) and fisheries (co-) management areas [CMAs, CCAs, LMMAs] in Kenyan waters with a summary analysis including:

For each area:

- year of establishment; size, location
- legislation under which established
- management approach including institution responsible for management, availability of management plan, restrictions on fishing activities, percentage of area designated as no-take; etc.
- organisations/donors involved in facilitating establishment
- summary of findings of any management effectiveness evaluations
- any current or proposed mariculture areas
- other parameters at Consultant's discretion

Overall:

- Prepare a high resolution map of all relevant MPAs/fisheries management and mariculture areas identified above

- Review challenges posed by different approaches taken to establishment of co-management areas [CMAs, CCAs, LMMAs etc.] in nearshore areas and make recommendations on future streamlining/synthesis;
- Review overall coverage of fisheries no-take zones (under whichever type of management regime); their total area (both nominal and as respective percentage of inshore waters/territorial seas/EEZ) and level of compliance (so far as known)
- 4.2. Review availability of information relevant to planning development of marine protected areas in offshore waters (territorial seas and EEZ) including physical and biological oceanography and fisheries biogeography;
- 4.3. Provide a summary of Kenya's national and international commitments to MSP including under policies relating to Blue Economy development or Integrated Coastal Zone Management (ICZM); the Convention on Biological Diversity, the Convention on Migratory Species (CMS) and any other international instruments related to fisheries that might incorporate fisheries management areas within the broader MSP;
- 4.4. Review any marine spatial management commitments, plans or proposals prepared under any integrated coastal zone management (ICZM) initiatives in Kenya including mariculture areas;
- 4.5. Review relevant lessons in regard to marine spatial planning from Kenya Coast Development Project (KCDP);
- 4.6. Identify gaps in MSP including in policy and legislation frameworks
- 4.7. Provide detailed and well-justified recommendations for proposed interventions on marine spatial planning that would support development of the marine fisheries sector in the wider context of sustainable development of the blue economy in Kenya, that could be adopted by KEMFSED within the proposed project timeframe;
- 4.8. Develop a detailed budget for the implementation of the above-proposed MSP activities under KEMFSED and identify milestones and indicators to help monitor progress;
- 4.9. Identify appropriate implementing institutions or organizations that could undertake the activities. This should include national, regional and or global expertise including individuals and or firms and organizations with the appropriate expertise to undertake the specialized MSP activities;
- 4.10. Compile a draft report summarizing the above elements and submit to the Client for comments;
- 4.11. Provide a final report incorporating comments from the Client.

5. Working relations and supervision

The consultant will be expected to work closely and in consultation with the KEMFSED Project Preparation Team (PPT) under the direction of the Acting Interim Director General of the KeFS.

6. Expected Deliverables

Key deliverables include the following reports:

- 6.1. **Inception Report:** Specifying the approach and work plan undertaking the consultancy and the proposed structure for the final report to be submitted within one week after signing the contract. The inception report should outline target agencies, logistics and key Interested and Affected Parties (IAPs) to be consulted as well as any critical technical support needed to complete the MSP assessment.
- 6.2. **Weekly Update:** Ongoing weekly update to be submitted to the Client (ongoing until submission of the final report).
- 6.3. **Interim Draft Report:** This report should be close to final report in terms of content and include the maps and legal supporting documents. It should include a comprehensive literature review and examples of approaches used regionally and internationally to develop a comprehensive MSP for Kenya. The report should also include summaries and outcomes of discussions with IAPs. It should include a strategic approach to implementing a MSP project activity under KEMFSED as well as a budget, objectives and outcomes. The consultant will present the report to the Project Preparation Team and other key stakeholders.
- 6.4. **Final Report:** The final report to be completed after addressing responses and any shortfalls identified by the KEMFSED preparation team.

7. Qualifications and experience of the Consultant

The work shall be carried out by an individual that has the following qualifications and experience:

- Experience in agro-ecological and/or coastal/marine spatial zoning schemes, land use classification, conservation area demarcation or protection.
- Experience working with spatial data and knowledge of GIS mapping software, e.g. ArcGIS an advantage
- Working experience with the Ministry responsible for fisheries and maritime/ ocean affairs will be an advantage
- In-depth understanding of the socio-economics of the coastal communities especially coastal fishing communities of Kenya
- Experience working with a wide range of stakeholders, including senior government officials, donors, development partners, county officials as well as regional organizations
- At least 10 years' experience at an International level in undertaking similar MSP projects – regional experience will be an advantage
- Strong IT literacy and competency

8. Duration of the assignment

The final report should be submitted within 45 days of signing the contract. The assignment will start immediately upon signing of the contract, with inception report to be submitted within one week, the interim draft report within 30 days, and the final report no later than 7 days after receipt of KEMFSED comments, and within 45 days of contract signing.

Annex B – Key Stakeholders Interviewed during the Scoping Study Preparation

NAME	POSITION	ORGANISATION
Dr Susan Imende	Director General	Kenya Fisheries Service
Mr Simon Warui	Director of Marine Fisheries	Kenya Fisheries Service
Dr Arthur Tuda	Head, Ecosystems & Landscape Conservation	Kenya Wildlife Service
Mr Mogeni Ntabo	Regional Coordinator for Physical Planning	Ministry of Lands, Department of Physical Planning
Mr James Kamula	Regional Coastal Coordinator	National Environmental Management Authority
Ms Lilian Ayimba	Tourism and Wildlife Regional Manager	Tourism Regulatory Authority
Dr Tim McClanahan		Wildlife Conservation Society
Dr Nyawira Muthiga		Wildlife Conservation Society
Mr George Maina	Africa Fisheries Strategy Manager	The Nature Conservancy (TNC)
Capt. Namadoa	Head of Marine Pollution Control	Kenya Ports Authority
Dr Harrison Ong'anda	Marine Spatial Data Lead	Kenya Marine and Fisheries Research Institute
Dr David Obura	Senior Scientist	CORDIO (EA)
Mr Kennedy Shikami	VMS Coordinator	Kenya Fisheries Service
Mr Michael Mbaru	Environmental Officer	Kenya Maritime Authority
Mr Dishon Murage	Scientist and Consultant	SeaCology
Mr Charles Janji	Chairman	Kilifi County BMU Collective
Ms Lorraine Kithi	Horticultural Officer	Coast Development Authority
Mr Nyaga Kanyange	Consultant	COMRED
Mr Augustine Masinbe	Director of Physical Planning	Ministry of Lands and Physical Planning

Annex C - Activity-specific Spatial Management Measures

ACTIVITY	SPATIAL MANAGEMENT MEASURE
MARINE TRANSPORTATION	Ships Routeing Measures including Areas to be Avoided Particularly Sensitive Sea Areas (PSSAs) Lightering Areas Moving Safety (Buffer) & Security Zones Around LNG Tankers Pilot Boarding Areas
PORTS	Safety Zones Around Vessels and Terminals Anchoring & No-Anchoring Grounds or Areas Security Zones in Ports and Waterways Offshore Port Zones for Oil or LNG Transfers
FISHING	Fishery Closures Areas, including Seasonal Closures No Trawl Areas Critical Habitat Designations Artificial Reef Areas
OFFSHORE AQUACULTURE	Offshore Areas Designated for Aquaculture
OIL & GAS	Oil & Gas Lease or Concession Areas Offshore Installation Safety Zones (<500 m)
RENEWABLE ENERGY	Wind Farms, Wave Parks, & Tidal Energy Lease or Concession Areas Safety Zones Around Wind Farms, Wave Parks, Tidal Facilities (<500m)
PIPELINES & CABLES	Pipeline Exclusion Areas (No Anchoring/Fishing) Communications Cable Exclusion Areas (No Anchoring/Fishing) Energy Transmission Cable Exclusion Areas (No Anchoring/Fishing)
SEWAGE	Sewer Lines and Diffusers
DREDGING	Dredging Sites or Areas Dredged Material Disposal Areas or Sites (Active & Inactive)
RECREATION	Wildlife Viewing Areas Personal Watercraft Areas Passenger Submarine Operating Areas
MARINE PROTECTED AREAS	Marine Nature Reserves or Ecological Reserves (no take, no access, no impact zones) (IUCN Category 1A) Marine Wilderness Areas (Category 1B) Marine Parks (Category II) Marine Monuments (Category III) Habitat/Species Management Areas (Category IV) Protected Seascapes (Category V) Managed Resource Protected Areas (Category VI)
NATURE CONSERVATION	Fish Spawning Areas Fish Nursery Areas Marine Mammal Breeding Areas Marine Mammal Feeding Areas Marine Mammal Migration Routes Marine Mammal Stopover Areas Seabird Feeding Areas Sea Grass Beds Coral Reefs Wetlands
HISTORY & CULTURE	Protected Archaeological Areas, e.g., Ship Wrecks Submerged Archaeological Sites
RELIGION	Ceremonial Sites Sites for Collecting Food/Materials for Ceremonies Taboo Areas
RESEARCH	Scientific Reference Sites

Annex D – Summary of National Policy Relating to the Marine Environment

OVERARCHING GOAL OR OBJECTIVE	PRINCIPLES	OBJECTIVES	EXECUTING AGENCY
National Land Use Policy, 2017			
To provide legal, administrative, institutional and technological framework for optimal utilization and productivity of land and land related resources in a sustainable and desirable manner at National, County and local level.	<ul style="list-style-type: none"> • Efficient and sustainable land use management. • Ecological sustainability • Integrity and adherence to the rule of law. • Food security. • Access to land use information. • Amicable resolution of land use conflicts. • Equity in decision-making. • Effective Public Participation. • Elimination of discrimination in land use. • Public benefit and interest. • Order and harmony in land use. 	<p>Policy 3.17 of the National Land Use Policy - Coastal and Maritime (Blue Economy) Environmental Management and Conservation</p> <p>In order to ensure sustainable coastal environmental management and blue economy, the Government shall:</p> <ul style="list-style-type: none"> • Identify, map and gazette critical river deltas, mangroves, coral reefs, and other important coastal habitats; • Ensure the formulation and implementation of an integrated coastal land use plan; • Harmonize and coordinate the roles of regulatory and enforcement agencies including the county governments, NEMA, Kenya Maritime Authority, State Department of Fisheries, Water Resources Management Authority as well as Ministry of Lands and Physical Planning; • Promote and protect sustainable utilization of marine resources; • Establish and implement a framework for beach management that ensures public access to the beaches, protection and conservation of the beaches; • Ensure enforcement of environmental protections within Exclusive Economic Zones, including multilateral environmental agreements on pollution, sea-mining and fishing; • Protect, maintain and restore marine species, habitats and ecosystems of national and international importance, including islands within coastal and marine protected areas; • Establish convenient public utility plots along the coast line to serve as fish landing sites and for public recreation; 	Ministry of Lands and Physical Planning

		<ul style="list-style-type: none"> • Provide a framework and capacity for the management of spills and waste emanating from the marine industry; • Plan, manage and effectively govern the use of marine space and resources, applying inclusive methods and the ecosystem approach; • Formulate and implement laws and agreements that support a sustainable blue economy; • Develop and apply standards, guidelines and best practices that support a sustainable blue economy. National and County governments shall develop and apply the global sustainability standards, guidelines and best practices; • Set out statutory responsibilities for sound spatial planning of the marine resource and ensure that these are fully integrated with the terrestrial planning system. 	
National Oceans and Fisheries Policy, 2008			
To enhance the fisheries sector's contribution to wealth creation, increased employment for youth and women, food security, and revenue generation through effective private, public and community partnerships	<ul style="list-style-type: none"> • Good governance (co-management and transparency). • Ecosystems approach (holistic approach to resource management). • Pro-poor. • Precautionary approach (taking management measures based best available information). • Public private partnership. • Sustainability and environmental integrity. • Subsidiarity (making and implementing decisions at the most relevant levels). • Equity (generational equity, fair access and use of resources). 	<ul style="list-style-type: none"> • To promote conservation and management of fisheries resources, • To generate the maximum amount of employment, • To maximize revenue from fisheries and other related activities, • To promote an integrated economy, • To enhance food supply and food security, • To promote safety at sea, • To develop Aquaculture, recreational and ornamental fisheries. • Development of the ocean fisheries. 	Kenya Fisheries Service
National Environmental Policy, 2013			
Better quality of life for present and future generations through sustainable management and use of the	<ul style="list-style-type: none"> • Environmental right • Right to development • Ecosystem approach • Total economic value • Sustainable resource use • Equity 	<ul style="list-style-type: none"> • Provide a framework for an integrated approach to planning and sustainable management of Kenya's environment and natural resources. • Strengthen the legal and institutional framework for good governance, effective coordination and management of the environment and natural resources. 	National Environmental Management Authority

environment and natural resources	<ul style="list-style-type: none"> • Public participation • Subsidiarity • Precautionary principle • Polluter pays principle • International cooperation • Good governance • Benefit sharing • Community empowerment 	<ul style="list-style-type: none"> • Ensure sustainable management of the environment and natural resources, such as unique terrestrial and aquatic ecosystems, for national economic growth and improved livelihoods. • Promote and support research and capacity development as well as use of innovative environmental management tools such as incentives, disincentives, total economic valuation, indicators of sustainable development, Strategic Environmental Assessments (SEAs), Environmental Impact Assessments (EIAs), Environmental Audits (EA) and Payment for Environmental Services (PES). • Promote and enhance cooperation, collaboration, synergy, partnerships and participation in the protection, conservation, sustainable management of the environment and natural resources. • Ensure inclusion of cross-cutting and emerging issues such as poverty reduction, gender, disability, HIV&AIDS and other diseases in the management of the environment and natural resources. • Promote domestication, coordination and maximisation of benefits from Strategic Multilateral Environmental Agreements (MEAs). 	
Integrated Coastal Zone Management Policy, 2013 (DRAFT)			
To guide the management and utilization of coastal and marine environment and its resources to ensure sustainable livelihoods and development.	<ul style="list-style-type: none"> • Use of ecosystem-based approach. • Uses a participatory and inclusive approach. • Applies a precautionary approach. • Applies best available science and adaptive management. • Promotes stewardship in coastal resource. management to ensure sustainable development for posterity. • Multiple resource use management. • Applies the polluter pays principle. • Provides for a balance between development and conservation. requirements foster international and 	<ul style="list-style-type: none"> • Promote integrated planning and coordination of coastal developments across the various sectors. • Promote sustainable economic development to secure livelihoods of coastal communities. • Conserve the coastal and marine resources and environment for sustainable development. • Manage environmental risks associated with changes in shoreline and climate. • Develop capacity in research and education and enhance stakeholder awareness and participation in sustainable resource management. • Establish effective institutional and legal frameworks for implementation of the ICZM policy. 	Previously National Environmental Management Authority but now under the authority of State Department for Fisheries and Aquaculture and the Blue Economy

	regional cooperation for better management of transboundary issues.		
Forest Policy, 2014			
Sustainable development, management, utilization and conservation of forest resources and equitable sharing of accrued benefits for the present and future generations of the people of Kenya	<ul style="list-style-type: none"> • Public good. • Ecosystem approach. • Sustainable Forest Management. • Good governance. • Public participation. • Polluter and user pays. • Commercialization of forestry activities. • Ecologically and fragile areas. • Research, education and knowledge. • Livelihood enhancement. • Indigenous knowledge and intellectual property rights. • International and regional cooperation. 	<ul style="list-style-type: none"> • Increase and maintain tree and forest cover of at least ten percent of the land area of Kenya. • Establish an enabling legislative and institutional framework for development of the forest sector. • Support forestry research, education, training, information generation and dissemination, and technology transfer for sustainable development. • Promote public, private and community participation and partnership in forest sector development. • Promote investment in commercial tree growing, forest industry and trade. • Enhance management of forest resources for conservation of soil, water biodiversity and environmental stability. 	Kenya Forestry Service
National Wildlife Conservation and Management Policy, 2017 (DRAFT)			
The sustainable management of Kenya's wildlife resources through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes in order to provide for the social, economic, ecological, cultural and spiritual	<ul style="list-style-type: none"> • Benefits sharing. • Ecosystem approach. • Equity. • Evidence-based management. • Inter-and Intra-generational equity. • International cooperation. • Policy integration. • Precautionary principle. • Public participation. • Subsidiarity. • Sustainability and carrying capacity. • Total economic value. • Wildlife as a land use. 	<ul style="list-style-type: none"> • Develop a coordinated framework for wildlife management taking into account other sectoral policies and the roles of various agencies. • Conserve wildlife resources in national parks, national reserves and national sanctuaries in an effective and equitable manner. • Ensure maintenance and enhancement of ecological integrity of wildlife and their habitats through the integration of private and community lands into protected area systems. • Harness the contribution of wildlife resources into the national economy and enhance the benefits to all. • Enhance policy implementation through participatory planning, research, knowledge management and capacity building. 	Kenya Wildlife Service

needs of present and future generations; contribute to the sustainable development of the country; and enhance the quality of human life			
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Annex E – Sample Conflict Matrix for Kenya's Maritime Space

	CAPTURE FISHERIES	AQUACULTURE	TOURISM	MARITIME TRANSPORT	OFFSHORE PETROLEUM	DREDGING AND AGGREGATES	SUBMARINE CABLES	MARINE CONSERVATION
CAPTURE FISHERIES		<ul style="list-style-type: none"> • Introduction of diseases and non-native species • Reduce pressure on wild capture stocks • Diversify economic activity for fishermen 	<ul style="list-style-type: none"> • Increase demand and prices for local caught fish • Damage to habitats from increased marine tourists (e.g. divers) • Increase revenue for fishermen 	<ul style="list-style-type: none"> • Displacement of fishermen from key shipping areas • Risk of oil spills • Wash and wake effects • Anchor damage to key habitats • Introduction of invasive species through ballast or hull fouling • Direct conflict between vessels 	<ul style="list-style-type: none"> • Displacement of fishermen from offshore exclusion zones • Risk of oil spills • Disturbance to habitats • Anchor damage to key habitats • Introduction of invasive species through ballast or hull fouling 	<ul style="list-style-type: none"> • Disturbance of key habitats • Increase sedimentation through dredging and disposal of spoil 	<ul style="list-style-type: none"> • Disturbance of habitats and temporary exclusion during installation • Exclusion from cable protection zones 	<ul style="list-style-type: none"> • Exclusion of fishermen from conservation areas • Enhance fish productivity in MPAs than can benefit capture fisheries.
AQUACULTURE	<ul style="list-style-type: none"> • Competition for marine space 		<ul style="list-style-type: none"> • Competition for marine space 	<ul style="list-style-type: none"> • Exclusion from key shipping areas • Risk of oil spills • Wash and wake effects • Introduction of invasive species through ballast or hull fouling • Direct conflict between vessels and farms 	<ul style="list-style-type: none"> • Risk of oil spills • Disturbance to habitats • Anchor damage to key habitats • Introduction of invasive species through ballast or hull fouling 	<ul style="list-style-type: none"> • Disturbance of key habitats • Increase sedimentation • Coastal erosion through coastal mining 	<ul style="list-style-type: none"> • Disturbance of habitats and temporary exclusion during installation • Exclusion from cable protection zones 	<ul style="list-style-type: none"> • Exclusion of fish farmers from conservation areas
TOURISM	<ul style="list-style-type: none"> • Conflicts between different user groups • Impacts to amenity from fish landing and processing 	<ul style="list-style-type: none"> • Conflicts between different user groups • Impacts to amenity from fish landing and processing 		<ul style="list-style-type: none"> • Risk of oil spills • Noise from ports etc • Introduction of invasive species through ballast or hull fouling 	<ul style="list-style-type: none"> • Risk of oil spills 	<ul style="list-style-type: none"> • Loss of amenity • Coastal erosion through coastal mining 	<ul style="list-style-type: none"> • Unlikely 	<ul style="list-style-type: none"> • Enhance visitor experience to MPAs • Increase revenue to local community through access charges
MARITIME TRANSPORT	<ul style="list-style-type: none"> • Damage to ships from fishing gear 	<ul style="list-style-type: none"> • Competition for marine space 	<ul style="list-style-type: none"> • Competition for marine space 		<ul style="list-style-type: none"> • Re-routing of ships away from installations • Increase tanker traffic 	<ul style="list-style-type: none"> • Changing profile of shipping channels 	<ul style="list-style-type: none"> • Unlikely 	<ul style="list-style-type: none"> • May impact ships routing from sensitive sites

OFFSHORE PETROLEUM	<ul style="list-style-type: none"> • Competition for marine space • Conflicts between different user groups 	<ul style="list-style-type: none"> • Unlikely if aquaculture is coastal 	<ul style="list-style-type: none"> • Increased pressure on petroleum industry due to tourism sector 	<ul style="list-style-type: none"> • Risk of collisions • Anchor damage to key infrastructure 		<ul style="list-style-type: none"> • Needed as part of development 	<ul style="list-style-type: none"> • Conflict in siting of offshore installations 	<ul style="list-style-type: none"> • May impact selection of development options to protect sensitive sites
DREDGING AND AGGREGATES	<ul style="list-style-type: none"> • Conflicts between different user groups 	<ul style="list-style-type: none"> • May impact sediment deposition leading to increased need for dredging 	<ul style="list-style-type: none"> • Increased need for construction material and dredging of key tourism infrastructure. • Increase dredging from increased cruise ship traffic. 	<ul style="list-style-type: none"> • Increased need for dredging to support port activities 	<ul style="list-style-type: none"> • Need for capital dredging during development phase 		<ul style="list-style-type: none"> • Temporary disturbance during installation 	<ul style="list-style-type: none"> • May limit areas that can be dredged to protect sensitive sites
SUBMARINE CABLES	<ul style="list-style-type: none"> • Risk of snagging/damaging cables 	<ul style="list-style-type: none"> • Possible damage due to poor siting of fish farms 	<ul style="list-style-type: none"> • Unlikely 	<ul style="list-style-type: none"> • Risk of anchor damage 	<ul style="list-style-type: none"> • Possible conflict between sub-sea structures 	<ul style="list-style-type: none"> • Risk of impacting cables during dredging 		<ul style="list-style-type: none"> • May exclude the laying of cables on the seabed
MARINE CONSERVATION	<ul style="list-style-type: none"> • Damage to marine habitats • Excessive fishing effort • Pressure to avoid no take areas for protection 	<ul style="list-style-type: none"> • Damage to marine habitats • Introduction of diseases and non-native species • Reduce pressure on wild capture stocks 	<ul style="list-style-type: none"> • Damage to marine habitats from excessive tourist numbers 	<ul style="list-style-type: none"> • Physical damage from ship strikes, anchor damage or grounding • Risk of oil spills • Introduction of invasive species through ballast or hull fouling 	<ul style="list-style-type: none"> • Impact of seismic activities on marine fauna • Risk of oil spills • Flaring and venting of gas • Physical habitat disturbance during development • Can act as FADs 	<ul style="list-style-type: none"> • Physical damage from dredging and disposal of spoil • Increased sedimentation • Coastal erosion 	<ul style="list-style-type: none"> • Disturbance of habitats and temporary exclusion during installation 	

Annex F – Overview of Marine Spatial Data Availability for Kenya

DESCRIPTION OF DATA	AVAILABILITY/COMMENTS	DATA FORMAT	DATA HOLDER
Maritime Boundaries			
Coastal zones	Different definitions of CZ exist and are applied.	Shapefile	Various
Territorial sea baseline	Exists but whether the baseline points have been mapped is doubtful	Shapefile	Various
Territorial sea	Exists but northern boundary with Somalia subject to dispute	Shapefile	Various
EEZ	Exists but northern boundary with Somalia subject to dispute	Shapefile	Various
Extended continental shelf	Exists but northern boundary with Somalia subject to dispute	Shapefile	Various
Marine/coastal Habitats			
Seabed classification	Not available	Shapefile	
Coral distribution	Preliminary (from KCDP project work)	Shapefile	KMFRI
Mangrove distribution	Available (1992 KWS/FD wetlands project)	Shapefile	KWS/KMFRI
Seagrass distribution	Preliminary (from KCDP project work), also CDA doing some work	Shapefile	KMFR/CDA
Rocky reef	Available	Shapefile	1:50K topo sheets
Dune systems	Not available	Shapefile	
Coastal forests	Available	Shapefile	WWF
Wetlands	Available	Shapefile	KWS
Oceanographic			
Hydrography/topography	RV Mtafiti surveys/ARGO floats	Station profiles	KMFRI
Seabed type	Not available		
SST	MODIS/Ocean color/NOAA satellites	Raster	KMFRI
Primary production	MODIS/Ocean color/NOAA satellites	Raster	KMFRI
Upwelling areas	Requires existing data analysis/satellite images		KMFRI
Marine Living Resources			
Marine mammal distribution	KWS aerial surveys for Dugongs and sea turtles – we may need to ask them details		KWS
Marine mammal nursery areas	Same		KWS
Turtle nesting sites	WWF turtle conservation – Kiunga. There are also some communities doing turtle conservation work in Watamu	Field data	
Seabird colonies	National Museums of Kenya, ornithology department		NMK
Fish distributions	KMFRI Catch Assessment Surveys	Field data	KMFRI
Fish spawning grounds	RV Mtafiti larval surveys		KMFRI

DESCRIPTION OF DATA	AVAILABILITY/COMMENTS	DATA FORMAT	DATA HOLDER
Others?			
Marine Conservation			
MPAs (Parks/Reserves)	Protected Areas boundaries	shapefile	KWS
Fishery Co-Management Areas	Co-management areas	shapefiles	KeFS
National (Forest) Reserves	Forest reserves	shapefiles	KFS/KEFRI
Locally Managed Marine Areas (management zones)	A number of NGOs working on this including The Nature Conservancy	shapefile	WWF, TNC, EAWS
Community Conservation Association Areas	A number of NGOs working on this including The Nature Conservancy	shapefile	WWF, TNC, EAWS
Marine Uses			
Fishing			
Fish landing sites	BI-annual Frame Surveys		KeFS
Fishing ports	BI-annual Frame Surveys		KeFS
BMUs	BI-annual Frame Surveys		KeFS
Fishing areas (gear specific)	Fishing Imbos done under KCDP, including gear interactions for FAD planning, in Kilifi and Kwale counties and Aquarium Fisheries – WWF spatial planning in Lamu	shapefiles	KMFRI/WWF
Temporal/spatial closures	The Nature Conservancy Pate Co-management planning	shapefile	TNC
Gear restriction areas	The Nature Conservancy Pate Co-management planning	shapefile	TNC
Mariculture sites (existing and potential)	KMFRI initial scoping work in the creeks around Mombasa and Kilifi	shapefile	KMFRI
FADs	One FAD off Gazi		KeFS
Fish storage and processing facilities	Marine and Coastal GIS Resource Database, 1995 – requires updating	shapefile	KMFRI
Mineral extraction			
Offshore oil and gas concessions	National Oil Corporation survey blocks	shapefile	NOC
Well drilling sites	National Oil Corporation survey blocks	Shapefile/EIA data	NOC
Sand/aggregate extraction	Department of Mines/County Governments		
Maritime transport			
Ports	Marine and Coastal GIS Resource Database, 1995 – requires updating	shapefile	KMFRI
Refineries and fuel storage sites	Marine and Coastal GIS Resource Database, 1995 – requires updating, also Oil Spill Mutual Aid Group (OSMAG)	shapefile	KMFRI/OSMAG
Sub-sea pipelines	Unknown		
Shipping routes	Unknown		

DESCRIPTION OF DATA	AVAILABILITY/COMMENTS	DATA FORMAT	DATA HOLDER
Ship routing measures	Unknown		
(No)-Anchoring areas	Unknown		
Dredging areas	Unknown		
Dumping areas	Marine and Coastal GIS Resource Database, 1995 – explosives dumping area	shapefile	KMFRI
Telecommunications			
Sub-sea cables	Fibre optic cables which was laid out by SEACOM and Wananchi Online		
VHF/UHF radio stations	Mobile phone operators and TELKOM Kenya networks		
Tourism			
Marinas and water taxis	Marine and Coastal GIS Resource Database, 1995 – requires updating	shapefile	KMFRI
Hotel/resort areas	Marine and Coastal GIS Resource Database, 1995 – requires updating	shapefile	KMFRI
Ecotourism sites (e.g whale watching)			
High amenity beaches			
Diving and snorkelling sites	Marine and Coastal GIS Resource Database, 1995 – requires updating	shapefile	KMFRI
Water sports areas	Marine and Coastal GIS Resource Database, 1995 – requires updating	shapefile	KMFRI
Other			
Outfalls and intakes	Marine and Coastal GIS Resource Database, 1995 – requires updating – the only intake was WESTCON power generation plant in Kilindini Port closed down. Sewage outfalls – check NEMA EIA reports	shapefile	KMFRI

Annex G - List of Reference Materials

CATEGORY	TITLE
Policy	Kenya Vision 2030
	National Oceans and Fisheries Policy (September 2008)
	Integrated Coastal Zone Management Policy (2013 Draft)
	National Environmental Policy (2013)
	DRAFT National Wetlands Conservation and Management Policy (2013)
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