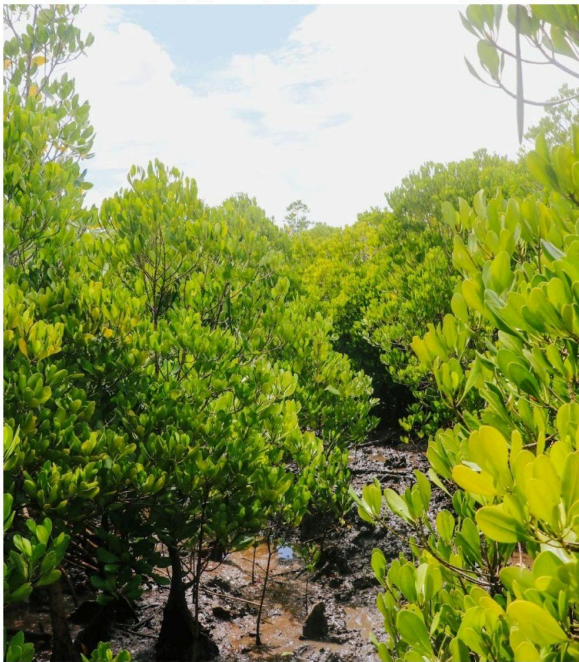




National Mangrove Management Committee
Triennial Progress Report (July 2022 - June 2025)



July 2025

Funding



Member Institutions



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Disclaimer;

The views expressed in this report are those of the respective authors and do not reflect those of the authors' institutions or any other partner institutions.

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Foreword

Mangrove ecosystems are among the most valuable coastal resources, providing critical ecological, economic, and social benefits. Despite their significance, Kenya's mangroves continue to face unprecedented degradation due to human activities, climate change, and unsustainable land-use practices. Recognizing the urgency of conservation, the National Mangrove Management Committee (NMMC) was established to guide the implementation of the National Mangrove Ecosystem Management Plan (NMEMP 2017-2027) and ensure the sustainable management and restoration of mangrove forests.

This Progress Report highlights the journey of the NMMC and County Mangrove Management Committees (CMMCs) since their inception, documenting key achievements, challenges, lessons learned, and opportunities in mangrove conservation. The report showcases milestones such as policy dialogues, stakeholder engagements, capacity-building initiatives, the development of national mangrove restoration guidelines, and contributions to regional conservation efforts. It also underscores the critical role of collaboration among government agencies, research institutions, conservation organizations, and local communities in advancing mangrove conservation.

The success of NMMC's work has been made possible through the support of the Save Our Mangroves Now! Project, alongside key partners including International Union for Conservation of Nature (IUCN), WWF-Kenya, Wetlands International, National Environment Management Authority (NEMA), County Government of Kwale, Kenya Forest Service (KFS), The Nature Conservancy (TNC), Kenya Marine and Fisheries Research Institute (KMFRI), and Kenya Forestry Research Institute (KEFRI). Their commitment has been instrumental in shaping policies, mobilizing resources, and driving conservation actions at both national and regional levels.

Moving forward, it is imperative to enhance stakeholder collaboration, strengthen policy advocacy, invest in capacity building, and secure sustainable financing to ensure the long-term protection of Kenya's mangrove ecosystems. This report serves as both a reflection on progress and a call to action for all stakeholders to continue working together towards a future where mangroves thrive, biodiversity is safeguarded, and coastal communities benefit from sustainable conservation initiatives.

We appreciate the efforts of all individuals and organizations that have contributed to this work and remain committed to advancing Kenya's mangrove conservation agenda.

Dr. Judith Okello

Chairperson

National Mangrove Management Committee (NMMC)

Acknowledgement

The National Mangrove Management Committee (NMMC) extends its heartfelt gratitude to all individuals and institutions whose dedication and contributions made this Progress Report possible.

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We acknowledge the dedication of the County Mangrove Management Committees (CMMCs) and all community stakeholders who have played an essential role in the implementation of conservation activities on the ground. Their commitment to sustainable mangrove management continues to drive positive change.

Finally, we extend our appreciation to all other partners, researchers, and conservation advocates who have contributed to mangrove conservation dialogues, capacity-building efforts, and the development of conservation strategies. Your unwavering support is instrumental in ensuring the protection and sustainability of Kenya's mangrove ecosystems for future generations.

Thank you all for your continued dedication and collaboration.

James M Mburu

Regional Forest Conservator - Coast Region & Secretary to the NMMC

List of Abbreviations and Acronyms

ARBEC- Aquatic Resources and Blue Economy Conference

CBOs – Community-Based Organizations

CCF – Chief Conservator of Forests

CGTR – County Government of Tana River

CMMCs – County Mangrove Management Committees

COMRED – Coastal and Marine Resources Development

CSOs – Civil Society Organizations

eDNA – Environmental Deoxyribonucleic Acid

IGAs – Income-Generating Activities

IDCME – International Day for the Conservation of the Mangrove Ecosystem

IMCRC - International Mangrove Conservation and Restoration Conference

IUCN – International Union for Conservation of Nature

GMA - Global Mangrove Alliance

KEFRI – Kenya Forestry Research Institute

KeFS – Kenya Fisheries Service

KFS – Kenya Forest Service

KMFRI – Kenya Marine and Fisheries Research Institute

NbS – Nature-based Solutions

NDCs - Nationally Determined Contributions

NEMA – National Environment Management Authority

NGOs – Non-Governmental Organizations

NMMC – National Mangrove Management Committee

NMEMP – National Mangrove Ecosystem Management Plan

RMAP – Regional Mangrove Action Plan

TBCA - Kenya-Tanzania Transboundary Conservation Area

TNC – The Nature Conservancy

UNEP – United Nations Environment Programme

WIO – Western Indian Ocean

WIOMN – Western Indian Ocean Mangrove Network

WRTI – Wildlife Research and Training Institute

WWF-Kenya – World Wide Fund for Nature – Kenya

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Chapter 1: Introduction

Mangroves of Kenya are found in the five coastal counties of Kwale, Mombasa, Kilifi, Tana River and Lamu. They are vital to the life of coastal communities providing important goods and services. The Government has established important institutional structures to govern the management of mangroves and respond to needs through various policy directions. There are also increasing efforts from other stakeholders including Non-governmental Organizations, Community Forest Associations and individuals, to safeguard the integrity of this vital ecosystem. Despite the growing awareness of their importance, the mangroves of Kenya have continued to witness unprecedented degradation and loss, particularly in the peri-urban areas. Weak national plans to guide sustainable utilisation, among other factors, has been outlined as one of the major contributors to the deteriorating trends. However, efforts have been made to address these challenges and promote sustainable mangrove management in Kenya, the climax being the development of the National Mangrove Ecosystem Management Plan (NMEMP 2017-2027).

The National Mangrove Ecosystem Management Plan (2017-2027) provides for the establishment of coordination mechanisms at the national and county levels to streamline efforts and facilitate tracking of implementation. Following efforts from different partners, the National Mangrove Management Committee (NMMC) was established in 2022 with clear Terms of Reference and work plans. The Plan was drawn in compliance with the Forests Conservation and Management Act Cap 385, which embraces collaborative and participatory approaches in natural resource governance. These structures were designed to streamline conservation efforts and enhance the ability to implement and monitor the plan effectively. The committee addresses the critical need for coordinated mangrove conservation and management in the country. It is composed of a diverse group of technical experts from various relevant disciplines, including forestry, fisheries, environment, wildlife and non-government actors with a mandate to serve as an advisory organ to the Chief Conservator of Forests (CCF), on mangrove management in Kenya.

Among its initial efforts, the NMMC played a pivotal role in guiding the five Coastal Counties to establish County Mangrove Management Committees (CMMCs). This initiative promotes effective coordination and streamlined reporting, allowing local stakeholders to engage in the decision-making process and contribute to the sustainable management of mangrove ecosystems.

This report, therefore, highlights the journey of both the NMMC and CMMCs since their inception. It outlines the progress made in mangrove conservation efforts, highlights successful initiatives on projects undertaken, and assesses the challenges faced along the way.

The Role of the National Mangrove Ecosystem Management Plan and its Link to the National Mangrove Management Committee

The National Mangrove Ecosystem Management Plan (NMEMP) 2017–2027 provides a structured framework for the sustainable conservation, restoration, and utilization of Kenya’s mangrove forests. It aims to enhance biodiversity conservation, promote sustainable livelihoods, and mitigate climate change effects through ecosystem-based management approaches. The plan aligns with national policies such as Vision 2030 and international commitments, including Sustainable Development Goals, the Convention on Biological Diversity (CBD) and the Nairobi Convention, ensuring that Kenya’s mangrove management is in line with global best practices.

To ensure effective implementation, the NMEMP outlines a governance structure where the Kenya Forest Service (KFS) oversees policy execution while the National Mangrove Management Committee (NMMC) serves as an advisory and coordinating body. The NMMC, composed of technical experts in forestry, fisheries, wildlife, land, climate, and water resources, provides strategic direction, policy recommendations, and oversight for conservation activities.

Linkage Between NMEMP and NMMC

The NMMC plays a central role in translating the NMEMP’s objectives into action by:

1. **Monitoring and Evaluating Implementation** – The NMMC assesses the effectiveness of conservation efforts, tracks progress, and provides recommendations for policy adjustments.
2. **Coordinating Stakeholders** – It fosters collaboration among government agencies, county governments, research institutions, conservation organizations, and local communities.
3. **Resource Mobilization** – The NMMC seeks funding from government allocations, and donor agencies, to support mangrove conservation and restoration programs.
4. **Providing Technical Advice** – By reviewing County Mangrove Management Committees (CMMCs) reports, the NMMC offers policy guidance and expert recommendations to address emerging conservation challenges.
5. **Enhancing Community Involvement** – The committee promotes participatory conservation approaches, ensuring that local communities benefit from and actively engage in mangrove management.

Chapter 2: Achievements

The National Mangrove Ecosystem Management Plan (2017-2027) was launched in 2017 and structures to facilitate its implementation were put in place from 2022. The NMMC has since engaged in several activities and processes as described in the section below.

2.1 Operationalisation of the NMMC and CMMCs

The operationalisation of the NMMC and CMMCs represents a strategic initiative aimed at strengthening the implementation framework of the Kenya National Mangrove Ecosystem Management Plan (2017-2027). The NMMC was established as a national advisory body composed of technical experts across key sectors relevant to mangrove ecosystems, including forestry, marine, fisheries, wildlife, water, land, and climate. Its primary role is to provide technical guidance to the Kenya Forest Service on matters concerning mangrove management. At the County level, CMMCs were formed to support the decentralised implementation of the NMEMP, drawing membership from County Governments, Research institutions, Kenya Wildlife Service, State Department for Blue Economy & Fisheries, Community Forests Associations/community representatives, NGOs/CSOs and the Private sector. The CMMCs are designed to be inclusive, allowing for the integration of the user groups and other stakeholders involved in mangrove resource management. The establishment and operationalisation of these committees have enhanced institutional coordination, and promoted stakeholder collaboration, including with the Global Mangrove Alliance (GMA) Kenya Chapter. This has facilitated the identification and prioritization of key activities for effective mangrove conservation and sustainable use.

2.1.1 NMMC Commissioning

The NMMC was constituted with a membership of technical experts drawn from various institutions working on the following thematic areas. Following nominations of individuals by respective institutions, the then CCF, Mr. Julius Kamau, commissioned the NMMC at Nzombere, Kilifi County, on 26th July, 2022, during the International Day for the Conservation of the Mangrove Ecosystem.



Representatives to NMMC from member institutions pose for a photo after the commissioning of the committee by the then CCF Mr. Julius Kamau on 26th July 2022

2.1.2 NMMC Inception Workshop

An inception meeting for the NMMC and Kwale and Kilifi CMMCs sensitization was held from 13th to 17th March 2023 to affirm the establishment of coordination mechanisms for all mangrove action at national and county levels. This would ensure proper linkages, avoid duplication of efforts, streamline operations and develop common approaches, and in the long run, tracking of progress that could facilitate reporting against national targets and global commitments.



Appointed members of the NMMC during the inception workshop in Kwale in 2023

2.1.3 Development of NMMC and CMMCs Terms of Reference (TORs)

Following efforts from different partners, the NMMC was established with clear Terms of Reference and a work plan. The committee is now fully operational and is guided by annual workplans which prioritises quarterly activities. The Terms of Reference for the NMMC are as follows:

- Monitor and evaluate the implementation of the National Mangrove Management Plan.
- Provide a forum for enhancing partnership, dialogue, knowledge and information sharing.
- Provide advice and or opinions on matters from CMMC implementation reports.
- Provide strategic direction on mangrove conservation and management, including emerging issues.
- Mobilize resources for implementing the management plan.
- Prepare budgets and work plans for NMMC operations.
- To identify information gaps in mangrove conservation and management and recommend necessary actions.

While the Terms of Reference to the CMMC

- Evaluation of the implementation status of the NMEMP at the county level

- Mobilize resources for implementing the management plan at the county level
- Guide the development of operational plans for mangrove management, and review and advise the EC on the plans
- Submit quarterly reports on CMMC activities at least two weeks before the proposed NMMC meeting dates
- Reviewing reports prepared by CFC's office on the implementation of the NMEMP in the county
- Identify priority areas/ needs for targeted research in their area of operation
- Monitor, review and report on the operational plans in the mangrove
- Provide a platform for dialogue, partnerships and collaborations for stakeholders working in the mangrove ecosystem at the county level
- Support capacity and knowledge enhancement programs at the county level
- Advise on conflict resolution among different stakeholders within the mangrove ecosystem
- Dealing with matters as referred to by "other" committees

2.1.3 Formation of County Mangrove Management Committees (CMMCs)

Sensitization workshops were held to facilitate the sharing of information on the roles played by various stakeholders in the conservation and management of the mangrove ecosystem. Highlights on the contents of the NMEMP were provided, and terms of reference of both NMMC and CMMC were presented to guide stakeholders in understanding the expectations. These workshops were held between March and November 2023, and provided a platform for the nomination and election of members of the Tana River CMMC as well as chairpersons of the Lamu, Tana River, Kilifi, Mombasa, and Kwale CMMCs.

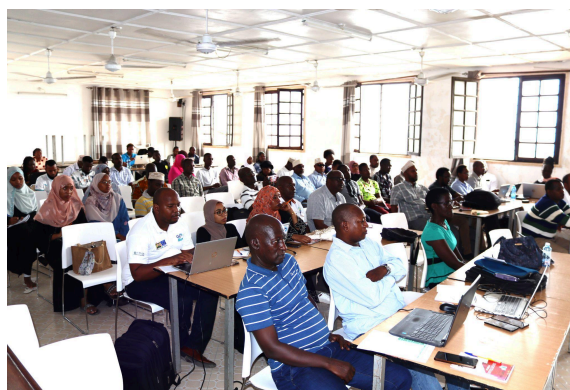


With support from Save Our Mangrove Now project, WWF-Kenya IUCN, Wetlands International and TNC, stakeholder workshops were held for the Lamu, Kwale, Mombasa, Tana River and Kilifi CMMCs from 26th to 29th February 2024, 7th to 9th March 2024, and 7th to 11th April 2024, respectively. These workshops aimed to advance mangrove

conservation efforts by bringing together key stakeholders, including KFS, KMFRI, KWS, and the Environment and Fisheries Departments of the County Governments of Kwale, Kilifi, Mombasa and Tana River. In addition, various non-governmental organizations, such as COMRED, Plan International, EarthLungs, Reefolution, Famantics CAST, Gro Foundation, Mission Inclusion, LEAF Charity, Eden Reforestation, and COBEC were engaged. Private sector entities, including Base Titanium Limited and UMMITA-Vlinder, also participated alongside local Community Forest Associations (CFAs).

The discussions focused on several key areas, including reviewing the NMEMP to ensure stakeholders were aligned on conservation priorities, raising awareness about the roles and operations of both the CMMC and the NMMC, and training stakeholders on the quarterly activity reporting tool to improve documentation and monitoring. A stakeholder analysis was conducted in both Kwale and Kilifi to identify gaps and opportunities for collaboration, and participants worked to document activities under the NMEMP from 2017 to date, ensuring continuity and tracking progress.

One of the key outcomes of the workshops was updating the reporting template to streamline the documentation of activities undertaken from 2017 to September 2023. Additionally, a stakeholder database was established to enhance coordination and facilitate information sharing among various conservation actors. The workshops also highlighted the need for baseline information from stakeholders who were not present and underscored the importance of further engagement.



2.2 National dialogues and thematic days celebrations

Inclusive and participatory planning for national dialogues and International Day for the Conservation of the Mangrove Ecosystem has been one of the impacts of the NMMC. This change in practice recognizes the role of the committee in agenda setting including advising on mangrove planting during these celebrations. The NMMC has held two national dialogues as precursors to the International Day for the Conservation of the Mangrove Ecosystem, which is observed annually on 26th July. The dialogues provide forums for discussion under different annual themes, which are carefully crafted by the committee to address issues of national concern.

2.2.1 National Dialogue - '*Science to Policy*'

The first National Mangrove Dialogue Workshop, held on 25th July 2023 and convened by the NMMC, was funded under the framework of the Sustainable Use of Mangroves in the Western Indian Ocean Region Project (Bengo Project). The workshop, themed '*Science to Policy*', brought together 37 stakeholders, including policymakers, researchers, conservationists, and community representatives, to discuss matters focusing on strengthening policy, governance, and conservation efforts for mangroves. Among other

highlights, the importance of communicating research findings effectively to policymakers and the public was stressed. The role of Community-Based Organizations (CBOs) and Civil Society Organizations (CSOs) in advocacy and awareness-raising was also recognized. Western Indian Ocean Mangrove Network (WIOMN) Regional Mangrove Vision and Action Plan was also introduced, outlining ambitious targets such as achieving zero net mangrove loss by 2030 and enhancing climate resilience by 2050.



Key action points from the workshop

- Refining Kenya's input to the Western Indian Ocean (WIO) Regional Mangrove Action Plan (RMAP) to align with national and regional strategies.
- Emphasis on capacity building and community involvement, highlighting the need to incorporate local perspectives into conservation strategies.
- Commitment to ongoing policy engagement, scientific workshops, and coordinated conservation efforts to enhance mangrove protection at both national and regional levels.
- Need for reviewing existing guidelines and exploring technology-based solutions, such as Forest Alert Systems, for tracking ecosystem changes. The workshop further

addressed opportunities for nature-based enterprises and their integration into conservation policies.

2.2.2 National Dialogue - ‘*Demystifying mangrove restoration in Kenya: Lessons from success and failure, and creating a path for best practices*’

To further the conversation and guide on the different approaches to rehabilitating and managing degraded mangrove areas, a national dialogue on mangrove restoration in Kenya was organised by the NMMC on 25th July 2024. The dialogue themed ‘*Demystifying mangrove restoration in Kenya: Lessons from success and failure, and creating a path for best practices*’ was supported by WWF-Kenya, IUCN, Wetlands International, and KMFRI through grants from UNEP and TNC. The dialogue brought together stakeholders from government agencies, NGOs, research institutions, and local communities.



Action Points from the National Mangrove Dialogue

The dialogue identified several key action points to guide the development of a communiqué for strengthening mangrove conservation efforts. A primary focus was on shifting the restoration narrative beyond just planting mangroves, advocating for a more holistic approach to ecosystem recovery. The need to enhance stakeholder engagement by creating a unified network to ensure all parties work toward a common goal while minimizing duplication of efforts in mangrove restoration initiatives. Additionally, there was an emphasis

Participants highlighted the need to propagate challenging mangrove species, such as *Sonneratia alba*, and explore the possibility of vegetative propagation for mangrove species. With the support of the KFS, greater awareness should be created to guide restoration activities and enforce guidelines to ensure compliance. Furthermore, the development of technical orders was recommended to provide a structured framework for mangrove conservation and restoration.

Recognizing the threat of human encroachment, KFS was tasked with developing a strategy for establishing beacons in mangrove areas to delineate and protect these ecosystems. The dialogue also emphasized the importance of public access to research findings, advocating for the packaging of scientific information in formats that are accessible to local communities. Collaboration between researchers, NGOs, and local communities was encouraged to educate youth on mangrove conservation, incorporating traditional knowledge and citizen science to enhance restoration efforts.

Developing story maps from the Kenya National Mangrove Portal was suggested to create virtual tours for awareness creation. The portal should also be integrated into KFS programs and integrated actions from the land-to-sea (source-to-sea) approach, improving the management of natural resources while generating income for local communities.

The dialogue called for the establishment of Monitoring & Evaluation (M&E) frameworks for mangrove conservation initiatives. Additionally, Nature-Based Solutions (NbS) and Income-Generating Activities (IGAs) such as beekeeping, agroforestry, and value addition of forest products should be promoted to reduce pressure on mangrove ecosystems while enhancing community livelihoods. The adoption of emerging technologies, such as environmental DNA (eDNA) techniques was recommended to deepen understanding of the ecological value of mangrove forests and improve conservation strategies.

These action points serve as a foundation for strengthening mangrove conservation efforts, ensuring sustainable management, and integrating scientific knowledge with community-driven solutions.

2.2.3 International Day for the Conservation of the Mangrove Ecosystem

The International Day for the Conservation of the Mangrove Ecosystem aims to raise awareness of the importance of mangrove ecosystems as “a unique, special and vulnerable

ecosystem” and to promote solutions for their sustainable management, conservation and uses. This International Day was adopted by the General Conference of the UN Educational, Scientific and Cultural Organisation (UNESCO) in 2015. The NMMC has been playing a pivotal role in organising these celebrations since its commissioning in 2022. The theme for 2023 was *“Raising Awareness for International Cooperation for Mangrove Conservation and Sustainable Management”*, and both events were held in Kwale County.

On 26th July 2024, the nation celebrated the International Day for the Conservation of the Mangrove Ecosystem, under the theme *“Forests and Innovation: New Solutions for Mangroves and People”*. The event, held in Kwale County, aimed to highlight the importance of mangrove forests to the well-being of the environment and local communities.

1. WIOMN Kenya Chapter – National Policy Dialogue & Stakeholder Workshop

The WIOMN National Policy Dialogue Workshop took place on 6th–7th November 2024 at Mnarani Beach Club in Kilifi County, Kenya. The workshop aimed to review and refine Kenya’s input to the RMAP Strategic Objectives, ensuring their alignment with national priorities and facilitating effective policy implementation.

Through discussions and stakeholder engagement, the workshop successfully developed a national policy position on the RMAP, reinforcing Kenya’s role in the regional framework. Additionally, participants reviewed and refined Kenya’s contributions to the RMAP Strategic Objectives, resulting in a more structured and actionable implementation plan.

The event brought together key stakeholders from various organizations, including NMMC officials, WWF-Kenya, WIOMN, KFS, KMFRI, KEFRI, NEMA, KWS, Wetlands International, WRTI, Ceriops Environmental Organization, GRO Foundation, CGTR, COMRED and Kwetu Training Centre.



2. World Ocean Day 2024

The committee participated in the 2024 World Oceans Day, themed “*Waves of Change: Collective Actions for the Ocean.*” The event was commemorated on 8th June, 2024, at Mwandamo Beach in Msambweni, Kwale County, bringing together government, non-governmental, private sector and community members in a collective effort to promote conservation.

In the build-up to the celebration, a dialogue was convened to address the challenges facing marine and coastal ecosystems. The forum engaged marine biologists, environmental practitioners, policymakers, and private sector representatives in identifying actionable strategies for the sustainable management and protection of ocean resources. Key priorities emphasized during the discussions included:

- Enhancing conservation efforts within the proposed Kenya-Tanzania Transboundary Conservation Area (TBCA).
- Increasing community involvement in ocean protection through sustainable initiatives.
- Advocating for policies that support marine ecosystem restoration, including mangrove conservation.
- Strengthening partnerships between government, the private sector, and conservation organizations to advance the sustainable blue economy.



The dialogue culminated in the formulation of a communiqué outlining measures for the protection and sustainable management of ocean resources. The communiqué highlighted the urgent need to prioritize implementing existing strategies and plans for coastal and marine ecosystems, including the Mangrove Management Plan, as well as coral and seagrass conservation strategies. This document was formally presented to the Cabinet Secretary for Mining and Blue Economy during the Aquatic Resources and Blue Economy Conference (ARBEC), held from 17th to 21st June 2024, reaffirming national commitments to sustainable ocean governance and conservation.

3. World Fisheries Day 2024

The NMMC, represented by the chair, joined the rest of the country in celebrating the world fisheries day on the 21st November 2024 at Liwatoni fishing port, Mombasa County. This is an annual event that is aimed at creating awareness on the importance of maintaining sustainable fishery and preserving the integrity of aquatic ecosystems for the wellbeing of the people. The theme *‘Docking for Dignity: The role of ports in advancing decent work in fisheries’*. The celebrations were presided over by the cabinet secretary and attended by other dignitaries including Principal Secretaries and Mombasa, Lamu, Kwale, and Siaya County governors.

2.3 Review of the Climate Change (Amendment) Bill 2023 and submission of comments, inputs or memoranda

The Ministry of Environment, Climate Change, and Forestry invited interested members of the public to submit any comments, inputs, or memoranda that they may have on the Draft Climate Change (Amendment) Bill, 2023. Various stakeholders, especially coastal ecosystems, have shown growing interest in the carbon markets. There were parallel deliberations on the review and the need to consolidate inputs as the coastal and marine sectors had been significantly left out.

Through the leadership and guidance of the NMMC and funding from TNC and GMA, coastal and marine practitioners were invited to a two-day workshop in Diani to consolidate their deliberations and comments, which were successfully submitted on 25 May 2023. This was an amendment of the Principal Act, The Climate Change Act, 2016, which provides for a regulatory framework for enhanced response to climate change, a mechanism and measures to achieve low carbon climate development, and for connected purposes. The revision was to make provision for engagement/participation in carbon markets.

Therefore, the Ministry considered incorporating carbon markets, among other things, in the Climate Change Act, 2016, through the Climate Change (Amendment) Bill, 2023. The amendment provided for:

- The development, management, implementation and regulation of mechanisms to enhance climate change resilience and low carbon development for the sustainable development of Kenya;
- The guidance in the development and implementation of carbon markets and non-market approaches in compliance with international obligations;
- The guidance and policy direction on carbon markets to the national and county governments, the public and other stakeholders.
- Benefit-sharing mechanisms in carbon markets.

Consequently, The Climate Change (Amendment) Act, 2023 (the “Act”) was enacted on 1 September 2023 and came into force on 15 September 2023. The Act has two primary purposes: a) it amends the [Climate Change Act No. 11 of 2016](#) to provide for the regulation of carbon markets and a framework for carbon trading; b) the Act introduces pioneering

provisions aimed at aligning Kenyan law with its international climate commitments, thus fostering sustainable development, and fortifying Kenya's resilience to climate change impacts. While Kenya's policies and unconditional target are rated 1.5°C compatible, according to the [Climate Action Tracker](#), there is still significant potential for Kenya to strive for further emissions reductions in all sectors. Some gaps and shortcomings within the Amendment Act include aspects related to compliance markets, development of a local trading market, carbon credits prior to the Amendment Act, benefit sharing framework, and poor clarity on carbon standards.

2.4 Capacity Building: Training on Community-based Ecological Mangrove Restoration

2.4.1 Lamu CBEMR Training, 2022

The Community-Based Ecological Mangrove Restoration (CBEMR) training was first conducted in Lamu from 7–16 March 2022, targeting community groups, government agencies, NGOs, and research institutions. A total of 26 participants were trained during the with an equal gender representation of 13 male and 13 female participants. Organised by Wetlands International Eastern Africa and Mangrove Action Project, the 10-day workshop aimed to strengthen mangrove restoration using CBEMR principles. The training was split into two phases: the first focused on theory and practical exercises, while the second included field assessments at degraded mangrove sites. Participants learned mangrove biology, ecology, hydrology, and mapping, and engaged in hands-on site analysis, restoration planning, and monitoring techniques. Key lessons included the importance of hydrology, community involvement, biodiversity, and site-specific solutions. Participants developed restoration plans for real sites like Matondoni and gained insights into challenges such as grazing, land tenure, and conflicting stakeholder interests. Participants expressed high satisfaction and a strong intention to apply CBEMR knowledge in future work.

2.4 Development of Policy Documents: Guidelines, Tools, Management Plans and Technical Order

2.4.1 The National Mangrove Ecosystem Restoration Guidelines

The National Mangrove Ecosystem Management Plan 2017-2027 identified several challenges facing the mangroves of Kenya, and provided a spotlight on the need of a

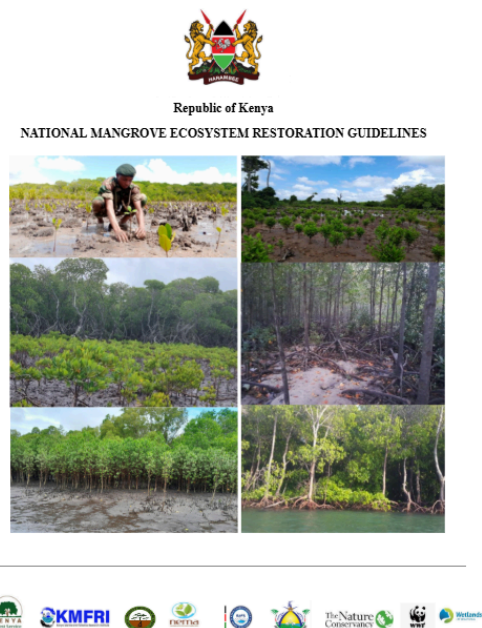
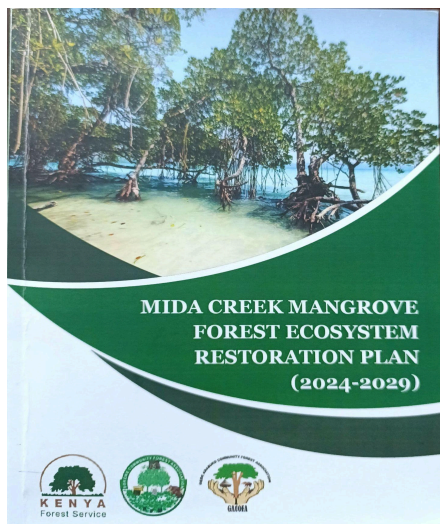
coordinated approach and guidance on the restoration initiatives. The National Mangrove Ecosystem Restoration Guidelines (NMERGs) were prepared by a task force (KFS, KMFRI, KEFRI) and NMMC through stakeholder consultations and technical working group meetings. The process was funded by various institutions i.e. WWF through Bengo Project, TNC, Wetlands International, IUCN, KFS, KEFRI and KMFRI through support from UNEP and TNC. The NMMC, held a series of technical workshops and stakeholder engagement forums aimed at advancing the restoration and conservation of mangrove ecosystems across the country. These engagements served as strategic platforms for the development of a comprehensive national framework for the sustainable management of mangrove resources. A key outcome of these deliberations was the formulation of the Restoration Guidelines (NMERGs), developed through a structured three-phase process comprising drafting, stakeholder engagement, and validation.

The Drafting Workshop (March 2024) established the foundational framework, identifying critical gaps, restoration principles, and monitoring strategies. The Finalization & Stakeholder Engagement Workshop (May 2024) incorporated feedback from multiple counties, refining the guidelines to enhance clarity, accessibility, legal integration, and practical applicability. The process culminated in the Validation Workshop (November 2024), where stakeholder consensus was obtained, and the feasibility of the guidelines for nationwide implementation was affirmed. The guidelines consolidate science and evidence-based knowledge, information, and best practices for ecological mangrove restoration in Kenya, regionally, and globally.

The development of the National Guidelines paved way for the development of the following site specific restoration plans;

1. Mida Creek mangrove restoration plans
2. Kilifi-Takaungu creek mangrove restoration plans
3. Lamu Southern Swamps Restoration Plan





2.4.2 The Kenya National Mangrove Portal

Members of the NMMC contributed to the development of the Kenya National Mangrove Portal (KNMP). This was done through a series of workshops supported by KMFRI, IUCN and KFS.

The KNMP, a centralized platform, is designed to host and disseminate comprehensive and updated information on mangrove ecosystems across Kenya. The initiative involves a multifaceted approach, including thorough reviews and updates of existing knowledge on mangroves, identification of key stakeholders, and mapping of their activities within mangrove areas. The validation workshop for the KNMP, held on December 10th 2024 at Baobab Sea Lodge in Kilifi County, brought together key stakeholders to assess and refine the portal's functionality. The event aimed to raise awareness of the portal's role in sustainable mangrove management, validate data protocols, and gather feedback for improvements. Stakeholders provided critical insights, ensuring the platform aligns with national standards and conservation priorities. The workshop reinforced a collective commitment to enhancing the portal's effectiveness and securing its long-term role in mangrove conservation efforts.

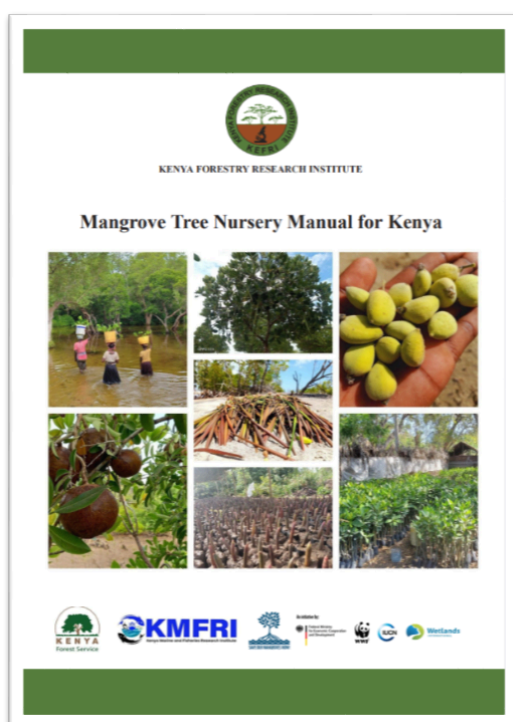
The workshop concluded with a roadmap outlining the next steps for operationalizing the portal. Stakeholders committed to uploading datasets by January 15, 2025, and participating in a Technical Working Group meeting to finalize data collection tools before the portal goes live. Plans were made to integrate the portal with the Global Mangrove Watch and establish forest alert centers in key counties. Additionally, training programs for foresters and community groups were proposed to enhance data collection and monitoring capabilities. These initiatives will strengthen Kenya's capacity for mangrove conservation, ensuring the portal remains a dynamic and valuable resource.

2.4.3 The Mangrove Tree Nursery Manual for Kenya

A draft Mangrove Tree Nursery Manual that had been prepared by KEFRI to guide nursery establishment and management was finalised in a 3-day workshop, held from June 3rd to 6th, 2024, in Mombasa. The National Mangrove Management Committee (NMMC) played a key role in this workshop which was organized by KEFRI with support from WWF-Kenya, bringing together other stakeholders, including KFS, KMFRI, COBEC, and Eden Reforestation under the SOMN!3 project, which aligns with efforts to enhance mangrove restoration and sustainable management.

The NMMC was key in the development of the manual, contributing insights from national and county-level mangrove restoration efforts. Through stakeholder discussions, presentations, and group work, participants refined the draft manual, ensuring it incorporated scientific techniques and field experiences. Key topics covered included seed collection, nursery setup, soil and water quality, pest management, and record-keeping. The manual also provides guidance on species selection, propagation techniques, and best practices for out-planting seedlings to improve mangrove survival rates.

One of the key findings was the importance of clear restoration objectives in community nurseries to prevent neglect. Seedlings were found to have higher survival rates than direct propagule planting. The manual also emphasizes species diversity, recommending further research into propagating difficult species like *Sonneratia alba*. Additionally, it highlights gender roles in nursery management, noting that women primarily handle daily tasks, while men perform heavier labor.



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2.4.4 The Mangrove Harvest Plan for Lamu County (2025-2035)

Members of the NMMC participated in the development of the mangrove harvest plan for Lamu County 2025 - 2035 held in Amu Island, Lamu County. The Plan was prepared by a task force composed of staff from KFS, KMFRI, KEFRI, County Government of Lamu, TNC NMMC and Community Members with funding support from UNEP and TNC in line with recommendations from the NMMC. The Harvest Plan entailed a series of stakeholder consultations and technical working group meetings to draft a harvest plan (felling plan).

The Forest Conservation and Management Act No. 385 mandates that all forests in Kenya be managed through approved management plans. The National Mangrove Ecosystem Management Plan (2017–2027) provides the overall framework for the sustainable management of mangrove forests. This plan created the NMMC and the CMMC. The NMMC was mandated to develop the mangrove harvest plan for Lamu County among other tasks.

This 10-year harvest plan for Lamu gives guidelines on sustainable harvesting of various pole sizes across all management blocks where commercial harvesting is permitted during the 2025-2035 period. Poles of all utilization classes will be selectively harvested from a single management block each year to promote uniformity in the forest structure over time. This

approach ensures that, as the current *Fito* poles mature into *Nguzo*, the stand will maintain a balanced distribution of tree sizes as all size classes will have been systematically harvested and left to regenerate.



2.5 International Conferences

2.5.1 Presentation at the First International Mangrove Conference, Abu Dhabi
NMMC members (Mr. Nathaniel Mwangeka and Dr. Judith Okello) attended and gave presentations during the 1st International Mangrove Conservation and Restoration Conference (IMCRC). The inaugural International Mangrove Conservation and Restoration Conference aimed to facilitate development of innovative solutions for mangrove restoration, promote science-based restoration and contribute to mitigating the effects of climate change.



The conference was attended by scientists and conservation/restoration professionals from government and non-government sectors working on mangrove and other coastal ecosystem conservation and restoration from around the world, interested in presenting their research, innovations, experiences in coastal restoration and learning about best practices, holistic restoration that accounts for habitat variety and connectivity, and achieving climate mitigation and adaptation through nature based-solutions will be attending and presenting at the conference. Other than the presentation on characterising degraded mangrove areas, the chair shared experiences of mangrove management in Kenya, citing that the people are empowered to have their say and participate in mangrove management in Kenya. Her speech was highlighted among the three promising outcomes from the conference under local successes (see [The Conversation](#)).

2.6 Monitoring and Evaluation of the implementation of the management plan

2.6.1 Development of the Reporting Template for the Management Programmes

A standardised reporting template has been developed for tracking the implementation of the National Mangrove Ecosystem Management Plan (2017-2027) and ensuring coordination among stakeholders. The template is already in use and plans to improve it for online use are underway - this will involve the KFS ICT staff.

2.6.2 Facilitating use of reporting template by the County Committees

A workshop on CMMC capacity building and work plan development was convened on 2nd to 8th December 2023 by the NMMC, with support from WWF-Kenya and TNC, bringing together representatives from the NMMC (technical team) and CMMC members from the 5 coastal counties of Kwale, Mombasa, Kilifi, Tana River, and Lamu. The workshop sought to help the CMMCs acquire an in-depth understanding of monitoring the implementation of the NMEMP by using a predefined reporting template. The CMMCs were further expected to

develop work plans that align with the NMEMP and acquire skills in resource mobilisation for the implementation of their work plans. Members were also guided on effective reporting. The primary workshop objectives included aiding CMMCs in developing work plans, refining the reporting tool, and testing the tool's efficiency before its adoption in CMMCs' day-to-day reporting. The reporting tool would help everyone understand tasks, when they were done, who was involved, and key targets achieved, thereby making reporting clear for everyone involved.



2.6.3 Feedback Sessions on CMMCs' Reporting Experiences

To provide experience-sharing sessions on reporting by the CMMCs, the NMMC held a series of one-day workshops in Lamu, Kilifi, Kwale and Mombasa counties from 12th to 16th February 2024. The WWF- Kenya and Wetlands International supported these workshops, bringing together representatives from the NMMC (technical team) and CMMC members from Lamu, Kilifi, Tana River, Kwale, and Mombasa counties.





Consolidation of County Mangrove Management Committees Reports

In each reporting cycle, NMMC conducted a series of workshops across the five counties, culminating in a final session where the NMMC consolidated reports which documented progress in the implementation of the management plan.

2.6.4 Highlights of Progress in NMEMP Programmes Implementation

During the period under review, all the five counties with mangroves made significant progress in mangrove conservation, fisheries management, community engagement, research, and eco-tourism development. Despite these achievements, challenges such as funding constraints, limited data access, and illegal activities highlight the need for enhanced financial support, improved documentation, and stronger stakeholder collaboration to sustain these efforts.

Kilifi County

Mangrove Forest Conservation and Utilization: Mangrove stakeholders mapped 414.1 hectares of degraded mangrove areas for restoration and planted over 4 million seedlings across Mtwapa, Mida, Kilifi, and Magarini Creeks. Additionally, 24 patrols were conducted in Mida Creek to prevent illegal activities.

Fisheries Development and Management: Stakeholders developed two (2) Joint Co-management Area (JCMA) plans and established mariculture ponds stocked with 29,000 milkfish and marine tilapia fingerlings to enhance sustainable fisheries.

Community Livelihood Improvement: A total of 30 CFA representatives were trained in Community-Based Ecological Mangrove Restoration (CBEMR), and 10 community groups were supported with 100 beehives for beekeeping enterprises.

Research and Education: Stakeholders conducted mangrove disturbance assessments in Sabaki and Magarini, mapping tree density and extraction rates while identifying key nature-based enterprises (NBEs) such as beekeeping, eco-tourism, and mariculture.

Tourism Development: Eco-tourism initiatives included mapping canoe tourism routes in Mida and Majaoni and extending the Sita Restaurant Boardwalk with a newly constructed resting shade.

Human Resource and Operations: Conservation efforts were strengthened through the training of 10 KWS staff on coral bleaching and its impact on coastal ecosystems, along with the deployment of 29 new forest rangers to enhance enforcement.

Kwale County

Mangrove Forest Conservation and Utilization: Restoration efforts were carried out across 495 hectares of mangrove areas in Funzi, Bodo, Shirazi, Mwandamo, and Munje, resulting in the successful planting of 5,305,691 propagules and seedlings. Law enforcement patrols covering 3,795 mandays were conducted.

Fisheries Development and Management: 25 fish ponds developed in Mwache, Tsunza, Mbunguni and Bonje areas. 14 Governance trainings undertaken for Beach Management Units in the Diani - Vanga Sea-scape.

Community Livelihood Improvement: Development of Participatory Forest Management Plan for MWATSUMBO CFA and Forest Management Agreements 2023 - 2028. 47 Beehives donated by the County Government of Kwale to MWATSUMBO CFA. Employment of 37 community members by Earthlungs Restoration for rehabilitating degraded mangrove areas in Mbuguni area. CFA's and BMU's had a dialogue organized by the World Wide Fund for Nature - Kenya.

Research and Education: The mangrove stakeholders conducted a mangrove disturbance assessment to evaluate ecosystem health and worked with research institutions to study biodiversity, regeneration, and ecosystem functions. Soil carbon and eDNA assessment were undertaken in Funzi bay funded by Vllinder- Umita in collaboration with KMFRI, KFS, Embu University, RACOFA CFA. This was undertaken in preparation for development of the PAPARICO carbon offset project.

Tourism Development: Several ecotourism sites and canoe routes were mapped, and a Zip line project was licensed to Adrenaline excursions LTD to be undertaken along the Mwachema River Estuarine. The County Government of Kwale undertook rehabilitation of the Wasini Women Board walk in August 2023. Reefolution and KWS undertook training of Shimoni, Wasini and Mkwiro BMUs and Tour operator on diversification of tourism product and code of conduct in October 2023.

Human Resource and Operations: To improve conservation capacity, 20 local youth were trained at the Wildlife Field Training School in Manyani for mangrove protection and

enforcement. Earthlungs procured a patrol boat for the Mbuguni area. Earthlungs signed a framework for collaboration with the Kenya Forest Service for the period 2023-2028.

Mombasa County

Mangrove Forest Conservation and Utilization: Mangrove stakeholders planted 4,486,260 seedlings across 466.13 hectares in Mwakirunge, Rabai, and Majaoni. Forest patrols in Tudor, Port Reitz, Mtwapa, and Bombo Creeks led to the confiscation of 120 mangrove poles, destruction of 50 litres of illicit brew in Junda, and prosecution of 8 offenders, including charcoal transporters and illegal mangrove loggers.

Fisheries Development and Management: Several mariculture and eco-tourism initiatives were implemented to promote sustainable livelihoods under the KEMFSED project. This included the cultivation of milkfish, mullet, and prawns, with 20,000 fingerlings restocked in 15 fishponds across Majaoni, Mwakirunge, Junda, and Likoni by community groups such as Comensum CBO, Brain Youth CBO, Mwachideco CBO, and Majaoni Youth CBO. A benchmarking visit for Ihaleni and Kibokoni mariculture groups to Kilifi County was conducted on 6th October 2023, led by the County Government in collaboration with Mpawa CBO, Coast Marine, and supported by the World Bank (KEMFSED). In Jomvu Creek, 100 crab cages, each with a capacity of two crabs, were installed for crab fattening by the Jomvu Women in Fisheries and Culture CBO. Eco-tourism efforts included the initiation of two boardwalks in Jomvu and Miritini, along with the establishment of an eco-restaurant in Miritini, implemented by Jomvu Women in Fisheries and Culture CBO and Mavuno ya Bahari CBO.

Community Livelihood Improvement: Initiated 2 Eco - Tourism Board- walk Projects at Majaoni village, and undertaken periodic maintenance of beehives in Majaoni, Mwakirunge. Produced 30 tons of charcoal Briquettes in Majaoni. Cleaned and re-stocked 20,000 fingerlings in 15 fishponds at Majaoni, Mwakirunge, Junda, and Likoni. Undertook periodic maintenance of 20 beehives in Majaoni, Mwakirunge. (MOKIFA). Manager trained on global mangrove watch. Developed a funding proposal amounting to 5 million for the establishment of a mangrove resource centre and a boardwalk at Jomvu in Tudor Creek to World Bank (KEMFSED). Initiated 2 Eco - Tourism Board- walk Projects at Majaoni village, and undertaken periodic maintenance of beehives in Majaoni, Mwakirunge. Produced 30 tons of charcoal Briquettes in Majaoni. Cleaned and re-stocked 20,000 fingerlings in 15 fishponds at Majaoni, Mwakirunge, Junda, and Likoni.

Research and Education: Tourism and conservation efforts were strengthened through the renovation of bandas and boardwalks at Majaoni and the establishment of a mangrove resource center. Sensitization of 80 representatives from 30 CBOs on the mangrove

management and conservation (Lead- Clean Mombasa CBO, Implementing- Clean Mombasa CBO, MOKICFA, Donor- Clean Mombasa CBO)

Develop and maintain adequate and competent human resource: Recruitment and training of 14 rangers and Redeployment of 3 foresters by KFS. Recruited and formed community user groups as a structure of the CFA in Mkupe, Mtwapa Creek, and Bombo Creek.

Human Resource and Operations: Conducted a capacity-building workshop for select user groups within MOKCFA to enhance their understanding of roles and responsibilities. Training of 30 people in user groups of MOKCFA on their roles and responsibilities. Sensitization of 80 representatives from 30 CBOs on the mandate and responsibilities of the mangrove management committee and training of one officer on participatory restoration of degraded areas. Establishment of a mangrove resource centre by the KEMFSED Project for Big Ship CBO.

Tana River County

Mangrove Forest Conservation and Utilization: Tana River CMMC led extensive restoration efforts, planting over 4.7 million of propagules across 475 hectares in Kipini, Kilelengwani, Chara, Mto Kilifi and Tana Salt. Mangrove nurseries were expanded, and regular patrols conducted at Kipini, Bujra, Kitwani, Mkoneni and Hajawa to curb illegal logging. The International Day of Forests saw the planting of 750,000 propagules in Kipini, reinforcing community participation.

Fisheries Development and Management: The county advanced co-management strategies, training BMUs on new regulations and progressing in the establishment of a Joint Co-management Area (JCMA) for the Tana Delta. Marine spatial planning workshops were held to enhance sustainable fisheries governance, with support from TNC, NRT, and county authorities. Additionally, BMU members participated in exchange visits to other BMUs along the Coast to foster peer learning. To further enhance mangrove management in the Tana Delta, BMU and CFAs members received training in leadership, governance, legal frameworks, conflict resolution, and dialogue, with support from TNC.

Community and Livelihood Improvement: Training sessions equipped CFA members with skills in governance, leadership, and financial planning. The committee promoted mangrove beekeeping and ecotourism as alternative livelihoods, while community-led policy discussions strengthened conservation integration.

Research and Education: A study assessing blue carbon and mangrove conservation awareness among 288 households revealed significant gaps in public knowledge. Research on *Sonneratia alba* restoration focused on identifying techniques to improve seedling survival in high wave-energy environments. An evaluation of mangrove sites within the Tana River forest blocks examined levels of degradation, ongoing restoration efforts, and the challenges faced by local communities. Ongoing work includes experiments aimed at developing

best-practice guidelines for mangrove nursery establishment and management, with a focus on the provenance species of the Tana River, particularly *Heritiera* and *Xylocarpus*.

Tourism Development: Efforts focused on mapping eco-tourism sites and planning boardwalks and nature trails. Initial steps were taken toward a marine tourism strategy, aligning conservation with sustainable tourism.

Human Resource and Operations: Stakeholder training sessions improved coordination in mangrove governance, while forest rangers and foresters were deployed to enhance conservation enforcement.

Lamu County

Mangrove Forest Conservation and Utilization: A total of 27,000 mangrove seedlings (10,000 *Avicennia* and 17,000 *Ceriops*) were planted across 2.7 hectares at Njia ya Ndovu during the National Tree Planting Day. Another 0.2 hectares were restored at Kiunga Marine National Reserve with 2,500 seedlings. Additionally, 0.7 hectares were restored at Manda bay with 7,500 seedlings, and monitoring of three rehabilitated sites showed a 60% survival rate.

Fisheries Development and Management: A total of 19 BMUs in Faza and Kiunga were trained on fisheries co-management, benefiting 114 men and 19 women. BMU data collectors were also trained to improve routine data collection for the proposed Joint Co-Management Area (JCMA) in the Southern Swamp. As part of integrated aquaculture development, 100 fish cages were installed in the Upembe area of Pate.

Community Livelihood Improvement: The mangrove stakeholders conducted capacity-building training for MUKUCOFA CFA on leadership, governance, financial planning, and resource mobilization, benefiting 15 participants (10 men and 5 women). PANDAWE CFA members from 10 villages were also trained on Community-Based Ecological Mangrove Restoration (CBEMR). Mkunumbi CFA successfully completed its registration. Further support included the provision of beehives to LAMACOFA and PRATI, while communities in Matondoni and Pate received training on the use of improved cooking stoves to promote sustainable energy practices. Additionally, members of BMUs, LAMACOFA, and PANDAWE participated in a learning exchange visit to engage with other community structures, including BMUs, CFAs, and conservancies, fostering peer learning and knowledge sharing.

Research and Education: An assessment of soil organic carbon stocks and CO₂ emissions was initiated across five mangrove swamps in Lamu to compare carbon storage levels in healthy, degraded, and replanted sites. A study monitored *Rhizophora*, *Ceriops*, and *Avicennia* species at the Kipungani, Njia ya Ndovu, and Manda Tita sites, recording an average seedling survival rate of 60%. A mapping and validation exercise of healthy, degraded, and replanted mangrove areas was conducted across the Lamu seascape, including the Northern, Northern Central, Southern, Mongoni-Dodori, and Pate Island swamps. Additionally, an assessment of mangrove sites in all Lamu forest blocks was carried out,

focusing on degradation levels, ongoing restoration efforts, and the challenges faced by local communities. Forest manager was trained on the use of Global Mangrove Watch to support monitoring and decision-making.

Tourism Development: The mangrove stakeholders promoted Kiunga Marine National Reserve by distributing 200 brochures to the Lamu Tourism and Information Centre to encourage eco-tourism. Progress was made on the PRATI boardwalk project in Pate, with a license successfully issued, while a license application for the Pate Kisiwani boardwalk is currently underway. Additionally, the County Government of Lamu organized the Annual Cultural Festival to celebrate the unique culture and heritage of Lamu, promote tourism, and position Lamu as a premier UNESCO World Heritage Site.

Human Resource and Operations: A total of 15 forest rangers and one forest assistant were recruited and deployed to Lamu Island Forest Station to enhance conservation enforcement. Additionally, 1 Sergeant and 3 Corporals attended a refresher course at the Forest Law Enforcement Academy (FoLEA B) at the NYS Training College in Gilgil.

Chapter 3: Opportunities, Challenges and Recommendations

The conservation and sustainable management of mangroves in Kenya present both significant opportunities and pressing challenges. NMMC's collaboration with key partners such as the GMA Kenya Chapter and WIOMN enhances national and regional conservation efforts, strengthens expertise, and promotes innovative solutions, including the use of advanced technology for knowledge-sharing through the National Mangrove Portal. New partnerships further reinforce these efforts. However, limited funding, lack of institutional support, and uncoordinated stakeholder activities hinder the effective implementation of NMMC's mandate. Addressing these challenges requires strategic resource mobilization, strengthened policy advocacy, improved accountability mechanisms, and enhanced stakeholder cooperation. By fostering sustainable partnerships, advocating for government support, and empowering community-led initiatives, NMMC can drive meaningful progress in mangrove conservation and management.

Opportunities

1. NMMC's collaboration with the GMA Kenya Chapter and WIOMN strengthens conservation efforts, aligns national and regional initiatives, and enhances expertise for sustainable mangrove management in Kenya.
2. Use of advanced technology to provide forums for knowledge & information sharing - National Mangrove Portal.
3. New partners have come onboard including, Aga Khan Foundation, Greenpath and We World.

Challenges

1. Delayed implementation of the NMMC's mandate due to lack of sufficient funds
2. Limited support from government institutions; NMMC and CMMCs are not allocated a budget to run their activities resulting in over reliance on development partners
3. Other individual engagements among members of NMMC (delays in implementation of work plans)
4. Still a lot of stakeholders 'sneaking' into the mangroves (activities go unreported)
5. Limited cooperation among stakeholders in reporting activities to CMMCs

Proposed Solutions

- Develop a resource mobilization strategy, securing partnerships with government agencies, private sector actors, and international donors. Advocate for government budgetary allocation to support NMMC and CMMC activities.
- Engage relevant ministries and county governments to integrate mangrove conservation into national and county budgets. Strengthen policy advocacy for financial and technical resource allocation.
- Establish clear timelines and accountability mechanisms to track progress. Encourage task-sharing and delegation to distribute workloads effectively.
- Introduce permits and reporting requirements for all mangrove-related activities. Strengthen on-ground monitoring by CMMCs to ensure proper documentation and oversight.
- Develop a centralized reporting platform for stakeholders to log their activities. Conduct regular stakeholder engagement forums to align conservation efforts.
- Conduct training programs on NBEs, sustainable livelihoods, and conservation techniques e.g., CBEMR. Provide technical and financial support for community-led conservation projects.

Opportunities, Challenges, and Proposed Solutions in Mangrove Conservation

Opportunities

The National Mangrove Management Committee (NMMC) has several opportunities to enhance mangrove conservation efforts. Collaboration with the Global Mangrove Alliance (GMA) Kenya Chapter and the Western Indian Ocean Mangrove Network (WIOMN) strengthens national and regional conservation initiatives, aligning efforts and enhancing expertise for sustainable mangrove management in Kenya. Additionally, the use of advanced technology, such as the National Mangrove Portal, provides an efficient platform for knowledge and information sharing among stakeholders. Furthermore, the involvement of new partners brings additional resources, technical expertise, and collaborative opportunities to support mangrove conservation efforts.

Challenges

Despite these opportunities, several challenges hinder the effective implementation of NMMC's mandate. A lack of sufficient funding has led to delays in implementing key conservation activities. Additionally, limited support from government institutions has resulted in NMMC and County Mangrove Management Committees (CMMCs) operating without dedicated budgets, leading to an over-reliance on development partners. The competing individual commitments of NMMC members have also slowed down the

execution of work plans. Furthermore, unregulated activities by stakeholders in mangrove areas continue to go unreported, making monitoring and management difficult. There is also limited cooperation among stakeholders in reporting conservation activities to CMMCs, affecting the overall coordination of mangrove management efforts.

Proposed Solutions

To address these challenges, NMMC should develop a resource mobilization strategy to secure funding from government agencies, private sector actors, and international donors while advocating for government budgetary allocation to support its activities and those of CMMCs. Strengthening engagement with relevant ministries and county governments can help integrate mangrove conservation into national and county budgets and enhance policy advocacy for financial and technical resource allocation.

To improve efficiency, establishing clear timelines and accountability mechanisms will help track progress, while task-sharing and delegation can ensure effective workload distribution among members. Additionally, introducing permits and reporting requirements for all mangrove-related activities, along with strengthening on-ground monitoring by CMMCs, will enhance oversight and documentation of conservation efforts.

Developing a centralized reporting platform for stakeholders to log their activities, alongside conducting regular engagement forums, will further align conservation efforts. Moreover, training programs on Nature-Based Enterprises (NBEs), sustainable livelihoods, and conservation techniques such as Community-Based Ecological Mangrove Restoration (CBEMR) will equip communities with the necessary skills and resources. Providing technical and financial support for community-led conservation initiatives will further enhance sustainability and local engagement in mangrove management.

By addressing these challenges and leveraging available opportunities, NMMC and its partners can significantly strengthen mangrove conservation efforts in Kenya, ensuring long-term sustainability and resilience of mangrove ecosystems.

Chapter 4: Lessons learnt & Conclusion

Lessons learnt

1. Effective mangrove conservation requires collaboration among policymakers, researchers, conservation organizations, and local communities. Strengthening stakeholder coordination helps reduce duplication of efforts and improves efficiency in conservation activities.
2. To ensure long-term sustainability, government institutions must allocate budgets for NMMC and County Mangrove Management Committees (CMMCs). Additionally, developing resource mobilization strategies and strengthening partnerships can help bridge funding gaps.
3. Training and empowering CMMCs enhance monitoring, reporting, and conservation management. The introduction of standardized reporting templates and capacity-building workshops has improved documentation, while simplifying research findings makes information more accessible to policymakers and local communities.
4. The National Mangrove Portal and Forest Alert Systems provide structured platforms for data collection, reporting, and tracking progress. The use of remote sensing and GIS mapping can further enhance monitoring and decision-making in mangrove conservation.
5. Actively engaging government agencies and policymakers ensures that mangrove conservation is well integrated into national and county-level policies, strengthening legal frameworks and improving long-term protection.
6. Conservation initiatives should incorporate local knowledge and traditional practices to enhance effectiveness. Promoting Nature-Based Enterprises (NBEs), such as beekeeping, can improve community livelihoods while protecting mangrove ecosystems.

Annexes

NMMC

Name	Institution/Organisation	Position
Dr. Judith Okello	KMFRI	Chairperson
James Mburu	KFS	Secretary
Dr. Stanley Nadir	KEFRI	Vice Chairperson
Dan Ashitiva	NEMA	Member
George Maina	TNC	Member
Nasib Mwamutsi	KFS	Member
Dr. Joseph Indo	CGK	Member
Amina Jaldesa	KeFS	Member
Mark Kinyua	KWS	Member
Nathaniel Mwangeka	WWF-Kenya	co-opted Member
Francis Okalo	IUCN	co-opted Member

CMMC

Name	Institution/ Organisation	Position	County
Samuel Lodi Nachotoi	KFS	County Forest Conservator	Lamu
Henry Komu	KEFRI	Assistant Regional Director	Lamu
Ahmed Ibrahim	KWS		Lamu
Fardia Okel	County Fisheries Office	Fisheries Officer	Lamu
Mohamed Abubakar	County Environment Office	County Environment Officer	Lamu
Haroun Rijal	Rep CFA	Chairman	Lamu
Mohamed H Kassim	Business - Pate Resources & Tourism Initiative (PRATI)	Chairman	Lamu
Khadija Abdillahi	CSO - Save Lamu	CSO Representative	Lamu
Kahindi Menza	NEMA	County Director	Lamu

Jaffer Galole	KFS	County Forest Conservator	Tana River
Aisha A. Churo	KWS	Senior Warden-TRC	Tana River
Emmanuel Karisa	KEFRI	Research Scientist	Tana River
Benard Ochieng Olweny	KeFS	Fisheries Officer	Tana River
Ibrahim Jarso Jilo		Sub-county Forest Officer	Tana River
Said Suleiman Nyara	Mpozi CFA	Chairman	Tana River
Mohamed Roble	Chamber of Commerce-Garsen	Chairman	Tana River
Milka Musyoki	Nature Kenya	Project Manager	Tana River
Salim Bashir		County Director of Environment	Tana River
Joseph Chemasuet Mzee			Tana River
Elvis Fondo	KFS	County Forest Conservator	Kilifi
Collins Ochieng	KWS	Senior Warden	Kilifi
Gladys Ruto	KEFRI	Research Scientist	Kilifi
John Mwangi	County Fisheries Office	Director	Kilifi
Jimmy Yaa	County Environment Office	Director	Kilifi
James Katama	Rep CFA	Sokoke CFA Chairman	Kilifi
Brendan Muli	Rep CSO - Kwetu Training Centre	Manager	Kilifi
Anne Muriithi	Business - KAM	Officer	Kilifi
William Odeyo	NEMA	Director	Kilifi
Benjamin Muindi	KFS	County Forest conservator- Msa	Mombasa
Said Shee	KWS	Assistant warden incharge Msa	Mombasa

Asha Mlingo	County Fisheries	Ag. Director Fisheries	Mombasa
Arafa A. Amur	County Director In charge of Forestry	Director Natural Resources	Mombasa
Lucas Fondo	CFA	Chair Person CFA	Mombasa
Claris Mghoi Mcharo	Business	Manager, Natural char energy limited	Mombasa
Dr. Edwin Muinga	CSO	Chairman, clean Mombasa CBO rep.	Mombasa
Samuel Lopokoityit	NEMA	County Director NEMA	Mombasa
Blessington Maghanga	KFS	County Forest Conservator	Kwale
Edward Karanja	KWS		Kwale
Amina Juma Hamza	KMFRI	Research Scientist	Kwale
Meali Mbodze Mwaruwa	County Fisheries Office	County Director	Kwale
Mulei Ngui Syala	County Govt	Sub-County Forester	Kwale
Mshemanga Hamisi Riziki	Rep CFA	Pongwe-Kidimu CFA Chairperson	Kwale
Isabella A. Masinde	Business - VLINDER UMITA	C.E.O.	Kwale
Victor Mwanga	CSO - EarthLungs Reforestation Foundation	Director	Kwale
Godfrey Wabwile Wafula	NEMA	County Director of Environment	Kwale

Activities

Financial Year	Activity	Responsible
2022-2023 (July 2022)	NMMC commissioning during the IDCME	Indo
2023-2024 (March 2023)	Inception workshop & development of TORs for the NMMC and CMMCs	Dan
2023-2024 (July 2023 & July 2024)	<p>National Dialogue</p> <ul style="list-style-type: none"> - ‘Science to Policy’ (2023) - Demystifying mangrove restoration in Kenya: Lessons from success and failure and creating a path for best practices (2024) <p>Planning & implementation of IDCME celebrations</p>	Judith
2023-2024 (March 2023 & February 2024)	<p>Operationalisation of the CMMCs</p> <ul style="list-style-type: none"> - Awareness creation - Elections of CMMC Chairmen - Baseline data collection 	Mwangeka
	Workplan development	Indo
2023-2024 (December 2023 & February 2024)	<p>Standardisation of reporting template</p> <ul style="list-style-type: none"> - CMMC capacity building - Roll out and feedback 	Indo
2023-2024 (March 2024)	Development of the NMERGs	Zipporah
2023-2024	Development of the National Mangrove Portal	Mburu

2023-2024	Participation in the development of the National Mangrove Nursery Manual	Judith
2023-2024	Participation in the development of the Mangrove Harvest Plan for Lamu County	Mburu
2023-2024 (November 2024)	Contribution to the WIOMN - Kenya Chapter National Policy Dialogue	Mwangeka
2023-2024 (10-12th December 2024)	Participation in the 1st International Mangrove Conservation and Restoration Conference in Abu Dhabi	Judith
2023-2024 (June 2024)	Participation in World Oceans Day in Kwale	Binitah Amina
2023-2024 (November 2024)	World Fisheries Day in Mombasa	Judith Amina
2023-2024 (25 th May 2023)	Submission of consolidated reviews on the Climate Change (Amendment) Bill	Dan
	Annexes - CMMCs reports	Mr. Mwamutsi

Secretariat

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