

---

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

---

City Case Study  
**Kilifi Town**



Published by WIOMSA

Copyright © 2021, WIOMSA

All content created and or contributed by Arup is copyright © 2021, Arup

**Disclaimer** The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the Western Indian Ocean Marine Science Association (WIOMSA) or Arup concerning the legal status of any country, territory, city or area or of its authorities, or concerning delimitation of its frontiers or boundaries. Moreover, the views expressed do not necessarily represent the decision or the stated policy of the Western Indian Ocean Marine Science Association (WIOMSA) or Arup, nor does citing of trade names or commercial processes constitute endorsement. The opinions expressed and arguments employed herein are those of the authors and do not necessarily reflect the official views of the WIOMSA and UN-Habitat.

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder provided that acknowledgement of the source is made. WIOMSA and Arup would appreciate receiving a copy of any publication that uses this publication as a source. No use of this publication may be made for resale or for any other commercial purpose without prior permission in writing from WIOMSA.

WIOMSA

Mizingani Street, House No. 734,

P. O. Box 3298, Zanzibar,

United Republic of Tanzania

Tel: + 255 24 2233472/2234597

Fax: + 255 24 2233852

Email: [secretary@wiomsa.org](mailto:secretary@wiomsa.org)

Primary Author and Researcher: **Kieran Birtill (Arup)**

Contributing Author and Researcher: **David Njenga (Independent)**

Graphics: **Roman Svidran (Arup)**

Reviewers: Professor Mwakio Tole (Pwani University), Dr. Arthur, O. Tuda, Dr. Ochanda, K. Valentine and Dr. Julius, W. Francis (WIOMSA), Thomas Chiramba and Isabel, S. Wetzal (UN-Habitat), Callum Newman (Arup).

For citation purposes this document may be cited as:

WIOMSA and UN-Habitat, 2021. Coastal Cities of the Western Indian Ocean Region and the Blue Economy: Case Study - Kilifi. WIOMSA and UN-Habitat, Zanzibar, Tanzania, xxx pp.

ISSN 2799-2217

## ACKNOWLEDGMENTS

The production of these reports reflects the new collaborative efforts between WIOMSA and UN-Habitat, aiming at better understanding the linkages and interdependencies between environment, society and economy in coastal cities.

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.

We would also like to register our appreciation to all those who participated or provided data and information in the research phases of the four case studies. Experts who participated in prioritising actions for the Strategic Roadmap are acknowledged for their time and invaluable insights. We gratefully acknowledge all those who permitted the use of their photographic material.

We would also like to register our appreciation to external reviewers (Godfrey Nato, Tole Mwakio, Mitrasen Bhikajee and Ally Namangaya), who reviewed the case study reports and provided contributions that lead to high quality products.

We also wish to recognize and thank the Government of Sweden for their generous contribution. The funds provided through the Cities and Coasts Project supported different aspects of the production of these reports.

Furthermore, in publications such as these, many individuals and institutions provided support and technical inputs in many different ways. It is impossible to list all of them by name, but their support and inputs are individually and collectively much appreciated.



## ACRONYMS

BE - Blue Economy	MPA - Marine Protected Area
BMU - Beach Management Unit	MPRU - Tanzanian Marine Parks and Reserves Unit
CBOs - Community-based organizations	MSP - Marine Spatial Planning
CCCS - Centre for Climate Change Studies	NBS - National Bureau of Statistics
COP - Conference of the Parties	NGOs - Non-Governmental Organisation
CSO - Civil Society Organization	OECD - The Organisation for Economic Co-operation and Development
DARCH - Dar es Salaam Centre for Architectural Heritage	PPP - Public Private Partnership
DAWASA - Regional water and sanitation authorities	SDG - Sustainable Development Goal
DMI - Dar es Salaam Maritime Institute	SEZ - Special Economic Zones
DMRS - Dar es Salaam Marine Reserves System	SIDS - Small Island Developing States
DRR - Disaster Risk Reduction	SMMEs - Small, Medium and Micro Enterprise
DUTA - Dar es Salaam Urban Transport Authority	SOEs - State Owned Enterprises
EEZ - Exclusive Economic Zone	SWOT - Strengths, Weaknesses, Opportunities, and Threats
EIA - Environmental Impact Assessment	TAFICO - Tanzanian Fishing Corporation
ESIA - Environmental Social Impact Assessment	TAFIRI - Tanzania Fisheries Research Institute
EU - European Union	TANESCO - Tanzania Electricity Supply Company
EWURA - Energy and Water Utilities Regulatory Authority	TANROADS - Tanzania National Roads Agency
FDI - Foreign Direct Investment	TARURA - Tanzania Rural and Urban Road Agency
FTZ - Free-trade zone	TVET - Technical & Vocational Education & Training
GDP - Gross Domestic Product	TEU - Twenty-foot Equivalent Unit
GFDRR - Global Facility for Disaster Reduction and Recovery	TPA - Tanzania Ports Authority
GIS - Geographic Information Systems	UNECA - United Nations Economic Commission for Africa
GMP - Gross Marine Product	UNEP - UN Environment Programme
ICT - Information and communications technology	UNICEF - United Nations Children's Emergency Fund
ICZM - Integrated Coastal Zone Management	USD - United States Dollars
IFRC - International Federation of Red Cross and Red Crescent	WIO - Western Indian Ocean
IFZ - Industrial Free Zone	WIOMSA - Western Indian Ocean Marine Science Association
LMMAs - Locally Managed Marine Area	WWF - The World Wildlife Fund
MICE - Meetings, Incentives, Conferences and Events	

# CONTENTS

5	Contents
6	Foreword
7	Preface
<hr/>	
<b>8</b>	<b>1. INTRODUCTION</b>
9	1.1. City Overview
10	1.2. Research Methodology
<hr/>	
<b>12</b>	<b>2. THE BLUE ECONOMY IN KILIFI TOWN</b>
14	2.1. Blue Economy Governance and Planning
22	2.2. Sector Specific Blue Economy Challenges and Opportunities
28	2.3. Future BE Sectors in Kilifi
32	2.4 Operational Environment for the Blue Economy
36	2.5 Summary of Interdependencies
<hr/>	
<b>38</b>	<b>3. KILIFI BLUE ECONOMY RECOMMENDATIONS</b>
39	3.1. Blue economy (BE) Governance and Planning
40	3.2. Current Blue economy sectors
42	3.3. Future Blue economy sectors
44	3.4. Operational Environment
46	3.5. Moving Forwards
48	Annex
49	References

## FOREWORD

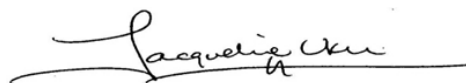
Although cities only represent 2 percent of the world's geographical area, the activities within their regional boundaries use over 75 percent of the planet's material resources, according to a study released by the International Resource Panel in 2018. This among other reason is why the UN in 2015 approved 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 Kilifi report is one the case study reports for coastal cities, others being Mombasa, 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

# INTRODUCTION

*Kilifi Town has experienced rapid growth in the past decade, in part influenced by the development of Pwani University and Kilifi Town's new role as Kilifi County headquarters. These developments have set the Town on a positive growth trajectory that can see it grow and develop its own identity, both internally and at a county and national scale.*



## 1.1. CITY OVERVIEW

Kilifi Town lies within the coastal plains of Kilifi County and is situated 56 kilometres northeast of the city of Mombasa. It sits on both sides of Kilifi creek on the estuary of the Goshi river. Kilifi is strategically located, approximately midway between the county's other sizeable urban settlements of Malindi and Mtwapa.

According to the 2019 National population census, the Kilifi Town population increased from 41,288 in 2009 to the current population of 74,270 people.<sup>1</sup> This confirms a rapid urbanization process, with the population almost doubling within a span of just 10 years. Several aspects have contributed to Kilifi's exponential growth, notably, the development of Kilifi Institute of Agriculture into Pwani University in 2008, the continuing growth of Kilifi District hospital since becoming a Kenyan Medical Research Institute (KEMRI) research centre in 1995, and the selection of the town as the headquarters of Kilifi County since the onset of devolved governance in Kenya.

Environmentally, Kilifi Creek is open to fishing and recreation and lacks protected status. The town's growing population is not currently matched by service infrastructure expansion, and pollution from homes and hotels pose an increasing threat to local waters.<sup>2</sup> Across the wider County, Malindi and Watamu are the sites of ecologically important Marine Protected Areas (MPAs), as well as several smaller, locally managed marine areas across the county (LMMA). Kilifi County is also home to the Arabuko Forest which connects Watamu and Malindi. Arabuko is an important remnant coastal forest with endemic species. The whole area of Malindi-Watamu Reserves and Arabuko forest are designated as UNESCO Man and Biosphere reserves, recognising and promoting the reconciliation of human activity and livelihood creation, with conservation principles.<sup>3,4</sup>

Kilifi Town is commonly known along the Kenyan coast for its resort town character. Tourism is a significant economic activity for the town which hosts beach hotels, holiday homes and water sports events. Additionally, Kilifi Town houses ancient monuments such as the ruins of the 14th century slave trading settlement and a reptile rescue park, which offer further visitor attractions. With the town being set along the coast, most of its indigenous communities

rely on the traditional blue economy sector of onshore fishing. However, this has changed over time, and as the town grows, so does a struggle for identity along the lines of being a fishing village, a resort town, and/or ambitions of competing as an industrial and commerce centre for the larger Kilifi County. The town's growth was in fact once spearheaded by the now defunct Cashew nut milling factory in the 1980's and 90's.

Currently, Pwani University and the town's new role as a county headquarters, sets Kilifi Town on a positive growth trajectory that can see it grow and develop its own identity, both internally and at a county and national scale, as locally it is currently overshadowed by neighbouring towns of Malindi and Mtwapa. Kilifi Town is a settlement of significant blue economy potential with seaport activities and shipbuilding two of several potential sectors that could develop in the coming decades. The challenge for the county and municipal government is to manage direct and indirect urban growth, service provision and related environmental impacts, in line with any blue economy and wider economic development aspirations.

## 1.2. RESEARCH METHODOLOGY

Kilifi primary research took place in the second 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 Kilifi, 24 stakeholders were consulted from 12 organisations:

**TABLE 1 - KILIFI ORGANISATIONS AND/OR INSTITUTIONS CONSULTED**

1	COMRED
2	Independent Coastal Expert
3	Kenya Wildlife Service
4	NEMA Mombasa
5	KMFRI
6	CORDIOEA
7	Jumuiya Ya Kaunti Za Pwani - JKP
8	Pwani University
9	Kilifi Town Municipality
10	Mida Creek Youth Group
11	Kilifi County Government
12	Local Former Fisherman






## CHAPTER 2

# THE BLUE ECONOMY IN KILIFI TOWN

*Fishing and Tourism are key blue economy sectors in and around Kilifi, however the latter is partly concentrated in the Kilifi Creek/Mnarani area on the outskirts of the town. As a small but growing coastal settlement Kilifi is currently relatively underdeveloped with respect to other traditional blue economy sectors such as port and maritime trade. The blue economy has much growth potential locally and blue economy development at nearby settlements may significantly impact Kilifi Town in the coming years.*

## INFOGRAPHIC: MEASURING THE BLUE ECONOMY IN KILIFI

### SECTOR SPECIFIC BLUE ECONOMY CHALLENGES AND OPPORTUNITIES

	<b>Port and Maritime Trade</b>	<ul style="list-style-type: none"> <li>No current activity in Kilifi Town, although Kilifi County Government suggest that port investment at nearby Takaungu would create 2000 direct jobs and over 10,000 indirect employment opportunities. This might create some overspill opportunity in Kilifi Town.<sup>6</sup></li> </ul>
	<b>Tourism</b>	<ul style="list-style-type: none"> <li>Tourism is reportedly the main economic activity in Kilifi Town, although it is not as popular a destination as Malindi or Watamu.</li> <li>Pre- COVID Kilifi County received an approximate 50,000 tourists and visitors per month, who on average spend US\$200 a day.<sup>5</sup></li> </ul>
	<b>Fishing and Aquaculture</b>	<ul style="list-style-type: none"> <li>In Kenya, marine fishing is largely exceeded by freshwater with marine contributing just 10% of annual fish production.<sup>7</sup></li> <li>Marine fishing nationally, contributes ~0.5% of annual GDP, due to few large vessels and therefore overfishing near shore.<sup>8</sup></li> <li>Kilifi County has over 7,000 fishermen distributed in different landing sites along the coastline,<sup>9</sup> with an annual catch of about 443,689 tonnes.<sup>10</sup></li> </ul>
	<b>Conservation</b>	<ul style="list-style-type: none"> <li>There are two Marine Protected Areas (MPAs) and six Locally Managed Marine Areas (LMMAs) in Kilifi County but none within 10km of Kilifi Town.</li> </ul>

### OPERATIONAL ENVIRONMENT FOR THE BLUE ECONOMY

	<b>Solid Waste Management</b>	<ul style="list-style-type: none"> <li>Kilifi Town has no solid waste management system. Household waste makes up 85.15% of total waste generated.<sup>11</sup></li> </ul>
	<b>Water and Sanitation</b>	<ul style="list-style-type: none"> <li>Kilifi Town has no sewage system and untreated effluent goes directly into coastal waters.<sup>12</sup></li> <li>A 2017 Ministry of Water and Irrigation commissioned masterplan, suggests implementation of a proposed wastewater management scheme would increase total tourist expenditure by US\$114,000 per annum, due to cleaner and more attractive beaches.<sup>13</sup></li> </ul>
	<b>Climate Change Adaptation</b>	<ul style="list-style-type: none"> <li>Kilifi is increasingly experiencing rainfall induced flooding and droughts. In 2015, the County was subjected to the worst floods in more than 20 years.<sup>14</sup></li> </ul>

## 2.1. BLUE ECONOMY GOVERNANCE AND PLANNING

**Kilifi Town became the county headquarters for Kilifi County, post devolution, in 2013. By virtue of being a county headquarter, the Urban Areas and Cities Act of 2012 classifies Kilifi Town as a municipality. The town is in the early stages of operationalizing the Kilifi Municipality Board that was constituted in 2019. The municipality board operates under the county government governance structure with a form of delegation of duties executed on behalf of the**

county government including the lighting of streets, sewage management, local tax collections and levies and management of public areas i.e. beaches and open spaces. **Still, blue economy planning in Kilifi primarily takes place at a county level, with national government retaining a prominent role and oversight on projects of national strategic importance, as is the case across Kenyan counties.**

### 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.<sup>(a)</sup> Counties have significant powers under devolution, and are 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.<sup>15,16</sup>

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 which 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 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.

The municipality system of governance is a relatively new system under the devolved governance structure of counties. This system was re-introduced in response to an identified lack of adequate capacity of county government departments to adequately govern and manage urban areas across Kenya. It is with the Urban Areas and Cities Act of 2012 that municipalities were brought back, with Kilifi County having two municipalities - Malindi and Kilifi.

Part of the mandates of municipal boards also involves preparing and adopting Integrated Urban Area Development Plans which cascade down from the County Spatial Plan and County Integrated Development Plan. These plans are used as a development control tool that the municipal board uses for enforcement, provision and maintenance of services within municipal towns.

(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



► Image: Polling Kilifi © Dan Spealman, Aga Khan Foundation, Flickr

## MARINE AND TERRESTRIAL PLANNING

**Kilifi County is yet to adopt its County Spatial Plan which is undergoing updates before the county government assembly adopts it. This document is expected to be the guiding factor for both Malindi and Kilifi municipalities and their management boards that would then adopt these plans and prepare more focussed area plans for their towns.**

Kilifi Town is not short of former planning initiatives which have shaped its growth up until now. Before the county governments, Kilifi Town, under the Kilifi District had its first Integrated Development Plan prepared in 1981. At that time the town was at its initial stages of development, thus its structure and form were not yet well-established, and its future growth pattern was uncertain. Urban development was taking place in a sporadic manner within the town centre and adjacent neighbourhoods. Then there was the Kilifi District Long Term Strategic Development Plan (2001 - 2015) that was prepared by national government of Kenya in 2000. Under the County governments, Kilifi County's First and second County Integrated Development Plans

have been created covering the periods 2013-2017 and 2018-2022.

**Kilifi Municipality in its infancy and at the time of research, March 2020, negotiations were taking place with respect to the development of the municipal board, both in terms of financial and human resource, both areas which were limited.** At present, a proportion of Kilifi county departmental staff members have been seconded to serve in Malindi and Kilifi municipal boards so that they can ensure smooth cooperation and coordination between the municipal board and the county government. Once the Municipal Board have been capacitated, the next step is for local area plans to be developed, realising locally, the upcoming County Spatial Plan and County Integrated Development Plan. **The local planning process is not without challenges, and planning capacity and resources are fairly limited at the County level, with areas such as Geographic Information System (GIS) technical skills currently under-resourced.** (b)

## DEVELOPMENT AND DEVELOPMENT CHALLENGES IN KILIFI TOWN

Kilifi Town is expected to continue expanding from the waterfront towards the hinterland as population increases. The Mombasa - Garissa Road remains the main access road and is important to local and regional growth as it connects Kilifi Town to Mombasa and Malindi. Much development along the coastline is private and much of the beach is inaccessible to the general public. Land grabbing is an issue and that limits public recreational space. Limited development control capacity means that encroachment into beach zones and mangrove clearance are common.

Tenure security is an issue. It is estimated that 11.3 percent of the households in the county are landless according to the data available in the Lands offices. This has led to an emergence of informal and unorganized settlements in Kilifi Town but also elsewhere in the county including Malindi and Mtwapa. Absence of title deeds has discouraged long term investments on the land.

There have been discussions, and some limited evidence of national and bilateral support for the town since devolution, particularly within respect

to land, housing and informal settlement. With the installation of the new Municipality Board of Kilifi, the town is set for continuous upgrading of its infrastructure and housing conditions, which has been partly executed to this point, under the national government Informal Settlements Upgrading Program. The first phase of that programme within Kilifi Town has ended, and now the second phase of the program is expected to start. Still, it is evident that further collaboration is required.

Kilifi Town's proximity to Mombasa positions the town as a large-scale investment area for industrial parks and mixed-use developments. There is an intention to create one such development 'Kilifi Eco-park' on the outskirts of the town, discussed later in this chapter. Such development speculations are likely to accelerate growth locally, and compared to Mombasa there is still significant land available for investment. This presents more opportunities for investors as the town plans to better exploit the blue economy sector that is arguably underexplored locally.



**Most of the challenges addressed by previous planning efforts in Kilifi have mainly been to do with the terrestrial planning, with little to show in terms of marine spatial planning. Part of the current plan updating process in Kilifi is exploring how the County**

**Spatial Plan (and cascading plans) can have Marine spatial planning aspects integrated with terrestrial planning.**

## 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 legal, regulatory and institutional framework for Kenya's Blue Economy; revival of a Kenya National Shipping Line; and various activities focused on fisheries and aquaculture and maritime sectors.<sup>(c)</sup> 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 is presently a challenge to the blue economy for all coastal county governments and the country at large. This 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. The plan 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 Plan. Still, the Spatial Plan does not appear to go into a great amount of detail with respect to marine spatial planning.<sup>17</sup>

ICZM policy, first introduced by the National Environment Management Agency (NEMA) in 2010, is in place to coordinate management of the coastal zone.<sup>18</sup> **However, integrated coastal management is led by national agencies, and the role of county governments is reportedly marginal.<sup>19</sup>**

**There is a need for further engagement and coordination across national and county governments in terms of how best to activate marine spatial planning 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 to avoid conflicts 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 in which the blue economy is a key pillar.<sup>20</sup> **JKP has received funding from the European Union 'Go Blue' Programme, amounting to 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.<sup>21</sup>**

(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.

Just like Mombasa and several other counties, Kilifi currently lacks jurisdiction over local territorial waters, but the CEC for lands and planning confirmed that negotiations are underway to have the State departments and coastal counties, with the help of JKP, prepare integrated marine plans that avoid the issue of multiplicity of blue economy projects and conflicting policies across the utilization of the marine resources. For the county, it is a case of integrating the county spatial planning and JKP's regional vision.

*"There is need for regeneration plan that only looks into the land but also sea-side. For now, the shoreline is at the back yard but more opening up needs to be done"*

Respondent B

**Capacity issues in terrestrial planning are likely to be further exposed by an evolution into county marine-terrestrial planning. Support from JKP, marine planning experts in local and regional**

**universities and research institutions and other relevant local and national actors may help in the marine spatial planning process.** With a multiplicity of actors and levels of government already operating in Kilifi, it is important that mechanisms for vertical and horizontal communication and coordination between government and external actors are strengthened with respect to both terrestrial and marine planning and implementation.

**Lastly, for inclusive future blue economy investment there needs to be unpacking and communication of the blue economy concept locally.** There is general misunderstanding of BE being about fisheries and the youth being employed in the boats. This needs to be addressed with an increase in knowledge building across government departments and sensitization and engagement activities in local communities. Existing mechanisms such as Beach Management Units and Locally Managed Marine Areas may provide a useful starting point for community blue economy and marine planning engagement.

## 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.<sup>22</sup> Kenya has 6 MPAs including in Kilifi, at Watamu and Malindi, north of Kilifi town.

### 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...Its essence is to create a link and a partnership between the government and artisanal fishermen. ... allows the knowledge and understanding of all stakeholders to be reflected in the decision-making process and their diverse capacities to be harnessed in implementation.' Through such institutionalised re-inclusion of traditional knowledge in fisheries management, BMUs essentially replace traditional use of elders at landing sites. 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.

**TABLE 2 - BLUE ECONOMY STAKEHOLDERS PER SECTOR**

As this section highlights, Kilifi, 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 both current and possible future stakeholders with respect to the blue economy in Kilifi Town. This is not exhaustive but aims to illustrate complexity, and importance of effective communication and collaboration.

	<b>National Government</b>	<b>Local Government</b>	<b>Private Sector</b>	<b>Civil Society</b>	<b>Other</b>
<b>Fishing</b>	State Department for Fisheries, KMFRI, CDA, KWS	County Government Dept. for Agriculture & Fisheries	Commercial fishing companies;	Fishermen & associated workers through BMU & LMMA; Sport fishing clubs	JKP, Pwani University
<b>Tourism</b>	Ministry of Tourism & Wildlife; KWS; Airports Authority	County Department of Trade, Tourism & Investment	Port developers	Local community businesses & workers; LMMAs & community eco-tourism	Kenya Coastal Tourism Association; JKP, Pwani University
<b>Conservation</b>	KWS, KFS, NEMA, CDA	County Dept. of Environment, Solid Waste Management & Energy	Hotel owners & operators	NGOs (WWF, COMRED, CBOs, LMMAs)	JKP, Pwani University
<b>Sewage</b>	Ministry of Water and Irrigation; Coast Water Services Board, NEMA	County Dept. of Environment, Solid Waste Management & Energy	Hotel owners & operators, especially ecotourism	People/users, local workers (e.g. those who empty soak pits)	JKP, World Bank, Prospective donors or funders, Pwani University
<b>Solid Waste Mgmt</b>	Ministry	County Dept. of Environment, Solid Waste Management & Energy	Kilifi Water Supply & Sanitation Company	People/users, Community level collectors	JKP, World Bank, Donors such as JICA
<b>Education</b>	Ministry of Education, KWS, CDA	County Department for youth & education	Private collectors	UNICEF, larger & smaller NGOs e.g. COMRED, the community	JKP, Pwani University
<b>DRR and CCA</b>	National Disaster Mgmt Unit; Met Office, CDA	County Disaster Management Unit; Land, Planning Housing;	Private schools & training institutions including TVET	IFRC; DRR focused NGOs, all homes/people on coast	JKP, Pwani University

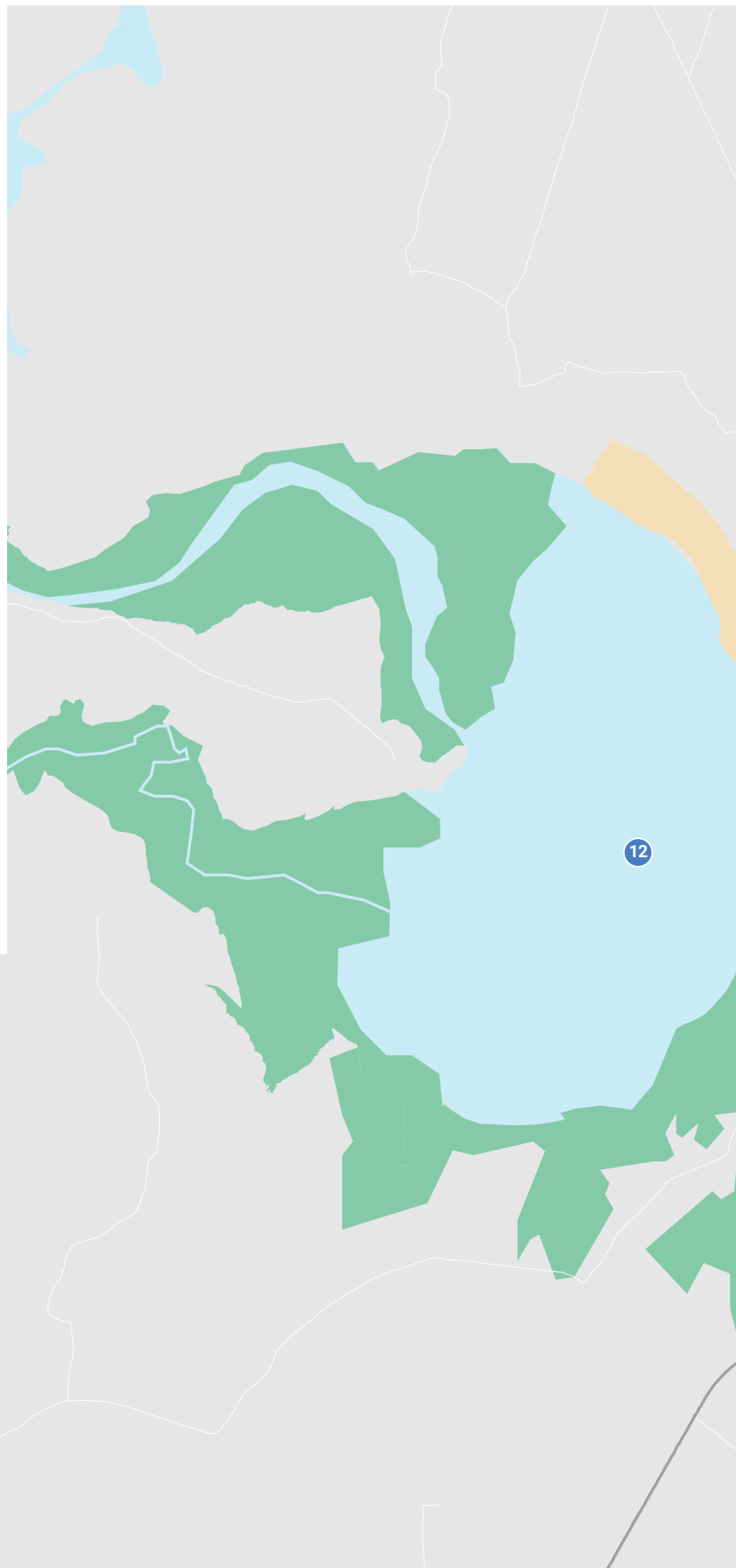
**FIGURE 2 - BLUE ECONOMY MAP KILIFI**

**LEGEND**

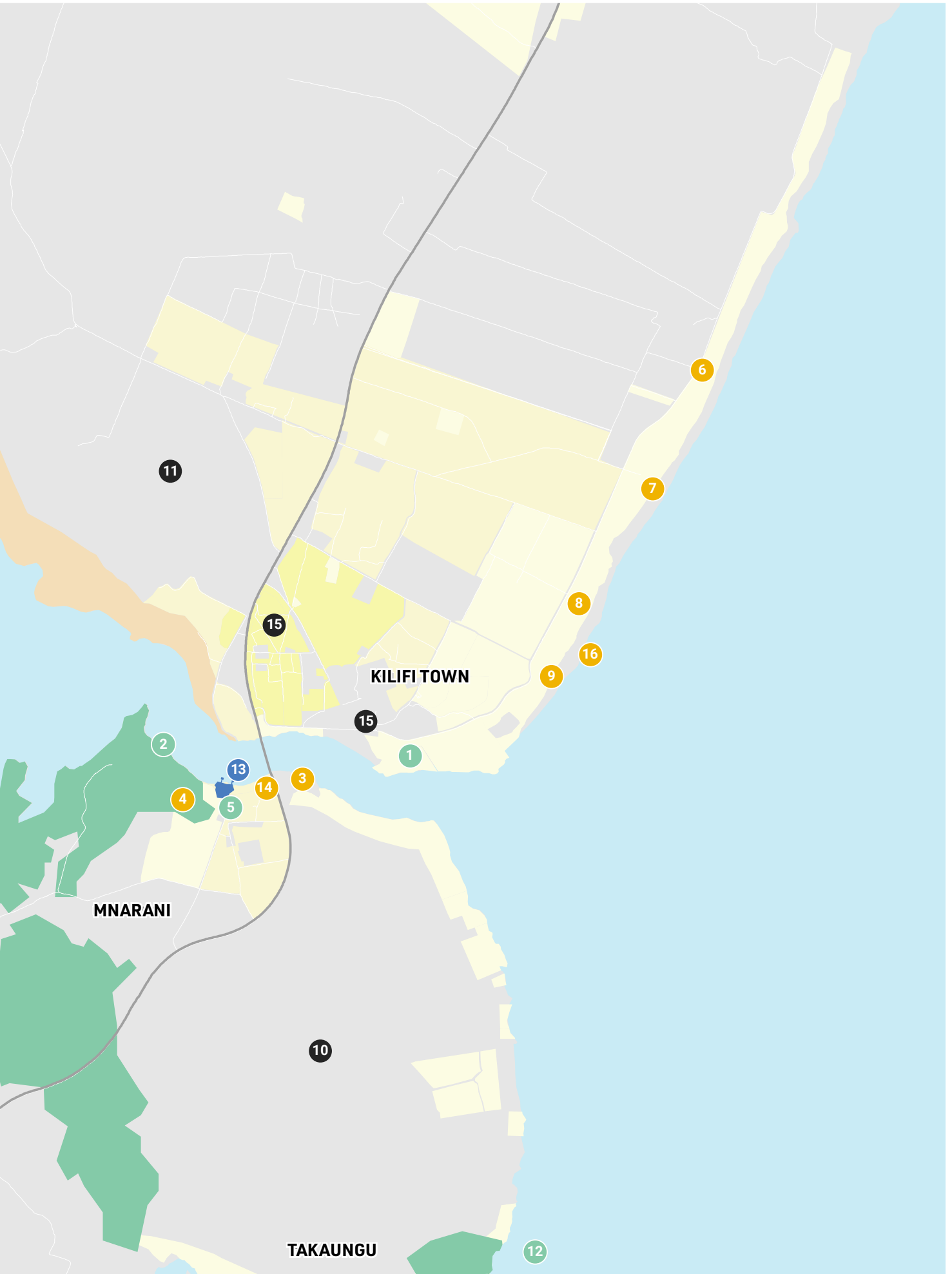
- Tourism
- Ports
- Mangroves / green spaces
- Low density housing
- Medium density housing
- High density housing and small businesses
- High commercial (restaurants and hotels)
- Main Roads

**KEY BLUE ECONOMY SITES**

- 1 Mazingira Park
- 2 Kilifi Creek
- 3 Mnarani Beach Club
- 4 Mnarani Ruins Museum
- 5 Mnarani Snake Park
- 6 Kilifi Bay Beach Resort
- 7 Black Marine Beach Resort
- 8 Bofa Beach Club
- 9 Baobab Hotel
- 10 Proposed eco-park
- 11 Pwani University
- 12 Kilifi Creek
- 13 Kilifi Jetty
- 14 Terrace Bar and Bistro
- 15 Kilifi County Government offices
- 16 Baobab Public Beach



2 km



## 2.2. SECTOR SPECIFIC BLUE ECONOMY CHALLENGES AND OPPORTUNITIES

*This chapter first outlines the challenges and opportunities of specific blue economy sectors, before discussing the role of wider urban systems and features with respect to the blue economy and marine environment. The chapter closes by outlining interdependencies between discussed blue economy sectors.*

### FISHING AND MARICULTURE

**The marine environment is a key livelihood source for the people of Kilifi, providing employment for 7,000 fishers and fish traders in the county, 3,337 of which are located in the Kilifi North constituency in which Kilifi Town is located.** An average of 2,885 mt of fish worth KShs.554 million land every year in the county. There are seven landing sites in Kilifi North including Mnarani and Bofa within the town and Takaungu nearby.<sup>23</sup>

**In Kilifi county, fishing is almost entirely male dominated activity.** One 2009 survey of fishermen in the region revealed an average age of 39 years with 20 years of fishing experience. In that survey, on average, fishermen in Kilifi had 3.1 dependents and six years of education.<sup>24</sup> **Beyond fishing itself, women play an important role in marketing and selling fish, with small-scale traders and processors referred to as 'Mama Karanga'. Fishing forms an important livelihood source for these actors but they also face competition from larger traders, have lower representation and decision-making power than men in BMUs and lack processing equipment.** All these factors contribute to income insecurity.<sup>25</sup> In recent years programs by NGOs such as Italian-Kenyan NGO CAST have sought to tackle some of these issues.<sup>26</sup>

**The wider challenges associated with the fishing industry in Kilifi are similar to that reported in parallel research conducted in Mombasa, namely a lack of equipment to enable local fishermen to fish in deeper waters (which are dominated by larger foreign vessels, some fishing illegally), leading local fishermen to resort to unsustainable practices nearer shore.**<sup>27</sup> In recent years sea-safety issues have meant reduced catches and increased fish prices in local markets. During periods of rougher seas, local fishermen are unable to, or afraid to fish,

as local vessels cannot handle such conditions. That issue is likely to increase as a climate change driven rise in ocean temperatures makes storms a more regular occurrence.<sup>28</sup> Numbers of local fishermen have reportedly decreased in recent years, with some leaving the industry for the relative security and safety of roles in town such as Boda Boda drivers. Others have moved into mariculture<sup>29</sup> and interviews stated that the creek south of Kilifi Town has a great potential for increased mariculture activity including seaweed farming. Recent small-scale mariculture activities initiated by Pwani University have received booster funding from County Government, who view the sector as a development priority in the most recent CIDP.<sup>30</sup>

At the time of writing, Kenya Coastguard has just moved its headquarters from Mombasa to Kilifi Town, with a new base at Mnarani and new Ksh 60 million patrol boat.<sup>31</sup> Interviews stated the importance of this move for increasing safety and security of local fishermen in terms of both lifesaving and policing of illegal fishing, piracy, trafficking and terrorist activity. The Kilifi County Government has also recently had preliminary conversations with the Norwegian Development Agency with respect to further local capacity building in the fisheries sector. These developments are promising but need to include further investment in vessels and value addition facilities for local fishing potential to be fully realized.

**The most recent Kilifi County CIDP 2018-22 dedicates 545 million ksh (5 million USD) for fisheries management.** This includes 90 million Ksh to support for fishermen in adoption of modern technologies and 30 million Ksh investment in fishing gear, as well as 60 million Ksh each in landing sites and auction site investment, and 50 million Ksh aquaculture investment.<sup>32</sup>

**Nationally, one significant upcoming project which should also make inroads into fishing capacity challenges in Kilifi is the Kenya Marine Fisheries and**

**Socio-Economic Development (KEMFSED)** project, which is commencing in 2020, building capacity in Kilifi and other coastal Kenyan counties.<sup>33</sup>

## 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(d) 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.<sup>34</sup>

Beyond fishing equipment, Kilifi has limited facilities for cold storage, processing and sale. Additionally, increasing pollution into local waters from urban growth poses a rising threat to fish catches in terms of quantity and quality. (Urban pollution challenges are discussed in 3.2.) With support, several consultees noted the potential/room for growth in the fisheries sector locally, with some fish demand currently met by Tanzanian and Chinese imports. The County government has identified development of fishing fleets, fish port infrastructure, and a fish market as county specific blue economy investment opportunities and Kilifi is included in wider National blue economy investment proposals with respect to improving fisheries monitoring, control and surveillance and infrastructure development.<sup>35</sup>

Beach Management Units (BMUs) are an important structure in Kilifi. BMUs provide a mechanism for conflict resolution between local fishermen and a link to relevant government agencies. BMUs have been urging the county to invest in superior vessels but little

support is reported to have materialized to date. On a regional scale across the KEMFSED project intends to build BMU capacity. The JKP-EU blue economy project 'Go Blue', through the Italian Development Agency is also planning to work with 10 BMUs/ 1000 fishermen along the coast, focusing on training and equipment including processing and value addition. However, it is not clear how much this activity will focus on Kilifi. From 2013-2017 Kilifi County worked with BMUs to build capacity, developing six landing sites and supplying 2 modern fishing boats, 400 life jackets, 140 solar lit fish boxes, 17 cooler boxes, 32 boat engines.<sup>36</sup> In recent years NGOs like CAST have also worked with BMUs in Kilifi to develop participatory management of marine resources and use of appropriate equipment.<sup>37,38</sup>

BMUs are also often key to Locally Managed Marine Areas (LMMAs), with BMUs often coming together to form an LMMA.<sup>39</sup> LMMAs are widespread in more northerly parts of Kilifi and have the potential to be similarly effective in Kilifi Town.

## MPAS, LMMAS AND CONSERVATION

**Marine Protected Areas (MPAs) and Locally Managed Marine Areas (LMMAs) are important to the sustainable use of ocean resources, with benefits including protection of specific ocean areas from overfishing and unsustainable tourist activity.** With respect to the former, conservation of fish stocks in one location can lead to more fish nearby (overspill areas) and consequently better surrounding catches. With respect to the latter, ecotourism schemes can flourish in MPAs and LMMAs.

**In Kilifi, two MPAs/marine reserves currently exist, one each in Watamu and Malindi. Six LMMAs also presently in existence throughout Kilifi County.**<sup>40</sup> Nationally, there is a target to increase marine conservation areas from 7% to 10%. Kenya Wildlife Services (KWS) note the potential for LMMAs to supplement larger MPAs in this effort.

**Examples of successful LMMAs in Kilifi County include the coral reef protection and promotion of sustainable fishing in Kuruwitu, south of Kilifi Town**<sup>41</sup> **and the mangrove conservation efforts further north at Mida Creek.** The Mida Creek conservation community is part of the wider Watamu Marine Association. Community groups have been undertaking conservation efforts in the creek area for several decades in response to mangrove exploitation elsewhere in the local community. With support from Portuguese NGO 'A Rocha' since the year 2000, the creek area has become recognised as a key site of mangrove protection and planting, and an area of high marine biodiversity, including rare birds which migrate to the creek annually. Mida Creek is a recognized International Bird Area and together with Arabuko-Sokoke Forest forms a UNESCO Biosphere Reserve.<sup>42</sup> Mida Creek is popular amongst conservation tourists and students, offering bird huts, aerial boardwalks through the mangrove forest and canoe travel through the shallow creek waters. Visitor income helps sustain conservation efforts and contributes towards local livelihoods. The Arabuko forest is home to several ecotourism conservation initiatives including the Kipepeo Butterfly Sanctuary.

Kenya Wildlife Service (KWS) and Kenya Forest Service (KFS) provide support, allowing the community to manage local ecotourism efforts, but still monitoring local conservation efforts.

**A representative from Mida Creek emphasized that the key to managing local conservation efforts versus other traditional livelihoods (such as fishing) is to actively involve all the local community in conservation efforts and demonstrate the local socio-economic benefits of ecotourism.** The Mida Creek project also involves a local women's group (Jitahidi Women's Group) who have mangrove nurseries and are able to sell these plants to other organizations. Before scaling up of conservation activities at the start of the century, there were a lot of dropouts of school because of the high poverty levels but project funds are now providing additional funds to support local education. Conversations suggest that now most of the fishermen locally are older men. The younger generation is turning towards variations of ecotourism.

*"Because of the benefits of the projects, it creates a necessity for the community to conserve the environment"*

Respondent F

**Despite the positive impacts of LMMAs elsewhere in Kilifi county, none currently exist in or near Kilifi Town.**<sup>43</sup> There is however evidence of local community conservation initiatives in Kilifi Town, including Mtongani Self Help Group which have been protecting mangroves at Kilifi Creek since 2010, while also engaging in beekeeping and sale of mangrove honey.<sup>44</sup> **The Creek area has significant mangrove cover and mangrove protection and expansion can have numerous benefits including flood protection and carbon capture. The success of LMMAs elsewhere in Kilifi and the success of smaller scale conservation activities in Kilifi Town suggest that local community conservation activities can play an important role in the local blue economy.**





► Images: Mangrove Boardwalk, Mida Creek, Kilifi County

## TOURISM

**A 2017 report suggests that Kilifi County receives 50,000 visitors and tourists per month, who spend an average of US\$200 per day.<sup>45</sup> Kilifi Town has a small tourism sector compared to Watamu and Malindi to the north, but is still the main economic activity locally.<sup>46</sup>**

In Kilifi, hotels centre around the creek area and beaches, including upmarket hotels Mnarani Club, Baobab, Kilifi Bay, Mada and Bofa Beach Hotels. Several foreign-owned restaurants are also located in these areas. Such businesses clearly provide employment to local population and efforts to connect to the wider community in terms of promoted excursions into Kilifi Town and local watersports were observed during field study. However, like Mombasa, **in Kilifi Town much foreign tourist spend exists within the confines of a selection of foreign-owned hotels and one challenge concerns the creation of additional tourism-related income generating opportunities for local communities.**

**A further challenge to the industry concerns reversing the damage done by past issues of insecurity and terrorism along the coast.** Notable incidents over the past decade have taken place in the counties of Mombasa, Garissa, Tana River and Lamu<sup>47</sup> but the whole coastal region has been affected to varying extents, with the perception of insecurity internationally remaining for some time after these events.<sup>48</sup>

**In recent years, in response to tourism challenges there have been targeted campaigns to boost domestic tourism in Kilifi.** The domestic side of the tourism industry is more resilient to external shocks and domestic tourists are more likely to spend time and money outside of hotel resorts and in local communities. Domestic tourism has expanded by 72% in Kilifi County since 2010, as a result of increased investment and campaigning through Kenya Tourist Board.<sup>49</sup> **The recent relocation of Kenya Coastguard to Kilifi should also benefit tourism (as well as fishing), providing an increased sense of local security.**

**Nevertheless, there is still a need to grow and strengthen both domestic and local tourism, especially with COVID-19 grounding the industry at time of writing. Kilifi Town and County has many strengths which can be further developed and promoted including:**

- Community based ecotourism initiatives (as discussed in the previous section).
- Water sports such as sailing and kitesurfing are established attractions in Kilifi Town. Likewise, beach sports such as volleyball are popular locally;
- Sport fishing is another growing tourist sub-industry with an active facility already in Kilifi.<sup>50,51</sup>
- Annual festivals such as the Dhow Boat Festival and fishing competitions were also noted as local events.

Kilifi boasts popular public beaches, notably Vidazini beach. The County CIDP 2013-17 suggested that there is a need to construct a formal site for beach sellers, to reduce pressure selling to tourists. Primary observation revealed a well-maintained beach, strong public use and relaxed atmosphere. This environment can be optimised for further livelihood opportunities but as the county identifies, formalisation of beach trade activity can help to maintain and enhance the pleasant surroundings. Kilifi County ordered registration of beach sellers in 2019 and the County has provided some funding to boost the activities of beach trade cooperatives in the County.<sup>52</sup> However, such steps can be further enhanced with additional support provided for beach workers. Some issues still exist in Kilifi Town and recently there was reported dispute between a hotelier and local youth who had reportedly set up make-shift beach bars at Vidazini.<sup>53</sup> While such initiatives of course need to be regulated from both an environmental and social perspective, perhaps there can be further efforts to provide livelihood spaces/ opportunities for local youths in such locations, through zoning provision and affordable leasing. This would require strong coordination between BMUs, hoteliers and the County. **Steps to enhance beach trader training and spaces for local sellers, and similar community initiatives (community-run restaurants, bars etc) can not only improve local socio-economic conditions, but also contribute to further reduction in insecurity in the region. Limited livelihood opportunities make Kilifi's youth most vulnerable to recruitment into crime and extremist activity.<sup>54</sup>**

**Female tourism livelihoods also need to be protected and enhanced, with women often hit hardest by a tourism slump.<sup>55</sup>** Tourism is an important source of income to women and girls locally, who make and sell ornaments and souvenirs. Media reports suggest that the COVID-19 pandemic has led some women to be forced into the sex-trade.<sup>56</sup>

**The sex-industry is an issue across coastal counties including Kilifi,<sup>57</sup> often involving underage persons.**

Significant child-protection issues can therefore be associated with the tourism industry, driven by the necessity of poverty, and the interests of some tourists.<sup>58</sup> Education and skills training and business support programs are key, providing alternative options. Some local NGO programs exist such as Kesho Kenya<sup>59</sup> in Kilifi and Tewa Training Centre south of Kilifi but further support is needed. For women, female tourism cooperatives may be one way to increase livelihood resilience. Elsewhere in Kenya,

female managed ecological restoration programs have boosted ecotourism and there may also be opportunities to couple protection of Kilifi's creek and nearby ocean waters, with livelihood development.<sup>60</sup>

In summary, increasing hospitality and tourism and business development opportunities through training that utilise the tourism attractions and assets that Kilifi has at its disposal, combined with start-up support, can help the local population to better engage in the tourism industry and help to address some of the social challenges described above.



► Image: Public Beach Kilifi

## 2.3. FUTURE BLUE ECONOMY SECTORS IN KILIFI

Its favorable location, midway between Mombasa and Malindi, has seen Kilifi Town grow significantly in recent years. The town also offers potential as a hub of trade and value addition for surrounding agricultural areas. The settlement has already transformed in the past decade due to the development of Pwani University and relocation of County government headquarters. However, **with respect to the blue economy, it could be suggested that Kilifi Town lacks a blue economy sectoral niche.** Fishing is a popular blue economy sector across Kilifi County, beach tourism is important but is dominated by northern towns of Malindi and Watamu (as well as Mombasa to the south), and conservation based eco-tourism is currently most active in the Watamu. **Most conversations about Kilifi Town focused on blue economy potential yet to be fulfilled and specifically discussed new opportunities in Port construction, shipbuilding and energy. However, sustainable development is key and conservation efforts were also explored during primary research.**

### PORTS AND SHIPBUILDING

The only infrastructure for ship mooring in Kilifi Town at present is two small jetties. One is on the north side of the creek bridge, set up in 2017 temporarily for the transport of ballast from Jaribuni quarry some 15km inland of Kilifi to Lamu, (as part of port and transport development in Lamu).<sup>61</sup> Another jetty is currently used for water sports and hotel anchorage, as well as handling approximately 260MT of fish per year.

**The Kenya Ports Authority (KPA) website states that KPA are planning to construct a high-end marina in Kilifi Town with 'a jetty for fish landing, luxury marina buildings with toilets and washing area, a Harbor Master office, and 200 mooring points for the various types of vessels'.**<sup>62</sup> This initiative forms part of KPAs wider national small ports masterplan which also includes potential development of small port infrastructure in Malindi and Mtwapa, as well as in other coastal counties.<sup>63</sup> In 2018, KPA contracted Rotterdam-based Maritime and Transport Business Solutions (MTBS) to develop the national ports

masterplan and it appears that MTBS is engaging in various activities across target locations including technical studies, site selection, preliminary EIA, recommendations on PPP and financing schemes and development.<sup>64</sup> The County and other consultees described the potential of port development in Kilifi County, with both cargo and passenger ferry transit discussed as possible opportunities. The County Integrated Development Plan (CIDP) confirms that exploration of port expansion is ongoing with Kenya Ports Authority (KPA).<sup>65</sup>

Any port development could also be linked to the shipbuilding sector. Shipbuilding and Boat Maintenance is mentioned in both the 2013 and the 2018 County Integrated Development Plans as a potential investment opportunity for Kilifi Town. The potential of this blue economy sector locally was reiterated in several local stakeholder interviews. The local area holds much traditional knowledge which can be utilised and enhanced. Such investment would create job opportunities and potentially support complementary sectors such as fishing and tourism.

Beyond the locations listed in their small ports masterplan, KPA has also identified Takaungu, a village 10km south of Kilifi Town as an additional site. KPA possesses significant land in Takaungu, making it a favourable site for development.<sup>66</sup> In 2016, the Kilifi County Governor reportedly stated that Takaungu had the 'potential to become one of the largest ports in East Africa', should investment be realised.<sup>67</sup> In a post by Kilifi County Government on the Africa Business Portal they suggest that port investment at Takaungu would create 2000 direct jobs and over 10,000 indirect employment opportunities, with related positive social impacts. Currently, the project appears to remain at Conceptual (R&D) stage with ambitions to construct the Port through PPP by 30th June, 2022.<sup>68</sup>

## ENERGY

The energy sector has the potential to significantly change Kilifi Town and/or surrounding areas, with cascading impacts on the marine environment. Interviews discussed the potential for investment in tidal and other renewable energy locally. Certain stakeholders also cautioned against the prospect of nuclear energy which has been promoted recently as a future opportunity for Kilifi and for other counties.<sup>69</sup> However, developments in these sectors appear to merely be suggestions at this stage. A 36MW wind farm has just been completed at nearby Vipingo, to power the local operations of Bamburi Cement Company. The County could potentially utilise this knowledge and build upon this activity.<sup>70</sup>

Oil exploration in Kenya to date has largely focused on the Turkana basin but agreements have been signed in recent years for exploration of the Lamu Basin including waters approximately 50km off the Kilifi Coast.<sup>71</sup> Any future exploration in Kilifi would undoubtedly have significant impacts, creating employment opportunities and energy supply, but the extent to which benefits would be seen by local communities is unclear. Environmental impacts would be negative, including the effect of drilling on marine habitats.<sup>72</sup>

Such considerations are hypothetical at present but one more advanced proposal is the prospect of a liquefied petroleum gas storage terminal and single mooring point at Takaungu. At a meeting held in 2019, the proposal divided the local community and had opposition from local fishermen who were concerned about potential leaks and the subsequent impact of this on fish catches. Others were in favour, stating that the project would create employment opportunities locally.<sup>73</sup> It is crucial that any development is supported by a robust and transparent environmental and social impact assessment (ESIA) and open and inclusive communication with all interested stakeholders.

Other coastal and nearshore geological deposits include limestone south of Kilifi at Mariakani and Vipingo, and Coral Rock along much of the coast. These industries create employment but need to be carefully managed from an environmental perspective. Haller Park in Mombasa is one useful local case study with respect to limestone extraction that considers environmental impact.

## SPECIAL ECONOMIC ZONES

One development which looks set to transform Kilifi Town is 'Kilifi Eco Park'. The Eco Park is a proposed 1,000 mixed use development south of the town, but just before Takaungu Creek (see page 18). Developed by private investor Kilifi Port Development Limited (KPDL) with support from Trademark East Africa, the development includes middle- and high-income housing, a tourism zone and conservation area, agro-forestry, food processing, logistics and seafood supply-side logistics. The proposal states that Kilifi Eco Park will have its own high-quality services including waste recycling. SEZ designation is at final stages of approval which includes tax incentives and an allowance to for the development to employ up to 20% foreign workers.

On the one hand Kilifi Eco Park is likely to create significant employment locally and appears to have provision for necessary essential services i.e. solid waste. It is also possible that improved practices here, in areas like recycling, could positively influence the existing Kilifi Town settlement with which the Eco Park might ultimately merge. On the other hand, while essential services may be addressed on site, it is important that County planners also consider the informal settlements which will inevitably appear in close proximity, to service this development, as well as related infrastructure demands and environmental pressures. These considerations should be factored into development approval. At the time of writing County planners and developers were engaged in consultation. If implemented correctly, the Eco Park has the potential to benefit existing Kilifi residents, rather than be seen as an exclusive development and source of additional urban-environmental pressure.

All the proposed developments discussed on the preceding pages have the potential to significantly alter the existing local socio-economic make-up of Kilifi Town (depending on their ultimate scale).

*“Kilifi has the ability and opportunities to exploit the BE and it just needs (support) from the policy makers .... (to) create an enabling environment ”*

Respondent B

However, it is also a question of balancing the need to attract investment and livelihood opportunities, with the need for robust development approvals and environmental controls. Proper scrutiny and management of investment opportunities will require the building of capacity in governance and planning at county and municipal levels, as discussed earlier in Chapter 2.



► Image: Ballast Jetty, Kilifi Creek

## 2.4 OPERATIONAL ENVIRONMENT FOR THE BLUE ECONOMY

*Kilifi Town has experienced rapid population growth in the past 10 years. While the population is still currently relatively low, challenges are already evident in areas such as wastewater and solid waste management. These services are important for a healthy marine environment. Other urban systems such as transportation and education also support BE development and performance. Without significant infrastructure investment the town will struggle to fully optimise its potential as a sustainable blue economy.*

### WASTEWATER MANAGEMENT

**Kilifi Town currently has no sewerage system. Sewage is managed by on-site septic tanks and pit latrines. There is no sludge handling facility and septic tanks are discharged directly into the environment.**

In 2017, parastatal the Coast Water Services Board (CWSB), under the Ministry of Water and Irrigation contracted three consultancies to create a wastewater masterplan for Kilifi Town.<sup>74</sup> This plan details a phased investment programme for Immediate / Short Term Plan (2015 – 2020), Medium Term Plan (2021 – 2025), Long Term Plan (2026 – 2040). The plan recommends a treated effluent disposal / reuse strategy for Kilifi Town. That masterplan details projections which suggest that Kilifi Town will more than double in population to 156,254 by the year 2040. The masterplan makes the following projections with respect to future sewage connectivity based on proposed wastewater treatment plant and sewer connection interventions.

**TABLE 3 - SEWAGE MASTERPLAN CONNECTIVITY PROJECTIONS**

Population Category Based on Income Levels	Sewer Connections	
	2021-2030	2031-2040
High Income	20%	80%
Medium Income	100%	100%
Low income with individual water connection	60%	80%
Low income without individual water connection	30%	40%

Specifically, the masterplan recommends the development of a treatment plant with stabilization ponds, on 30ha of land, with 11 pumping stations and 78 trunk sewers at a predicted cost of just under US\$33million, over two phases – 2020-25 and 2026-40. In the short term, the masterplan suggests the construction of ablution blocks at designated public places, a centralised sludge handling facility and procurement of exhaust vehicles to mitigate some current environmental and health hazards.

The report goes as far as to say that the implementation of the proposed wastewater management scheme will increase tourist visitors to Kilifi County by 0.1% and total tourist expenditure by 12,120,000Ksh per annum, due to cleaner and more attractive beaches. Annual health benefits from sewage upgrades were also estimated to be US\$13 per capita, considering an estimated 60% of health expenditure in Kilifi is linked to waterborne diseases.<sup>75</sup>

*'Kilifi Town currently lacks a functional waterborne sewerage system. If the proposed wastewater management strategy is not implemented, the service area will continue to rely on the on-plot sanitation systems such as septic tanks and latrines. These systems are unsustainable and pose hazard to both the public health and the environment resulting to pollution of water bodies (ocean and rivers) and increased occurrence of water-borne diseases.'*

At present Kilifi creek and ocean are known for crystal clear turquoise waters. It is imperative that wastewater infrastructure capacity can be developed in timely fashion, concordant with projected growth. Failure to do so will have significant socio-economic impacts across blue economy sectors such as tourism and fishing, as well as wider environmental impacts.



## SOLID WASTE MANAGEMENT

**The current situation in Kilifi Town with respect to solid waste is similar to that of sewage; there is currently no designated dumpsite. Furthermore, some of the solid waste that is not collected finds its way to the creek, contributing to local ocean pollution.**

According to a 2011 baseline survey on solid waste management in Kilifi Town carried out by COMRED, the largest amount of waste, about 5.3 tonnes (85.15% of total waste) is generated from households.<sup>76</sup> Some private companies collect the garbage from markets, government offices and other limited locations but it is reportedly unclear where rubbish is then deposited. There is a waste disposal site to the north of the Central Business District (CBD) but this disposal takes the form of open dumping.

**Some community initiatives exist and have the potential to contribute to a more circular economy in Kilifi.** In Mnarani area, south of the CBD, some youths organized and formed a Community based Organisation (CBO) named 'Where Talent Lives' that has previously held community workshops and sensitisation activities on solid waste management, environmental protection and public health. That initiative was funded by Hazina Ya Maendeleo Ya Pwani (HMP), a community development grant mechanism under the Kenya Coastal Development Project (KCDP) - a multi-sectoral project financed by the World Bank.<sup>77</sup>

**Solid waste pollution also finds its way to the ocean also from engine boat fishermen that live in their boats with no solid waste management nearby.** Most of these fishermen come from elsewhere and park their boats at the boat yard next to the Kilifi port where there isn't any solid waste facilities, hence all their waste is dumped in the ocean. Likewise, while the public beach was in a pristine condition at the time of primary research, there was a lack of storage capacity for collected waste and resultant overspill as illustrated.

**Studies have assessed potential solid waste management systems locally, but feasibility issues relate to the relatively small population of Kilifi Town. Instead, it may be more feasible to collaborate with Mombasa County and establish an integrated solid waste management system.** Consultations suggested some early discussions with Mombasa on this matter. The 2018-2022 CIDP outlines a Waste to Energy project in Kilifi at a cost of 3 billion Ksh (USD 27.5m).

**Solid waste management is not currently as acute an issue in Kilifi Town as it is in neighboring Mombasa, but the fact that there is no system in place and that the Kilifi population continues to rapidly grow, suggests that without mitigation the town will experience significant problems in the coming decades that would adversely affect the marine ecosystem.**



► Image: Plastic waste site Kilifi Beach

## EDUCATION

**Kilifi has a high poverty index and low education levels. The human capacity to exploit the blue economy is quite low** - 36% of residents in Kilifi County have no formal education, 52% have primary education and 12% have secondary level of education and above.<sup>78</sup> This situation has contributed to development politics whereby the local Kilifi population is not adequately employed by upcoming development ventures due to their low labour skills. In response, partnerships have emerged between private investors and institutions in order to provide vocational training to the local population. Partnerships include ongoing collaboration between Mkwajuni Vocational Training Center and investors in the gated community and leisure complex at Vipingo, 25km south of Kilifi Town.<sup>79</sup>

*“We need to change the narrative and start to see how do we take advantage of the opportunity that comes? And stop the self-pity? - This has affected the budget allocation means and things are starting to improve.”*

Respondent E

With the projected growth of the blue economy, Kilifi needs more training on relevant skills that can equip the youth with necessary skills to exploit the sector. Consultees outlined the need for increased Technical and Vocational Education and Training (TVET) for the local community. Consultees outlined the potential for training in boat repair, ecosystem management and sustainable fishing skills amongst other skills. **Some interviewees stated a desire to establish a center of excellence within the County, like Bandari Academy in Mombasa, and/or integrate blue economy vocational training into the existing Mkwajuni Vocational Training Center. Regardless, future blue economy programs need to be holistic and fully integrate education and skills development.**

## HEALTH

The study was conducted just when COVID-19 was appearing around the WIO Region. This has brought to the fore the inadequacy of health facilities in the region, but especially in Kilifi. KEMFRI Kilifi is a world class health research institution, but the County hospital lacks capacity with respect to both equipment and human resources. **For the blue economy and its sectors to flourish locally, investors will likely need assurances that they can access the best available health care to have confidence to invest and work in the area.**

## TRANSPORT

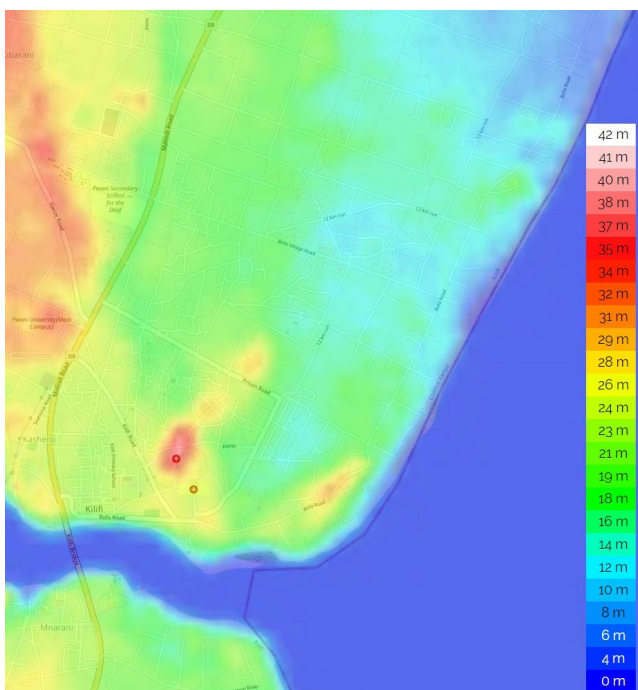
Road transportation is the primary means of transport connectivity in the County at present and Kilifi is at the midpoint of the B8 Mombasa-Lamu highway. **Longer term there is potential for regional water transportation, providing an alternative means of travel, connecting Kilifi, Mombasa and Malindi as well as other key tourist destinations such as Diani and Watamu. This could help support regional tourism efforts, as well as other sectors.**

## CLIMATE CHANGE ADAPTATION AND RESILIENCE

**Kilifi County is characterized by a very high rate of absolute poverty (71.7%) compared to the national rates (47%).<sup>80</sup> The high poverty rate means that the population are potentially more vulnerable to climate related disasters than those in more affluent counties.**

Kilifi experiences a lot of inland flooding especially at the river deltas, with Goshi river estuary being one of several flood prone areas. In 2015, the County was subjected to its worst floods in more than 20 years. Six seasonal rivers burst their banks cutting off the road network, destroying homes and crop farms, and affecting more than 3,000 people.<sup>81</sup> Over the period 2021-2065, temperature locally is projected to increase by 0.5°C and both extreme precipitation and prolonged moisture stress are projected to occur, with seasonal variations in extremity.<sup>82</sup> The County has also experienced increasing droughts in recent years, with 2016-17 droughts particularly notable.<sup>83</sup> Nationally, coastal flooding from sea-level rise is projected to affect 10,000-86,000 people a year as well as lead to coastal erosion and wetland loss at an annual cost of US\$7-58m by 2030, rising to US\$31-313m by 2050.<sup>84</sup>

Little data was available regarding exposure of Kilifi to sea-level rise and coastal flooding. Elevation maps



► Image: Elevation Map Kilifi, <https://en-gb.topographic-map.com/OpenStreetMap>

suggest that the areas northwards of Kilifi Town center, as well as the few businesses situated near the beach (blue areas below 33ft/10metres) have greatest relative exposure to sea level rise (and tsunami) locally.

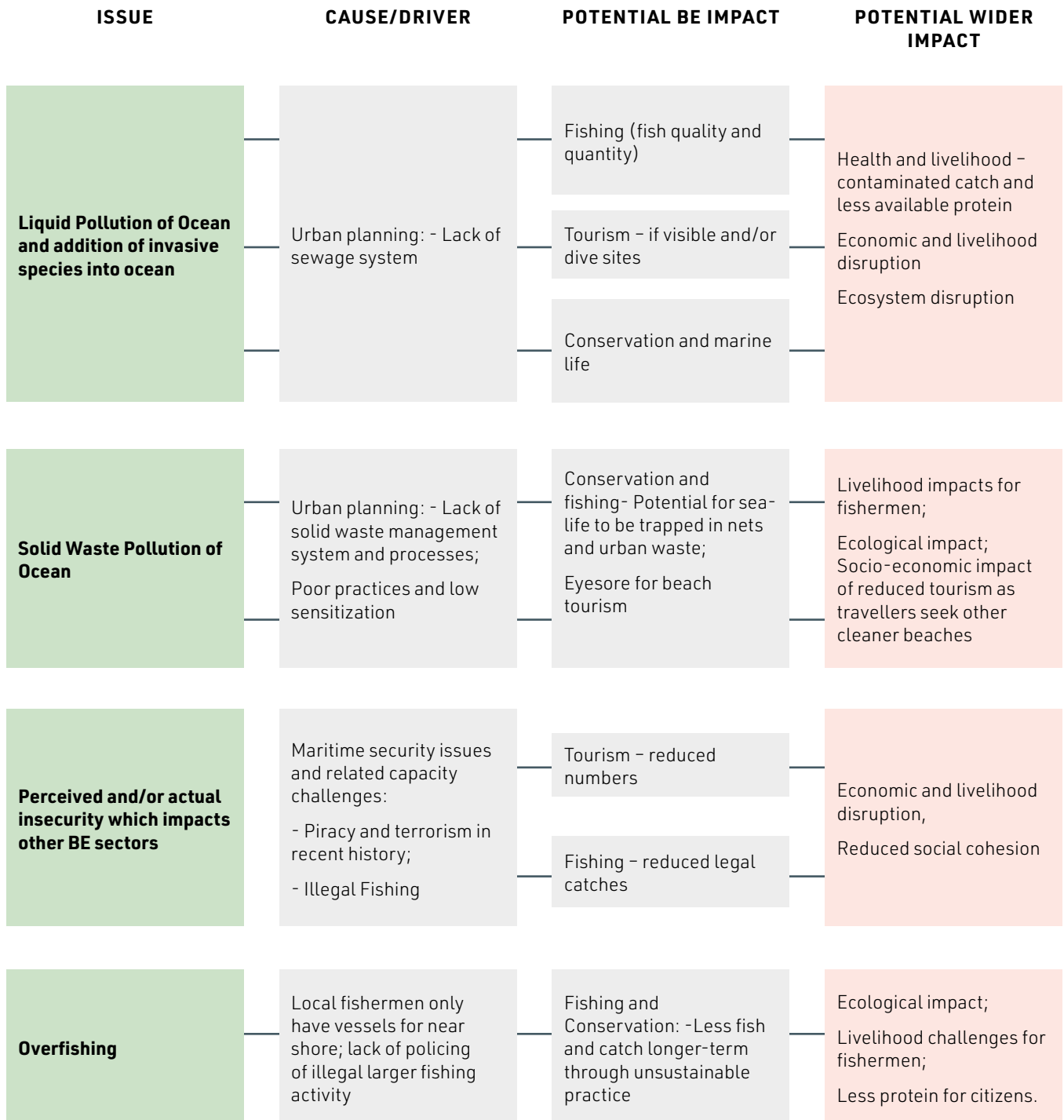
**Due to high poverty levels in Kilifi, there is high dependence of the local population on the coastal natural resources.** Most of the residents in Kilifi use firewood as the main source of fuel for cooking which increases the pressure on the mangrove forests as the main source of firewood and in leaves the coastal edge more exposed to coastal flooding.

**A 2017 study suggested that the County focus was more on short-medium term planning rather than for longer-term climate hazards. Limited awareness and a lack of downscaled contextually appropriate climate information to inform local decisions were highlighted as specific challenges.<sup>85</sup>** The County Government of Kilifi has expressed its commitment towards responding to climate induced disasters and emergencies in the County (such as floods, cyclones and sea disasters) and assisting with both food and non-food items. Part of this commitment has been to establish a local sensitization unit on disaster prevention and mitigation.<sup>86</sup> The County Integrated Development Plan (CIDP) has identified a wide range of stakeholders needed to support the implementation of their disaster mitigation plans.

There is a concern in Kilifi regarding unsustainable exploitation of natural resources, coupled with recurrent droughts in the county. Kilifi has established an interdepartmental county-level steering committee on drought mitigation. The Kenya Red Cross is also active in the County.<sup>87</sup> However, until now, there has been limited funding dedicated towards understanding local vulnerability to climate change.<sup>88</sup> Key ecosystems do not appear to be fully addressed in climate risk reduction strategies at this time. **It is important that a proper multi-hazard risk assessment is undertaken for Kilifi at both town and county level and that the results of that assessment are fully factored into future urban development decisions. This requires increased coordination amongst County government, national metrological agencies, universities, Kenyan Red Cross and other NGOs and community organizations.**

## 2.5 SUMMARY OF INTERDEPENDENCIES

FIGURE 3 - BLUE ECONOMY INTERDEPENDENCIES - KILIFI



ISSUE	CAUSE/DRIVER	POTENTIAL BE IMPACT	POTENTIAL WIDER IMPACT
<b>Unplanned development and encroachment</b>	Lower planning and enforcement capacity; Historical land grabbing and tenure issues	Reduced coastal public realm and land for blue economy investment	Socio-economic impact
<b>Education – skills for citizens to grasp opportunities</b>	Capacity deficits	Such skills could benefit all BE industries	Local community will not be fully benefitting from BE investments
<b>Mangrove destruction</b>	Urban growth	Impact on marine ecology – fishing; flood protection of BE assets	Wider DRR implications

This table presents some of the inter-related issues within the blue economy of Kilifi, 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.

## CHAPTER 3

# KILIFI BLUE ECONOMY RECOMMENDATIONS

*The recommendations detailed hereafter provide a non-exhaustive list of possible activities and directions for the blue economy in Kilifi. Many are focused on the town itself but others are applicable to the wider county. Recommendations are provided for both specific blue economy sectors and the wider operational urban environment. Many of the blue economy challenges faced by Kilifi are similar to that of other Kenyan counties including case study counterpart Mombasa. Therefore some of the recommendations outlined are applicable to both counties and included in both reports. However, other recommendations are specific to the unique context of each location.*

## 3.1. BLUE ECONOMY GOVERNANCE AND PLANNING

Spatial planning for Kilifi County and municipality are in progress. Integrated terrestrial and marine spatial plans, with corresponding planning and enforcement capacity can help Kilifi Town to grow in a more sustainable fashion, learning from the challenges experienced by larger urban settlements in Kenya, from decades of rapid growth.

With respect to local marine planning and strategic blue economy development, Kilifi Town and County are at an early development phase. Kilifi, like all other Kenyan counties, will require a tightly consolidated framework for blue economy operationalization that caters for both vertical and horizontal relations, traversing across the national, county and municipal levels of government, while also engaging and coordinating with the private sector and the local community. These actors need to be brought on board during initial stages of the discussion so that the blue economy sector is communicated and delivered in a localized language and context.

Specific Recommendations:

- Counties need integrated marine and terrestrial plans that guide development locally. As Kilifi finalises its County Spatial Plan it should look to engage support from JKP, KWS, KIP Mombasa, Pwani University and other relevant actors (e.g. WWF, COMRED, CORDIOEA) where appropriate. Such engagement should help to develop a robust, holistic and achievable integrated County terrestrial and marine spatial plan, and a local plan stemming from the County plan. 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. Municipal managers need to be part of the marine-terrestrial planning process, ensuring that knowledge is absorbed locally and plans are effectively coordinated at municipal level. Planning activity needs to consider hinterland connections and potential investors for proposed plans.
- National legislation needs to be developed to allow Kilifi and other counties to plan up to 5km into the ocean, within the range where tourism, artisanal fishing and other local activities take place.
- There is a need for effective development control to protect the local marine ecosystem from intrusion of waterfront developments and work to improve public access to beaches and other public spaces. Any development must also be supported by a robust and transparent environmental impact assessment (EIA) and open and inclusive communication with all interested stakeholders. Efforts in regularizing land tenure to facilitate property security can encourage more investors to Kilifi. However, development approvals must consider the indirect population growth that a project might trigger, with a corresponding plan for infrastructure development.
- Following the previous point, it is important to build municipal and county planning and development control capacity. MSP and BE knowledge needs to be strengthened alongside wider technical skills such as GIS. County could look to develop partnerships with university planning and marine science departments and seek support from JKP, KWS and other national actors and NGOs in this respect.
- Kilifi County could establish a blue economy planning department which includes focal points from Kilifi Town, Watamu, Malindi, etc and perhaps external actors such as KWS. Activity could feed into JKP county coordination and strengthen activity linkages with neighbouring Mombasa and Lamu.
- The County should develop cross-cutting BE investment priorities in its blue economy plans that fully emphasise and articulate multi-sectoral challenges and interdependencies between BE sectors.
- 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 should be the right conduit for this local dissemination and engagement. National government could consider additional budget and support for local government blue economy capacity and knowledge building, and support for county governments to then engage local communities. Every BE project needs a well-developed strategy about how it will serve the local community and those who need the opportunities most. Capacity building, local education and BE skills building should form key components of BE projects.
- 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 should be stored on a single portal and all research/reports/plans and strategies should include summaries and key points for relevant actors, including actions that ensure that research transforms into action, and benefit BE users.

## 3.2. CURRENT BLUE ECONOMY SECTORS

### FISHING

The fishing sector in Kilifi Town and County needs to be developed in terms of fishing capacity and processing. Illegal fishing by foreign vessels needs to be monitored to protect local livelihoods. The new Coastguard unit in Kilifi, realisation of allocated budget in the CIDP and activities of the KEMFSED Programme may go some way to addressing some of the below recommendations. (The exact breakdown of KEMFSED support across counties was not clear to the research team at the time of writing.) It is important that any 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/storage) elsewhere.

Specific Recommendations:

- National and County governments, NGOs and international organisations could all work to build-up Beach Management Unit (BMU) capacity for deeper sea fishing, with respect to required equipment (especially vessels), safety and organisation. Safety measures and training for local fishermen could include self-rescue skills that can help save lives and avoid accidents.
- The construction of a fish port at Takaungu would likely increase fishing opportunities including value addition potential.
- County, BMUs and other stakeholders could pursue opportunities for fish value addition in Kilifi, namely cold storage and processing facilities. Such activity could be tied to local job creation and training.
- Strengthen linkages between local fisherfolk and hotels and restaurants. Promote local catches in menus.
- Dissemination of marine research - Further dissemination of research undertaken by KMFRI and others over recent years might improve knowledge and practices of local fishermen.
- There could be efforts to communicate to local BMUs the benefits of LMMAs elsewhere in Kilifi e.g. livelihood diversification and overspill catches.
- Develop local capacity for mariculture involving national and county governments and NGOs.
- Build capacity of local women's fishing groups. County and national government should 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 in line with the KEMFSED support. Knowledge and training of local communities should form a key part of this programme.



► Image: Fishing Boats off Kilifi, © UN Photo, Flickr



## TOURISM

Tourism is considered to underexplored in Kilifi Town. The beautiful creek is yet to be fully utilised for diversified tourism and potential exists for increased sustainable community benefits from the sector.

Specific Recommendations:

- The County 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 attractions such as sport fishing, beach sports, water-sports including sailing and diving and local festivals.
- More broadly, the County could increase efforts in promotion of tourism in Kilifi to domestic and international markets, communicating the improved security situation within the County. Local events and attractions can be further promoted.
- Ecotourism- develop community managed areas which provide livelihoods to community groups through conservatory forms of tourism. Examples like the Kipepeo project and the Mida Creek initiative show the potential that exists. With the right buy-in similar initiatives could potentially be initiated in parts of Kilifi Creek and elsewhere locally.
- Kilifi may benefit from developing a regional tourism strategy, in partnership with other counties such as Mombasa, and Lamu, and seek to diversify offerings between locations, so that tourists visit Kilifi Mombasa, Watamu and Malindi in one trip, rather than choosing one over the other.
- Efforts to improve public access to the beach front and build development control capacity (to prevent further land grabbing of the waterfront areas) could be combined with the allocation of tourism beachfront space for local community cooperatives. Such actions could improve both formalisation of the tourism industry locally and provide further opportunities for the local population including youth and women. Allocation of space could be combined with business training and support.
- Enhanced vocational tourism training for the local population especially women, youth and disadvantaged groups may help locals better exploit tourism opportunities. Local training centres can focus on specific curricula to enable communities to better engage in the industry. Relationships could be strengthened between training institutions and hotel owners and operators, making creation of livelihood opportunities a condition or incentive for operators wishing to establish presence in Kilifi Town. This might involve support for existing local groups and educational initiatives and the creation of female tourism cooperative groups where appropriate.
- Sensitisation of hotels, tourism workers and communities on the issue of sex tourism and identification of the exploitation of minors. If missing, establish and promote simple, accessible yet robust related reporting mechanism. Support existing NGOs working in this area.



► Image: Kilifi Creek

### 3.3. FUTURE BLUE ECONOMY SECTORS

Stakeholder consultations discussed the potential for development of currently underexplored BE sectors in and around Kilifi such as Ports and Shipbuilding, Energy and Coastal Business Parks/SEZ. However, 'sustainability' is key to blue economy development and sustainable development and conservation efforts were also explored.

#### PORTS AND SHIPBUILDING

- If implemented in an inclusive fashion with robust Environmental and Social Impact Assessment (ESIA), port investment can contribute to blue economy growth in Kilifi Town and the wider County. Plans for a 'jetty for fish landing' and 'luxury marina' as identified by KPA need to be considered
- Likewise, any investment at Takaungu port needs a robust and inclusive ESIA process which engages all residents and mitigates the concerns of different sections of the local community.
- Port development could also be linked to the shipbuilding sector. There is potential for Kilifi to construct a boat/ship building facility that can facilitate construction and repairs of ships and boats. This could create local employment and activate local manufacturing industry but again, must be accompanied by robust ESIA processes and local skills development and training. (The same points apply for any other port investment).



► Image: Large Ship Passing Through Kilifi Creek

## SEZ / KILIFI ECOPARK

The proposed Kilifi EcoPark has the potential to further transform Kilifi Town, for the better if implemented in an inclusive, sustainable fashion.

- It is important that County planners consider the informal settlements which may arise nearby to service Kilifi Eco Park (and related infrastructure demands and environmental pressures) and build that consideration into development approval. If implemented correctly, the EcoPark has the potential to be inclusive, and of benefit to existing Kilifi residents, rather than a source of additional urban-environmental pressure.
- Provide training and skills development opportunities for existing Kilifi Town residents to benefit and access livelihood opportunities from the SEZ, should it proceed.

## ENERGY AND RESOURCES

- The County could explore the further potential for Wind Power generation in Kilifi, building on recent activity in the sector by Bamburi Cement Company at Vipingo.
- The County should be closely engaged and local communities thoroughly consulted with respect to any future oil/gas exploration offshore from Kilifi and/or location of oil/gas supporting infrastructure in the area. Robust, transparent ESIA's are essential to any plans alongside exploration of more sustainable alternatives and long-term sustainability plans.
- An environmental study could be undertaken to explore and mitigate impacts of mineral extraction along the coast (e.g. salt and coral rock).
- Limestone quarries in the county could adopt environmental practices displayed at Haller Park, Mombasa and seek to balance extraction with ecological restoration and creation of green space, that benefits biodiversity and provides a space for locals and visitors.

## CONSERVATION

The success of LMMAs elsewhere in Kilifi and success of smaller scale conservation activities in Kilifi Town itself, indicate the potential role of conservation activities within the blue economy of Kilifi Town.

Specific Recommendations:

- Develop community managed areas for conservation and tourism. In Kilifi County, local organisations should continue to be supported by national agencies such as KWS, KMFRI and iNGOs, and such support could extend to Kilifi Town. Support might include the provision of livelihood ideas/opportunities, technical capacity development and provision of start-up funds. In time, this could lead to the development of an LMMA locally and significant community-led protection of local marine environment. For instance, Kilifi Creek may have potential to gain some kind of designated protection. The creek has significant ecotourism potential but is currently mainly utilised by larger tourism operators. Establishing an LMMA in Kilifi Creek would help to protect the environment and enable local communities to benefit from local natural assets.
- Develop a waterfront management strategy that protects the marine ecosystem from unsustainable expropriations and controls the increased informalities along the beaches i.e. the informal traders at the beach.
- The creek area has significant mangrove cover. Mangrove protection and expansion of such habitats can have numerous benefits including flood protection and carbon capture. County Governments could work with actors such as KWS, JKP and international actors such as NGOs and/or travel operators, to explore the potential for Blue Carbon schemes in/or near Kilifi. e.g. linked to local communities in the creek areas.

## 3.4. 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 Kilifi 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 economic objectives with cascading infrastructure demand and related environmental pressures.

### WASTEWATER MANAGEMENT

It is imperative that wastewater capacity can be developed for Kilifi in timely fashion, concordant with the town's projected growth. Failure to do so will have significant socio-economic impacts across blue economy sectors such as tourism and fishing, as well as wider environmental impacts.

- There is a need for implementation of wastewater recommendations from the recent CWSB study in order for Kilifi Town to fully benefit from ecologically dependent blue economy sectors in future years. There may be a need to strengthen institutional capacity and multi-stakeholder partnerships for realisation of this or other large scale infrastructure projects. Creation of central points for the development of such projects, working with development partners and private actors to strengthen capacity for project implementation and subsequent pollution monitoring and enforcement within the County is recommended.

### SOLID WASTE

Like sewage management, solid waste is an issue that must be addressed for the wider blue economy benefits to be fully realised.

- It is clear that establishing a suitable dumpsite and SWM system is a priority that is high on the County agenda. Delivery options might include public-private partnership, or in collaboration with Mombasa County (possibly with JKP involvement). Any investment should include robust a robust process for recycling, a recycling site and ancillary infrastructure.
- Promotion of adoption of circular economy principles in the local community, may help to reduce waste generation and therefore infrastructure pressure. This may require multi-stakeholder engagement and advocacy campaigns engaging residents, businesses and specific sectors such as fishermen and hotels. Schemes could include the transformation of plastic waste into tourism products which are promoted and sold to visitors. This would need to be combined with the provision of appropriate disposal sites across the town including for busy public areas, and for specific sites such as beaches and for engine fishermen along the coast. Softer approaches could be combined with penalties for open dumping of waste, encouraging local community buy-in to these efforts and involvement in monitoring.
- Build capacity of community-based organisations who are currently providing solid waste management solutions. Integrate these groups into any future more formal SWM system, creating jobs through circular economies. e.g. beach clean-ups, recycling and local affordable waste collections.
- Kilifi could engage Mombasa and learn from their recent peer-to-peer learning exchanges with Durban on the matter of SWM.
- National government could engage companies who produce plastics to find approaches to reducing solid waste e.g. alternative vessels, or every bottle into the market requires a contribution into a national waste management fund.

## EDUCATION

Future blue economy programs need to be holistic and fully integrate education and skills development.

- A center for excellence within the County like Bandari Academy in Mombasa, even if smaller in scale would strengthen links between blue economy investment and local benefits. Another option could be to integrate blue economy vocational training into the Mkwajuni Vocational Training Center and other existing educational establishments.
- Another supplementary option might be the creation of free online training modules which can be completed on smartphones, providing training on local self-start blue economy business ideas, alongside basic business management training. This resource could be supplemented with physical training and support for those who complete online modules. Such an initiative would likely require further research and could seek advice from existing digital schemes of a similar nature, nationally or internationally, which have proven successful. The County could seek support from external organisations e.g. NGOs, JKP, national government and/or private sector in the creation of such an initiative. Longer-term content could focus on different BE sector opportunities.

## HEALTH

- Efforts should be undertaken to further expand KEMFRI capacity into local health facilities.

## TRANSPORT

- County to explore potential for regional water transportation, providing an alternative means of travel, connecting Kilifi, Mombasa and Malindi as well as other key tourist destinations such as Diani and Watamu. This could help support regional tourism efforts and well as sectors such as fishing and maritime trade.

## CLIMATE CHANGE ADAPTATION AND DISASTER RISK REDUCTION

- National departments, metrological office, universities and/or NGOs could work with County to ensure contextually appropriate climate hazard information is available, which can inform local planning.
- County government and specific blue economy sector stakeholders may need to increase work to ensure that climate change adaptation (CCA) and disaster risk reduction (DRR) measures are fully integrated into wider municipal and County planning.
- Effective collaboration between the County planning department, metrological office and other actors including JKP, KMFRI, KWS, KPA, CORDIOEA and local and national universities, as well as local community organisations, can help in local CCA and DRR efforts, acting upon local climate change studies and projections.
- Detailed flood maps and adaptation strategy, multi-stakeholder emergency response plans and scenario testing can help build local disaster resilience. Wider capacity building and awareness raising (internally, in County and general public) could stem from such engagement.
- Resilience planning support may help local businesses to be better prepared for climate hazards and impacted less. Such an initiative could be done through partnership of several of the actors discussed above.
- Extensive mangrove planting across the town. The investment case for such efforts could be linked to BE sectors such as fishing and tourism, promoting the multi-benefits of such a project. A future Kilifi Mangrove Park and wildlife reserve could transcend economic, social and environmental factors if well-designed and delivered and integrated with wider efforts in tourism locally.

## 3.5. MOVING FORWARDS

Strengthening the blue economy in Kilifi will entail 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 blue economy strategy for Kilifi Town and County, that can be coordinated with broader national and local plans and objectives. It is also intended that this report provides inspiration for towns and cities with similar characteristics to that of Kilifi, including other rapidly growing, smaller towns and cities in the region.

'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. 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 ambition?

Recommendations have sought to balance economic, social and environmental concerns and the Roadmap recommendations are typically felt to be of value to cities across the region. However, context is of course key, and we encourage national, city and local blue economy stakeholders to further consider how the actions outlined here, and in the Regional Roadmap, can support the development of a sustainable blue economy in Kilifi Town and County.



► Image: Local Waters, Kilifi



► Image: Mangroves, Kilifi

## ANNEX

### STAKEHOLDERS CONSULTED (KILIFI)

1	2 representatives from COMRED (Not for Profit Research Organisation)
2	Fredrick Mwabili, Independent Coastal Expert
3	Dr Judith Nyunja, Kenya Wildlife Service, Mombasa Marine National Park
4	2 representatives from NEMA Mombasa
5	4 representatives from KMFRI - Dr Eric Okoku and colleagues
6	Dr David Obura, CORDIOEA
7	Emanuel Nzai, Secretariat, Jumuiya Ya Kaunti Za Pwani - JKP
8	5 representatives Pwani University
9	Representative Kilifi Town Municipality
10	Representative Mida Creek Youth Group
11	Director Planning Kilifi County Government Kilifi County Government Kilifi County Government Kilifi County Government
12	Local Former Fisherman



## REFERENCES

- KNBS (2019) Kenya Population and Housing Census. Kenya National Bureau of Statistics. Retrieved from: [https://www.knbs.or.ke/?page\\_id=3142](https://www.knbs.or.ke/?page_id=3142)
- Njogu, A. K., Villiers, S. D., & Wambua, S. M. (2019). Does protection of marine areas safeguard coral reefs from human-source pollution? *Frontiers in Environmental Science*, 7, 89.
- Redazione (2019). Arabuko Sokoke now one of the biosphere reserves. Malindi Kenya. Retrieved from: <http://www.malindikenya.net/en/articles/social/environment/arabuko-sokoke-now-one-of-the-biosphere-reserves.html>
- UNESCO Man and the Biosphere (MAB) Programme. Retrieved from: <http://www.unesco.org/mabdb/br/brdir/directory/biores.asp?mode=all&code=KEN+03>
- Republic of Kenya, Coast Water Services Board, 2017, Final Wastewater Master Plan Report for Kilifi Town. Retrieved from: <https://drive.google.com/file/d/1fZCOCzE8PZnFXqf6schHxcDRh-Tjf0Pff/view>
- Samuel. K, October 2016, Daily Nation, Kilifi could have biggest port in East Africa, Governor Kingi says. Retrieved from: <https://www.nation.co.ke/counties/kilifi/Kilifi-big-port-in-East-Africa---Governor-Kingi/1183282-3407988-oy3ye/index.html>
- Gomes I. 2012. Artisanal fishery analysis within the Mpunguti Marine Reserve (Southern Kenya): Gear-based management towards sustainable strategies. Masters thesis
- DoF. (2010). Annual Report: Ministry of Fisheries Development, Kenya. Provincial Headquarters, Mombasa,
- Kilifi County Integrated Development Plan (CIDP), 2018-2022. p27
- GoK. 2013. First Kilifi County Integrated Development Plan 2013-2017. Republic of Kenya, Nairobi, Kenya.
- Musyoka. D and Kanyange. N, (2011), Promoting Sustainable Livelihood Initiatives among Poor Coastal Communities in Kilifi District, Kenya. COMRED
- Republic of Kenya Coast Water services Board. (2017) FINAL WASTEWATER MASTER PLAN REPORT FOR KILIFI TOWN. Retrieved from: <https://www.cwwda.go.ke/cwsbFiles/publications/WastewaterMasterPlanKilifi.pdf>
- Republic of Kenya Coast Water services Board. (2017) FINAL WASTEWATER MASTER PLAN REPORT FOR KILIFI TOWN. Retrieved from: <https://www.cwwda.go.ke/cwsbFiles/publications/WastewaterMasterPlanKilifi.pdf>
- MoALF. (2016). Climate Risk Profile for Kilifi County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.
- Kaburu.F. (2013). Fiscal Decentralisation in Kenya and South Africa: A Comparative Analysis. University of Nairobi. Retrieved from: [https://profiles.uonbi.ac.ke/fkaburu/files/fisca\\_decentralisation\\_in\\_kenya\\_and\\_south\\_africa\\_a\\_comparative\\_analysis.pdf](https://profiles.uonbi.ac.ke/fkaburu/files/fisca_decentralisation_in_kenya_and_south_africa_a_comparative_analysis.pdf)
- ASI, (2018). The Revenue Potential: How Kenya's County Governments could close their Financing Gap. Adam Smith International. Retrieved from: <https://adamsmithinternational.com/projects/the-revenue-potential-how-kenyas-County-governments-could-close-their-financing-gaps/>
- Kenya National Spatial Plan 2015-2045. Republic of Kenya. Retrieved from: [vision2030.go.ke/inc/uploads/2018/05/National-Spatial-plan.pdf](http://vision2030.go.ke/inc/uploads/2018/05/National-Spatial-plan.pdf)
- Bosire, J., Celliers, L., Groeneveld, J., Paula, J., & Schleyer, M. H. (2015). Regional State of the Coast Report-Western Indian Ocean. UNEP-Nairobi Convention and WIOMSA. Retrieved from: [https://wedocs.unep.org/bitstream/handle/20.500.11822/11349/rsocr\\_printedition.compressed\\_Part34.pdf?sequence=35&isAllowed=y](https://wedocs.unep.org/bitstream/handle/20.500.11822/11349/rsocr_printedition.compressed_Part34.pdf?sequence=35&isAllowed=y)
- Ojwang, L., Rosendo, S., Celliers, L., Obura, D., Muiti, A., Kamula, J., & Mwangi, M. (2017). Assessment of coastal governance for climate change adaptation in Kenya. *Earth's Future*, 5(11), 1119-1132.
- Jumuiya Ya Kaunti Za Pwani (2020). Retrieved from: <https://jumuiya.org/>
- Jumuiya Ya Kaunti Za Pwani (2020). Retrieved from: <https://jumuiya.org/>
- Gubbay. S. (2004), Marine Protected Areas in the context of Marine Spatial Planning – discussing the links. WWF-UK. Retrieved from: [http://assets.wwf.org.uk/downloads/mpas\\_marinespatialplanning.pdf](http://assets.wwf.org.uk/downloads/mpas_marinespatialplanning.pdf) pp.2-3.
- County Government of Kilifi. County Integrated Development Plan (2018-2022). Retrieved from: <http://www.devolution.go.ke/wp-content/uploads/2020/02/Kilifi-CIDP-2018-2022-ANNEX.pdf>
- Mbaru, E.K., (2012). An assessment of the Kenyan coastal artisanal fishery and implications for the introduction of FADs (Master's thesis).
- CAST (2016) Mama Karanga. Retrieved from: <https://castkenya.wordpress.com/mama-karanga/>
- CAST (2016) Mama Karanga. Retrieved from: <https://castkenya.wordpress.com/mama-karanga/>
- Mbaru, E.K., (2012). An assessment of the Kenyan coastal artisanal fishery and implications for the introduction of FADs (Master's thesis).
- Mbugua.S, (2015) Reuters, Kenyan fishing town swaps boats for mangroves and mariculture. Retrieved from: <https://www.reuters.com/article/kenya-climatechange-mangroves/kenyan-fishing-town-swaps-boats-for-mangroves-and-mariculture-idUSL5N1113KV20150828>
- Mbugua.S, (2015) Reuters, Kenyan fishing town swaps boats for mangroves and mariculture. Retrieved from: <https://www.reuters.com/article/kenya-climatechange-mangroves/kenyan-fishing-town-swaps-boats-for-mangroves-and-mariculture-idUSL5N1113KV20150828>
- County Government of Kilifi. County Integrated Development Plan (2018-2022). Retrieved from: <http://www.devolution.go.ke/wp-content/uploads/2020/02/Kilifi-CIDP-2018-2022-ANNEX.pdf>
- Mgheni. C, Star News Online, (March 2020), Expansion Plans: Kenya Coast Guard Service to move headquarters to Kilifi County. Retrieved from: <https://www.the-star.co.ke/counties/coast/2020-03-02-kenya-coast-guard-service-to-move-headquarters-to-kilifi-County/>
- County Government of Kilifi. County Integrated Development Plan (2018-2022). Retrieved from: <http://www.devolution.go.ke/wp-content/uploads/2020/02/Kilifi-CIDP-2018-2022-ANNEX.pdf>
- World Bank/GoK (2020). Kenya marine fisheries and socio-economic development (KEMFSED) project. Project Implementation Manual Volume I – Main Report. December 2019.
- World Bank/GoK (2020). Kenya marine fisheries and socio-economic development (KEMFSED) project. Project Implementation Manual Volume I – Main Report. December 2019.
- Ondimu. K, Chemoiwo. M and Kemboi. J, Sustainable Blue economy Conference Kenya, (2018), Blue economy Bankable Projects. Retrieved from: <http://www.blueeconomyconference.go.ke/wp-content/uploads/2018/11/SBEC-Booklet-2019-20.11.2018-compressed.pdf>
- County Government of Kilifi. County Integrated Development Plan (2018-2022). Retrieved from: <http://www.devolution.go.ke/wp-content/uploads/2020/02/Kilifi-CIDP-2018-2022-ANNEX.pdf>
- CAST Kenya: Projects: Retrieved from: <https://castkenya.wordpress.com/projects/>
- Mbaru, E.K., (2012). An assessment of the Kenyan coastal artisanal fishery and implications for the introduction of FADs (Master's thesis).

39. Kawaka J, Samoilys MA, Church J, Murunga M, Abunge C, Maina GW, (2015), Locally Managed Marine Areas (LMMAs) in Kenya: a detailed history of their development and establishment, CORDIOEA. Retrieved from: <https://cordioea.net/wp-content/uploads/2015/07/LMMA-Review-Kawaka-et-al.-2015-Final-10Jul.pdf>
40. Kawaka J, Samoilys MA, Church J, Murunga M, Abunge C, Maina GW, (2015), Locally Managed Marine Areas (LMMAs) in Kenya: a detailed history of their development and establishment, CORDIOEA. Retrieved from: <https://cordioea.net/wp-content/uploads/2015/07/LMMA-Review-Kawaka-et-al.-2015-Final-10Jul.pdf>
41. Kawaka J, Samoilys MA, Church J, Murunga M, Abunge C, Maina GW, (2015), Locally Managed Marine Areas (LMMAs) in Kenya: a detailed history of their development and establishment, CORDIOEA. Retrieved from: <https://cordioea.net/wp-content/uploads/2015/07/LMMA-Review-Kawaka-et-al.-2015-Final-10Jul.pdf>
42. Watamu Marine Association (2009) Mida Creek. Retrieved from: [www.watamu.biz/watamu-attractions.php?cid=42](http://www.watamu.biz/watamu-attractions.php?cid=42)
43. Kawaka J, Samoilys MA, Church J, Murunga M, Abunge C, Maina GW, (2015), Locally Managed Marine Areas (LMMAs) in Kenya: a detailed history of their development and establishment, CORDIOEA. Retrieved from: <https://cordioea.net/wp-content/uploads/2015/07/LMMA-Review-Kawaka-et-al.-2015-Final-10Jul.pdf>
44. Coastweek (2020), An Initiative By Communities in Kilifi To Protect Mangroves. Retrieved from: [www.coastweek.com/4023-extra-01.htm](http://www.coastweek.com/4023-extra-01.htm)
45. Republic of Kenya Coast Water services Board. (2017) FINAL WASTEWATER MASTER PLAN REPORT FOR KILIFI TOWN. Retrieved from: <https://www.cwsb.co.ke/cwsbFiles/publications/WastewaterMasterPlanKilifi.pdf>
46. Republic of Kenya Coast Water services Board. (2017) FINAL WASTEWATER MASTER PLAN REPORT FOR KILIFI TOWN. Retrieved from: <https://www.cwsb.co.ke/cwsbFiles/publications/WastewaterMasterPlanKilifi.pdf>
47. UK Government (2020) Foreign Travel Advice Kenya. Retrieved from: <https://www.gov.uk/foreign-travel-advice/kenya/terrorism>
48. Buigut. S (2019) How Kenya's tourism industry has felt the impact of terrorist attacks. The Conversation. Retrieved from: <https://theconversation.com/how-kenyas-tourism-industry-has-felt-the-impact-of-terrorist-attacks-110151>
49. County Government of Kilifi. County Integrated Development Plan (2018-2022). Retrieved from: <http://www.devolution.go.ke/wp-content/uploads/2020/02/Kilifi-CIDP-2018-2022-ANNEX.pdf>
50. County Government of Kilifi. County Integrated Development Plan (2018-2022). Retrieved from: <http://www.devolution.go.ke/wp-content/uploads/2020/02/Kilifi-CIDP-2018-2022-ANNEX.pdf>
51. Kilifi Sport Fishing (2020) Facebook. Retrieved from: [https://www.facebook.com/kilifisportfishing/?\\_rdc=2&\\_rd](https://www.facebook.com/kilifisportfishing/?_rdc=2&_rd)
52. Kenya New Agency (2019) Plan to streamline beach operations mooted in Kilifi. Retrieved from: <https://www.kenyanews.go.ke/plan-to-streamline-beach-operations-mooted-in-kilifi/>
53. Okitae. M (December 2019) County to restore sanity at Vidazini Beach. Jumuiya. Retrieved from: <https://www.jumuiya.co.ke/County-to-restore-sanity-at-vidazini-beach/>
54. Shauri. H (2018) Insecurity and Youth Vulnerability to Recruitment into Criminal Gangs and Violent Extremist Organizations in Kilifi County, Coastal Kenya. International Journal of Scientific Research and Innovative Technology Vol. 5 No. 7; July 2018. Retrieved from: [https://www.ijrsit.com/uploaded\\_all\\_files/3114668514\\_t3.pdf](https://www.ijrsit.com/uploaded_all_files/3114668514_t3.pdf)
55. Mbugua. S. The New Humanitarian Online (April 2018) Women Hit Hardest by Kenya's Tourism Slump. Retrieved from: <https://www.thenewhumanitarian.org/womensadvancement/articles/2018/04/30/women-hit-hardest-by-kenyas-tourism-slump>
56. Nyawira. L. The Star Online (October 2019) Poverty forces Kenyans to rent out spouses, children to tourists. Retrieved from: <https://www.the-star.co.ke/news/big-read/2019-10-19-poverty-forces-kenyans-to-rent-out-spouses-children-to-tourists/>
57. All Africa (2020) Kenya: Sex Trade - Children Trapped in a Cycle of Exploitation. Retrieved from: <https://allafrica.com/stories/202003090105.html>
58. Bhalla. N. Reuters News Online (June 2018) Child sex for a dollar on Kenya's palm-fringed beaches. Retrieved from: <https://www.reuters.com/places/africa/article/us-kenya-tourism-prostitution/child-sex-for-a-dollar-on-kenyas-palm-fringed-beaches-idUSKBN1JA2NE>
59. Kesho Kenya. (Nd) Retrieved from: <https://keshokenya.org/>
60. Kamadi. G. The Guardian Newspaper Online (November 2019). 'Lobsters and octopuses are back': the Kenyan women leading a reef revival. The Guardian. Retrieved from: <https://www.theguardian.com/environment/2019/nov/26/lobsters-and-octopuses-are-back-kenyan-women-leading-coral-reef-revival-wasini-island>
61. Gari. A, January, 2017, The Mipakani Project: Tracking LAPSET and development in Northern Kenya. Retrieved from: <http://mipakani.net/external-link/kilifi-creek-jetty-almost-complete-will-be-used-transport-mining-materials#.Xow3tG5FyuU>
62. Kenya Ports Authority, Small Ports. Retrieved from: <https://www.kpa.co.ke/OurBusiness/Pages/Small-Ports.aspx>
63. Kenya Ports Authority, Small Ports. Retrieved from: <https://www.kpa.co.ke/OurBusiness/Pages/Small-Ports.aspx>
64. Port Strategy - Insight for Port Executives, 01 Aug, 2018, Kenya plans 11 new ports. Retrieved from: <https://www.portstrategy.com/news/101/world/africa/kenya-plans-11-new-ports>
65. County Government of Kilifi. County Integrated Development Plan (2018-2022). Retrieved from: <http://www.devolution.go.ke/wp-content/uploads/2020/02/Kilifi-CIDP-2018-2022-ANNEX.pdf>
66. Kenya Ports Authority, Small Ports. Available at: <https://www.kpa.co.ke/OurBusiness/Pages/Small-Ports.aspx>
67. Samuel. K, October (2016), Daily Nation, Kilifi could have biggest port in East Africa, Governor Kingi says. Available at: <https://www.nation.co.ke/counties/kilifi/Kilifi-big-port-in-East-Africa---Governor-Kingi/1183282-3407988-oy3ye/index.html>
68. Africa Business Portal (2019), Posted by Kilifi County Government, Construction of a Port at Takaungu. Available at: <https://directory.africabusinessportal.com/projects/construction-of-a-port-at-takaungu-622>
69. Kenya Nuclear Energy Board, (2018). The Fission Magazine. Available at: <https://www.nuclear.co.ke/images/library/the-Fission-Magazine-issue-12.pdf>
70. CNEgypt (November 2019) Construction of 36MW Kilifi wind farm in Kenya completed. Energy Central. Retrieved from: <https://energycentral.com/news/construction-36mw-kilifi-wind-farm-kenya-completed>
71. Oirere. S. (August 2019). A Gleam of Hope for Kenya's Offshore. Offshore Engineer. Retrieved from: <https://www.oedigital.com/news/469559-a-gleam-of-hope-for-kenya-s-offshore>
72. UNEP(2017), "Atlas of Africa Energy Resources" United Nations Environment Programme PO Box 30552, Nairobi 00100, Kenya
73. Kasuku. A, (March 2019), The Star News online. Takaungu residents oppose gas project, say it'll kill fish and jobs. Available at: <https://www.the-star.co.ke/counties/coast/2019-03-02-takaungu-residents-oppose-gas-project-say-itll-kill-fish-and-jobs/>
74. Republic of Kenya Coast Water services Board. (2017) FINAL WASTEWATER MASTER PLAN REPORT FOR KILIFI TOWN.

Retrieved from: <https://www.cwwda.go.ke/cwsbFiles/publications/WastewaterMasterPlanKilifi.pdf>

75. Republic of Kenya Coast Water services Board. (2017) FINAL WASTEWATER MASTER PLAN REPORT FOR KILIFI TOWN. Retrieved from: <https://www.cwwda.go.ke/cwsbFiles/publications/WastewaterMasterPlanKilifi.pdf>
76. Musyoka. D and Kanyange. N, (2011), Promoting Sustainable Livelihood Initiatives among Poor Coastal Communities in Kilifi District, Kenya. COMRED
77. Hassan, F., Ong'ayo, H., K. Osore, M., Morara, G., & M. Aura, C. (2018). Assessment of Beneficiary Satisfaction with Community Based Solid Waste Management Service. A case of Okoa Maisha Project in Mnarani Village, Kilifi County, Kenya. International Journal Of Scientific Research And Management, 6(03). doi: 10.18535/ijstrm/v6i3.fe01
78. Njonjo.K, Kenya National Bureau of Statistics (KNBS) and Society for International Development (SID). (2013). Exploring Kenya's Inequality (pp. 10-12). Nairobi: Kenya National Bureau of Statistics. Retrieved from: <http://inequalities.sidint.net/kenya/wp-content/uploads/sites/3/2013/10/SID%20Abridged%20Small%20Version%20Final%20Download%20Report.pdf>
79. Centum, July, 2018, Vipingo Development Limited Launches Vocational Training Program. Retrieved from: <https://centum.co.ke/index.php/2015-10-21-05-04-41/news/406-vipingo-development-limited-launches-vocational-training-program>
80. Njonjo.K, Kenya National Bureau of Statistics (KNBS) and Society for International Development (SID). (2013). Exploring Kenya's Inequality (pp. 10-12). Nairobi: Kenya National Bureau of Statistics. Retrieved from: <http://inequalities.sidint.net/kenya/wp-content/uploads/sites/3/2013/10/SID%20Abridged%20Small%20Version%20Final%20Download%20Report.pdf>
81. MoALF. 2016. Climate Risk Profile for Kilifi County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.
82. IMoALF. (2016). Climate Risk Profile for Kilifi County. Kenya County Climate Risk Profile Series. The Ministry of Agriculture, Livestock and Fisheries (MoALF), Nairobi, Kenya.
83. Kilifi County Integrated Development Plan (CIDP), 2018-2022.
84. SEI (2009). Economics of climate change in Kenya. Sweden: Stockholm Environment Institute. Available at: <https://mediamanager.sei.org/documents/Publications/SEI-ProjectReport-Downing-EconomicsOfClimateChangeKenya-2009.pdf>
85. Ojwang et al (In Prep) Assessing the use of climate information in local adaptation planning: a case study of County governments in Kenya
86. Mwakio, P. (2018). Kilifi County to enhance disaster preparedness : The Standard. 8 April 2020, Retrieved from: <https://www.standardmedia.co.ke/article/2001300796/kilifi-County-to-enhance-disaster-preparedness>
87. Kenya Red Cross, Annual Report 2008. Retrieved from: [https://reliefweb.int/sites/reliefweb.int/files/resources/3BA8416ABE05A258492575FD00DD913-Full\\_Report.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/3BA8416ABE05A258492575FD00DD913-Full_Report.pdf)
88. Ojwang et al (In Prep) Assessing the use of climate information in local adaptation planning: a case study of County governments in Kenya

