
COASTAL CITIES OF THE WESTERN INDIAN
OCEAN REGION AND THE BLUE ECONOMY

City Case Study
Mombasa



Published by WIOMSA

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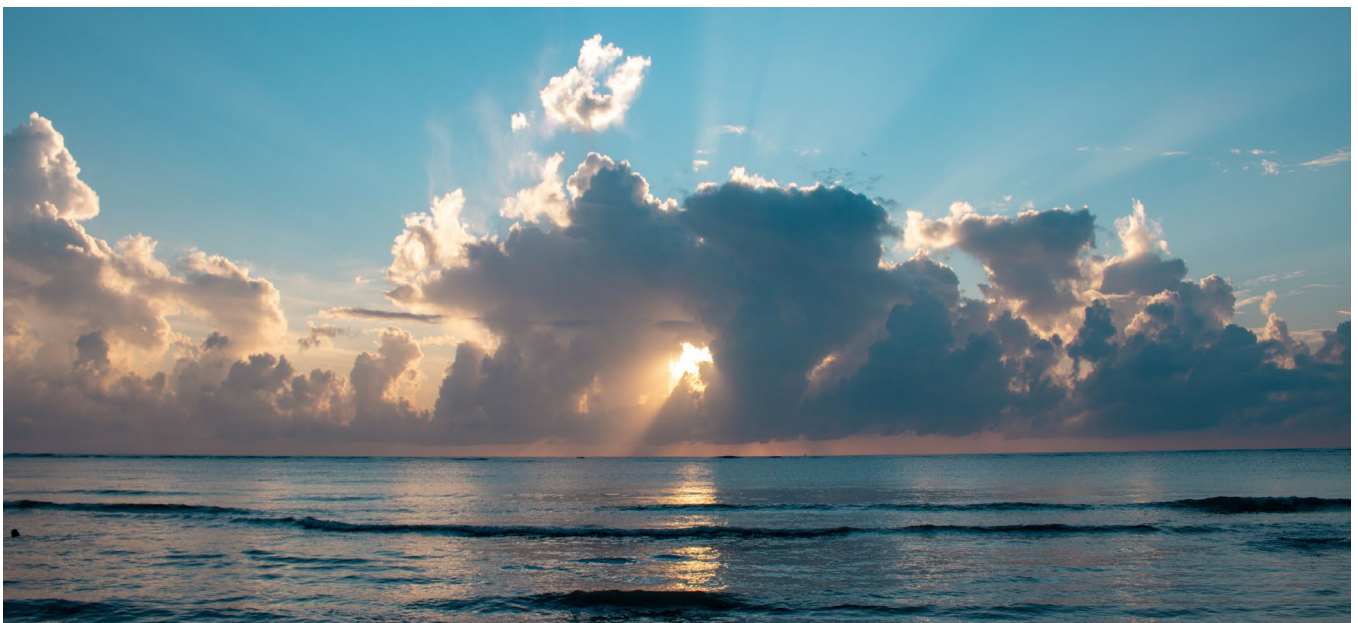
On our behalf and behalf of UN-Habitat, we wish to thank Arup for drafting these reports with WIOMSA, UN-Habitat and experts from the region, particularly from the four case studies. We are grateful for the dedication, generous and thoughtful contributions by Arup experts that have led to producing these high-quality reports. We indeed are indebted to them for accepting our many demands with such grace and professionalism.

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► Image: Indian Ocean, Mombasa

ACRONYMS

BE - Blue Economy	KFS - The Kenya Forest Service
BMU - Beach Management Unit	KMA - Kenya Maritime Authority
CBOs - Community-based organizations	KMFRI - Kenya Marine and Fisheries Research Institute
CDA - Coast Development Authority	KPA - Kenya Ports Authority
CIDP - The County Integrated Development Plan	KSh - Kenyan Shilling
COMRED - The Coastal & Marine Resource Development	KWS - Kenya Wildlife Service
COP - Conference of the Parties	LMMAs - Locally Managed Marine Area
CORDIO - Coastal Oceans Research and Development, Indian Ocean	MPA - Marine Protected Area
CSO - Civil Society Organization	MSP - Marine Spatial Planning
DRR - Disaster Risk Reduction	NEMA - National Environment Management Authority
EEZ - Exclusive Economic Zone	NGOs - Non-Governmental Organisation
EIA - Environmental Impact Assessment	OECD - The Organisation for Economic Co-operation and Development
ESIA - Environmental Social Impact Assessment	PPP - Public Private Partnership
EU - European Union	SDG - Sustainable Development Goal
FDI - Foreign Direct Investment	SEZ - Special Economic Zones
FTZ - Free-trade zone	SIDS - Small Island Developing States
GDP - Gross Domestic Product	SMMEs - Small, Medium and Micro Enterprise
GIS - Geographic Information Systems	SWOT - Strengths, Weaknesses, Opportunities, and Threats
GMP - Gross Marine Product	TVET - Technical & Vocational Education & Training
ICT - Information and communications technology	TEU - Twenty-foot Equivalent Unit
ICZM - Integrated Coastal Zone Management	UNECA - United Nations Economic Commission for Africa
IFRC - International Federation of Red Cross and Red Crescent	UNEP - UN Environment Programme
IFZ - Industrial Free Zone	UNICEF - United Nations Children's Emergency Fund
JICA - Japan International Cooperation Agency	USD - United States Dollars
JKP - Jumuiya ya Kaunti za Pwani (economic bloc of Kenyan coastal counties)	WIO - Western Indian Ocean
KCTA - Kenya Coast Tourist Association	WIOMSA - Western Indian Ocean Marine Science Association
KEMFSED - Kenya Marine Fisheries and Socio-economic Development	WWF - The World Wildlife Fund

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FOREWORD

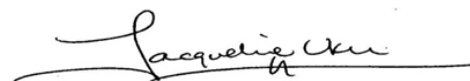
Although cities only represent 2 percent of the world's geographical area, the activities within their regional boundaries use over 75 percent of the planet's material resources, according to a study released by the International Resource Panel in 2018. This among other reason is why the UN in 2015 approved a stand-alone Goal, SDG 11, Sustainable Cities and Communities, which recognizes urbanization and city growth as a transformative force for development. This is the first-ever international agreement on urban-specific development and acknowledges that sustainable urban development is a fundamental precondition for sustainable development in general.

Coastal cities are the location for high levels of economic activity mainly because of their association with ports, waterfront development and well-endowed coastal and marine environment. In the Western Indian Ocean (WIO) region, some of the coastal cities are capitals of respective countries (e.g. Victoria, Seychelles; Port Louis, Mauritius and Maputo, Mozambique) while some are important hubs of trade, industry and commerce, such as Mombasa, Dar es Salaam, Beira and Durban. For the most part, some of these cities are experiencing comparatively rapid population and economic growth, which is known to have negative impacts on the natural environment through resource extraction and use, as natural resources come under increasing pressure. Climate change and the anticipated increase of extreme events exacerbates the problem, , with the UN-Habitat's State of African Cities Report suggesting that sea-level rise threatens the very survival of some of these cities. Cities with large proportions of economically and socially vulnerable inhabitants, such as Port Louis, Maputo, Dar es Salaam, Victoria, and Mombasa, are particularly susceptible.

The Blue Economy is an emerging policy area that is subject to ongoing political discussions at the global and regional levels. In 2018, Kenya hosted the first high-level international Sustainable Blue Economy Conference. The Blue Economy seeks to promote economic growth, responsible production and consumption, social inclusion, preservation and improvement of livelihoods while at the same time ensuring environmental sustainability of ocean and

coastal systems, as well as other waterfront areas, through the circular economy. UN-Habitat published a report on "The Blue Economy and Cities", highlighting the need to recognize the role of urbanization and urban planning in shaping the Blue Economy. This underscores the urgency of including urban policymakers in the global discussions around the Blue Economy concept.

Since 2018, with the funding from the Government of Sweden, WIOMSA has been implementing a five-year project, Cities and Coasts project, whose goal is to build and strengthen human and institutional capacity in coastal and marine planning for sustainable coastal cities in the WIO region. Through this project, WIOMSA, in collaboration with UN Habitat commissioned a series of studies to explore the current relationship between coastal cities of the WIO region and the blue economy, challenges and opportunities and offer recommendations moving forwards.



Dr Jacqueline Uku, President of WIOMSA

PREFACE

The linkages between environment, society and economy in coastal cities are important in the countries of the WIO region, and there is a need to understand better their interdependencies and the associated constraints to sustainable development. If managed properly, cities can offer better socio-economic conditions and quality of life to residents and the wider context in which they are situated effectively facilitating sustainable cities and the communities. The integrated adaptive management and sustainable development of coastal cities and their marine environment are therefore essential.

At the Ninth Conference of Parties to the Nairobi Convention (COP 9) August in 2018 in Mombasa, countries of the region acknowledged for the first time the importance of collaborating with UN-Habitat to address the environmental challenges and opportunities posed by rapid urbanization, particularly in coastal cities in the WIO region, as articulated in the SDG 11 (“make cities and human settlements inclusive, safe, resilient and sustainable” (Sustainable Cities and Communities)) and the New Urban Agenda (NUA) on sustainable cities and communities. Further, COP 9 urged Contracting Parties to consider undertaking climate change vulnerability assessments of their urban coastal areas, including urban spatial planning processes, and integrating marine natural capital (Decision CP.9/9). The Nairobi Convention Secretariat was requested to collaborate with UN-Habitat and other partners to develop a regional action plan and roadmap to assist the Contracting Parties in integrating the NUA into coastal cities in the WIO region for the protection of the marine and coastal environment (Decision CP.9/13). Furthermore, countries agreed to advance Blue Economy approaches in SDG 14 as a pathway for sustained incomes and economic benefits from natural blue capital including fisheries, tourism, oil and gas development, offshore renewable energy, and other maritime activities.

As part of the implementation of these decisions and to provide a greater understanding of the local challenges and opportunities faced by coastal cities in the WIO region and to support the future development of an environmentally sustainable and socially inclusive roadmap for the Blue Economy, WIOMSA and UN-Habitat commissioned Arup to prepare a portfolio of six reports:

- Four blue city economy case studies;
- A ‘Status Report’ which outlines more broadly the current situation concerning the blue economy in coastal cities across the region; and
- A ‘Roadmap for the Development of the Blue Economy in Coastal Cities’, which provides recommendations for cities in current and future blue economy planning, activities and investment.

These reports offer knowledge resources for city and national government stakeholders, WIOMSA, UN-Habitat, private sector and civil society. Each case study provides specific blue economy recommendations for that city, focusing on strategic and operational opportunities for the city and its blue economy stakeholders, informed by primary and secondary research. Key points and recommendations from each case study have also been extracted and integrated into the main body of the Status Report, which has, in turn, informed the Roadmap. The Roadmap provides strategic and operational blue economy recommendations across case study cities, which stakeholders are encouraged to also read and consider with respect to their city or region.

The Mombasa report is one the case study reports for coastal cities, others being Kilifi, Kenya, Dar es Salaam, Tanzania and Port Louis in Mauritius. Key Informant Interviews and Focus Group Discussions were the primary means of field investigation for these reports and engaging key stakeholders across blue economy sectors and stakeholder types (government, academia, private and civil society). Stakeholders were identified through city-specific desktop research, undertaken in January/February 2020.



Oumar Sylla
(Director Regional Office for Africa - UN Habitat)



Arthur Tuda
(Executive Secretary - WIOMSA)



CHAPTER 1

CITY OVERVIEW

Mombasa is a coastal gateway of trade and tourism for Kenya and much of East Africa. The city has experienced rapid growth in recent decades and the blue economy presents both a contributing factor to this growth, as well as an opportunity to support future development of the city.

1.1. CITY OVERVIEW

With a population of 1.2 million Mombasa is the second largest city in the Republic of Kenya. The City lies 488km south east of the capital of Nairobi and has a total area of 229.9km², and 65km² of water mass (200 nautical miles into the Indian Ocean).¹

Mombasa, like many African cities, is experiencing rapid population growth, more so with newly dispensed devolved governance since the inauguration of the new Kenyan constitution in 2010.

The City has a long running identity as a port city and Mombasa plays a crucial 'gateway' role not only to the hinterlands of Kenya, but also to surrounding countries of Uganda, Rwanda, Burundi, DR Congo, South Sudan and some parts of Northern Tanzania. The City is spread across four distinct geographical areas - Mombasa Island, North Mainland, West Mainland and South Mainland.

The population of Mombasa has an annual growth rate of around 3.8% and has doubled in population over the past twenty years.² As of 2013, 65% of the population resided in informal settlements, of which there are more than 70 across the City.³ Most of the larger informal settlements are located next to the City's major industries including the port. These industries usually have formal housing settlements in proximity, but this rarely stops the rise of informal settlements nearby. It is estimated that only 20% of the settlements are well planned. However, apartment living is on the increase. Population growth in Mombasa has outpaced corresponding infrastructure development, with deficits in housing, water, wastewater and solid waste management posing challenges to both the local population and the marine and coastal environment. In particular, poor solid and liquid waste management remain significant hurdles for the City.

The port comes with a lot of ancillary activities that significantly contribute to the local economy, and the port provides the largest form of employment for the people of Mombasa. Fishing and tourism are other prominent blue economy sectors, with the latter supported by Moi International Airport, the seaport and the newly constructed Standard Gauge Railway, meaning that Mombasa is also the entry-point to many other tourist destinations in the region. The City's increased population also calls for diversification from traditional blue economy sectors into wider sustainable exploration of the blue economy.

A Marine Protected Area (MPA), Mombasa Marine Park and Reserve, exists off the coast of Mombasa. The park is 10km² in area, and the wider reserve about 200km².

These areas offer crucial protection from unsustainable and damaging activities to local marine ecology and the environment includes coral reef, mangrove and seagrass ecosystems and a variety of endemic and endangered species such as sea turtles, dolphins and exotic tropical fish.⁴

The City is at the juncture of restructuring and undergoing rapid landscape transformations, being evident by the amount of critical infrastructure investments currently taking place locally. Mombasa is a city that has been anchored on maritime shipping and trade, and new city planning efforts point towards re-enforcing this status. Mombasa county is among the few, if not the only county government within Kenya to take steps to institutionalise the blue economy within its administrative and governance structure, in 2020 establishing a Blue Economy Department and Director, in order to coordinate cross-sectoral projects and programs. However, this department is still to be formalised and supported by budget allocation.

The biggest challenge that the rapid growth of Mombasa brings forth is how to maintain a balance between capitalizing on the monetary opportunities the blue economy has to offer, and the need to conserve, and not pollute, the same resources that provide these opportunities.

1.2. RESEARCH METHODOLOGY

Mombasa primary research took place in the first week of March 2020.

Selection of case study cities was agreed upon between Arup, WIOMSA and UN-Habitat in January 2020 based on learning from the desktop phase.

Specific factors which influenced case study selection are as follows:

- A desire to select at least one mainland and one island city;
- Selection of cities which allowed exploration of key blue economy themes that emerged in the desktop research phase (a port city, a tourism hotspot, a city with strong fishing sector connection and a rapidly growing smaller city);
- Logistics with respect to travel and availability of interviewees.

The selection process resulted in choosing of Dar es Salaam, Port Louis, Mombasa and Kilifi Town.

FIGURE 1 - CASE STUDY LOCATIONS



Key Informant Interviews and Focus Group Discussions were the primary means of field investigation, engaging key stakeholders across blue economy sectors and stakeholder types (government, academia, private and civil society). Stakeholders were identified through city specific desktop research, undertaken in January 2020, which also established initial lines of investigation.

Field research analysed the economic, social and environmental dimensions of major blue economy industries using a SWOT method to gain an in depth,

balanced understanding of the city-blue economy relationship. Semi-structured questioning was used to ascertain stakeholder thoughts on overarching city blue economy strengths, weaknesses, opportunities and threats, before exploring specific blue economy sectors with which the stakeholder was involved (e.g. fishing, tourism and maritime transport and shipping).

In Mombasa 25 stakeholders were consulted from 12 organisations:

TABLE 1 - MOMBASA ORGANISATIONS AND/OR INSTITUTIONS CONSULTED

1	COMRED - Coastal and Marine Resources Development
2	Planning Systems Services Ltd
3	Mombasa County Government
4	KCTA - Kenya Coastal Tourism Association
5	Independent
6	KWS - Kenya Wildlife Service, Mombasa Marine National Park
7	NEMA - National Environment Management Authority - Mombasa
8	KMFRI - Kenya Marine and Fisheries Research Institute
9	CORDIOEA - Coastal Oceans Research and Development Indian Ocean East Africa
10	JKP - Jumuiya Ya Kaunti Za Pwani
11	KMA - Kenya Maritime Authority
12	Lafarge Eco Systems, Bamburi Cement Limited.

CHAPTER 2

THE BLUE ECONOMY IN MOMBASA

Mombasa's key blue economy sectors are Ports and Maritime Trade, and Tourism. These industries are important to the economic health of the capital but are also critical drivers of the national economy. Fishing and Waterfront Development are other blue economy sectors which are important to Mombasa and discussed hereafter. This chapter also discusses key opportunities and challenges of the wider urban operational environment, which can support or hinder blue economy growth.

INFOGRAPHIC - MEASURING THE BE IN MOMBASA

SECTOR SPECIFIC BLUE ECONOMY CHALLENGES AND OPPORTUNITIES



Port and Maritime Trade

- A recent change in onward port cargo transport in Mombasa from road trucks to rail (SGR) is estimated to have cost Mombasa Ksh33.3 billion and 8,111 jobs.⁵



Tourism

- Mombasa reportedly receives over 2 million international visitors yearly and almost 4 million domestic tourists.⁶
- However, in one 2011 sample study, 80% of international tourists surveyed were visiting Mombasa under all-inclusive tour package.⁷



Fishing and Aquaculture

- In Kenya, marine fishing is largely exceeded by freshwater with marine fishing in 2013, contributing just 4% of fish production and ~0.5% of annual GDP.⁸
- Processing and value addition are key opportunities in the fisheries sector in Mombasa. In one current a proposal, it is estimated that a new cold-storage facility in Mombasa would create extra 1000 jobs.⁹



Waterfront Development

- Mama Ngina Waterfront Park stretches for 2km along Mombasa Central Island.
- The County is currently planning a KSH 300 million facelift of Jomo Kenyatta beach
- Infrastructure developments such as road and real estate are changing the local coastline.

OPERATIONAL ENVIRONMENT FOR THE BLUE ECONOMY



Solid Waste Management

- Mombasa reportedly generates approximately 879 tons of waste a day but only an estimated 46% is collected by formal service.¹⁰



Water and Sanitation

- More than 70% of the population is not connected to a sewer network.¹¹



Climate Change Adaptation

- By the end of this century almost 50% of Mombasa island could be under threat of a 1-in-100-year storm surge.¹²
- 17% of Mombasa could be lost in the event of 0.3 m sea level rise causing loss of hotels, cultural monuments and beaches.¹³

2.1. BLUE ECONOMY GOVERNANCE AND PLANNING

Relative to many other WIO cities, Mombasa has significant powers, in blue economy planning and overall, in line with decentralization across the country. However, as with all Kenyan counties, national government still retains a prominent role and oversight on projects of national strategic importance.



DECENTRALIZATION IN KENYA

Decentralised governance - part of the reform agenda under Kenya's Vision 2030 - was realized with the enactment of the new constitution in 2010, and this has been in effect since the 2013 general elections.^(a) Counties have significant powers under devolution, responsible for the majority of city planning and delivery beyond national strategic projects. Still, collection of taxes across counties has generally been low-yield since devolution and county governments are largely financially dependent on national transfers.^{14,15}

Since devolution, the spatial planning function takes place under two levels of National and County governments. The National government is in charge of preparing the national spatial plans which in this case would also involve marine spatial planning.

Under the County Government Act of 2012, each county is by law supposed to prepare 10-year County Spatial Plans that act as a development framework for county terrestrial territorial areas. These plans are reviewed after five years. It is from these plans that projects are derived. Spatial plans also help prepare County Integrated Development Plans (CIDP) and any other lower level plans such as, but not limited to: Urban Integrated Development Plans, Land Use Plans, Local Physical Development Plans and Special Area Development Plans. As much as the county spatial planning is devolved, the exercise is overseen by the National Land Commission (NLC) (that sits in the National government) to enable the different counties to have up to standard, and integrated, development frameworks.

In Mombasa, there have been difficulties in implementation of projects included in the Mombasa 2035 Strategic Vision, including delivery of waste recycling and desalinisation infrastructure.¹⁶

Across counties, planning exercises have been faced with myriads of integration challenges in terms of both vertical integration between the national and county governments and horizontal integration amongst the county governments themselves. The Initiative on Financing for Resilient and Green Urban Global Solutions (FRUGS) note municipal challenges with respect to organisational culture, management, resources and administrative capacity, including technical and financial capacity. In particular, the narrow revenue base forces the County to focus on short term priorities and inhibits a longer term, more strategic approach to implementation. Similarly, inconsistent incentive structures for staff inhibit transparent prioritisation and implementation. The FRUGS report suggests that the County establish agencies to act as central points for the development of large infrastructure projects, and work with development partners to strengthen legal frameworks, policies, expertise and capacity, for long-term infrastructure investment.¹⁷

In recent years the County has been working with the Japanese International Cooperation Agency (JICA) to translate the broad vision of Mombasa 2035 into a more practicable, funded plan, the 'Mombasa Gate City Master Plan', which was launched in 2017.¹⁸ Mombasa is further ahead of many other counties in that it has the Gate City Master Plan. However, the Gate City plan needs to be updated and transformed into a new County Spatial Plan alongside necessary institutional strengthening. Consultations suggested that as of 2020 the spatial planning updates are under development. **Importantly, county masterplans to date have been only focused on the terrestrial and the challenge now is to also incorporate the marine aspect.**

"Sea and land planning is .. key – like our masterplan to mobilise resources".

Respondent A ^(b)

The Mombasa County Secretary (CS), at the time of research stated explicitly that the blue economy is a priority for the City, and that coordinated planning across blue economy city sectors is a key objective for the County. The CS established a new Blue Economy Unit, in order to effectively frame the blue economy sector within the County functions. Stated priorities of this initiative include blue economy value addition, manufacturing, tourism, transport and logistics, and blue economy training, especially for the local youthful population. An economic stimulus program was developed in February 2020, seeking to diversify economic interests in response to job losses associated with the port and the Mombasa-Nairobi Standard Gauge Railway - SGR (see section 2.2).

There are 10 departments in the County including fishing, urban planning and education. The Blue Economy Unit intends to 'coordinate' blue economy activity across county departments. The proposed structure of the BE unit includes three sub-teams: Sea and land spatial planning, Blue trade, investments and value addition, and Marine transport and logistics. **At the time of research, the BE unit was a new structure requiring budgetary and structural formulisation.**

A further development around the time of publication, is the tender issue for a new Mombasa Blue Economy Plan. That plan is intended to be informed by the County Spatial Plan, promote integrated planning and necessary structural change in Mombasa.¹⁹ Successful restructuring of local government can help to coordinate blue economy activities across county government, provided that such activity and resultant departments/units receive sufficient and sustainable support long-term, beyond political cycles. Such structure and policy development should strive to be fully integrated across the Mombasa blue economy sectors discussed in this report, balancing economic, social and environmental priorities and activity should be supported by advances in marine spatial planning at national and regional level, as discussed in the box overleaf.

a) A total of 47 Local governments, referred to as County Governments were instituted under the new constitution which are semi-autonomous in nature and have the fiscal, administrative and political jurisdiction over the areas they oversee. The National government is headed by the President while the County governments are headed by politically elected Governors

b) Respondents identification is anonymised and does not relate to tables included in Chapter 1 or the Appendix.

BLUE ECONOMY AND MARINE SPATIAL PLANNING NATIONALLY AND IN KENYAN COUNTIES

Nationally, Kenya has developed a Blue Economy Sector Plan, 2018 – 2022, part of the wider Kenya Vision 2030 and led by the State Department for Fisheries, Aquaculture and the Blue Economy. Projects include development of a Blue Economy Master Plan and National Maritime Spatial Plan.

Other activities include maritime education and training; development of a legal, regulatory and institutional framework for Kenya's Blue Economy; revival of a Kenya National Shipping Line; and various activities focused on fisheries, aquaculture and maritime sectors. (c) The sector plan states that projects and programmes 'will be implemented in close consultation and collaboration with county governments' and in line with the Constitution.

Marine spatial planning (MSP) is presently a challenge to the blue economy for all coastal county governments and the country at large. MSP is a terminology yet to be adopted by the current spatial planning legal frameworks in Kenya, starting with the mother law of Physical Planning Act (PPA) of 1996 or the new Physical and Land Use Planning Act (PLUPA) or any other related act on the same. The current spatial planning legal frameworks focus on the terrestrial spatial plan.

The National Spatial Plan of Kenya 2015-2045 discusses protection of marine reserves and promotion of coastal tourism and related infrastructure, as well as development of fishing, port activities and water transport. It also states that integrated marine resource management plans should be developed, alongside a need to implement Integrated Coastal Zone Management (ICZM) Policy and Integrated Ocean Management Policy, Strategy and Action Plans. Still, the Spatial Plan does not appear to go into a great amount of detail with respect to MSP.²⁰

ICZM policy, first introduced by the National Environment Management Agency (NEMA) in 2010, is in place to coordinate management of the coastal zone.²¹ However, **integrated coastal management is led by national agencies, and the role of county governments is reportedly marginal.**²²

There is a need for further engagement and coordination across national and county governments in terms of how best to activate MSP and enable county governments to explore and plan in local waters. Primary research suggested that counties should be given responsibility to plan out to at least 5km (the artisanal fishing and creek zone). With more activities and competing uses in the sea, there needs to be proper planning and zoning of the sea in order to avoid conflicts between different users, and ensure more efficient use of marine resources.

Activities under Jumuiya ya Kaunti za Pwani (JKP) are intended to strengthen the foundations for marine-terrestrial spatial planning in Kenyan coastal counties. With the Semi-autonomous nature of County governments, they are at liberty to form their own Economic Development Blocks. The coastal counties formed JKP - a multi-agency approach, to coordinate projects and ensure policy integration at the Coastal regional level. This organisation has developed a 2030 economic blueprint for the region within which the blue economy is a key pillar.²³ **JKP has received funding from the European Union 'Go Blue' Programme, amounting 25million euros, for blue economy activities. As part of this programme, 'Go Blue' intends to bridge gaps in county-terrestrial-marine planning, through the planned development and implementation of an "integrated regional land-sea spatial planning framework" in 2020, led by UN-Habitat and UNEP.**²⁴

(c) The World Bank Group has approved a 100M USD facility for a coastal Kenyan project called KEMFSED to improve management of priority fisheries and mariculture with a strong focus on MSP. This is discussed further under Fishing.

Beyond the County government of Mombasa, JKP and the State Department for Fisheries, Aquaculture and the Blue Economy, several other national agencies play a role in the governance of marine and coastal resources in Mombasa:

- The Coast Development Authority (CDA) is a state corporation with the mandate to provide integrated development planning, coordination and implementation of projects and programmes within the Coast Region, including Mwache Multipurpose Dam, which will serve Mombasa and Kwale counties;
- NEMA is the environmental management agency that licenses and enforces national environmental policies as well as playing a key role in ICZM;
- Kenya Maritime Authority (KMA) is in charge of the maritime security and vessel licensing;
- Kenya Ports Authority (KPA) is in charge of the Port of Mombasa;
- Kenya Marine and Fisheries Research Institute (KMFRI) plays an important role in research of the marine environment and fisheries, generating scientific data that can support county marine knowledge and planning;
- Kenya Wildlife Services (KWS) oversees marine conservation, Marine Protected Areas (MPAs – see below box) and wildlife management in Mombasa and on a national basis.

Some of these organisations such as NEMA and KWS have contributed to early marine spatial planning activities in other counties and may be well placed to make an important contribution to the Mombasa County marine-terrestrial spatial planning process.

One question which commonly arose during primary research was how to connect national blue economy activity with local understanding and aspirations. Specifically, consultations identified a need to improve the translation from national policy, blue economy planning and research, down to county plans and activity, and then to other city stakeholders, and most importantly to local communities.

“The government has to bring planning down to the level of the people and not only in conferences and workshops”

Respondent B

Stakeholder engagement is key, and language must be inclusive to all concerned. Local Marine Managed Areas (LMMAs) and Beach Management Units (BMUs) are two possible mechanisms which may support local community involvement in blue economy activities. Several interviewees, while acknowledging that BMUs are a great vehicle, noted that they too are influenced by local politics and need better management structures. This is one objective of the Kenya Marine Fisheries and Socio-economic Development (KEMFSED) which is discussed later in this chapter.

FURTHER BLUE ECONOMY MECHANISMS

Marine Protected Area (MPA)

An ocean area reserved by law or other effective means. MPA designation pre-dates MSP and existing MPAs need to be integrated into broader MSP processes.²⁵ Kenya has 6 MPAs including Mombasa Marine Park and Reserve.²⁶

Locally Managed Marine Area (LMMA)

Areas of protected ocean space which tend to be smaller than MPAs and often in more rural settings. Local communities typically work together to balance local blue economy activities within LMMAs. These areas have the potential to fill conservation gaps between MPAs.

Beach Management Unit (BMU)

Organization of fisher folk at the beach (boat crew, boat owners, managers, charterers, fish processors, fish mongers, local gear makers or repairers and fishing equipment dealers) within a fishing community. BMUs create a link between government and artisanal fishermen. The objective is to reflect the knowledge and understanding of all stakeholders in decision-making processes. Such legal empowerment of communities has been suggested as a solution to overexploitation and an ecosystem approach to fisheries management. There are said to be 96 BMUs in Kenya and 14 in Mombasa.

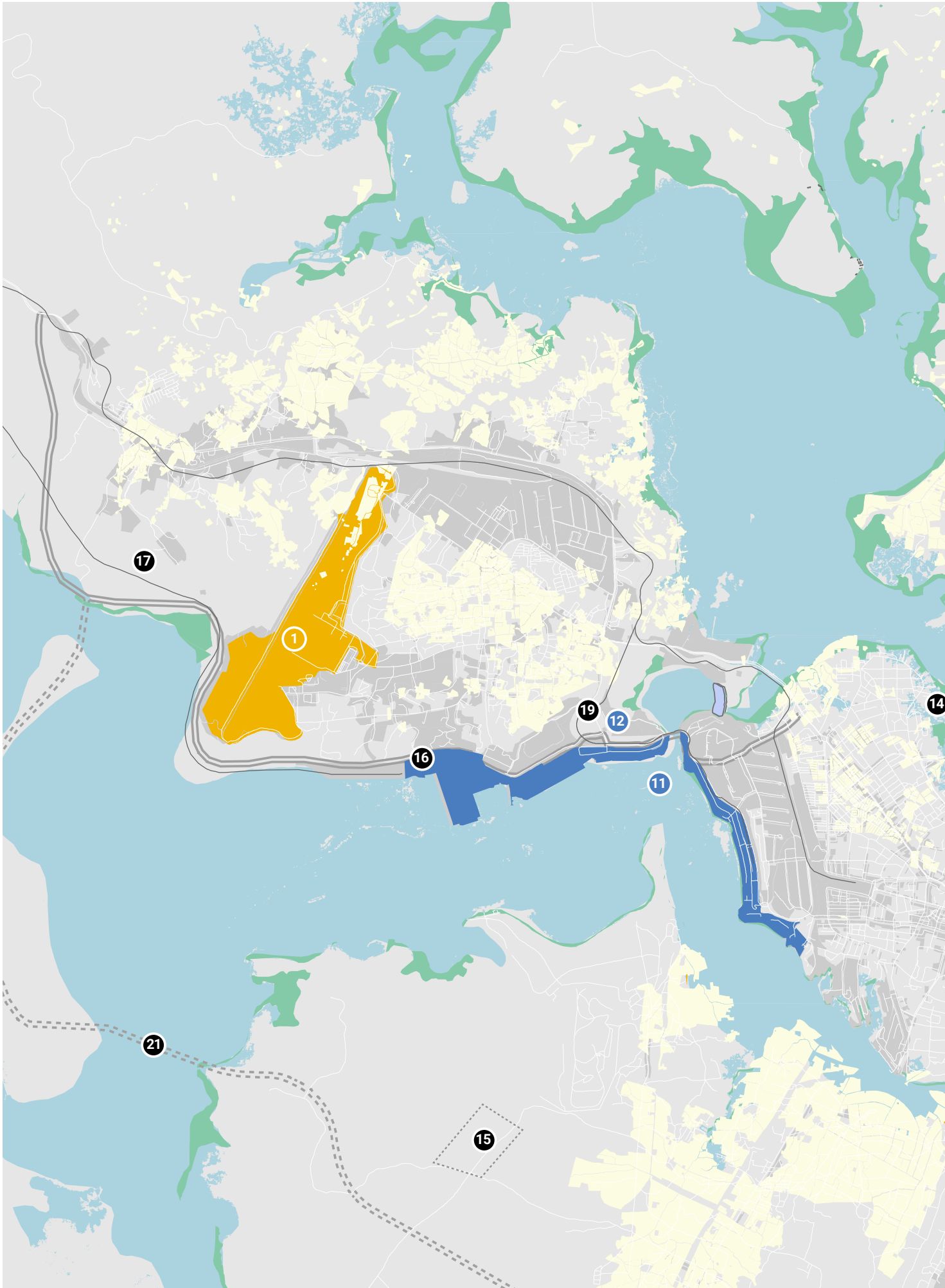
TABLE 2 - BLUE ECONOMY STAKEHOLDERS PER SECTOR

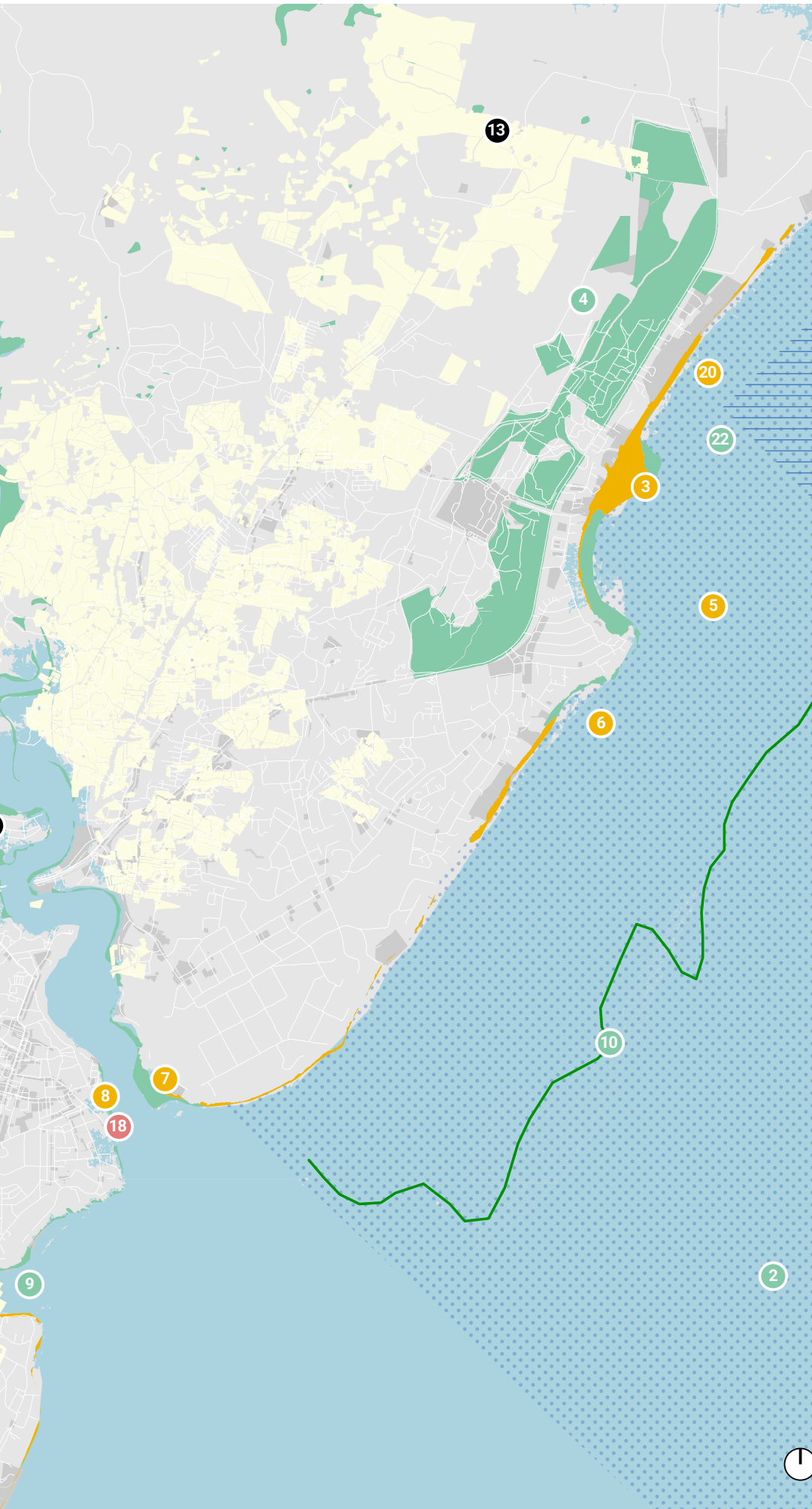
As this section highlights, Mombasa, like many other cities, operates under a complex urban governance structure with many different actors and interests. There is a need for strong coordination of all involved entities and processes to ensure effective management practices are carried out across blue economy sectors. The below table shows stakeholders involved in the blue economy in Mombasa. This table is not exhaustive, but aims to illustrate complexity, and importance of effective communication and collaboration.

	National Government	Local Government	Private Sector	Civil Society	Other
Port and Maritime Trade	KMA, KPA, Ministry of Transport, Infrastructure, Housing & Urban Development	County Government (Department of Transport, Infrastructure & Public works)	Mediterranean Shipping Company	Dock workers unions	JKP, China, Donors such as JICA, Trade-Mark East Africa...
Fishing	State Department for fisheries, KMFRI, CDA, KWS	County Government dept. agriculture, livestock, fisheries & cooperatives	Commercial fishing companies	Fishermen and associated workers through BMU & LMMA	JKP
Tourism	Ministry of Tourism & Wildlife; KWS; Airports Authority	County Department of Trade, Tourism & Investment	Hotel owners & operators	Local community businesses & workers.	Kenya Coastal Tourism Association; JKP
Conservation	KWS, KFS, NEMA, CDA	County Dept of Environment, Solid Waste Management & Energy	Hotel owners & operators, especially ecotourism	NGOs (WWF, COMRED, CORDIOEA, CBOs, LMMAs)	JKP
Waterfront Development	Interior ministry, NEMA, Kenya Ferry, CDA	County Government	Planning consultancies; utilities	Traders & people in area, users	JKP
Sewage	Ministry of Health & Ministry of Water & Sanitation; NEMA	County Dept of Water, sanitation & natural resources	Mombasa Water Supply & Sanitation Company	People/users, local workers (e.g. those who empty soak pits)	JKP, World Bank, Donors such as JICA
Solid Waste Management	Ministry of Environment and forestry; Ministry of planning & State dept of planning	County Department of Environment, Solid Waste Mgmt & Energy	Private collectors	People/users, Community level collectors	JKP, World Bank, Donors such as JICA
Education	Ministry of Education, KWS, CDA	County Department of education & ICT	Private schools & training institutions including TVET	UNICEF, large & small NGOs e.g. COMRED, the community	JKP
DRR and CCA	National Disaster Mgmt Unit; Met Office, CDA	County Disaster Management Unit; Ministry of Land, Planning Housing;	All businesses on the coast	IFRC; DRR focused NGOs; All homes/people on coast	JKP



FIGURE 2 - BLUE ECONOMY MAP MOMBASA





LEGEND

- Tourism
- Ports
- Green space
- Fishing
- Residential area
- Marine Protected Area
- Industrial area
- Rail
- Main Roads

KEY BLUE ECONOMY SITES

- 1 Moi International Airport
- 2 Mombasa Marine Park
- 3 Jomo Kenyatta Public Beach
- 4 Haller Park
- 5 Coral Garden
- 6 Dive-Snorkelling Site
- 7 English Point Marina
- 8 Fort Jesus
- 9 Mama Ngina Waterfront Park
- 10 Coral Reef
- 11 Port of Mombasa
- 12 Oil Refinery
- 13 Mwakirunge Dumpsite
- 14 Kibarani Dumpsite (Old)
- 15 Dongo Kundu Free Trade Zone
- 16 SGR Freight Terminal
- 17 SGR Passenger Terminal
- 18 Mombasa Fish Market
- 19 Kipevu Sewage Treatment Plant
- 20 Bamburi Beach hotel area
- 21 Dongo Kundu Bypass Phase 2
- 22 Mombasa Marine Park Reserve



2.2. SECTOR SPECIFIC BLUE ECONOMY CHALLENGES AND OPPORTUNITIES

This chapter first outlines the challenges and opportunities of specific blue economy sectors ^(f), before discussing the relationship between the wider operational environment and the blue economy. The chapter closes with a summary of some key interdependencies that exist between the discussed blue economy sectors.

PORT AND MARITIME TRADE

The Port of Mombasa is key to the national economy of Kenya, handling a record 1,425,000 TEU ^(e) last year, a 7.3% rise on 2018.²⁷ Only Durban handles more containers regionally.

The port is a national asset, under control of central government and significant investments have been undertaken in recent years, with more planned, as outlined in table below.

TABLE 3 - OUTLINE OF DEVELOPMENT PROJECTS FOR THE MOMBASA PORT

	Project	Status
1	Improvement of Gate and yards	-
	Expansion of Gate 18/20	Implemented
	Conversion of Berths 11-14 to container terminal	Funding is secured with FIB, AfD and EU
2	Improvement of Berth No. 19	Implemented
3	New container terminal development	-
	Phase I (Berth No. 20 and 21)	Constructed in February 2016
	Phase II (Berth No. 22)	LA was signed between JICA March 2015
	Phase III (Berth No. 23)	Financial procurement is not yet ensured
4	Modernization and Acquisition of New Cargo Handling Equipment	3 gantry cranes & 3 mobile cranes in 2011, 12 RTGs in 2014 & 20 terminal tractors in 2014/15 purchased
5	Fixed Berthing Window System	Implemented on Berth No. 16-19
6	LCT Upgrades	Implemented
7	Upgrading of Power from 11 kV to 132 kV	Implemented
8	Implementation of Green Port Initiatives	Ongoing

► Source, JICA 2018, based on KPA Data²⁸

d) This chapter assesses key blue economy sectors as identified in primary research consultations. The report acknowledges the future potential of other sectors such as marine energy and biotechnology, but such sectors appear less active at present. The report also notes discontinuous activity at Mombasa oil refinery, processing discoveries from the inland Turkana basin but this was again not deemed a primary Mombasa blue economy sector.

e) 'Twenty-foot equivalent unit' - unit of cargo capacity

As decisions are made on a national basis, they are not necessarily compatible with the desired outcomes at the city level.

This is typified by the recent creation of a dry port in Naivasha (near Nairobi), reducing the amount of cargo handling in Mombasa, and the use of the Standard Gauge Railway (SGR), rather than road, to transport containers from the port.²⁹ In 2019, the County government of Mombasa commissioned the University of Nairobi (UoN) to research the impact of this freight train introduction on the local economy. The study³⁰ found that:

- At time of the study, losses in County GDP were said to be Ksh17.4 billion, with businesses like fuel stations and lodges along the Northern Corridor also affected due to lack of patrons.
- Projections suggested financial losses per annum for the County could reach Ksh33.3 Billion (USD 306 million).
- More than 60% of employees (2,987) working at the Container Freight Stations (CFSs) were sacked over the year of the study.
- As of the end of 2018 there were 8,111 redundancies overall. Projections elsewhere suggested that there could be as many as 40,000 job losses in the longer-term.³¹
- The University of Nairobi study also pointed towards an increase in crime and social ills. Certain primary interviews also highlighted knock-on effect on housing, informal settlement and environmental degradation.

The County government is exploring ways of being more involved in the management of the port, so as to be able to articulate their interests in matters relating to maritime transportation. This exploration correlates with the UoN findings which state that the County should consider investing in capacity building of key personnel who could contribute to running the port facility.³²

Not all impacts of the port are negative. While the dry port takes business away from Mombasa, it also removes congestion from the port area of the City, thereby reducing air pollution. Increased efficiency in container transport is also likely to attract further future investment in the port.³³ There are also wider benefits of the SGR project, like increased domestic tourism.³⁴

For the City the port question can be viewed as a resilience issue and the County government has identified a need to diversify, and not be too reliant on one asset under national control.

There has been recent and ongoing investment in Dongo Kundu Special Economic Zone (SEZ) at Likoni, supported by national government, and an industrial park is planned at Miritini. Feasibility study for the industrial park is being supported by TradeMark East Africa^{35,36} The Mombasa County Government has also developed a new economic stimulus program in response to SGR losses, with the blue economy at the forefront of plans, which are now seeking partner support. The economic stimulus program aims to create 50,000 jobs in the long-term. Short-medium term measures are outlined in the program plan^(f), with more detailed studies planned for specific blue economy sectors and City departments. Several city blue economy investment opportunities are now presented on an 'Invest Mombasa' web portal.³⁷

While the SGR is said to have mitigated some negative environmental aspects associated with the port, other issues in recent years have also been environmentally challenging. The expansion of the port and need for sand has resulted in dredging of channels and sand dumping off the coast. Local experts have hopes for a Mombasa dumping policy in the coming years, and the agreement of practices amongst relevant parties.³⁸ Other liquid pollution challenges connected to the port and wider shipping industry include:

- Petroleum pollution from ships³⁹
- Leeching of paint into local waters from ships that do not meet current standards; and
- A lack of ballast water receptors, meaning that water from locations hundreds-thousands of miles away is deposited into Mombasa waters, introducing invasive species into the local habitat.⁴⁰

Addressing port environmental challenges requires additional equipment (e.g. ballast receptors) and effective monitoring and enforcement of regulation. In 2016, Kenya Ports Authority (KPA) with assistance from TradeMark East Africa initiated a Green Port Policy which aims to transform the port into a premier port of 'clean fuels' in Africa, addressing vessels, trucks and other port equipment.⁴¹

f) Proposed initiatives include seaweed and mangrove farming, fishing, tourism, water transport, shipping and boat-building and marine renewable energy.



► Image: Port of Mombasa © Ungureanu Catalina Oana, Shutterstock

TOURISM

Tourism is an important part of Mombasa's economy. The City reportedly receives over 2 million international visitors and almost 4 million domestic tourists annually.⁴² In 2004, tourism was calculated to have contributed more than 12% to local Gross Domestic Product and its contribution continues to grow.⁴³ Despite this, the coastal tourism sector has faced significant challenges in the past decade, including two small-scale terrorist bomb blasts which hit Mombasa in 2014 and resulted in travel advisories being issued from major tourist origin countries including UK and the USA. Even when advisories were lifted, a stigma was left, which the City and the Country at large have worked hard to tackle.⁴⁴ At the time of writing, COVID-19, a global pandemic, is another external shock affecting tourism on the Kenyan coast, and other national and global travel destinations.⁴⁵

National and county governments have undertaken several activities in recent years to tackle tourism challenges, including:

- National counterterrorism campaigns and advertising, to reduce fears over safety;
- A cultural tourism day in Mombasa, including the temporary pedestrianisation of certain streets;
- Local by-laws on façade paintings, with the majority of buildings in the CBD freshly painted in the city's blue and white colours; and
- Improvements to the Mombasa city airport road.

Despite the above improvements, Mombasa faces competition regionally from other coastal locations including the beaches of nearby Watamu and Diani. Furthermore, when tourists do arrive in Mombasa, most money does not trickle down to local communities. Luxury hotels along the coast, including those in the upmarket Bamburi Beach area are typically owned by foreign companies who often offer tourists all-inclusive packages. **One 2007 study sample suggested as many as 80% of international tourists who travelled to Mombasa did so through all-inclusive packages.⁴⁶ Tourists on beach vacation are often happy to remain within the confines of the hotel resort and/or the adjacent section of beach, and all spending occurs within the hotel complex.**

Upon crossing the boundary onto the beach, the researcher was told by a local:

"Welcome to Mombasa, until now you have been in Europe"

Local

Tourism stakeholders, both at the national and county level, have realized that overreliance on international tourists is not beneficial to the sector, and have identified an overarching need to diversify the tourism product. One solution involves targeted domestic tourist packages, with favourable rates for locals offered during off-season, alongside efforts to cater to the growing conference tourism market. Domestic tourists are thought to be more likely to spend time and money beyond the confines of the hotel. The arrival of the SGR makes Mombasa an even more appealing domestic holiday location.

Interviewees also stated that there needs to be more efforts to create experiential tourist experiences, where tourists see the real Kenya outside of the hotel. Such an effort requires conversations between the County, the Kenya Coast Tourist Association (KCTA) and major hotel owners and operators, in order to achieve favourable repackaging of tourist products. ^(g) **With a new cruise terminal in Mombasa reaching completion, initiatives to ensure trickle down 'of spend into local communities', have an added importance.⁴⁷**

KCTA have provided training in recent years to 'beach vendors' who occupy the public beaches, trying to persuade tourists to buy their offerings. Previous feedback to KCTA from holidaymakers, complained of feeling pressured by beach or market sellers. KCTA have therefore provided training to beach sellers, focused on alternative styles of engagement, new product offerings and designated selling spaces. KCTA worked with 8 beach seller trade associations, adding greater formality to the profession through the development of a code of conduct and provision of seller uniforms. Five hundred beach sellers in Mombasa (out of an estimated 2,500) have been trained as part of this initiative.⁴⁸

g) County government highlighted that previously conversations were with the operators



► Image: Bamburi Beach

A number of stakeholders mentioned the cost of doing business for local companies working in the tourism industry as a challenge locally, including the range of operational licences and levies that are required.

There is need for a careful balance between creating and sustaining opportunities for local businesses, versus effective county taxation and local government income generation.

Environmental challenges, with respect to tourism, discussed by consultees mainly focused on how certain hotels manage solid and liquid waste. On-site treatment is important in both cases and some hotels exhibit best practice. However, limited monitoring capacity has historically made full inspection and enforcement across hotels very difficult.

Lastly, research suggested that ecotourism can be further activated in Mombasa. The total number of annual visitors to MPAs in Kenya overall increased from 70,000 in 1997, to 160,000 in 2010. Revenues generated from entry fees nationally, currently exceed US\$1.5 million a year.⁴⁹

In Mombasa, a 2010 study suggested that tourists may also be willing to pay a premium for marine tourism experiences, if profits are shown to be re-invested in protection of the reefs they are visiting.⁵⁰

However, at the same time, it is important that such experiences are also accessible to the local population and not just tourists and more affluent citizens.⁵¹ The Mombasa Marine Park and Reserve currently charges approximately 1USD to Kenyan citizens and 15USD to international visitors.⁵² The park is popular with visitors interested in diving, snorkelling, water skiing, wind-surfing and sunbathing. This area is also of high ecological importance, with seagrass and coral habitats and endangered species such as sea turtles.⁵³ Despite the multitude of uses, spatial conflicts are said to be generally low-level, although the area would benefit from improved spatial conflict resolution mechanisms.⁵⁴

Efforts and partnerships between city stakeholders such as County Government, KWS, community groups and private actors, might potentially help to increase ecotourism opportunities in the city and nearby. Mombasa is already home to Haller Park which has proven a popular eco-attraction. (See next page).

HALLER PARK

Located in Bamburi, northern Mombasa, Haller park, is a part limestone quarry, part eco-park and site of rich biodiversity. The site is owned by Bamburi Cement Company, which is now under the majority control of Lafarge Holcim.

Limestone mining began at the 566ha site in 1954 and by 1971 much extraction had taken place. However, the area had become a visual eyesore and a site of environmental hazard, characterised by brackish water, mosquitos and open dumping. Understanding the health risks of the site, the owners began restoring the landscape. Initially this began with the establishment of a garden department charged with growing fresh fruit and vegetables for employees, but over the years this activity developed into significant rehabilitation of the open mines and establishment of rich plant and animal biodiversity, including mixed forests, lakes and grasslands. The park opened to the public in 1985 and to date, about 325ha of the 566ha site has been rehabilitated, introducing more than 400 indigenous plant species, 34 species of mammals and 180 species of birds.⁵⁵

Mining activity still continues at the site, but in a cyclic process, where industry and nature are encouraged to co-exist. For every new open quarry pit, there is parallel rehabilitation efforts, within 100 meters.

The park offers a recreation site for both the general public and tourists. It can be considered as the only real forest within the City of Mombasa and is a popular site of learning amongst students of all ages, welcoming over 100,000 visitors annually.⁵⁶

Situated approximately 200m from the shoreline, Haller Park plays several important roles with respect to the marine environment including:

- Bio-filtering of effluents from nearby built-up residential land, before such waste reaches the ocean;
- Timber harvesting from the reclaimed wasteland, which eases the pressure on local mangrove forests that would otherwise be more widely used;
- Creating an additional carbon sink, to mitigate urban and industrial air pollution;

- Creation of additional habitats for certain animals which are part of the marine ecosystem.

There was little environmental legislation at the time Haller Park began restoration. The work at the site has in fact played an important role in providing benchmarks, upon which other mining licences elsewhere can be measured.

Haller Park is one example of an extraction process that involves robust environmental mitigation. The park acts as an important in situ pilot project of a full cycle mining-conservation process that can be adopted to other mining sites, currently spread out along the coastline, such as Mombasa cement factory, as well as other future mining industries. The site illustrates one positive role that the private sector can play in the management of the marine and terrestrial environment in Mombasa. Green space and public realm are key to the environmental and social pillars of the blue economy. Applying green space requirements to future private developments along, or in close proximity to the coast, can make an important contribution to a sustainable blue economy locally.



FISHING

There are two aspects for consideration in the relationship between the fishing sector and the City of Mombasa:

- a) the potential for fishing in the ocean waters off Mombasa;**
- b) the processing, sale and consumption of fish from elsewhere, within the City of Mombasa.**

Regarding the first aspect, interviews suggested that **fishing is limited in Mombasa and most of the fish sold is imported from other counties like Lamu, or further afield, from international producers.**

One issue mentioned in several interviews and not necessarily unique to Mombasa is the lack of necessary vessels, equipment and safety attire to enable local fishermen to fish in deeper waters. While deep-sea fishing cannot be exploited by local fishermen, there has been an increasing number of foreign international vessels doing deep sea fishing off the Kenyan coast. Some of these vessels have been legally permitted to do so by Kenya Maritime Authority (KMA), but others do it illegally. Over the years, limited capacity to police national waters has negatively impacted maritime security. This necessitated the establishment of Coast Guard, by the national government in 2018, to improve sea surveillance and protection.

Still, as a result of limited capacity, most local vessels fish in close waters, which are therefore overfished, with socioeconomic and ecological implications.

Stakeholders in Mombasa, discussed several possible solutions including;

1. Locally Managed Marine Areas (LMMAs)

One tool to manage the issue of near shore overfishing is the idea of community or locally managed marine areas (LMMAs). The idea is that if one area is effectively managed from overfishing, the area becomes a refuge for fish and there is overspill in neighbouring areas, where sustainable fishing is allowed. Preventing fishing in one place increases catches in the larger surrounding area. Networks of smaller LMMAs can be connected to larger marine protected areas such as Mombasa marine protected area and reserve.

2. Build capacity of local fishermen in both equipment and skills - Beach Management Units

BMUs were consistently cited as a mechanism through which capacity building can take place. The Mombasa County Government stated that it has recently bought 2 fishing boats for each of the 14 BMUs to enable the fishermen to fish offshore. This needs to be paired with training in different fishing techniques and one initiative that the County has recently implemented is recruiting fishermen from Pemba, Tanzania to train local fishermen. These initiatives appear positive but the view across most interviews was that scaling up of capacity building activities is necessary, and that new vessels are still of limited spec to compete with the international trawlers, which operate further out at sea and dwarf local catches. It seems that addressing fishing on that scale requires intervention from national government. **The upcoming Kenya Marine Fisheries and Socio-economic Development (KEMFSED) project is likely to have a significant positive impact on fishing nationally and locally,** helping to boost capacity at various levels.⁵⁷

KEMFSED

This five-year, USD 100 million World Bank and State Department of Fisheries project is set to benefit both Mombasa and other coastal counties, improving fisheries management and livelihood opportunities for local communities.

Activities include

- Capacity building of county stakeholders including training of technical staff, including BMU management;
- Capacity building of BMUs, including policy development for better coordination with other BMUs and with national planning;
- Infrastructure development (e.g. landing sites and processing facilities, to be conducted in year 2 after a scoping assessment);
- Fisheries monitoring and strengthening surveillance on land and at sea.

At the community level, an estimated 20,000 households across the five counties will receive support under three categories of sub-projects:

- Grants for production-based livelihoods and economic enhancement;
- Grants for social welfare; and
- Grants for environment/ natural capital.

Mama karanga (h) and youth-focused projects form part of the community-level plans. (Gender mainstreaming is said to be a focus across county-level project activities). The neighbourhood component is described as a demand-driven process and it is not clear as this stage the split of beneficiaries across counties.

Counties are responsible for the execution of specific activities locally, including formulation of common interest groups amongst households. County participation will be formalised through a County Participation Agreement.⁵⁸

Looking beyond the issue of fish catches onshore, value addition was discussed regularly in interviews.

A large amount of fish catch in and around Mombasa often goes bad in a day. The 2018 International Sustainable Blue Economy Conference, hosted by Kenya, produced a list of pipeline projects, proposed by counties, as key areas for future investment. While several counties listed a range of projects, **in Mombasa there was one key proposal – a fishing cold storage facility:**

... construction of 20,000 Metric-tonne cold storage facility that will create 1,000 jobs directly and indirectly. With the Economic Partnership Agreement between EU – Kenya and the upcoming Fisheries Management Bill to secure marine resources including along the EEZ –within the waters of Mombasa...deep sea fishing will be a big boost for the economy of Mombasa.⁵⁹

It is not just a matter of cold storage but also of processing and repackaging to add value to fish.

Rehabilitation of the fisheries complex at Liwatoni, dated for late 2020 completion, will help in this respect. Certain interviews also identified the opportunity

for a large seafood market – a truly good place to sit and sample/eat fresh fish, like in Dar es Salaam and Mozambique. Such a facility would benefit not only the fishing sector, but tourism as well.

Pollution is an additional challenge impacting the fisheries sector. Untreated effluent entering local waters can both negatively impact catch size and quality. This issue highlights one of several dependencies of fishing on other sectors, with pollution challenges already discussed with respect to Ports and Maritime Trade and Tourism. However, pollution is primarily a wider urban issue linked to infrastructure capacity and practices, particularly with respect to liquid and solid waste management, matters discussed later in this chapter.

h) Fishing is an important industry for women groups along the coast. This includes mama karanga – women who buy and process fish for local markets from small-scale fishermen. They form a link to buyers, selling an affordable product for lower income residents.

WATERFRONT DEVELOPMENT



► Image: Mama Ngina Waterfront Trader Spaces

Coastal spaces can be key sites of community interaction, social cohesion and public realm. Such spaces include public beaches, parks and specific waterfront developments. Mama Ngina Waterfront, which was completed last year falls into the latter category. Driven by national government, supported by the County, delivered by architects Planning Systems and involving a range of other actors, the park stretches for 2km along the south of Mombasa Central Island.

The brief of Mama Ngina developer, Planning Systems, was to improve the experience of the locals and preserve the existing archaeological site. Activities included erection of cultural centre, amphitheatre, stalls and an abolition block. There was consciously no construction in the vicinity of the Baobab park towards the end of the 2km stretch, as this site includes both the trees and burial sites. The site has over 2km of

promenade, paving, street lighting and soft and hard landscaping, and in future will have waste management facilities. The promenade provides sites for food culture and for traders, who previously were typically sited informally. While some research warned against the risk of disconnect between the design of the space and wishes of existing traders, upon visiting the site, the selling spaces were being well-used and the promenade appeared vibrant, offering a space for the public to relax and interact, which is key in any city.

Development of other city waterfront sites would undoubtedly be a public asset. Mama Ngina was a national government project and this inevitably alleviated any implementation issues. Land management issues are a key challenge for similar projects along the Mombasa coast, with some land including nearby public beaches, a complex mix

of trades, settlements and politics. The county is currently planning a KSH 300 million facelift of Jomo Kenyatta beach, balancing formal trading spaces, with restaurants and safe, attractive tourism spaces, supported by the development of a Beach Management Act.⁶⁰

Whereas waterfront development such as Mama Ngina and now Jomo Kenyatta beach, can help to improve the aesthetic appeal and public use of waterfront spaces, there is also the emerging threat of shoreline change, associated with a series of infrastructural developments such as the Dongo Kundu bypass and English Point Marina that are reportedly diminishing the opportunities for development of fish landing sites and associated infrastructure.^{61,62,63}

While, such developments are important to Mombasa's blue economy growth (Dongo Kundu will also improve connectivity and in turn potentially create additional opportunities for the fishing sector), robust environmental and social impact assessment processes need to effectively navigate economic, social and environmental concerns, and balance and mitigate accordingly.



► Image: Mama Ngina Waterfront Pedestrian Path

2.3 OPERATIONAL ENVIRONMENT FOR THE BLUE ECONOMY

Mombasa has experienced rapid population growth in recent decades and the City experiences significant infrastructure challenges, which impact ocean health, and threaten the sustainability of blue economy sectors. This section therefore discusses the current status of select urban systems in Mombasa.

HOUSING

Mombasa has a housing deficit of 21,000 units a year, with 60% of the population living in informal settlements.⁶⁴ Solutions to existing informal settlement are complex: resettlement plans which relocate people from ecologically sensitive areas are expensive to implement and execute. In some past cases, citizens who have been relocated are said to have moved to other illegal areas. The County Urban Planning Department suggests a pragmatic approach, with relocation efforts needing to work with those residing in such spaces, work towards provision of a degree of tenure security in appropriate locations, and prioritize relocation of critical areas close to the watermark.

Mombasa County Government is seeking to upgrade, through joint venture partnerships with private investors, 11 housing estates developed in the 1970s, which currently provide poor living conditions. Several of these estates are located in relatively close proximity to the ocean, including Tudor, Mzizma, Buxton, Kaa Chonjo and Kizingo.⁶⁵ Plans were published in 2016 and as of 2020 some of these projects appear to be commencing.⁶⁶ Such plans, if realised,

have the opportunity to improve local living conditions (provided units are affordable to the majority of the population and local residents), and improve essential service provision, which might otherwise contribute to environmental problems. However, plans and approvals need to ensure that auxiliary infrastructure and services (e.g. sewage and solid waste), can support inevitable population growth within and proximate to these developments, and mitigate any negative direct and indirect environmental impacts to the coastal environment and ocean.

More broadly, economic opportunities in any city, attract more people through direct and indirect livelihood opportunity. Plans and approvals for large-scale blue economy projects (e.g. major port expansion or industrial zones) need to be cognizant of the knock-on impacts of new developments. While economic development projects are necessary to stimulate the local economy and provide livelihood opportunities, consequential projected growth should also be factored into the planning approval process, with plans supported by coordinated county planning and robust population projections and solutions.



WASTEWATER MANAGEMENT

One of the primary challenges impacting the marine environment in Mombasa is the lack of sewage treatment infrastructure. This issue can impact most other blue economy sectors and managing sewage has been deemed a priority, in order to realise wider blue economy opportunities.

The sewage system in Mombasa was largely built in the 1950s and 60s and was designed to serve a much lower population than that of present day.⁶⁷ Only one sewage treatment plant in Mombasa, (Kipevu) is currently functional, but not at full capacity. Even if the City's treatment plants were operating at full capacity, they would not address the rapid growth that the City has experienced in recent decades. (Estimates suggest 30% of demand). More than 70% of the population is not connected to a sewer network. Currently, septic tanks connected to soak pits, are the primary means of management for planned developments, while most existing developments use pit latrines.⁶⁸ Sewage challenges are in part linked to the issue of rapid growth and informality and the outcome of insufficient capacity is that most sewage that the city produces, goes untreated.^{69,70}

Further sewage management issues include a reported lack of on-site treatment by many large developments, including certain hotels⁷¹, and wider industrial effluent and wastewater from other large developments such as prisons.⁷²

Studies have identified higher trophic levels in water samples taken at various coastal water sites around Mombasa.⁷³ Higher trophic levels, have the potential to impact both quantity and quality⁷⁴ of fish catches, which, depending on severity, could then impact human health (if consumption quality becomes too low). If catches are sufficiently impacted then there could be significant economic consequences to fishing locally, as well as impact to other blue economy sectors including coastal tourism (e.g. a reduction in diving possibilities and reduced aesthetic appreciation of the local environment).

With devolution, county governments are looking for ways of increasing sewage treatment capacity. Challenges include investment capacity, and the availability of land for large scale interventions.⁽ⁱ⁾

The County Government has stated that big developments such as housing estates and hotels must now meet certain conditions for on-site treatment of wastewater, before development approval is granted. One consultation suggested that a local solution of phasing out of soak pits and development of bio digesters could have broader application over time.^(j) The County has also engaged in sensitization of local workers who empty soak pits, ensuring better disposal practices. Green Wetlands were also discussed as a partial solution, appropriate for some locations.^(k) At the time of writing, a Green Wetlands project was being implemented by UNEP, KMFRI, NEMA and private firm Greenwater, to manage the sewage from Shimo la Tewa prison in northern Mombasa, where excess sewage is currently discharged in raw form, into Mtwapa Creek.⁷⁵

While the above initiatives can make important contributions to better sewage management in Mombasa, in order to fully address the problem, there needs to be large scale infrastructure interventions. Repairs are currently ongoing at Kipevu treatment plant, through World Bank, in order to boost capacity, as well as work on sewer system capacity in Mombasa West.⁷⁶ However, these activities alone are not enough. Until the issue of sewage and wastewater disposal is addressed, other blue economy sectors which rely on ocean ecological functionality, will be impeded by poor infrastructure conditions and practices.

i) For more information on land in Kenya see <https://www.landcommission.go.ke/article/faqs>

j) Interview suggested that small biodigester could cost about 200,000ksh).

k) Green (or Constructed) Wetlands have a plant, gravel or sand filter which 'mimics nature's processes and removes harmful pollutants from the water'.

SOLID WASTE MANAGEMENT

Solid waste is another major infrastructure challenge that the City experiences. Mombasa generates approximately 879 tons of waste⁽¹⁾ but only an estimated 46% is collected.⁷⁷ Like wastewater, plans drawn up in the 1950s did not match the actual growth of the City and associated infrastructure demand. The County does not have designated waste collection points. However, nine transfer points have been designated, where private waste collectors using non-motorised means of transport transfer their waste onto County Government trucks for onward transportation to the final disposal site. Inadequacy of the transfer points, a lack of designated collection points, and the situation of residents who don't pay for collection services, has led to the emergence of informal collection points and of illegal dumpsites close to human settlements.⁷⁸

Another issue is transportation. Between 2017 and 2019 the County Government invested in 22 new garbage trucks but collection issues still remain.⁷⁹ Certain interviews suggested increasing privatization of waste transportation as a means to increase efficiency in collection. It appears that waste collection is already largely conducted by private collectors and companies of varying degrees of size and capacity.⁸⁰

Mombasa's solid waste management problems have broad blue economy implications. Most obviously, when waste is not disposed of properly, much finds its way into city waterways and ultimately into the ocean, particularly during times of heavy rainfall. As well as being an eyesore, this plastic waste is hazardous for marine life.⁸¹

"The blue economy (issues) will not be fixed in the ocean, but on land"

Respondent E

One cited success has been the closure of Kibarani dumpsite, whose waste has been relocated to Mwakirunge. Studies highlighted that waste from Kibarani was leaching into the nearby Makupa Creek, damaging mangroves, affecting water quality and marine life. Furthermore, the old site was situated on the main route from the airport to the City. It was therefore one of the first things that tourists saw when entering Mombasa. While the 'eyesore' impact

is not quantifiable, several interviews lamented this negative first impression. Now the pressure on Kibarani Creek ecosystem has been reduced and the site has undergone some degree of restoration.⁸² Still, Mwakirunge is not universally approved. NEMA have stated that the new site is in a flight path and an alternative is needed. Existing residents at Mwakirunge have also protested the growth of the dumpsite⁸³ and reportedly poor waste management at this and other major sites means that recyclable waste is still finding its way into the Indian Ocean.⁸⁴ Furthermore, the proximity to the City made the old Kibarani dumpsite location viable to local garbage collectors and recyclers and interviews noted discontent amongst these workers at the time of the closure. It is therefore important to recognise livelihoods connected to solid waste management and also the potential for future initiatives which can combine better waste segregation, with livelihood opportunities. The above issues all highlight the **difficulty in finding an optimal dumpsite location, and balancing environmental and socio-economic priorities, in a city short on land, and lacking investment solutions.**

Large infrastructure solutions are costly and will likely involve PPP and national government engagement. There have been discussions between the County and Bamburi cement to handle solid waste and generate energy from it. Feasibility studies began in 2014 but plans do not appear to have proceeded beyond that stage as of yet.⁸⁵

Better waste segregation and recycling is also necessary, developing more of a circular economy. One obvious challenge is a lack of advanced recycling infrastructure.⁸⁶ A further challenge concerns costs associated with the recycling business. Primary consultation suggested that levies exist for recycling trucks as they pass through different counties en route to Nairobi.

The KEMFSED program (discussed under fisheries) has an additional component focused on plastic pollution.

¹⁾ Other sources suggest a figure as high as 2200 tons a day but appear unverified and less robust- <https://www.sciencedirect.com/science/article/pii/S2226585619301256#bib4>

WATER SCARCITY

Proposed activities include creation of recycling nodes in the counties and creation of livelihood opportunities in recycling. If realised, such interventions should help with circular economy efforts in Mombasa. However, considering the multiple-county and multiple-component nature of KEMFSED, such support is unlikely to fully solve the challenge and other efforts will be needed.

Bottle return initiatives were mentioned as one solution during interviews. While Unilever and CocaCola are beginning such schemes in Kenya, UNEP highlight the need for legislation that makes all manufacturers responsible for the waste they produce.⁸⁷ In recent years, the national ban on plastic bags, while not suiting everyone, has seen cleaner waterways, and less food chain contamination nationally.⁸⁸

Several knowledge exchanges are ongoing at present, exploring waste management options. These include the Miji Bora knowledge exchange between the County Government of Mombasa and the City of Durban, eThekweni municipality, South Africa. Mombasa County is also part of WWF Plastic Smart Cities initiative, aiming to eliminate plastic pollution by 2030.^{89 (m)}

Waste management is a complex issue for Mombasa to solve and will require a range of actions and actors. Investment in waste management capacity including collection sites is key, likewise continued creation of livelihoods for local collectors but in a well-regulated fashion. Any investment in circular economy approaches will not only require infrastructure investment (recycling plant, trucks) and policy intervention (levies) but also education and awareness, including a culture change amongst communities from use, to reuse and reduce, especially the City's growing middle-class. All these factors combined are important, as part of a holistic, citywide approach.

Mombasa grapples with consumable water shortage. The City's only utility company, Mombasa Water Supply and Sanitation Company, provides just a third of the water needed by residents.⁹⁰ The national Mwache dam project aims to increase water supply to Mombasa by 2025. The works were due to commence in 2019 but have been delayed due to land compensation negotiations.^{91,92} Two desalination plant projects, through PPP have been planned in the last 2 years but neither appears to have progressed beyond the procurement phase, as of the time of writing.⁹³

m) Commitment: City signs a declaration of intent, committing to No Plastics in Nature by 2030; City develops action plan within 6-months and launches pilot within a designated area with a goal to reduce plastic pollution by 30% within two-years; City appoints a 'Chief Plastics Officer' as the City's lead person for the initiative City develops a monitoring plan that establishes baselines and annual targets, and shares annual progress on www.PlasticSmartCities.org

TRANSPORT

Blue economy sectors depend on transport infrastructure as part of a broad network of urban and regional connectivity infrastructure including energy and communications. **Several road projects to reduce congestion in Mombasa are ongoing or have recently been completed** including the Port Reitz/Moi International Airport Access Road, Dongo Kundu Bypass and Mombasa-Miritini Road. **It is now important that these projects are combined with improvements in Mass Rapid Transit and active transport** (walking and cycling infrastructure), in order to prevent the arrival of more cars and more traffic on these new roads.^{94,95}

Mombasa consists of a series of islands and the Likoni ferry is currently the main mode of transport between Likoni suburb and the main island. Its strategic importance is reflected by the crowds which board the ferry daily. In 2019, a faulty ramp caused two fatalities,

an event that was widely reported. Currently, COVID-19 presents a novel challenge to water transport, with social distancing nigh impossible on the ferry service. Long-term, a further phase of the Dongo Kundu bypass to the west of Mombasa, and a planned bridge across Kilindini Harbour, will ease the pressure on Likoni ferry (and provide important supporting infrastructure for the upcoming SEZ),⁹⁶ but as a shorter-term solution to island connectivity, the Kenya Highways Agency (KeNHA) has commenced construction of a floating pedestrian bridge across the islands.⁹⁷

Lastly, it should be noted that transport is not only a system that supports the blue economy and its sectors but is also a potential valuable blue economy sector in itself. **The County is in the early stages of exploring blue transport solutions, on a local and regional level, to ease congestion along the coast.**⁹⁸



► Image: Passengers boarding Likoni Ferry

EDUCATION

Generally, it is apparent that for Mombasa residents to take advantage of blue economy opportunities, there is a need for investment in both general and specialized education. In general, literacy levels in the County are relatively low at 86.3% and net enrolment in ECD (pre-school), Primary and Secondary school is 57.4%, 81.1% and 32.5% respectively.⁹⁹ In order to ensure that blue economy investments in Mombasa can be accessed by all within society, there should be action at both national and county government scales. Actions should include building public education capacity and partnering with private Technical & Vocational Education & Training (TVET) industries and institutions to train and sensitize citizens for blue economy opportunities and ensure that education opportunities are fully aligned with any planned blue economy sector investment. **The newly unveiled Bandari Maritime College in Mombasa is currently developing its**

training curriculum for seafaring professions, but training and skills development need to go further and consider the indirect, value-chain employment opportunities associated with different blue economy sectors.



CLIMATE CHANGE ADAPTATION AND RESILIENCE

The rising impact of climate hazards was not a topic that was widely discussed in stakeholder consultations, but one that needs to be integrated into blue economy investment, as well as being a priority for the city overall. Challenges include both a lack of awareness, and tangible data that can guide the City's disaster mitigation. Both the National and the County government initiatives are geared towards exploitation of the marine resources at the moment and not so much on resiliency measures. Conservatory efforts are to some extent, in the hands of non-state governmental actors, which in some respects is often perceived more as an activism agenda, e.g. the push for the moving of the old Kibarani dumpsite and investigation of dredging activities by KPA for their port expansion.

One recent study has suggested that with sea-level-rise, by the end of this century, almost 50% of Mombasa island could be under threat of inundation from a 1-in-100-year storm surge. 25% of Mombasa island residents currently live below the 10m sea level rise area, and 11.6% below 1.8m.¹⁰⁰ **Much of the settlement close to, and within riparian zones is informal, and residents often lack adaptive capacity and preparedness for flood events.**¹⁰¹

Critical economic assets including the port of Mombasa and several major hotels also fall within inundation areas. There is a need for county government and specific blue economy sector stakeholders to ensure robust plans are in place for the protection of critical infrastructure, as well as ensuring that climate change adaptation (CCA) and Disaster Risk Reduction (DRR) measures are fully integrated into wider city planning and mitigation activity. Any planned future blue economy infrastructure should be designed and located with future sea-level-rise projections in mind. This planning should consider not just direct blue economy infrastructure but associated related development and growth in and around the area of concern.

Effective collaboration between the County planning department, metrological office and other actors including JKP, KMFRI, KWS and KPA as well as local community organisations is important for the future climate resilience of Mombasa, acting upon local

climate change studies and projections. Detailed flood maps and adaptation strategy, multi-stakeholder emergency response plans, scenario testing and wider capacity building and awareness raising (internally, in county and general public) should stem from such engagement. City to city peer exchange with emergency planning departments may also be beneficial for future planning.

Proactive measures such as mangrove planting and protection of these and other marine ecosystems also have an important role to play.¹⁰²

CLIMATE CHANGE AND CONSERVATION OF MARINE ECOSYSTEMS

Rather than being classed as a separate blue economy sector, conservation, is in many cases, an outcome of the responsible operation of other sectors. Nevertheless, there are also specific conservation activities and opportunities in Mombasa that are worth discussing:

Mombasa has seen significant decline in mangroves over decades of development.¹⁰³ It is vital that mangroves are restored along the coastline. Not only do Mangrove forests act as the cushion belt of high tides, they are also an incredible carbon sink and can capture carbon dioxide from the environment at a rate up to five times more efficient than other forests. Other habitats such as Seagrasses are additionally important for carbon capture but have also suffered reductions along the Kenyan coast over the years, with a reduction of 26% nationally from 1986-2016. Activities such as extensive use of beach seine nets in artisanal fisheries and seaweed

farming are said to be key contributing factors, with land reclamation and pollution further factors globally.¹⁰⁴

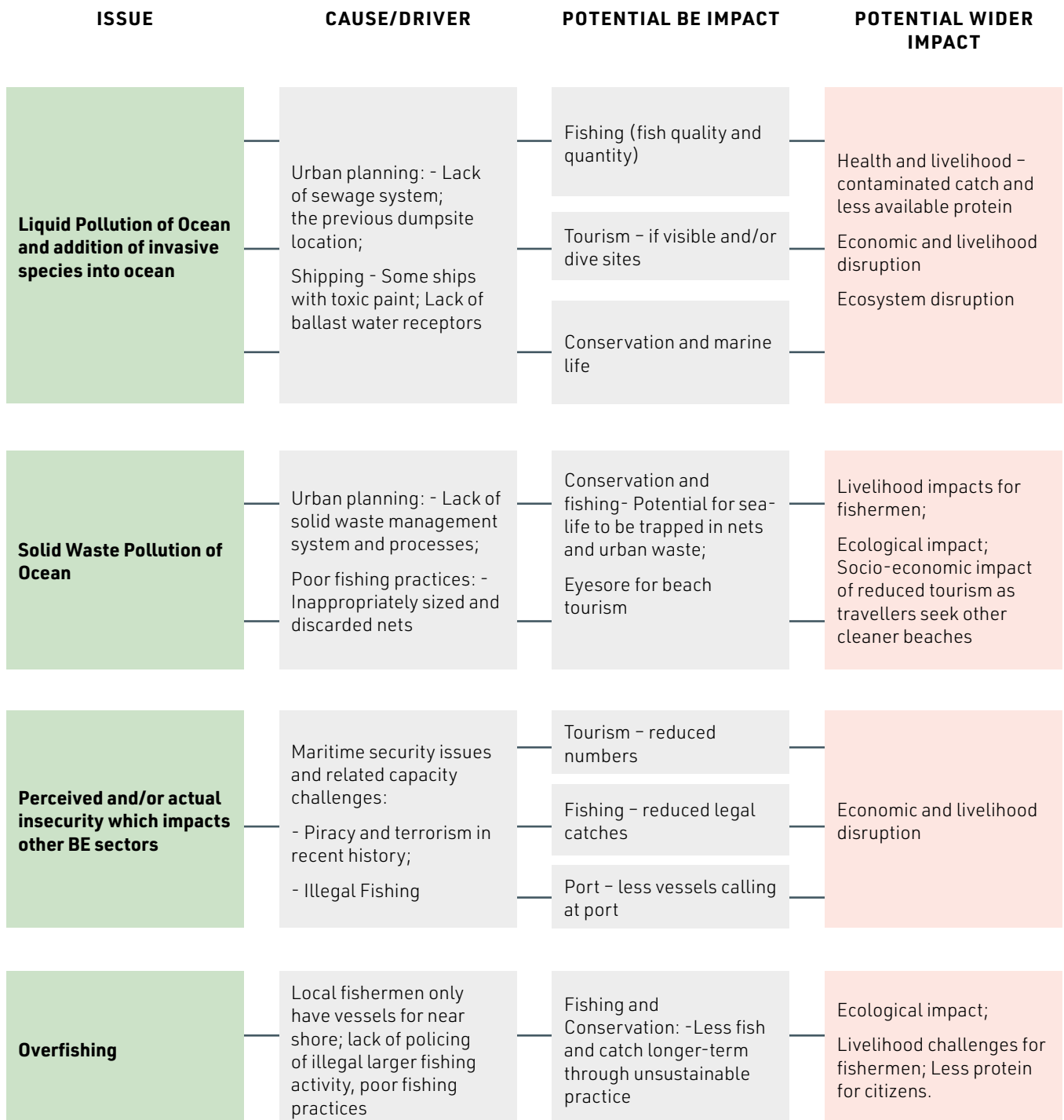
In recent years the National and County government, Kenya Forestry, NGOs, and local community groups have done much to protect the mangroves of Mombasa.^{105,106} It is crucial that such initiatives continue and are expanded upon. It was also suggested in one interview, that successful blue carbon projects operating south of Mombasa could also be a success in the City at locations such as Tudor creek.

Solutions proposed by one recent Mombasa study include 'restoring nature down to the smallest scale (1km² areas)' creating income-generation opportunities for local communities and building social capital at neighbourhood levels.¹⁰⁷ Creation of LMMAs in, or proximate to cities may help to realise such a solution.



2.4 SUMMARY OF INTERDEPENDENCIES

FIGURE 3 - INTERDEPENDENCIES NETWORK DIAGRAM MOMBASA



ISSUE	CAUSE/DRIVER	POTENTIAL BE IMPACT	POTENTIAL WIDER IMPACT
National Port decisions which affect city operations	Shift of haulage from road to SGR; Inland dry dock at expense of Mombasa	Port – impact on direct and indirect employment	Economic and livelihood disruption, increase in social ills, need for new diverse employment opportunities
Education – skills for citizens to grasp opportunities	Capacity deficits	Such skills could benefit all BE industries	Local community will not be fully benefitting from BE investments.
Mangrove destruction	Urban growth	Impact on marine ecology – fishing; flood protection of BE assets	Wider DRR implications

Figure 3 presents some of the inter-related issues within the blue economy of Mombasa, illustrating how challenges in one sector can impact other blue economy sectors, as well as how the shortcomings within some of the wider urban systems, are directly impacting specific blue economy sectors. Whilst this table primarily focuses on challenges, it is also important to highlight that improvements in one sector can bring positive effects to other sectors of the blue economy.

When asked which BE investments should be prioritized, several stakeholders stated that creating employment should be the guiding factor. While this is clearly critical and should continue to be prioritised, certain underlying challenges must also be addressed for such opportunities to flourish.



CHAPTER 3

MOMBASA BLUE ECONOMY RECOMMENDATIONS

Specific strategic and operational recommendations have been extracted from the preceding chapters and are detailed hereafter. These recommendations are not intended to be exhaustive, but provide suggestions and possible directions for the blue economy in Mombasa. Recommendations are provided for both specific blue economy sectors, and the wider operational urban environment.

3.1 BLUE ECONOMY GOVERNANCE AND PLANNING

Despite the City of Mombasa having a long tradition with traditional Blue economy sectors, currently there is somewhat of a disconnect and fragmentation of projects, governance and policies guiding the sector. Both the National Government and the County Government are in the process of strategically positioning themselves within the blue economy. Currently, the blue economy remains largely a boardroom concept that is understood by some actors, to primarily comprise of fishing and its ancillary activities. A holistic blue economy approach and philosophy need to be cascaded down to all relevant stakeholders, especially local community organisations and structures such as the BMUs, who are eventual implementors and beneficiaries of the sector.

BE Operationalization will require a tightly consolidated framework that caters for both vertical and horizontal relations, traversing across the two levels of governments. Additionally, the private sector and the local community need to be brought on board during initial stages of the discussion, so that the sector is communicated and delivered in a localized language/manner, that is inscribed within the City's vision and its people, rather than imposed downwards.

Specific Recommendations:

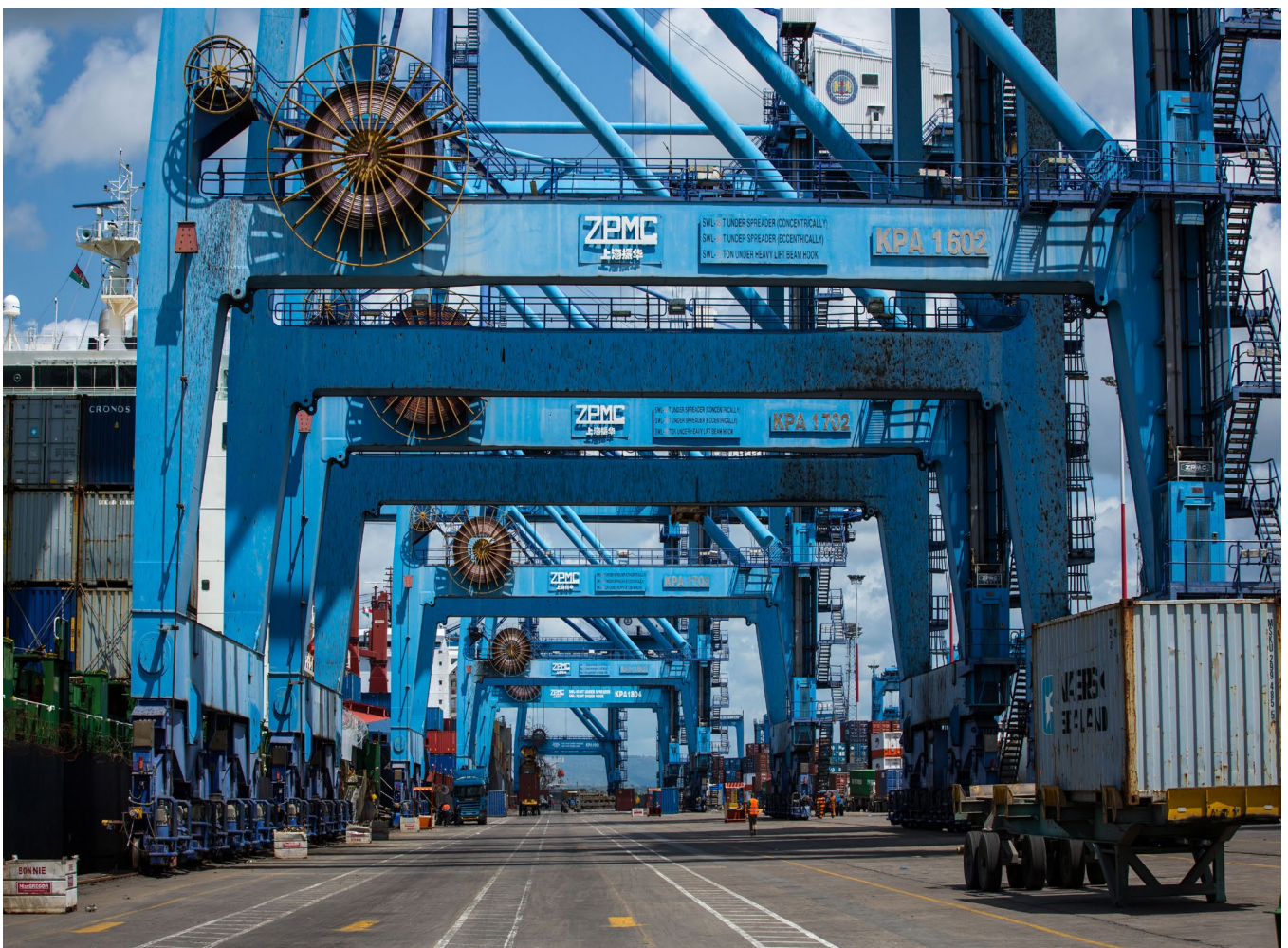
- Counties need integrated land-sea spatial plans that guide developments and vision. The Mombasa County Spatial Plan should fully integrate marine aspects. This process could look for input from KWS, KMFRI and other BE actors. The County should also engage NEMA and vice-versa and increase coordination between the marine-terrestrial planning process and Integrated Coastal Management policy and activities. CCA and DRR measures should be well-integrated in wider plans.
- National legislation could be developed to allow Mombasa and other counties to plan up to 5km into the ocean, within the range where tourism, artisanal fishing and other local activities take place.
- The County could also work with KWS and other actors to identify and mainstream conservation and management of critical habitats into sectoral and land use plans, as well as seek to rehabilitate degraded land for BE benefits across economic, social and environmental pillars (learning from efforts such as the Haller Park rehabilitation).
- Mombasa blue economy development and marine-terrestrial planning needs to be supported by robust legal frameworks, policies, expertise and capacity for long-term infrastructure investment. The County may wish to consider the Initiative on Financing for Resilient and Green Urban Global Solutions (FRUGS) report recommendation of setting up agencies to act as central points for the development of large infrastructure projects, (coordinated with BE Unit activity), and national and regional actors, and working with development partners to strengthen institutional capacity, and develop a strong pipeline of BE projects. Projects need robust monitoring and evaluation to measure benefits for local communities.
- Nationally, the upcoming Kenya blue economy masterplan and related activities should seek to cascade to the local level with diverse stakeholder and community engagement. The community ought to understand the full scope of the blue economy beyond fishing. County governments could be the right conduit for this local dissemination and engagement. National government could consider budget provision to support local government, blue economy capacity and knowledge building, so county governments are capacitated to then engage local communities.
- The County Blue Economy Unit is newly formed and appears to require further formulation. Such a structure has the potential to coordinate blue economy activities across County Government, but there needs to be sufficient and sustainable support for such a mechanism, to ensure coordinated action long-term, beyond political cycles.
- Regionally the County and its BE Unit should coordinate and tighten linkages with JKP. Locally, there should be a regular coordination mechanism between the unit and wider county departments, key city BE actors such as KPA, KWS, KMFRI, NEMA, private sector and local community BE actors. The County could develop not only sector-specific investment proposals, but also cross-cutting BE investment priorities, that address multi-sectoral challenges. BE plans should address system interdependencies as discussed in 2.4.
- A lot of valuable national and local BE knowledge exists but reports are not always widely available. All relevant national and local BE documents and reports could be stored on a single portal and all research/reports/plans/strategies could include summaries, key points and actions for relevant actors, with mechanisms to ensure that research transforms into action.

3.2. BLUE ECONOMY SECTORS

PORT AND MARITIME TRADE

There is need for Mombasa to continue steps to reduce reliance on a nationally controlled asset, while still building port capacity and creating jobs in this sector. At the same time, negative environmental impacts associated with ports need to be managed:

- The County with support from national, international and private actors could continue to diversify the Mombasa economy as per the County draft economic stimulus prospectus and relevant national and private sector projects.
- Actions to build the County capacity to run a facility in the port (e.g. build up skills such as marine pilots and engineers), may help the County to establish greater county representation at the Port and strengthen relations with KPA.
- From an environmental perspective this report supports the aspirations of Coastal Oceans Research and Development, Indian Ocean, East Africa (CORDIOEA), that Mombasa develops a dumping policy and practices accepted by all parties with respect to dredging and dumping, which mitigate potential negative environmental and social impacts.
- More broadly, as the port increases in size, there needs to be corresponding investment in pollution monitoring capacity and enforcement, as well as equipment such as ballast receptors. Robust Environmental Impact Assessment (EIA) processes are essential for port expansion and Mombasa should work towards implementation of Green Port aspirations, learning from Durban and other ports with Green credentials.



► Image: Port of Mombasa © Make it Kenya, Flickr

TOURISM

For coastal tourism to work for Mombasa, the County, KCTA and other actors need to build resilience to market shocks, continue to find balance between domestic and international markets, and ensure trickle-down of tourist spend to local communities.

- Mombasa may benefit from developing a regional tourism strategy, in partnership with other counties such as Kilifi and Kwale, and seek to diversify offering between locations so that tourists visit Mombasa, Watamu and Diani in one trip, rather than choosing one over the others.
- As conditions improve with respect to COVID-19, National and County Government should undertake campaigns aimed at foreign tourists who may take longer to return than domestic visitors. Best practices and lessons learned during COVID could be collated and included in future resilience strategy work.
- County and KCTA could work with hotel owners to diversify offerings, move away from all-inclusive packages and offer experiential tourism packages, which support local residents/communities. Efforts might include provision of tours demonstrating local life and culture as well as sport fishing and water-sports including sailing and diving. Hotels also need to continue to offer packages which cater towards both foreign and domestic tourists, including business and conference travellers.
- More beach vendors training – the KCTA initiative appeared valuable with subsequent positive monitoring and evaluation results. The KCTA initiative could be refined and developed e.g. undertake research on which products tourists most desire and train accordingly. In time the initiative could be rolled out more widely.
- A single window for getting various operating licenses would help locals involved in the tourism trade, as would tax relief for local businesses, especially those meeting green and marine friendly criteria, and/or creating economic opportunities for local communities.
- Sensitisation of hotels and tourism workers on the issue of sex tourism and identification of the exploitation of minors would be beneficial. If missing, the government, in partnership with tourism actors could establish and promote a simple, accessible yet robust related reporting mechanism.
- It was suggested that ecotourism can be further activated in the City, involving County Government and private stakeholders. Development of spatial conflict mechanisms for Mombasa Marine Reserve and similar areas may be beneficial.



FISHING

Development of the fisheries sector in Mombasa requires the development of skills and equipment for increased quality and quantity of catches and development of post-catch infrastructure for value addition and sale. The KEMFSED Project is in the early stages and might somewhat address this capacity issue, and other specific challenges below, through programme activities over the next five years.

The exact breakdown of KEMFSED support across counties was not clear to the research team at the time of writing, but it is important that interventions have synergy across coastal counties, e.g. improving fishing capacity in one place, may require support services (e.g. boat building) and value chain opportunities (e.g. fish processing and cold storage) elsewhere.

Specific activities which could be addressed through KEMFSED but also through wider intervention include:

- The County Government, National Government and organisations such as KMFRI should continue and increase efforts to support and develop BMU capacity in terms of required equipment (especially vessels), safety, organisation and technical knowledge.
- Expand County skills exchange initiatives with skilled fishermen from other jurisdictions such as Pemba. Be targeted in selection of beneficiaries and work with national actors (e.g. KMFRI and State Dept for fisheries) to develop metrics in order to monitor and evaluate the success of such initiatives.
- Value Addition – it seems important that County pursues identified opportunities for fish value addition in Mombasa, namely cold storage and processing facilities. Any investments in this respect should be tied to local job creation and associated training initiatives.
- Fish quality monitoring facilities are important for export standards and Mombasa may be a good site for such development.
- A fish market and/or auction market which can cater to locals and tourists might also add value in Mombasa. Such activity might attract large scale fish

companies, that may wish to dock in Mombasa to sell their catch, as well as promoting value addition activities.

- The County could seek to develop relationships between local fisherfolk and bulk-buyers in Mombasa (e.g. hotels) and create incentives for people to buy-local produce (rather than just imported catches).
- Build capacity of local women's fishing groups. County and National Government could consider the role of and impact on local women's groups, as BE fishing projects are conceived and implemented. More broadly, actors such as KEMFRI (and other related actors) can offer valuable knowledge to the local population, alongside KEMFSED support. Knowledge and training of local communities should form a key part of this programme.

WATERFRONT DEVELOPMENT

Successful waterfront development projects should seek to balance economic, social and environmental requirements through well-designed, mixed use development, and involvement of all affected stakeholders in the development and management of such sites. Mombasa has further potential to create such sites, building on recent projects, but such development should not come at the expense of the local coastal and marine environment.

- National and County Government could pursue other waterfront development projects, creating sites for community social cohesion, building on the successes of Mama Ngina waterfront and upcoming upgrading to Jomo Kenyatta public beach. Shelly beach in the South Coast a may be another site worth upgrade attention.
- Mombasa is a city rich in history and sites such as Fort Jesus are already popular attractions. The City could undertake formal mapping of historic, cultural and architectural coastal assets to protect and champion in future WfD projects.
- Development along the coast is important for the future of the blue economy and wider economy in Mombasa, but must be sustainable, and balanced with environmental and social considerations. Heavy waterfront development of green sites should be prevented through robust enforcement of legislation. The County and/or NEMA could map coastal areas requiring protection, as well as promoting inclusive regeneration /greenification of sites currently suffering from dilapidation. The County could identify dilapidated sites suitable for rehabilitation, engaging the expertise of KWS, the Haller Park team and other actors in this process.
- Mombasa has rich ecology in the marine reserve and park. A waterfront aquarium if done well, may provide a useful education and tourism asset. Haller Park has proven a valuable site on both fronts.



3.2 OPERATIONAL ENVIRONMENT

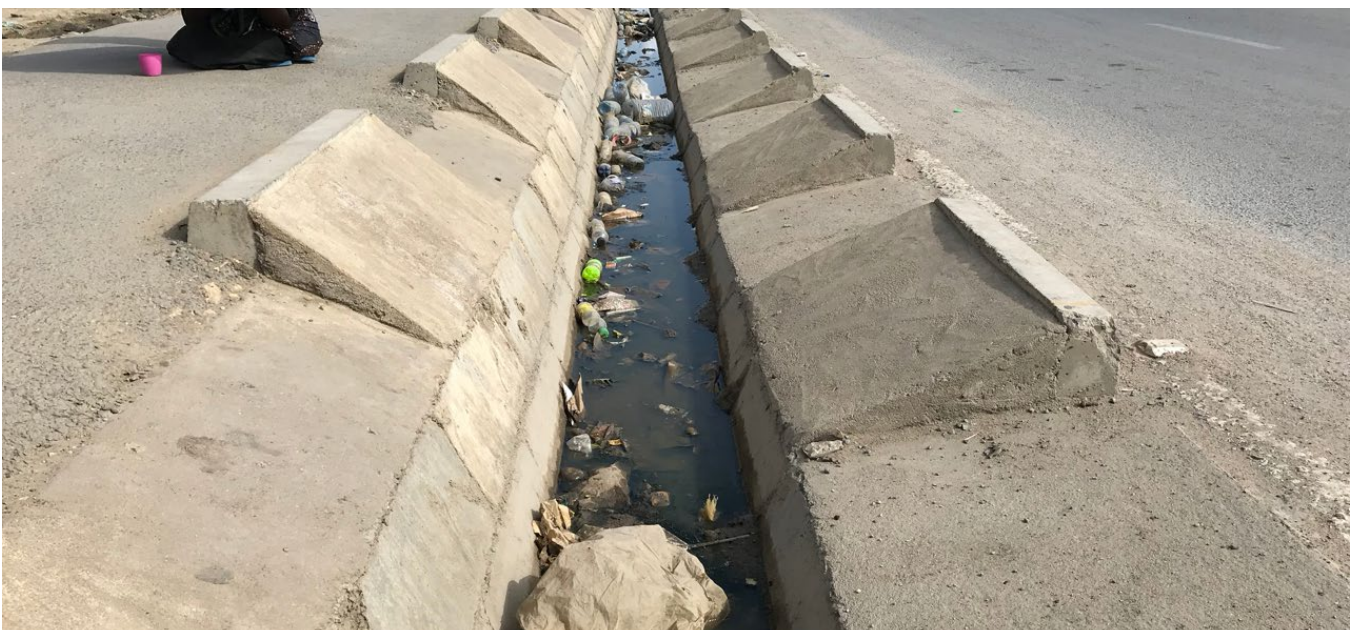
Blue economy sectors such as fishing and tourism depend on healthy ecological function of the ocean, which is linked to the performance of urban sewage and solid waste systems amongst other factors. All BE sectors depend on the functioning of other urban systems such as transport and communications. If these essential services are not improved, they will increasingly hinder the ability of the City to reap rewards from the promising blue economy sector.

Relatedly, blue economy development projects should be approached holistically and cognisant that the opportunities that derive from such interventions will drive more direct and indirect growth locally. The projects should balance between infrastructure demand and related environmental pressures.

WASTEWATER MANAGEMENT

Sewage treatment must be resolved before the BE can fully flourish in Mombasa. It is obvious that large-scale interventions such as additional treatment plant infrastructure would improve conditions, but it is also clear that such projects are complex and challenging for many reasons and likely require support through development actors or PPP. Smaller-scale activities might include:

- Explore potential of WatSan systems/solutions which require less land and can contribute to reduction in untreated sewage, such as onsite and cluster wastewater treatment. Make on-site sewage treatment mandatory for new developments and perhaps offer appropriate incentives for developments with onsite treatment plans.
- It would be beneficial to build monitoring and inspection capacity to ensure that on-site treatment requirements for new developments are enforceable, likewise to provide wider capacity building for pollution monitoring and regulation of existing developments (e.g. within NEMA and County planning and environment departments).
- Encouraging new/better sewage system technologies - currently oxidation ponds are being used in many cases but newer technologies can be incorporated.
- Further sensitize local communities and operators on issues such as soak pit disposal and gain public acceptance of any new solutions. Similarly the County could engage industrial and agricultural polluters, offer advice and penalise poor practices.
- Green wetlands, sewage outflows and seagrass filtration are all options that the County may wish to explore, potentially in partnership with private and/or development actors.



► Image: Waste in Roadside Drains, Mombasa © ITDP Africa, Flickr

SOLID WASTE MANAGEMENT

Like sewage management, solid waste is an issue that must be addressed holistically, for wider blue economy benefits. Key recommendations in this sector are as follows:

- An efficient and effective waste collection system, is an important first step to achieving a circular economy. One requirement is for the County, National Government and NEMA to establish an appropriate dumpsite resolution and improve current waste management practices, working with other relevant experts, specifically building on recent waste management research in the city, conducted by UN-Habitat and partners. As part of this effort, there could be action to develop material recovery infrastructure, which could be effectively linked to community livelihood opportunities.
- The County could work with external actors to develop recycling infrastructure, and possibly offer incentives to the private sector for investment in recycling. Levies on recycling trucks and other disincentives to recycling could be relaxed.
- The County could continue to explore waste to energy potential with Lafarge or other interested investors.
- The government, alongside other actors, could undertake work to inculcate responsible public behaviour with respect to sustainable consumption and proper waste handling through sustained awareness/sensitisation programmes.
- There could be broader promotion of a circular economy, with multi-stakeholder engagement, promotional campaigns and supporting infrastructure. This would reduce pressure on landfill facilities as well as creating jobs to the local residents.
- National Government could engage companies who produce plastics and work towards achieving a solution at source – e.g. every bottle into the market requires a contribution into a national waste management fund.
- It is understood that peer-to-peer city learning exchanges are currently underway between Mombasa, Durban and other cities in the region, as part of wider WIOMSA activities. It is important that the above recommendations are considered and combined with activities which have already proven successful in other WIO cities.

WATER

- It would be beneficial to ensure that actors such as KMFRI and CORDIOEA are fully engaged in any implementation of desalination, or other water supply technologies which may, without mitigation, as part of a robust EIA process, create additional marine environmental challenges.

TRANSPORT

- It is important to ensure that regular, robust safety measures and checks on the Likoni ferry and other marine transport are in place.
- The Likoni floating bridge could be combined with wider efforts to improve safe and enjoyable active transport (walking and cycling) infrastructure along the coastline.
- The County could continue to explore the future viability of marine transport on a local/regional scale.

EDUCATION

- Every blue economy project needs a well-developed strategy for how it will serve the local community and those who need the opportunities most. Capacity building, local education and blue economy skills building should form part of any programme.
- Partnering with private Technical & Vocational Education & Training (TVET) industries and institutions could help to train and sensitize citizens for blue economy opportunities, and ensure that education opportunities are fully aligned with any planned blue economy sector investment. This includes indirect, value-chain employment opportunities, associated with different blue economy sectors.
- It may be beneficial to consider the creation of simple, free, online training modules, which can be completed on smartphones, providing training on blue economy entrepreneurship, alongside basic business management training. Such a resource could be supplemented with physical training and support for those who complete online modules. County Government could seek support from other actors e.g. NGOs, JKP, National Government and/or private sector, in the creation of such initiatives. Training could also involve sector specific courses, working with sector specialists e.g. KMFRI (fishing), KCTA (tourism), KPA/KMA (ports), combined with physical workshops in schools and/or communities.

CLIMATE CHANGE ADAPTATION AND RESILIENCE

On the surface Mombasa appears underprepared for future climate hazard impacts. Actions need to be taken with respect to specific emergency planning and broader urban planning and CCA:

- There is a need for county government and specific blue economy sector stakeholders to ensure robust plans are in place for the mapping and protection of critical infrastructure (blue economy infrastructure and generally), as well as ensuring that CCA and DRR measures are fully integrated into wider city planning. Create closer connection between the County and NEMA ICM activities and policy.
- Any planned blue economy infrastructure should be designed and located with future sea-level-rise projections in mind. A clear understanding of indirect development implications of such projects is necessary.
- Effective collaboration between the County planning department, meteorological office, research institutions and other actors including NEMA, JKP, KMFRI, KWS, CORDIOEA and KPA, as well as local community organisations, is important for the future climate resilience of Mombasa, acting upon local climate change studies and projections.
- Need to develop detailed flood maps and adaptation strategy, with multi-stakeholder emergency response plans and scenario testing.
- Wider capacity building and awareness raising (internally, in County and general public) could stem from such engagement.
- City to city peer exchange with emergency planning departments may also be beneficial for future planning.
- Extensive mangrove planting across the City to reverse years of decline. Corresponding public sensitisation activities. Explore potential of blue carbon schemes linked to local community in creek areas, and implement ecosystem restoration for degraded areas, such as abandoned quarries and dumpsites.

3.3 MOVING FORWARDS

Strengthening the blue economy in Mombasa will involve a mix of cross-cutting strategies, and sector-specific policies that focus on growing local capacity in established areas of tourism, ports maritime trade and fishing, alongside further exploration and investment in new and developing blue economy sectors such as biotechnology and waterfront development. This case study has aimed to provide a starting point for the development of a future city blue economy strategy for Mombasa, that can be coordinated with national plans and objectives, while also providing inspiration for cities with shared characteristics.

The 'Roadmap for WIO Coastal Cities and the Blue Economy', which exists as another report in this research portfolio, describes wider actions for cities across the region. Stakeholders are encouraged to also consider broader recommendations made within that document, and specifically assess their appropriateness for the city of Mombasa.

When prioritising recommendations for the 'Roadmap', those involved in the shortlisting process considered the merits of each recommendation, as a future action for WIO cities, against six criteria:

1. How well does the recommendation support economic development of WIO cities?
2. How well does the recommendation support social development in WIO cities?
3. How well does the recommendation support environmental sustainability of the marine and/or coastal environment?
4. Financial viability – how does the investment required align to existing or potential sources of finance and funding?
5. Technical viability – how does the technical complexity of the recommendation align to existing technical maturity in the sector?
6. Acceptance - Would there be general support across BE stakeholders necessary to realise this action/ambition?

We now encourage national, city and local blue economy stakeholders to come together, and further consider the best actions moving forwards, for a sustainable blue economy in Mombasa.



ANNEX

STAKEHOLDERS CONSULTED (MOMBASA)

1	5 representatives from COMRED (Not for Profit Research Organisation)
2	Representative of Planning Systems Services Ltd (Private – Architects)
3	Denis Lewa Muganga, County Secretary and Head of Public Service, Mombasa County
4	Julius Owino, CEO, Kenya Coastal Tourism Association
5	Fredrik Mwabli, Local Coastal Expert
6	Dr Judith Nyunja, Kenya Wildlife Service, Mombasa Marine National Park
7	2 representatives from NEMA Mombasa
8	3 representatives from Mombasa County departments
9	4 representatives from KMFRI – Dr Eric Okoku and colleagues
10	Dr David Obura, CORDIOEA
11	Emanuel Nzai, Secretariat, Jumuiya Ya Kaunti Za Pwani - JKP
12	Representative of Department of Lands and Planning, Mombasa County
13	2 representatives from Kenya Maritime Authority
14	Albert Musando, Environmental Education & Ecosystems Manager, Lafarge Eco Systems, Bamburi Cement Limited.

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