



## *A Consultative Meeting Report on Seagrass Conservation in Gazi Bay*

*Incorporating Seagrass Conservation and Restoration into Community-Based PES Projects*



## **Acknowledgement**

The community consultations were carried out by the Kenya Marine and Fisheries Research Institute, and the production of the report was made possible through funding from UN's Blue Forests Project and UNEP to whom we are very grateful.

## **Disclaimer**

The designation of geographical entities in this book, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of KMFRI concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The views expressed in this publication do not necessarily reflect those of KMFRI.

## **Photo Credits**

Cover page: Anne Wanjiru

## **About the Blue Forests Project**

The Global Environment Facility's (GEF) Blue Forests Project is a global initiative focused on harnessing the values associated with coastal marine carbon and ecosystem services to achieve improved ecosystem management and climate resilient communities. The project is implemented by the United Nations Environment Programme (UNEP) with partners worldwide. Project sites include locations in Ecuador, Kenya, Madagascar, Mozambique, Indonesia, the United Arab Emirates, Thailand, and the United States of America. The project also addresses key 'blue forests' knowledge gaps, as well as providing experience and tools to support greater global replication and application of the blue forests methodologies and approaches.

Project website: [www.gefblueforests.org](http://www.gefblueforests.org)

Possible citation:

KMFRI (2021). Consultative Meeting Report on seagrass conservation. Kenya. KMFRI. 25 pp.

## Table of Contents

List of Tables .....	4
List of Figures .....	4
List of Plates .....	4
List of Acronyms .....	5
1.0 Introduction .....	6
1.1 Purpose of the workshop.....	6
1.2 Workshop program.....	7
1.3 Participation.....	7
1.4 Opening remarks.....	7
2.0 Presentations .....	8
2.1 Mikoko Pamoja Carbon project .....	8
2.2 Steps and challenges during establishment of Mikoko Pamoja .....	9
2.3 Participatory Conservation of Blue Carbon .....	9
2.4 Connectivity of Seagrass and other Ecosystems.....	10
3.0 General Discussion.....	12
3.1 Benefits and Threats of seagrass in Gazi Bay.....	12
3.2 Mapping activities.....	13
4.0 Management of Fishery resources .....	16
4.1 Regulations Governing Establishment of CMAs and MPAs .....	16
4.2 Overview of the Jimbo CCA.....	18
5.0 Question and Answer Forum .....	18
6.0 Closing Remarks .....	21
7.0 Appendices.....	23
7.1 Appendix I: Program .....	23
7.2 Appendix II: Participants list .....	24
7.3 Appendix III: Photos showing group work activities.....	25

## List of Tables

Table 1: Table showing the benefits and threats facing seagrass in Gazi Bay.....	13
Table 2: Table showing fishing methods and gears used in Gazi Bay.....	15

## List of Figures

Figure 1: Illustration of the ecosystem services provided by oceans and the ways in which humans depend on oceans (Adapted from Samonte <i>et al</i> 2010).....	9
Figure 2 : Participants opinions on Participatory approach in resource management .....	10
Figure 3: World seagrass map showing the distribution of seagrass ecosystems. (Adapted from Short et al., 2007). .....	11
Figure 4: Seagrass dominant species in Gazi bay.....	12
Figure 5: Map showing areas where different types of fishing takes place in Gazi bay.....	<b>Error! Bookmark not defined.</b>

## List of Plates

Plate 1: Community member taking part in monitoring the Mikoko Pamoja Project area (photo @Tonywild).....	8
Plate 2: Gazi BMU chairman explaining about the proposed seagrass project to the fishermen.....	20
Plate 3: Participants raising hands to show agreement that the team should continue with awareness creation .....	21

## **List of Acronyms**

<b>ACES</b>	Association for Coastal Ecosystem Services
<b>BMU</b>	Beach Management Unit
<b>CCA</b>	Community Conservation Areas
<b>CFA</b>	Community Forest Association
<b>CMA</b>	Community Managed Area
<b>JCMA</b>	Joint Co-managed Area
<b>KMFRI</b>	Kenya Marine & Fisheries Research Institute
<b>KFS</b>	Kenya Forest Service
<b>KWS</b>	Kenya Wildlife Services
<b>MPAs</b>	Marine Protected Areas
<b>MP</b>	Mikoko Pamoja
<b>PES</b>	Payment for Ecosystem Services
<b>SDF &amp; BE</b>	State Department of Fisheries and Blue Economy
<b>UNEP</b>	United Nations Environment Program
<b>VBF</b>	Vanga Blue Forest Project

## 1.0 Introduction

Gazi Bay shoreline, in South coast Kenya hosts extensive seagrass beds, which are important for local fisheries. The bay's seagrass meadows are among the largest and almost contiguous meadows along the Kenya coast, covering an estimated area of 8 km<sup>2</sup><sup>1</sup>. Research indicates that like mangroves, seagrass meadows capture and store large quantities of carbon in both the above ground and below ground components with sediment organic carbon having the highest pool. Despite this value, seagrass meadows are declining faster than any other global habitat, and at rates two or three times that of mangroves. The location of seagrass in shallow near shore areas make them particularly vulnerable to over exploitation and other human and land-based disturbances<sup>2</sup>.

The role of seagrass in fisheries and carbon sequestration emphasizes the importance of conserving, and where possible rehabilitating, such ecosystems as an opportunity for fisheries production, food security and ecosystem climate mitigation. Unfortunately, there are no efforts of seagrass conservation in Gazi Bay. It is on that note that Mikoko Pamoja seeks to incorporate the seagrass into carbon marketing and offsetting in order to help in the conservation and management of this critical ecosystem, and to enhance community livelihoods. The Mikoko Pamoja which is the first in the world to conserve mangrove through the sale of carbon credits has successfully translated scientific work on carbon storage in mangrove forests into practical outcomes, earning ~USD 25,000 per year for local benefit. Additional income generated from seagrass conservation is envisaged to support the protection of the ecosystem and relevant local development projects.

To bundle seagrass ecosystems into the ongoing mangrove carbon offset scheme, seagrass mapping, assessment and community consultations form the baseline that informs the establishment of the project. Mikoko Pamoja in collaboration with Kenya Marine & Fisheries Research Institute (KMFRI) conducted a comprehensive consultative meeting in order to appraise the Gazi Bay community on the importance of seagrass conservation in the area and the opportunity of including them in the carbon offset project.

---

<sup>1</sup> 'Ochieng C, Erftemeijer PLA (2003) Seagrasses of Kenya and Tanzania. In: Green EP, Short FT (Eds) World Atlas of Seagrasses. UNEP World Conservation Monitoring Centre. p. 82–92.'

<sup>2</sup> S. L. Waycott, M., Duarte, C. M., Carruthers, T. J., Orth, R. J., Dennison, W. C., Olyarnik, S., ... & Williams, 'Waycott, M., Duarte, C. M., Carruthers, T. J., Orth, R. J., Dennison, W. C., Olyarnik, S., ... & Williams, S. L. (2009). Accelerating Loss of Seagrasses across the Globe Threatens Coastal Ecosystems. Proceedings of the National Academy of Sciences, 106(30', 2009.

## **1.1 Purpose of the workshop**

A stakeholders meeting was conducted at Pride Inn hotel, Diani in Kwale, County, Kenya. The objective of the meeting was

- i. To appraise on the importance of seagrass ecosystem
- ii. To introduce the concept of seagrass Payment for Ecosystem Services (PES) to the stakeholders
- iii. To map community activities within and adjacent to the seagrass meadows of Gazi Bay
- iv. To enhance community understanding on the project and the proposed interventions.

## **1.2 Workshop program**

The workshop program included a general discussions and presentations on Mikoko Pamoja carbon project and the status and need for conservation of the seagrass beds of the bay. During the discussions, the participants expressed their awareness on the benefits and threats facing the seagrass beds of the bay. They also helped to map community activities in the intertidal and sub tidal areas of the bay ([Annex i](#)).

## **1.3 Participation**

The meeting started at 10.00 am with prayers from a community member. It was attended by 32 participants drawn from the Gazi community, Kenya Marine & Fisheries Research Institute (KMFRI), Beach Management Unit, Mikoko Pamoja and the State Department of Fisheries & Blue Economy (SDF & BE). The community representatives comprised of the BMU executive, fishermen, fish vendors, sea weed farmers and Mikoko Pamoja representatives. ([Annex ii](#)).

## **1.4 Opening remarks**

The meeting was officially opened by Dr. Caroline Wanjiru, a lecturer, Kenyatta University. She gave a recap of previous meetings with the fishermen and stated that this will be a follow up on previous discussions. She pointed that the government embraces collaboration with communities and that it was through such co-management initiatives that communities benefit. She cited the forest department where Community Forest Associations (CFAs) and Mikoko Pamoja were born through such collaborations. Similarly, in fisheries, the BMU which manages the ocean resources together with SDF & BE could join hands and implement development projects which could bring benefits to the community.

Dr. Wanjiru further informed the participants of the many opportunities in which the communities could benefit including carbon credits from seagrass conservation. This could be achieved by communities establishing conservation areas in seagrass ecosystems. She indicated that research has shown that seagrass sequester and store carbon just like mangroves and thus with the inclusion of the seagrass beds of the bay which is earmarked in the ongoing discussions, the community of Gazi stands to gain more through conservation of these ecosystems. She told them that though there are skeptics who take time to embrace

new initiatives, there was need for the participants to be open minded and ask questions and contribute where necessary so that they could learn more during the workshop.

## 2.0 Presentations

### 2.1 Mikoko Pamoja Carbon project

An overview of Mikoko Pamoja ('mangroves together') project was given by the project coordinator. The project is the world's first community-led mangrove conservation and restoration project funded by carbon credits. Mikoko Pamoja has been validated to sell 2125 tCO<sub>2</sub> for 20 years. Participants were informed that revenue is earned when carbon emitters i.e. institutions, industries or individuals opt to buy the services local communities provide in conservation. The Association for Coastal Ecosystem Services (ACES) which is a charity organization based in Scotland assists Mikoko Pamoja in marketing and selling the credits. Before the credits can be issued, the community is expected to achieve their conservation targets and provide proper financial accounting for funds given as per the Plan Vivo guidelines. Revenue generated (of US\$24000/annum) from sale of carbon credits supports conservation and local development projects that the community prioritizes through consultative meetings.



Plate 1: Community member taking part in monitoring the Mikoko Pamoja Project area (photo @Tonywild)

The success of MP in community implementation and benefit, has enabled the project to win prestigious awards including the Equator Prize 2017 that increased its global visibility having it serve as an innovative model for replication in other parts of the world. In Kenya, MP has been replicated in Vanga through the



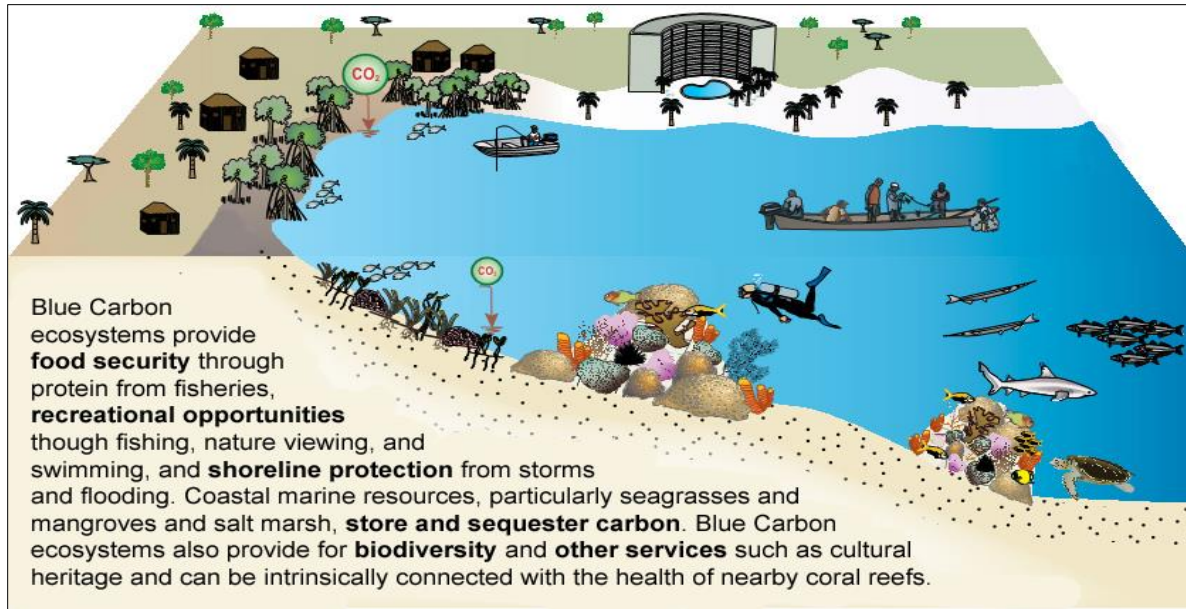
Vanga Blue Forest Project (VBF) in southern part of the Kenya coastline. Since the VBF is four times larger than MP the Vanga community will be earning more revenue. The plan of bundling seagrass beds with the mangroves by MP is envisaged to increase the community benefits and thus the need for the community to consider this initiative.

## **2.2 Steps and challenges during establishment of Mikoko Pamoja**

Initial development of Mikoko Pamoja project involved a series of community consultations which enabled the community to understand goals and objectives of the project; and their role for the sustainability of the project. The community acknowledged the beginning of the project was challenging due to opposition and inadequate knowledge on the concept of carbon trading by some community members. However, after consultations and consistent awareness creation including explaining the ‘carbon credit sales’ concept, and processes the community slowly embraced the idea and are happy at present to see the gains that have come through the project. Participants were urged to have an open mind when new ideas come as they stand to gain from them.

## **2.3 Participatory Conservation of Blue Carbon**

Participants were informed of the need to conserve Blue Carbon ecosystems for ecosystem health, human wellbeing, and climate change mitigation (Fig 1). Healthy coastal ecosystems have the ability to sequester and store carbon. However, when degraded these ecosystems release carbon that has been stored there for years. Blue Carbon ecosystems also support coastal communities around the world. Due to these factors, blue carbon is a natural solution to climate change mitigation and adaptation.



**Figure 1: Illustration of the ecosystem services provided by oceans and the ways in which humans depend on oceans (Adapted from Samonte *et al* 2010<sup>3</sup>)**

According to the Kenyan constitution the government has the obligation to encourage public participation in management, protection and conservation of the environment. On the other hand, every person has a duty to cooperate with state organs and other persons to protect and conserve the environment and ensure ecologically sustainable development and use of natural resources.

### **Participatory approach in resource management**

An open discussion was carried out to get participants' views on when they think a resource management approach is participatory. The participants gave their opinion on when it is that they would feel that they have been engaged in managing a resource, challenges encountered in participatory approach and when it is that there is a balance in the participatory approach.

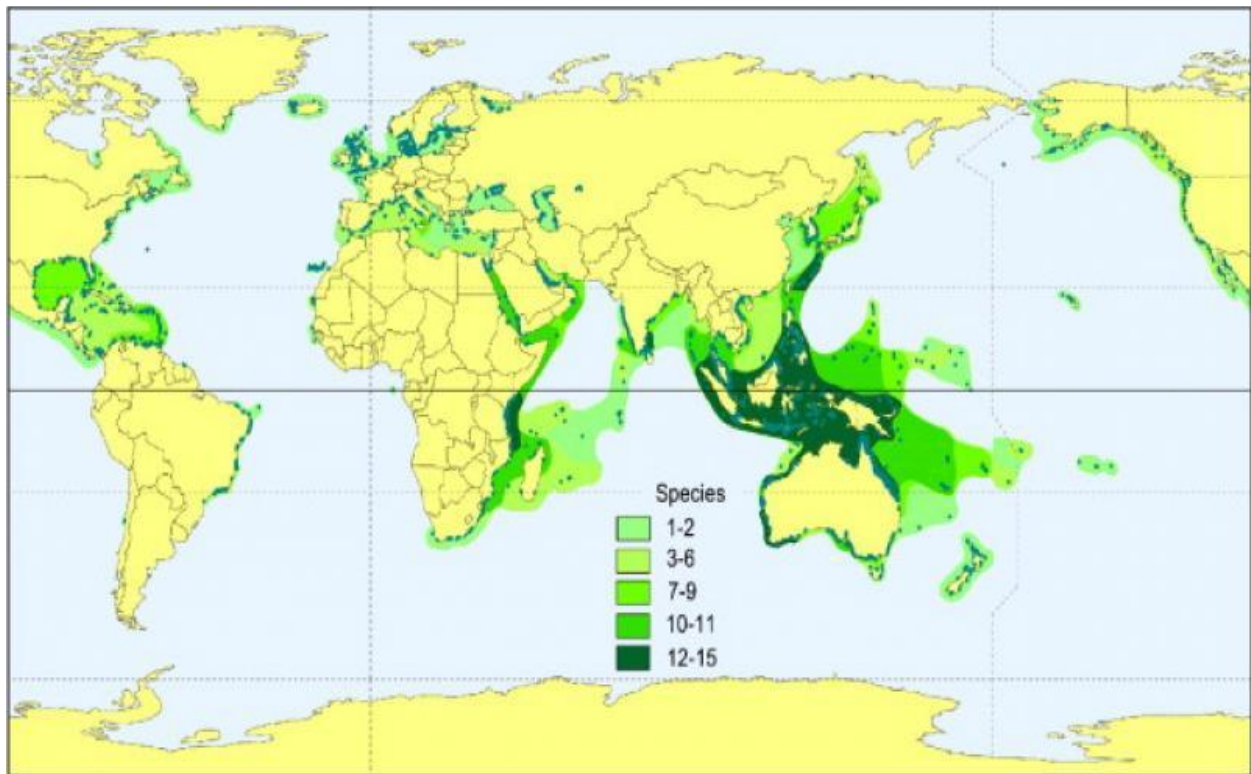
<sup>3</sup> 'Samonte G, Karrer L, Orbach M. 2010. People and Oceans. Science and Knowledge Division, Conservation International, Arlington, Virginia, USA.'



Figure 2 : Participants opinions on Participatory approach in resource management

## 2.4 Connectivity of Seagrass and other Ecosystems

This presentation aimed at enhancing community recognition for seagrass ecosystems and their importance. It summarized on seagrass ecology, seagrass species characteristics and differences between seagrass and sea weed since many people usually confuse seagrass with green macro algae. Seagrass are marine green plants belonging to the angiosperms with well-established roots and shoot systems while the seaweeds are marine algal groups, majorly lack these specialized structures. The participants were further informed that there are 72 species of seagrass globally with a higher species diversity within the tropics (Fig 3). Along the Kenyan coast, there are 12 species. Noting the connectivity of the marine ecosystems and their overlapping functions, the presenter emphasized the need for collective conservation and management initiatives. For example, various organisms such as some fish species move from corals to seagrass and to mangroves to either feed, breed or for refuge. Additionally, some of the carbon from the mangrove ecosystems also flow to the seagrass ecosystems. Degradation of one ecosystem can therefore compromise the functionality of the other ecosystems. From this presentation, the community appreciated the role of the critical ecosystems and characterization of different seagrass species.



**Figure 3: World seagrass map showing the distribution of seagrass ecosystems. (Adapted from Short et al., 2007).**

### **Seagrass species of Gazi Bay, their importance and threats**

The participants were taken through the different seagrass species of Gazi bay. The 12 species include: *Halodule wrightii*, *Halodule uninervis*, *Syringodium isoetifolium*, *Enhalus acoroides*, *Halophila stipulacea*, *Halophila ovalis*, *Halophila minor*, *Thalassia hemprichii*, *Thalassodendron ciliatum*, *Cymodocea serrulata*, *Cymodocea rotundata* and *Zostera capensis*. The dominant species in the bay were stated to include *T. ciliatum*, *E. acoroides*, *S. isoetifolium* and *T. hemprichii*.

The community representatives highlighted the different uses of seagrass, based on their experience and general knowledge. Some of the benefits listed include, carbon sequestration, habitat for fish, squids, crabs and prawns, and nursery habitats for fish and other marine organisms, shoreline protection, soil erosion prevention, medicine, reducing strong waves and storm impacts in the coastline and helping in water quality and filtration. They also identified different threats including sea urchin herbivory, unsustainable fishing methods such as seine nets and trawling, and long-term boat anchorage in a given area.

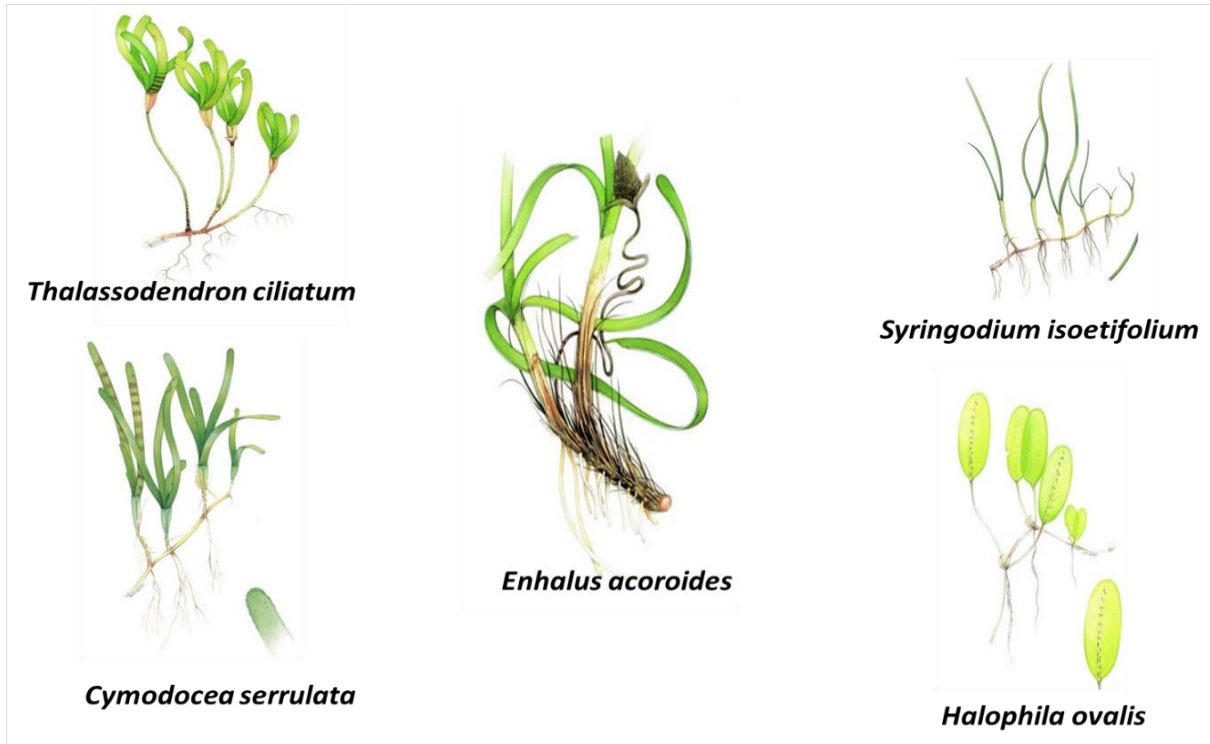


Figure 4: Seagrass dominant species in Gazi bay

### 3.0 General Discussion

#### 3.1 Benefits and Threats of seagrass in Gazi Bay

Participants were engaged in a general discussion session where they outlined the uses and threats facing seagrasses in Gazi Bay. Major uses identified included seagrass as fishing grounds, food for fish and breeding sites for fish. On the other hand, unsustainable fishing practices, sea urchins and strong winds were identified as the most common threats facing seagrass in the bay (Table 1).

Table 1: Table showing the benefits and threats facing seagrass in Gazi Bay

Uses of seagrass	Threats to seagrass
<ul style="list-style-type: none"> <li>Fishing ground *1</li> </ul>	<ul style="list-style-type: none"> <li>Sea urchins *2</li> </ul>
<ul style="list-style-type: none"> <li>Shed</li> </ul>	<ul style="list-style-type: none"> <li>Climate change</li> </ul>
<ul style="list-style-type: none"> <li>Food for fish*2</li> </ul>	<ul style="list-style-type: none"> <li>Strong winds*3</li> </ul>
<ul style="list-style-type: none"> <li>Breeding sites for fish*3</li> </ul>	<ul style="list-style-type: none"> <li>Currents</li> </ul>
<ul style="list-style-type: none"> <li>Food</li> </ul>	<ul style="list-style-type: none"> <li>Anchors</li> </ul>
<ul style="list-style-type: none"> <li>Carbon sequestration</li> </ul>	<ul style="list-style-type: none"> <li>Siltation</li> </ul>

<ul style="list-style-type: none"> <li>• Medicine</li> <li>✓ For respiratory problems –<i>Cymodocea serrulatta</i></li> <li>✓ For treating stings- <i>Thalassodendron ciliatum</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>El nino</i></li> <li>• Unsustainable fishing e.g. trawling, seine nets *1</li> </ul>
---	--

\*1 2 3- represent order of importance

### 3.2 Mapping activities

The community members mapped out the different activities that they carry out in Gazi Bay which included fishing, gleaning and sea weed farming. Other activities taking place include scientific research as well as swimming and snorkeling by locals and tourists. Participants also mapped where different fishing methods were being used in the bay (Fig. 5).

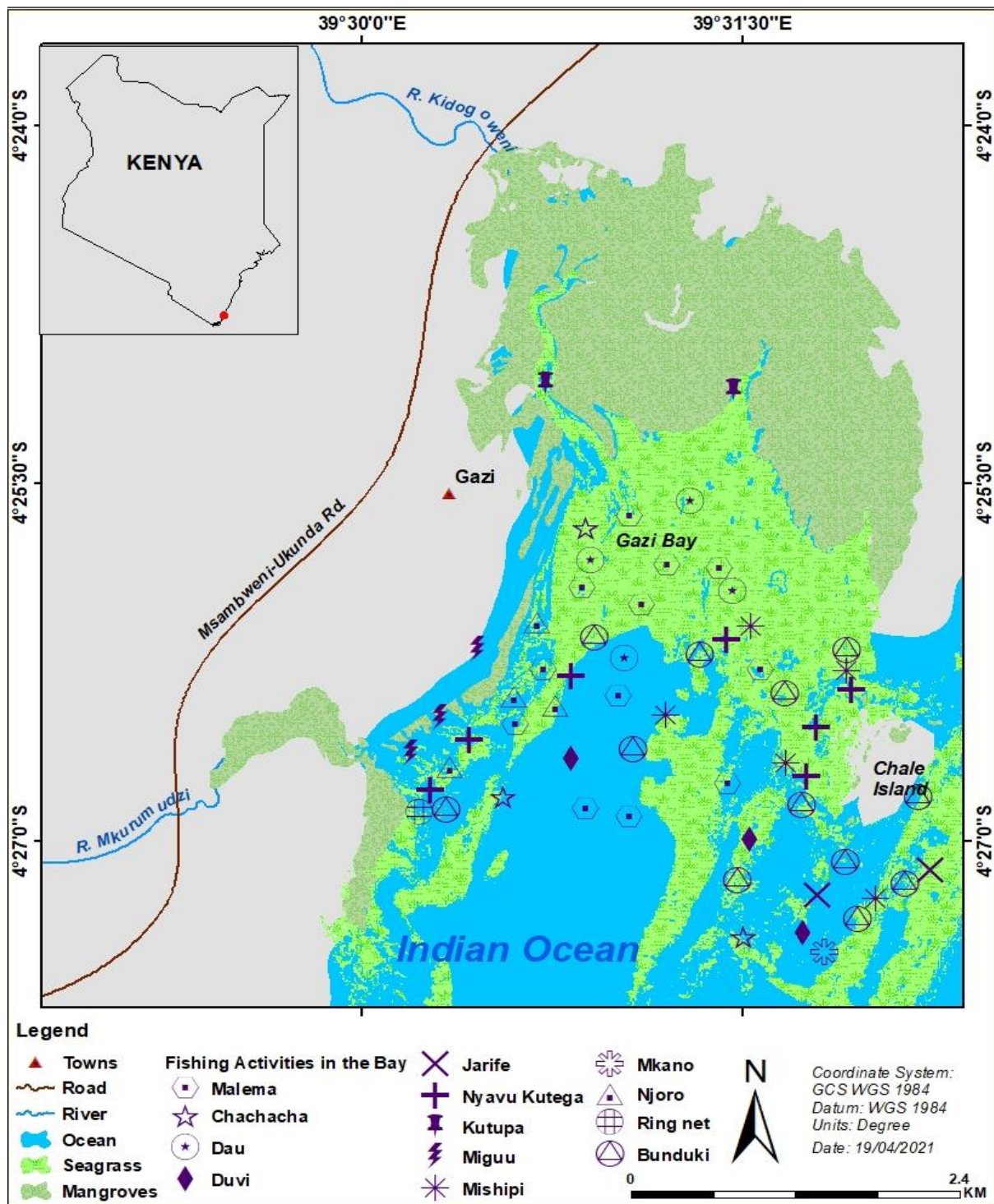


Figure 5: Map showing areas where different types of fishing takes place in Gazi bay

### Chronology of fishing in Gazi Bay

Gazi is predominantly a fishing village that has a long fishing history. A representative from the community gave an overview of how fishing methods and gears have evolved in the bay over the years. Participants were informed that in the past, the fishermen used different fishing methods such as fence traps, gill nets, spear gun and basket traps. These methods were mostly passive and sustainable. Migrant fishermen later

came and introduced beach and reef seines while others brought other modified types of nets. These nets had very small holes and were non discriminative and thus caught even the juvenile fish which is prohibited. The catch landed using these nets was also a lot and covered the needs of up to 40 fishermen.

Later, the fishermen reduced the number of nets being used from 13 to 6 and eventually the destructive gears were stopped completely because of the negative impacts it was causing. The fishermen then started using basket traps and other methods that were permitted which they still use them until now. The ones who still use beach and reef seines do so secretly because it is illegal in Kenya (Table 2).

**Table 2: Table showing fishing methods and gears used in Gazi Bay**

<b>Fishing gear type</b>	<b>Description</b>
<b>Passive gears</b>	
<b>Basket trap</b> (Lema)	A simple fishing gear mostly used by foot fishers or dugout canoe users that uses basket as a trap
<b>Set gillnets</b> ( <i>Jarife, nyavu ya kutega</i> )	Gill nets made of multi-filament nylon, suspended with floats and held vertically with sinkers. Set on or near the bottom but often catch pelagic.
<b>Hook and Stick</b> ( <i>Njoro</i> )	A fish hook is a device for catching fish either by impaling them in the mouth. The hooks are normally attached to some form of lines/stick
<b>Active gears</b>	
<b>Ringnets</b> ( <i>nyavu ya kufunga</i> )	A multifilament nylon mesh netting similar to a purse seine suspended from floats and weighted at the bottom to hold the net vertically in the water. A foot-rope threaded through metal rings at the bottom of the net is used to close the net (hence the name "purse") to enclose a school of fish.
<b>Chachacha</b>	a traditional gear used to catch half beaks
<b>Beach and reef seine</b> ( <i>Juya, buruta, nyavu ya kukokota</i> )	Small variable mesh sized nets made of multifilament nylon with a floatline and a weighted footrope. A section of larger-mesh netting on each wing of the net corals fish towards the smaller-mesh centre of the net. potential negative impact of seine may consist in the by catch/discards (undersize specimens, no marketable specimens, non-target species, etc.
<b>Handline</b> ( <i>Mshipi</i> )	A single monofilament nylon line attached to one or more steel hooks onto which baits are fixed.
<b>Cast nets</b> ( <i>kimia/ kutupa</i> )	Circular nets often made with monofilament nylon line, with weights attached around the edge. They usually comprise three parts: the upper section, the middle section and the weighted lower section. A foot-rope is used to close the net during retrieval.
<b>Fence traps</b> ( <i>uzio, rasaka, wando</i> )	Stationary semi-permanent traps and fences set in the intertidal zone. Usually made of mangrove stakes, plaited mats, or palm frond with midribs tied tightly together.
<b>Mosquito nets</b> ( <i>Upindo</i> )	Use of mosquito nets as gear to catch young fish and prawns ( <i>Duvi</i> )
<b>Spear guns</b> ( <i>Bunduki</i> )	An underwater fishing device designed to launch a tethered spear or harpoon to impale fish or other marine animals
<b>Monofilament</b> ( <i>Nyavu ya mkano</i> )	This is a net that is made of single strands of a synthetic material that looks like a stand of modern fishing line. A monofilament net is preferred by fishermen because it catches 2-4 times as many fish as a multifilament net. The main reasons include the low visibility of nets in the water, and the different way the nets catch fish; fish in the monofilament nets are mostly gilled (caught around the gills with their head through the net



Poison ( <i>sumu</i> )	Use of herbal fish poison to catch fish. The method is forbidden but it is still practiced illegally
------------------------	--

## 4.0 Management of Fishery resources

### 4.1 Regulations Governing Establishment of CMAs and MPAs

The devolved system of governance has shifted fisheries resource management from a centralized system to a participatory co-management approach. This strategy aims to strengthen and make fisheries management more effective by involving local resource users primarily represented by the Beach Management Unit. One approach to improve fisheries management in Kenya is the establishment of Joint Fisheries Co-Management Areas (JCMAs) and plans.

A JCMA is an area managed by two or more BMUs such as the Shimoni -Vanga Fishery JCMA in Vanga, southern coast Kenya. The area under the Shimoni -Vanga JCMA is proposed to be jointly co-managed by seven BMUs, namely Shimoni, Wasini, Mkwiro, Kibuyuni, Majoreni, Vanga and Jimbo, in conjunction with State Department of Fisheries and Blue Economy Kwale County.

Local communities often confuse CMAs with MPAs and thus fear that the areas that have been reserved for a CMA will totally not be accessible for fishing activities. However, it was made clear that an area is declared as MPA, that is a Park/reserve, by the Cabinet Secretary, in consultation with the Kenya Fisheries Advisory Council, stakeholders and the Board, through a Gazette notice and thus an MPA cannot just happen without them being informed. It was pointed out that researchers use terms such as Locally Managed Marine Area (LMMA) or Community Conserved Area (CCAs) but they all refer to a Community Managed Area (CMA) which is the legally recognized name with local swahili use as '*Sehemu tengefu*' in swahili.

#### *Policy and Legal support for management of marine resources*

Participants were informed that there were international, regional and national laws that guide management of marine resources. In Kenya these legal and policy frameworks include

- i. **Article 69 of the Kenyan Constitution-** in this section, the State is obliged to (a) Ensure sustainable exploitation, utilization, management and conservation of the environment and natural resources, and ensure equitable sharing of the accruing benefits; (d) Encourage public participation in the management, protection and conservation of the environment; (f) Establish systems of environmental impact assessment, environmental audit and monitoring of the environment; (g) Eliminate processes and activities that are likely to endanger the environment; and (h) Utilize the environment and natural resources for the benefit of the people of Kenya

- ii. **The National Ocean and Fisheries policy 2008-** The policy aims at promoting conservation and management of oceans and fisheries resources, enhancing food supply and food security, and developing aquaculture. The policy has implications for seagrasses, which act as habitat, nursery and feeding ground for a number of marine fish species.
- iii. **Fisheries Management and Development Act no.35 (2016)** -This Act provides for the conservation, management and development of fisheries and other aquatic resources to enhance the livelihood of communities dependent on fishing and to establish the Kenya Fisheries Services. Section 5 (2) of the act advocates for an Ecosystem Approach to Fisheries Management.
- iv. **BMU Regulation 2007 Section 7:** states that an authorized fisheries officer shall establish a Co-Management Area (CMA/JCMA) through a consultative process

### **Management measures**

Different measures have been provided for when managing fishery resources. Mikoko Pamoja in collaboration with the Gazi Bmu will be required to take these measures into consideration when putting up their community conservation area. These include;

- i. Closed seasons and or areas for species of fish or methods of fishing provided that customary fishing rights are protected;
- ii. Prohibited fishing areas for all or designated species of fish or methods of fishing;
- iii. Limitations on the types of gear
- iv. Limitations on the types and/or number of fishing vessels
- v. Limitations on the amount, size, age of species caught
- vi. Regulate the landing of fish (fishing ports and landing stations)
- vii. Control of the introduction into, or harvesting or removal from Kenya fishery waters of any species of fish, including aquatic plants;
- viii. Define and identify fragile aquatic ecosystems and provide structures to enable collaborative protection;
- ix. Regulate trade in endangered species of fish and products;
- x. Prohibit the possession, trade in or manufacture of prohibited gear
- xi. Any other measures consistent with the objective and principles of this Act

### **Penalty**

Participants were informed that any person who breaks these laws under this section commits an offence and is liable on conviction to a fine not exceeding five hundred thousand Kenyan shillings or imprisonment for a term not exceeding one year or to both in respect of industrial fishing, and to a fine not exceeding twenty thousand shillings or imprisonment for a term not exceeding three months or to both in respect of artisanal fishing.

## 4.2 Overview of the Jimbo CCA

A representative from Jimbo BMU gave a summary of their CCA (*tengefu*) stating that it was established in 2014 by East Africa Wildlife Society (EAWLS). The Jimbo BMU CCA is a 1.9km<sup>2</sup> area which includes mangroves, seagrass and corals. Activities carried out in the area include conserving seagrass, coral reefs and snorkeling. The group also carries out monitoring activities at least 4 times in a year. The CCA is near the shore thus easily accessible for community monitoring. In 2018 the BMU received funding from Global Environment Facility (GEF) Small Grants Program through the Coastal & Marine Resource Development (COMRED) institute which they used to install buoys for delimitation of the CCA. They also used the funds to carry out patrols, every two months, on project area.

The Jimbo BMU also carries out sensitization to the community members on the importance of conserving the marine ecosystems. Though the project majorly faces the challenge of trawling (*Juya*) (a destructive fishing method) the fishermen have noticed increase in the number of fish in the area. Jimbo BMU is now working with Wildlife Conservation Society (WCS) and other institutes such as KMFRI to assess seagrass carbon stocks in the CCA.

## 5.0 Question and Answer Forum

Question	Response
<p><b>Does seaweed farming affect seagrass beds?</b></p>	<p>Seagrass can be degraded through continuous stepping on by fishermen and also by seaweed farmers when the farmers are doing monitoring activities. Another participant also indicated that seagrasses can also affect seaweed because of the sea urchins which frequent the seagrass beds for food. However, the seaweed farmers present indicated that they had not seen any effect of seaweed on seagrass.</p> <p>It was agreed that seaweed farms can be grown adjacent to seagrass but under control since the spread of seaweed farms can be a threat to seagrass beds when they take over the seagrass areas.</p>

Is there any other project that you are thinking might bring benefits to the community the way like Mikoko Pamoja has?	We are working on a pilot to assist the community expand the current carbon project and increase community benefits from Mikoko Pamoja. However, it all depends on the community and whether they will support researchers and the other stakeholders. There is still need for more education and awareness creation so that the fishermen can see the benefit of seagrass conservation for carbon credit benefits.
Who will be in charge of this project after implementation?	The community members will choose the project leadership and structure. The researchers such as KMFRI only come in to offer technical assistance and advice.
Who will be the project beneficiaries, will it be Gazi or Makongeni	Since the project will be in Gazi and will be implemented in the Gazi BMU area, no other community can claim the benefits. An example was given for the Gogoni Gazi CFA under which Mikoko Pamoja is a user group. However, because the project is on mangrove conservation, only Gazi and Makongeni villages are benefiting from the project.
Will we be conserving the present seagrass or we will plant new seagrass	We can start with conserving the current seagrass meadows then we can engage in other restoration activities
Can other well organized and willing BMUs/ communities be supported to establish such carbon offset schemes?	Starting a carbon offset project is expensive. It is possible to replicate in a new place but for now KMFRI is considering bundling seagrasses with ongoing mangrove carbon offset projects. Vanga community have also shown interest in seagrass conservation. KMFRI is helping the CFA in carbon assessments and community consultations. They already have a CCA and have agreed to bundle mangrove with seagrass conservation. It is also much easier to assist a community when there is willingness from the community.

### Remarks by the BMU Chair

The BMU chairperson Mr. Gofa, when addressing the participants informed them that when Mikoko Pamoja was proposed, he was the BMU secretary and there was a lot of politics and misinformation being spread on the project in that it would only result into individual benefits to few people in the community. However, continued awareness creation clarified the objectives of the project and the possible benefits for the community. The community finally gave the consent for the project to proceed and a committee was selected and he was chosen as the first Mikoko Pamoja chairman. Mr. Gofa thus made it clear that the idea being brought forward was just like Mikoko Pamoja in that fishermen are potential beneficiaries. There are areas that are very important to fishermen especially those using nets. In the middle of the bay, they use basket traps so it is quite a challenge since all areas are being used. However, he informed fishermen that they could were at liberty to propose the management interventions to be used such as prohibit certain fisheries that are destructive. He urged them to first understand the proposals, evaluate them then make a decision.



Plate 2: Gazi BMU chairman explaining about the proposed seagrass project to the fishermen

### **Seagrass bundling into Mangrove carbon credits**

The impact officer confirmed to the participants that there was an upcoming project that would involve seagrass conservation. However, she mentioned that the reason as to why its implementation had not featured so much in the discussion was because the team wanted the community to first understand the value of seagrasses and the threats facing them. From that, they would then be able to have the urge to conserve the ecosystem without feeling as though someone else was imposing the project on them. She further pointed out that the project will use a carbon plus approach. This is where carbon credit buyers who want to support the project will buy Mikoko Pamoja credits at a higher price. The extra income would then go towards supporting the fishermen. Anne informed them that Plan Vivo had already approved the project and that the Mikoko Pamoja Project Design Document had also been revised to incorporate the aspect of seagrass conservation. In terms of finance, Anne stated that there were already people interested and committed in buying the credits. What was remaining was only the Community Consultations in order to get support from the community.

## 6.0 Closing Remarks

Participants were urged of the need to first get to understand the project so that when they are called for another meeting then they could be the ones who educate the whole community. They were also requested not to spread false information because it will be unfortunate for the community to miss out on a project because they were misinformed. On that note, the Gazi BMU chairman was commended for speaking the truth in that he would have opposed the project had he gone with people's opinions like he did previously with Mikoko Pamoja project but he chose first learn more about it before making conclusions.

It was made clear that the hosts of the meeting wanted to ensure that the community understood importance of conserving seagrass before asking for their support in initiating any project. In line with that, the community was requested to show by raising their hands if they wanted for this awareness creation to go on with other community members. All the participants raised their hands in support of the initiative.



**Plate 3: Participants raising hands to show agreement that the team should continue with awareness creation**

On another note, the fishermen were urged to attend community meetings when called upon so that they can voice their opinions where required. They were also requested not to lose on good opportunities when they come their way since other BMUs were not as lucky and thus did not get many people wanting to implement projects in their areas. The participants were also notified that a new World Bank project, Kenya Marine Fisheries and Social Economic Development project (KEMFSED) was starting. The project will

seek to improve management of priority fisheries and mariculture and increase access to complementary livelihood activities in the coastal communities. The five coastal counties proposed to be targeted under this 5-year project include: Kwale, Mombasa, Kilifi, Tana River and Lamu. The BMU was therefore requested to be prepare proposals as the project will benefit projects that have already been established.

## 7.0 Appendices

### 7.1 Appendix I: Program

Day/Time	Activity	Lead
8:30 – 9:00	Arrival and registration	Rahma
9:00 – 9:15	Opening remarks Introductions Brief summary of the workshop objectives	Caroline
9.30 – 9.40	Steps and challenges during establishment of Mikoko Pamoja	Village Chair
9.40 – 9.55	Mikoko Pamoja project	Rahma
9:55 – 10:10	Seagrass – What are they worth? Status of seagrass in Gazi Bay; Possible Interventions	Akoko
10:10 – 10:30	Participatory approach in blue carbon ecosystem conservation Question & Answers Forum	Lang’at
<b>10:30 – 10:50</b>	<b>Tea break</b>	
10:50 – 11:05	<b>General discussion</b> ✓ Uses and threats of seagrass in Gazi ✓ Fishing methods and gear types used in the Bay ✓ Ranking the uses and threats to seagrass	Lilian
11:05 - 11:20	Exploring trade-offs between restrictions in fishing and benefits to fisheries	
11.20-11.35	Laws and regulations governing establishment of LMMAs. Difference between CCAs, LMMAs and MPA	Moses <i>SDF</i>
11:35 – 11:50	Group work 3 – Mapping community activities	Akoko
11:50-12:40	<b>Identify areas of seagrass</b> within Gazi Bay that would be acceptable to be included under a management strategy	Akoko
<b>12:40- 13:30</b>	<b>Lunch break</b>	
13:30-14:00	✓ <b>Identify management measures</b> that would be acceptable within the above areas	Mohammed
14:00- 14.30:00	– Provide the opportunity for stakeholders to raise any final comments, questions and concerns – Request verbal agreement to the proposals	Lilian
14:30-15:00	– Way forward – Closing Remarks • BMU; KMFRI; SDF – Departure	Anne



## 7.2 Appendix II: Participants list

Name	Institution	Contacts
1. Umi Hamza	Gazi BMU	0729 507456
2. Mlisho Shaban	Gazi BMU	0792 689884
3. Ali A. Chirum	Gazi BMU	0718 803769
4. Dala Enea	Mikoko Pamoja vice Chairman	0726 718411
5. Mimi Shaibu	Gazi BMU	0740 932332
6. Mimi Johana	Gazi BMU	0700 927346
7. Issa Said	Gazi BMU	0790 441479
8. Bizuma Ali	Gazi BMU	0755 999469
9. Mwanalima Mbwana	Gazi BMU	0743 364185
10. Ibrahim Malaya	Former village head, Gazi village	0727 46465
11. Amir Hamad	Gazi BMU	0714 169453
12. Akiba Juma	Gazi BMU	0728 950535
13. Hajj Rashid	Gazi BMU	0750 586637
14. Omari Ahmed	Gazi BMU	0741 465124
15. Mwanahawa Bakari	Gazi BMU	0712 124376
16. Mwanalima Abdallah	Gazi BMU	0758 275348
17. Juma Kongoriko	Gazi BMU	0757 400414
18. Gabriel Akoko	KMFRI	0768 060658
19. Anne Wanjiru	KMFRI/Mikoko Pamoja	0718 500485
20. Geoffrey Nyongesa	County Government of Kwale Fisheries	0712 734347
21. Lilian Mwihaki	Edinburgh Napier University	0735 387813
22. Rahma Rashid	Mikoko Pamoja	0713 729107
23. Salim Khama	Gazi BMU	0748 137126
24. Mwinyihaji Makam	Gazi BMU	0711 530992
25. Said Mohammed	Gazi BMU	0721 598392
26. Salim Said	Gazi BMU	0727 029484
27. Mohammed Abdallah	Gazi BMU	0711959267
28. Hassan Bakari	Jimbo BMU	0711 959267
29. Githaiga Moses	County Government of Kwale Fisheries	0717 551267
30. Kipkorir Sigi Langat	KMFRI	0723 404156
31. Caroline Wanjiru	Kenyatta University	0710 941500
32. Johanna Zakaria	Gazi BMU	

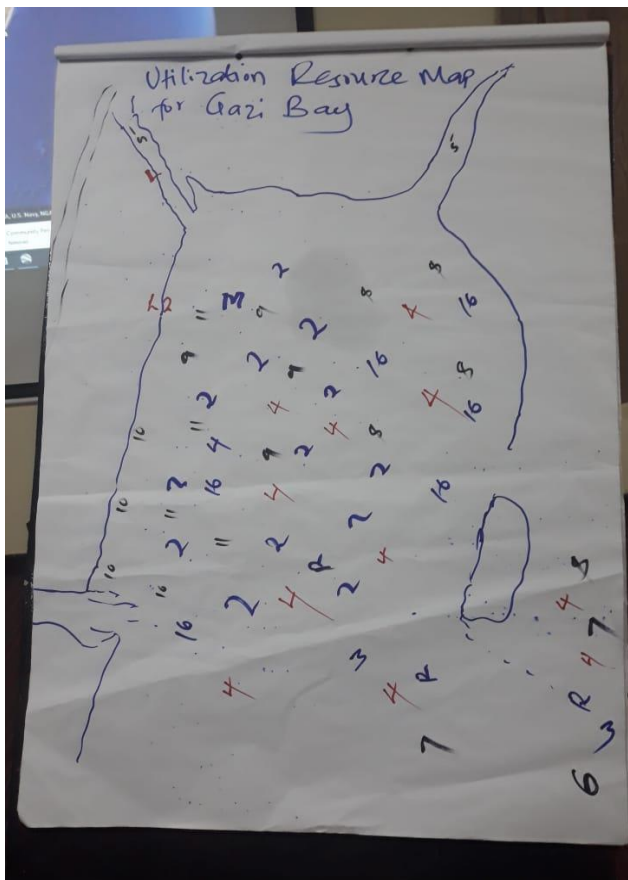
### 7.3 Appendix III: Photos showing group work activities



Community members mapping activities in the Bay



Dr. Langat, KMFRI giving a presentation to the participants



- Activities
- Mwani
  - Landing site
  - Ringnet 1
  - Malema 2
  - ~~Pa~~ Chachacha 3
  - Bunduki 4
  - Kutupa 5
  - M'kano 6
  - Jarife 7
  - Mishipi 8
  - Day 9
  - Miguu 10
  - Njoro 11
  - Duvu 12
  - Kuokota
  - Kuogelea 13
  - Research 14
  - Mikoko 15
  - KUTEGA 16