COLLABORATIVE FISHERIES MANAGEMENT AREA ASSESSMENT REPORT

The Kwale-Tanga Transboundary Project

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Boma- Mahandakini Collaborative Fishery Management Area (CFMA) Governance Assessment Report

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BMU:	Beach Management Unit
CBD:	Convention on Biological Diversity
CDA:	Coast Development Authority
CFMA:	Collaborative Fisheries Management Area
CITES:	Convention on International Trade in Endangered Species
CMA:	Co-Managed Area
CMS:	Convention on Migratory Species
EEZ:	Exclusive Economic Zone
EMCA:	Environmental Management and Coordination Act
ESD:	Ecological Sustainable Development
FAO:	Food and Agriculture Organization
FGD:	Focus Group Discussion
FMDA:	Fisheries Management and Development Act
GPS:	Global Positioning System
IKI:	International Climate Initiative
ICM:	Integrated Coastal Management
IMET:	Integrated Management Effectiveness Tool
IPLC:	Indigenous Peoples and Local Communities
JCMA:	Joint Co-qxxxManagement Area
KII:	Key Informant Interview
LGAs:	Local Government Authorities
LMMA:	Locally Managed Marine Area
METT:	Management Effectiveness Tracking Tool
MLF:	Ministry of Livestock and Fisheries

MPAs:	Marine Protected Areas
MPRU:	Marine Parks and Reserves Unit
NBSAP:	National Biodiversity Strategy and Action Plan
NICEMS:	National Integrated Coastal Environment Management Strategy
NEMC:	National Environment Management Council
OECM:	Other Effective Area-Based Conservation Measure
SAGE:	Site-level Assessment of Governance and Equity
SOP:	Standard Operating Procedure
TAFIRI:	Tanzania Fisheries Research Institute
TCZCDP:	Tanga Coastal Zone Conservation and Development Programme
URT:	United Republic of Tanzania

EXECUTIVE SUMMARY

The Boma-Mahandakini Collaborative Fisheries Management Area (CFMA) in Mkinga District, Tanga Region; comprising seven BMUs: Jasini/Mahandakini, Ndumbani, Moa, Mwaboza, Boma Kichakamiba, Boma-Subutuni, and Zingibari, was assessed to evaluate governance effectiveness, equity, and co-management performance. Using the Elinor governance tool, policy analysis, focus group discussions, and key informant interviews, the assessment examined participation, decision-making, transparency, accountability, capacity, and institutional coordination across the CFMA.

The findings reveal that while BMUs are grounded in Tanzania's legal and institutional framework, governance performance remains weak in several critical areas. Key gaps include limited enforcement of fisheries regulations, inadequate awareness of legal mandates, insufficient operational infrastructure, weak coordination between BMUs, and inconsistent leadership capacity. Monitoring, enforcement, adaptive management, and inclusive participation scored particularly low in the traffic-light assessment. Although BMUs recognize the importance of coastal ecosystems, management efforts remain uneven, with disproportionate attention to mangroves and limited focus on coral reefs and seagrass habitats. Socio-economically, fisheries remain the primary livelihood, underscoring the importance of robust and equitable governance. However, transparency and benefit-sharing mechanisms are inconsistently applied, reducing community trust and weakening institutional legitimacy. Participation of women, youth, and marginalized resource users remains limited, further constraining inclusive governance.

To address these challenges, a consolidated CFMA-wide action plan has been developed. It recommends establishing a CFMA Coordination Committee (CCC), harmonising enforcement procedures across BMUs, strengthening leadership and governance capacity, improving infrastructure and patrol resources, enhancing transparency through regular financial disclosure, broadening stakeholder participation, and adopting ecosystem-based and adaptive management approaches.

Overall, the assessment concludes that the CFMA has a strong legal foundation but requires targeted interventions to improve governance effectiveness, equity, and ecological outcomes. Implementing the recommended actions will enhance compliance, strengthen co-management systems, and contribute to sustainable marine resource governance in the Tanga coastal seascape.

1.0 INTRODUCTION

1.1 BACKGROUND

Tanzania's mainland coast, stretching approximately 1,424 kilometers along the Western Indian Ocean, encompassing the island of Mafia and several other small offshore islands, supports diverse and productive marine ecosystems that include coral reefs, seagrass beds, mangroves, estuaries, and intertidal zones (Francis & Bryceson, 2001, NEMC (2024)). These ecosystems underpin critical livelihoods, especially for coastal communities engaged in artisanal fishing, seaweed farming, and small-scale trade. However, increasing anthropogenic pressures such as overfishing, habitat degradation, illegal fishing practices, and the impacts of climate change are undermining the sustainability of these marine resources. To address these challenges, Tanzania has developed a multi-level governance framework incorporating national policies, legal instruments, institutional mandates, and co-management mechanisms that is Collaborative Fisheries Management Areas (CFMA). CFMA represent one of the various types of locally managed marine areas (LMMAs), which have been identified to contributing to improving the biodiversity conservation and the economic well-being of the local communities and these characteristics make them candidates of Other Effective Area-Based Conservation Measures(OECMs) for reasons such as community involvement, biodiversity conservation, climate adaptation and mitigation, sustainable resource management, cultural and traditional significance, conservation beyond protected areas, partnership and collaboration, and potential for replication and upscaling. However, most of these LMMAs lack well-defined governance and resource management structures, which hinders their ability to make informed decisions, allocate resources equitably, and involve stakeholders and rightsholders in decision-making processes (Kawaka et al., 2015).

Effective and equitable governance is critical for the sustainable management of fisheries and marine resources. In co-managed fisheries, governance challenges such as limited participation, inequitable benefit-sharing, and weak enforcement mechanisms can undermine conservation efforts and the livelihoods of local communities. Addressing these governance gaps requires an inclusive, structured approach that engages all stakeholders and prioritizes Indigenous Peoples and Local Communities (IPLCs) in decision-making. Without strong governance in BMUs, efforts to manage a transboundary marine ecosystem effectively would be fragmented and less impactful. Strengthening these institutions fosters cooperation, improves enforcement, enhances data-driven decision-making, and ensures that local communities play a central role in conservation and fisheries management.

Output 2: Conservation and sustainable management measures are being implemented on a piloted basis in selected local and transboundary areas of new and existing marine and coastal protected areas of the IKI-Kwale-Tanga Transboundary project. We conducted governance assessments to identify gaps or action points that need strengthening to improve the management of the Boma- Mahandakini CFMA. On the output indicator 2. 1 which aims to strengthen the management or established OECMs, Ramsar Sites, or MPAs. Strengthening the

governance of LMMAs can play a crucial role in the successful establishment of OECMs or Ramsar sites, enhancing long-term ecological and socio-economic benefits. Improved governance ensures better compliance, adaptive management, and stakeholder engagement, which are essential for meeting international conservation standards.

1.2 OBJECTIVES

1.2.1 OVERALL OBJECTIVES

To assess governance and equity within the Boma-Mahandakini Collaborative Fisheries Management Area (CFMA) by examining participation, transparency, accountability, and benefit-sharing; identifying key governance challenges and priority actions; and generating evidence-based action plans to guide future strategies for strengthening co-management effectiveness and fairness.

1.2.2 SPECIFIC OBJECTIVES

i. To evaluate the level of participation, inclusivity, transparency, accountability, and benefit-sharing within the governance structures of the Boma-Mahandakini CFMA.
ii. To identify existing governance gaps, institutional weaknesses, and challenges that limit the effectiveness and equity of fisheries co-management.
iii. To prioritize governance actions is required to strengthen decision-making processes, enhance fairness, and improve management outcomes.
iv. To develop evidence-based recommendations and action plans that will inform future strategies for governance strengthening and equitable fisheries co-management

1.2.3 RESEARCH QUESTIONS

i. In what ways can transboundary governance frameworks, community-led coral reef monitoring, and innovative financing mechanisms be integrated to enhance the long-term conservation and sustainable management of Locally Managed Marine Areas (LMMAs), particularly in the context of their potential designation as Ramsar sites?
ii. To what extent are the governance and management strategies of LMMAs effective in sustaining coral reef health and resilience?
iii. What governance, institutional, and socio-economic factors influence the equitable participation of local communities in the management and benefit-sharing of LMMAs?

1.3. POLICY ANALYSIS OF THE GOVERNANCE OF THE SEASCAPES OF MAINLAND TANZANIA.

1.3.1. LEGAL AND INSTITUTIONAL FRAMEWORK

1.3.1.1 NATIONAL LEGAL INSTRUMENTS

Tanzania's marine resource governance is grounded in a set of interrelated legal frameworks. The Fisheries Act No. 22 of 2003, and its 2009 Regulations provide the foundation for the management, development, and sustainable utilization of fisheries resources. The Marine Parks and Reserves Unit (MPRU) Act of 1994 provides the legal basis for establishing and managing marine protected areas (MPAs), enabling the protection of biodiversity while supporting compatible economic activities (URT, 1994). These laws are further supported by the Environmental Management Act No. 20 of 2004, which emphasizes ecosystem-based approaches to coastal and marine resource governance.

Table 1: Policy Analysis of the Governance Seascape: Marine Resource Use and Conservation in Mainland Tanzania

Policy	Key Provisions	Institutional Actors	Implications for Governance	Reference
1. The Fisheries Act, 2003 (Amended 2020)	Provides framework for fisheries management including licensing, monitoring, and BMU establishment; promotes co-management systems.	Ministry of Livestock and Fisheries, Beach Management Units (BMUs)	Strengthens decentralization and co-management; however, enforcement capacity remains limited.	United Republic of Tanzania. (2003). The Fisheries Act (No. 22 of 2003, amended 2020).
2. The Environmental Management Act, 2004	Guides sustainable environmental management and integrates environmental concerns across all sectors, including marine ecosystems.	Vice President's Office (Environment Division), NEMC	Supports mainstreaming of marine conservation in national planning but coordination challenges persist.	United Republic of Tanzania. (2004). Environmental Management Act.

3. Marine Parks and Reserves Act, 1994	Establishes marine protected areas and supports ecosystem-based management and stakeholder participation.	Marine Parks and Reserves Unit (MPRU), MNRT	Provides legal basis for MPAs; challenges include limited community benefit sharing and overlapping mandates.	United Republic of Tanzania. (1994). Marine Parks and Reserves Act.
4. National Integrated Coastal Environment Management Strategy (NICEMS), 2003	Promotes integrated management of coastal zones; supports inter-agency coordination and participatory planning.	Vice President's Office (Environment), LGAs, NGOs	Improves integration of coastal stakeholders but lacks updated implementation guidelines.	Vice President's Office. (2003). National Integrated Coastal Environment Management Strategy.
5. Blue Economy Policy (2022 Draft)	Seeks to optimize marine-based economic development while ensuring sustainability, conservation, and climate resilience.	President's Office - Blue Economy and Fisheries	Potential to reshape marine governance; yet remains in draft and implementation mechanisms are unclear.	United Republic of Tanzania. (2022). Draft Blue Economy Policy.
6. Local Government (District Authorities) Act, 1982	Empowers local government authorities to make by-laws, manage resources, and engage communities in marine resource use decisions.	Ministry of Regional Administration and Local Government	Encourages bottom-up governance but suffers from capacity and financial constraints at the LGA level.	United Republic of Tanzania. (1982). Local Government (District Authorities) Act.
7. Village Land Act, 1999	Defines land tenure and	Ministry of Lands, Housing	Enables community	United Republic of

	rights that affect community participation in coastal and marine conservation areas.	and Human Settlements	access and customary rights; conflicts can arise with marine conservation zoning.	Tanzania. (1999). Village Land Act.
8. National Environmental Policy, 2021	Provides overarching framework for environmental protection and sustainable resource use, incorporating marine and coastal environments.	Vice President's Office (Environment), NEMC	Aligns marine governance with sustainable development goals; enforcement gaps remain.	United Republic of Tanzania. (2021). National Environmental Policy.
9. National Biodiversity Strategy and Action Plan (NBSAP II), 2015-2020	Outlines strategic goals for biodiversity conservation, including marine biodiversity and ecosystem-based adaptation.	Ministry of Natural Resources and Tourism, Civil Society Organizations	Supports global targets and local biodiversity action; data gaps and funding issues limit impact.	United Republic of Tanzania. (2015). National Biodiversity Strategy and Action Plan (NBSAP II), 2015:2020. MNRT.

1.3.1.2. INSTITUTIONAL ARCHITECTURE

Governance responsibilities are distributed across various institutions:

- Ministry of Livestock and Fisheries (MLF): Oversees national policy implementation, licensing, and monitoring.
- Marine Parks and Reserves Unit (MPRU): A semi-autonomous agency under MLF responsible for managing marine parks and reserves using participatory and zonal management approaches (Katikiro & Kweka, 2020).
- Tanzania Fisheries Research Institute (TAFIRI): Conducts scientific research to inform fisheries management, including stock assessments and socio-economic studies (TAFIRI, 2022).

- Local Government Authorities (LGAs): Play a key role in implementing fisheries regulations, particularly through Beach Management Units (BMUs).
- BMUs: Legally recognized community institutions that co-manage nearshore fisheries, enforce regulations, and facilitate conflict resolution (MNRT, 2015).

1.3.1.3. MARINE RESOURCE MANAGEMENT APPROACHES

1.3.1.3.1. MARINE PROTECTED AREAS (MPAS)

Tanzania has designated three marine parks and over fifteen marine reserves, covering significant biodiversity hotspots such as Mafia Island, Mnazi Bay-Ruvuma Estuary, and the Dar es Salaam Marine Reserves. These MPAs are managed through zoning schemes that permit varying levels of use, from strict conservation zones to multiple-use areas (Francis et al., 2002). MPAs contribute to habitat protection, fish stock recovery, and tourism revenue generation. However, enforcement remains inconsistent, and the integration of customary marine tenure is still limited in some areas (Benjaminsen & Bryceson, 2012).

The list of these marine reserves in Tanzania mainland are as follows:

1. Dar es Salaam
    a. Mbudya Island Marine Reserve - Located off the coast of Dar es Salaam, known for coral reefs and recreational tourism.
    b. Bongoyo Island Marine Reserve - Situated near Dar es Salaam, supports reef habitats and snorkeling activities.
    c. Makatube Marine Reserve - Found in the southern coastal zone, noted for coral reefs and mangroves.
    d. Kendwa Marine Reserve
    e. Sinda Island Marine Reserve - Near the Rufiji Delta, supporting fish breeding habitats.
    f. Fungu Yasini Marine Reserve - A sandbank reserve surrounded by coral reefs, used for diving and education.
    g. Pangavini Island Marine Reserve - Uninhabited Island near Dar es Salaam, important for seabird nesting
    h. Kimbubu Island Marine Reserve - Located within the Dar es Salaam Marine Reserves cluster.
    i. Fungu Zinga Marine Reserve -Located near Mtwara, supporting coral reef conservation and fish nursery grounds.
2. Coast Region(Mafia District)
    a. Nyororo Marine Reserve,
    b. Shungimbili Marine Reserve and
    c. Mbarakuni Marine Reserve.
3. Tanga region there are about five namely
    a. Kirui Island Marine Reserve located at the border of Kenya/Tanzania- In northern Tanga, known for turtle nesting and seagrass beds.

b. Mwewe Island Marine Reserve located just south of Kirui- A small islet near Ulenge in the Tanga Coelacanth conservation area.
c. Kwale Island Marine Reserve - In Mkinga District (Tanga), supporting mangroves and seagrass ecosystems.
d. Maziwe Island Marine Reserve located south of Tanga Coelacanth Marine Park.
e. Ulenge Island Marine Reserve - In northern Tanga near the Kenya border, rich in coral reef biodiversity.
f. Shungi Mbili Island Marine Reserve - Off the coast of Tanga Region, near Coelacanth conservation zones.

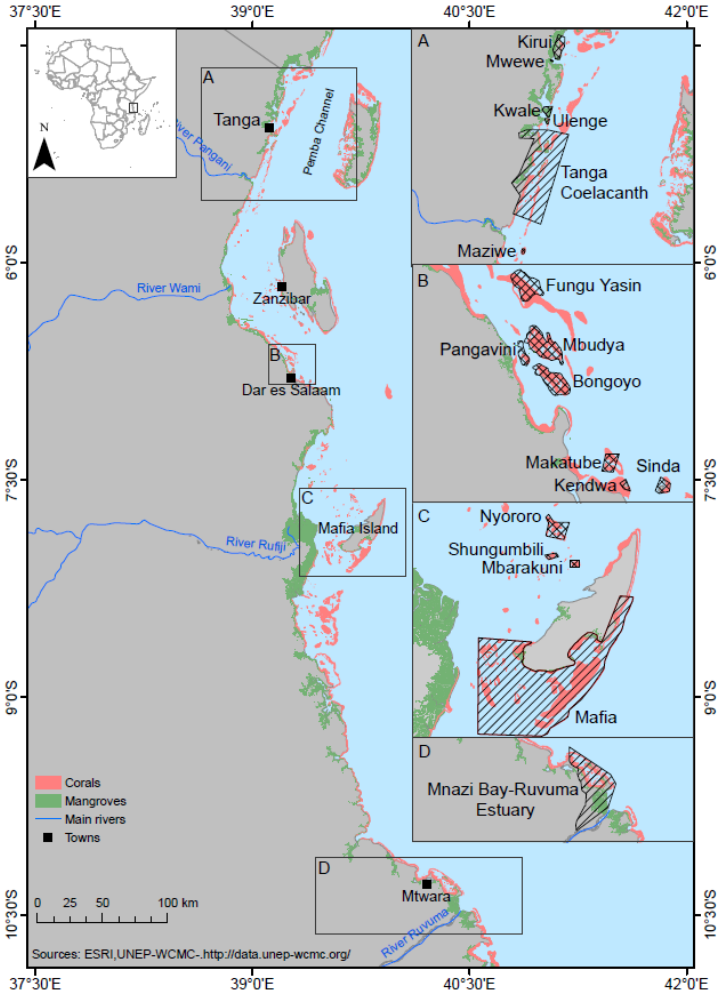

Figure 1: Map of the Tanzanian Mainland Marine Protected Areas and Reserves (Source: Marine Parks and Reserves Strategic Plan For 2023/24 : 2027/28)

All marine reserves in mainland Tanzania are gazetted under the Marine Parks and Reserves Act No. 29 of 1994. The Marine Parks and Reserves Unit (MPRU) is responsible for their oversight and management. These reserves contribute to biodiversity conservation and are managed using

ecosystem-based approaches. Many are located within critical marine seascapes such as the Dar es Salaam Marine Reserves, the Rufiji-Mafia-Kilwa Seascape, and the Tanga Seascape.

1.3.2. CO-MANAGEMENT AND BEACH MANAGEMENT UNITS (BMUS) SYSTEMS

Since 2005, BMUs have become central to Tanzania's community-based fisheries management approach. BMUs are empowered to issue fishing permits, monitor compliance, collect data, and engage in participatory planning (Ochiewo et al., 2010). Studies indicate that well-functioning BMUs such as those in Tanga and Kilwa have contributed to reduced illegal fishing and improved catch sizes through periodic closures (Purcell et al., 2017). Nonetheless, many BMUs face challenges including weak institutional capacity, elite capture, poor benefit-sharing, and lack of enforcement tools.

1.3.3. INTEGRATED COASTAL MANAGEMENT (ICM)

Tanzania has implemented Integrated Coastal Management (ICM) strategies under the National ICM Strategy (2003), seeking to harmonize sectoral mandates and improve cross-institutional coordination. These efforts aim to reduce overlapping authority and promote ecosystem-based planning, especially in rapidly urbanizing coastal areas like Dar es Salaam, Bagamoyo, and Tanga (Makota et al., 2015).

1.3.4. STRATEGIC OPPORTUNITIES

To enhance marine resource governance and conservation in mainland Tanzania, the following opportunities can be pursued:

- Strengthen BMU Capacity: Investing in training, equipment, and legal empowerment of BMUs can improve compliance and governance effectiveness.
- Expand Locally Managed Marine Areas (LMMAs): Scaling successful community-led models can complement MPAs and increase coverage of effective area-based conservation measures.
- Enhance Monitoring and Research: Collaboration between TAFIRI, academic institutions, and local communities can improve data availability for science-based decision-making.
- Institutional Integration: Promoting inter-agency coordination through marine spatial planning platforms can reduce duplication and foster synergies.
- Climate-Resilient Management: Incorporating climate vulnerability assessments into fisheries plans and marine conservation strategies will improve adaptation and long-term sustainability.

Mainland Tanzania has established a robust foundation for marine resource governance through a comprehensive legal framework, participatory management institutions, and expanding conservation initiatives. However, significant gaps in enforcement, institutional coordination, data availability, and equitable participation persist. Addressing these governance challenges will be essential for achieving sustainable use of marine resources, conserving biodiversity, and

enhancing resilience in the face of climate change. Strengthening BMUs, improving coordination, and integrating traditional knowledge into policy will be key to unlocking the full potential of Tanzania's marine governance seascape.

2.0 METHODOLOGY

2.1 STUDY AREA

The Boma-Mahandakini Collaborative Fisheries Management Area (CFMA) is located in Mkinga District, Tanga Region, northern Tanzania. It is one of six community-based CFMAs established under the Tanga Coastal Zone Conservation and Development Programme (TCZCDP) to enhance sustainable fisheries management and marine resource governance. The CFMA comprises seven Beach Management Units (BMUs)- Jasini/Mahandakini, Moa, Zingibari, Mwaboza, Ndumbani, Boma-Zubutuni, and Boma-Kichakamiba- which jointly oversee shared fishing grounds and coordinate enforcement, monitoring, and livelihood initiatives (Nordic Development Fund, 2014; Wells, Makoloweka, & Samoilys, 2007). Fishing within the CFMA is predominantly artisanal, employing traditional wooden canoes and dhows powered by sails or small engines. The most common fishing gears include handlines (mishipi), gillnets (nyavu), basket traps (madema), ring nets (ringi), and spear fishing. Destructive methods such as beach-seining and dynamite fishing have largely been curtailed through local enforcement and awareness programs (Anderson, 2004). The area supports multi-species reef fisheries targeting rabbitfish (Siganidae), parrotfish (Scaridae), emperors (Lethrinidae), and octopus (*Octopus cyanea*), with octopus fisheries providing important income, particularly in Moa, Boma-Zubutuni, and Boma-Kichakamiba (La Jiji, 2024).

Ecologically, the CFMA contains diverse habitats, including coral reefs, mangrove forests, and seagrass meadows that serve as nursery and feeding grounds for marine species. The *Mwamba wa Bunju* reef is a designated closed area aimed at restoring coral and fish populations (Anderson, 2004). Co-management efforts have improved reef condition and fish abundance, although challenges such as illegal fishing, sedimentation, and climate impacts persist (Wells et al., 2007). Socio-economically, most residents rely on fisheries for livelihoods, while women play significant roles in fish processing, trade, and intertidal gleaning. BMU governance emphasizes participatory decision-making and gender inclusion, with women constituting at least 30% of BMU leadership positions (United Nations, 2021). Partnerships with NGOs such as Mwambao and Fauna & Flora have strengthened financial management, monitoring, and enforcement capacities, enhancing both ecosystem health and community resilience (FF& Mwambao, 2022).

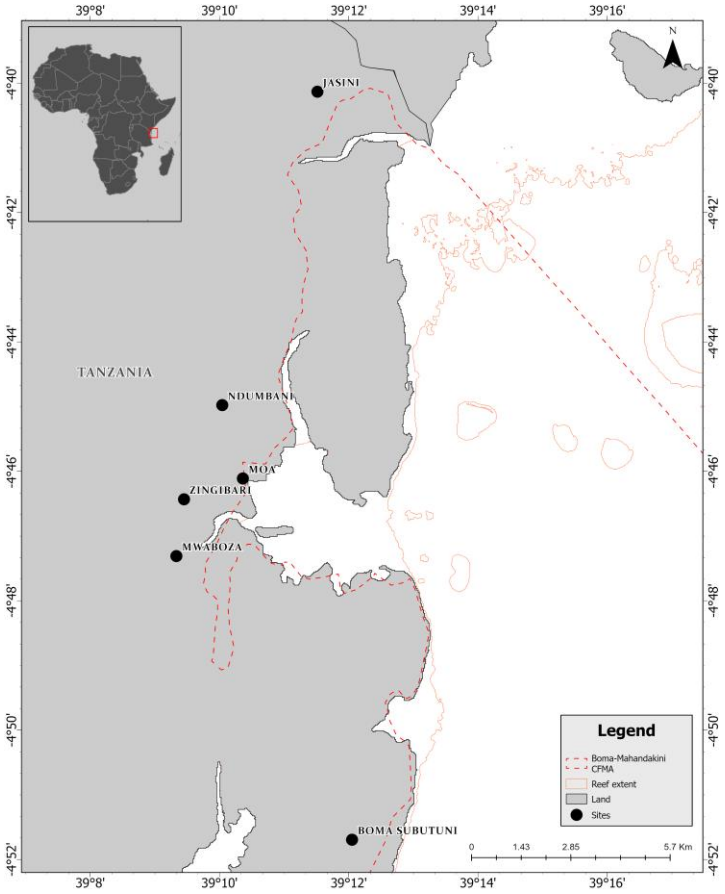

Figure 2:Map of the study area showing the 7 BMUs of BOMA-Mahandakini CFMA

2.2. DATA COLLECTION

2.2.1 DATA COLLECTION TOOL

The Elinor assessment tool aims to provide practitioners working in protected and/or conserved areas with an overview of management and governance issues, including equity and inclusivity at a site. The tool has undergone peer review for ethical considerations and follows the practice ethical guidelines (National Academy of Science 1995; America Anthropological Association 1998) that govern research conduct.

Why Elinor

a) The tool is cost-effective and can be implemented in just a few weeks.
b) Elinor combines elements from METT 4 and SAGE to create a 'lighter-touch' assessment for management and governance with a strong emphasis on using the assessment to monitor changes over time.
c) Elinor provides a high-level overview of both management and governance issues, whereas METT 4 provides a deeper assessment of management and SAGE provides a deeper assessment of governance, which includes a multi-level examination of the structures, capacities, and outcomes of governance and equity.

d) All three assessments collect both quantitative data (question scores) and qualitative data (explanations/justifications/notes) which can help distill important context and ideas for actions that could improve management and/or governance.

2.2.2. DATA COLLECTION METHODS

We used the two primary data collection approaches that Elinor offers:

1. Desk-Based Assessment

This was used in policy analysis and better understanding the co-management area (CMA) policies and legal provisions.

2. Focus Group Discussions

We engaged individuals knowledgeable about and affected by the governance and management of the CMA, including Indigenous people and local communities (IPLC) members, Government officials, BMU executives' members, and traditional or local leaders. This approach provided diverse perspectives, enhancing data validity.

3.0. RESULTS

3.1. PARTICIPATION

The assessment was conducted across seven Beach Management Units (BMUs): Mahandakini (Jasini), Ndumbani, Moa, Mwaboza, Boma Kichakamiba, Boma-Subutuni, and Zingibari. In each BMU, four focus group discussions (FGDs) were held, targeting men, women, youth, and the BMU executive groups, along with key informant interviews (KIIs). In Mahandakini (Jasini), there were 37 participants, comprising 20 men and 17 women. Ndumbani had 40 participants, evenly split between 20 men and 20 women. Moa recorded 37 participants, including 21 men and 16 women. Mwaboza had a total of 40 participants, with 19 men and 21 women. Boma Kichakamiba hosted 39 participants, consisting of 24 men and 15 women. Boma-Subutuni had 40 participants, with 24 men and 16 women. Lastly, Zingibari saw 38 participants, including 21 men and 18 women, as shown in table 2.

Table 2: Number of participants per BMU and disintegrated into gender

BMU/Village	Total Participants	Male Participants	Female Participants
Boma Kichakamiba	39	24	15
Boma-Subutuni	40	24	16
Mahandakini (Jasini)	37	20	17
Moa	37	21	16
Mwaboza	40	19	21
Ndumbani	40	20	20
Zingibari	38	21	18

3.2. PRIMARY OCCUPATIONS OF PARTICIPANTS

The primary occupations among participants across the assessment BMUs indicate a predominance of fishing-related activities, underscoring the sector's centrality to local livelihoods. In Boma Kichakamiba, key occupations included fishing and farming, each reported with equal frequency, alongside hotelier services and minor engagements in seaweed farming and fish trading. These findings reflect a blend of subsistence and commercial activities, with fishing serving as the principal economic anchor, complemented by small-scale agriculture and service-oriented roles.

The assessment revealed a series of structural and operational gaps that significantly constrain the effectiveness of fisheries co-management. A prominent issue raised by participants was the poor implementation of existing fisheries regulations. Although regulations have been developed to guide sustainable resource use, communities consistently observed that these are not adequately enforced, thereby undermining the intended governance outcomes. This enforcement gap reflects broader institutional weaknesses and highlights the need for stronger accountability mechanisms within BMU operations.

Another recurring governance challenges is the limited awareness and understanding of laws and governance frameworks among both BMU leaders and community members. Participants indicated that many stakeholders lack basic knowledge of fisheries-related legislation and the procedures that guide resource management. This knowledge gap hinders compliance and weakens the collective ability of local actors to hold decision-makers accountable. Linked to this, the assessment identified capacity deficits among BMU leaders, particularly in areas such as leadership, governance, financial management, and conflict resolution. The lack of regular training and structured mentorship opportunities leaves many leaders ill-equipped to manage the complexities of fisheries governance in a participatory and transparent manner.

Infrastructure and logistical challenges were also widely reported. Many BMUs lack sufficient facilities, tools, and operational resources, including offices, Patrol boats, and monitoring equipment, which hinders their ability to conduct effective surveillance, data collection, and enforcement activities. This resource deficit not only diminishes institutional efficiency but also discourages active participation among community members who perceive governance as poorly resourced and ineffective.

Equally important, participants emphasized the problem of weak stakeholder coordination and cooperation. Several BMUs reported instances of limited communication between committees, irregular meetings, and an absence of systematic platforms for exchanging experiences or adapting management practices across villages. This fragmentation creates overlaps, duplication of efforts, and in some cases, conflict between actors. The lack of consistent engagement with non-BMU community members further worsen these challenges, leaving out groups such as women, youth, and small-scale traders who play crucial roles in fisheries value chains. Finally, there was concern over low levels of transparency and accountability within BMU operations, particularly regarding financial management and benefit-sharing arrangements. Participants noted that information on revenues, expenditures, and resource allocation is not consistently shared with the wider community, which contributes to mistrust and a perception of inequity.

3.3. SUMMARIZED GAPS PER BMU

MAHANDAKINI (JASINI)

i. Management is overly concentrated on mangroves, with insufficient attention given to coral reefs and seagrass ecosystems.
ii. Limited enforcement of fisheries regulations, leading to ineffective implementation.
iii. Inadequate legal awareness among BMU members and local communities.
iv. Absence of mechanisms to penalize non-compliance within BMU leadership structures.
v. Lack of essential facilities to support governance and monitoring activities.
vi. Insufficient training in governance, leadership, and resource management.
vii. Limited cooperation and irregular meetings, weakening coordination.

NDUMBANI

i. Lack of adequate working facilities, such as offices and equipment, for BMU operations.
ii. Insufficient education and training for BMU leaders on governance and resource management.
iii. Limited coordination among BMU members, leading to fragmented decision-making.
iv. Weak transparency and accountability mechanisms in leadership structures.
v. Poor cooperation among stakeholders in fisheries governance.
vi. Inadequate monitoring of fisheries-related activities and enforcement.
vii. Limited knowledge of laws and governance systems among community members.

MOA

i. Gaps in leadership training for BMU executives.
ii. Limited clarity on roles and responsibilities among BMU leaders, assembly and committees.
iii. Weak enforcement mechanisms for fisheries regulations.
iv. Inadequate capacity in governance and financial management.
v. Lack of structured conflict resolution mechanisms within the BMU.
vi. Poor integration of scientific, local, and traditional knowledge in decision-making.
vii. Insufficient collaboration with government and conservation partners.

MWABOZA

i. Shortage of essential working equipment such as boats, gumboots, and offices.
ii. Lack of logistical support to facilitate surveillance and monitoring.
iii. Limited training on governance and leadership skills for BMU members.
iv. Poor enforcement of fisheries regulations.

v. Weak accountability and transparency in BMU operations.
vi. Insufficient communication channels for sharing information with the wider community.
vii. Low cooperation among stakeholders, reducing the effectiveness of collective management.

BOMA KICHAKAMIBA

i. Inadequate governance structures for fisheries resource management.
ii. Insufficient awareness of fisheries laws and regulations.
iii. Lack of cooperation and coordination among BMU members.
iv. Absence of accountability mechanisms for BMU leadership.
v. Poor implementation of existing regulations.
vi. Limited participation of women and marginalized groups in governance.
vii. Shortage of essential facilities to support management activities.

BOMA-SUBUTUNI

i. Lack of awareness of marine resource management practices.
ii. Weak enforcement of fisheries regulations and laws.
iii. Insufficient cooperation among BMU members and stakeholders.
iv. Limited training opportunities for BMU leaders.
v. Poor institutional accountability and transparency in decision-making.
vi. Absence of clear benefit-sharing mechanisms within the BMU.
vii. Weak coordination with external partners and supporting institutions.

ZINGIBARI

i. Inadequate enforcement of fisheries regulations.
ii. Poor awareness of governance and legal frameworks.
iii. Limited leadership and governance capacity within the BMU.
iv. Lack of consistent communication and coordination mechanisms.
v. Insufficient facilities and operational resources for BMU activities.
vi. Weak accountability in BMU operations.
vii. Limited stakeholder participation, particularly from marginalized groups.

3.4. GOVERNANCE GAP MATRIX

The Governance Gap Matrix per BMU shown in table 3 below, which systematically maps each of the seven BMUs against five thematic governance gap clusters: Regulatory/Legal, Institutional/Coordination, Capacity/Awareness, Infrastructure/Resources, and Transparency/Accountability. This matrix allows for a clear comparison of governance weaknesses across different villages, making it easier to identify site-specific issues as well as cross-cutting challenges that affect the entire Boma-Mahandakini CFMA.

Table 3: Governance Gap Matrix per thematic governance clusters

BMU/Village	Regulatory/ Legal	Institutional/Coordination	Capacity/Awareness	Infrastructure /Resources	Transparency/Accountability
Mahandakini (Jasini)	Weak enforcement of regulations; lack of penalties; limited awareness; exclusion of coral reefs and seagrass	Irregular meetings; limited cooperation among BMU members	Inadequate training for BMU leaders; weak governance education	Lack of facilities; limited logistical support	Weak accountability of BMU leadership
Ndumbani	Weak enforcement; limited awareness of fisheries laws	Poor cooperation; fragmented decision-making	Insufficient education for BMU leaders; limited law awareness	Shortage of offices and equipment	Weak accountability mechanisms
Moa	Weak enforcement; unclear roles/responsibilities	Poor coordination; weak conflict resolution mechanisms	Deficiency in leadership training; weak technical capacity	Limited facilities and operational resources	Poor financial management capacity
Mwaboza	Weak enforcement of fisheries regulations	Low cooperation; irregular communication channels	Limited leadership training and governance awareness	Shortage of boats, gumboots, and office infrastructure	Weak accountability and transparency
Boma Kichakamiba	Weak enforcement; lack of awareness of laws	Weak coordination among BMU members	Insufficient awareness and governance capacity	Lack of essential facilities for BMU activities	Absence of accountability in leadership
Boma-Subutuni	Weak enforceme	Weak institutional	Limited training for	Limited resources for	Weak transparency

	nt; lack of awareness of marine manageme nt	cooperation with partners	BMU leaders; weak awareness	enforcement and monitoring	and unclear benefit-sharing
Zingibari	Weak enforceme nt; limited awareness of governance frameworks	Limited communicatio n and stakeholder participation	Limited leadership capacity; weak stakeholde r awareness	Inadequate facilities and operational resources	Weak accountability in BMU operations

Traffic Lights

The traffic light assessment of governance performance across the seven BMUs provides a structured evaluation of strengths and weaknesses across eight key systemic governance principles. The use of a colour-coded scale ranging from 0 (weak governance) to 3 (strong governance). The results highlight variability across BMUs, with some sites demonstrating stronger governance capacities in areas such as resource boundary recognition and regulation, while others exhibit significant gaps in enforcement, accountability, and inclusivity. The presence of red and orange scores across several BMUs indicates that critical governance challenges persist, particularly in the domains of monitoring and enforcement, institutional transparency, and adaptive capacity.

The green and yellow scores observed in certain BMUs suggest that there are pockets of good practice and resilience that could be leveraged for wider learning. For example, higher scores in clearly defined rights and regulations within some villages demonstrate progress toward institutionalizing governance frameworks, while moderate performance in inclusivity and equitable management reflects emerging but uneven participation of women and other marginalized groups. Collectively, the traffic light analysis underscores the importance of targeted interventions tailored to each BMU's context, with a particular focus on strengthening weak areas while consolidating existing strengths to achieve balanced and effective fisheries co-management.

0 (Red) indicates weak governance.

1 (Orange) indicates poor governance.

2 (Yellow) indicates moderate governance.

3 (Green) indicates strong governance.

Governance principles	Mahandakini (Jasini)	Ndumbani	Moa	Mwaboza	Boma Kichakamiba	Boma-Subutuni	Zingibari	Avarage
Resource Boundaries	2	2	2.5	2.5	2.5	1.8	1	2.0
Monitoring and Enforcement	1.7	1	2.5	1	1	2	1	1.5
Capacity for Adaptive Management	0	2	2	1	1	1	2	1.3
Inclusive and Equitable Management	2	2	2	1	0	2.5	1	1.5
Clearly Defined Rights and Decision Making	2	2	1	2.5	2.5	2.5	2	2.1
Clear and Congruent Regulations	2.5	2	0	2.5	0	2.5	2.5	1.7
Transparency and Accountability	0	2.5	1	0	0	2.5	2	1.1
Perceived Outcomes	0	0	1.5	0	1.9	1.5	2	1.0
Average	1.3	1.7	1.6	1.3	1.1	2.0	1.7	

Figure 3: The traffic light assessment of governance performance across the seven BMUs providing a structured evaluation of strengths and weaknesses across eight key systemic governance principles. 0 (Red) indicates weak governance; 1 (Orange) indicates poor governance; 2 (Yellow) indicates moderate governance and 3 (Green) indicates strong governance.

4.0 DISCUSSION

Our findings indicate a prevalent focus on mangrove zones, often neglecting adjacent ecosystems including coral reefs and seagrass beds. This narrow framing risks undermining the ecological integrity of the marine environment and ignoring functional connectivity. Defining clear resource boundaries aligned with ecological systems is foundational for effective common-pool resource governance (Crean, 2000). Moreover, clearly delineated user and resource boundaries can foster collective action and sustainable outcomes in co-managed approaches (Kuran, 2025). The current gap signals an urgent need to expand spatial governance scope to more holistically include the full marine landscape.

Weak enforcement mechanisms and lack of both formal and informal surveillance persist across the BMUs. Regulatory rules exist but are seldom enforced effectively, leading to low compliance. Combining formal deterrents with community-based monitoring systems significantly promotes regulatory adherence in small-scale fisheries (Castillo et al., 2024). This underscores the need to support local enforcement arrangements (e.g. community patrolling), complemented by formal sanctions, to enhance governance legitimacy and efficacy.

Leadership and technical capacity remain inadequate among BMU executives. Gaps in training specifically in leadership, conflict resolution, financial governance, and adaptive learning, limit the ability of management structures to adjust to changing conditions. Adaptive co-management depends critically on such capabilities (Pomeroy et al., 2001). Without strategic investments in capacity building, these institutions may struggle to adjust policy, governance structures, and operations in response to biophysical and social changes.

Women, youth, and marginalized groups are frequently excluded from formal decision-making, reinforcing inequities in governance representation. Co-management emphasizes that equitable and inclusive participation enhances both social legitimacy and ecological resilience (d'Armengol, 2018). The current inequitable structuring risks erode stakeholder ownership, limiting diversity of knowledge inputs, and compromising long-term sustainability.

Decision-making frameworks within BMUs are informal and ambiguous, lacking transparency in roles and delegation of authority. Clear institutional design, specifying who holds rights and responsibilities, is essential to reduce conflict and foster cooperation (Ostrom, 1990; Kuran, 2025). Establishing formally recognized decision-making protocols, and institutional structures can build coherence and trust in governance processes.

Although regulatory instruments are nominally in place, they are often misaligned with local ecosystem realities and exclude critical habitats like coral reefs. Sustainable co-management requires congruence between rules and ecological contexts (d'Armengol, 2018; Cinner et al., 2012). Regulatory frameworks must be ecologically cognizant and reflect local practices to be considered legitimate and effective.

Transparency deficits; particularly in financial management and benefit-sharing, undermine trust within BMU structures. Accountability mechanisms are weak or absent, contributing to perceptions of mismanagement. Globally, improved transparency is linked to increased governance legitimacy and better social outcomes in resource-dependent communities (Skerritt, 2024). Governance structures must adopt regular reporting, inclusive consultation, and accountability frameworks to rebuild trust and sustain collective governance.

Community perceptions of governance effectiveness remain low, largely due to invisible benefits, inequitable processes, and weak enforcement. Without tangible positive outcomes, stakeholder motivation diminishes, threatening the social license of BMUs. Research affirms that perceived improvements, ecological recovery, livelihood gains, equitable resource access, are key drivers of long-term compliance (d'Armengol, 2018). Scaling up visible, equitable benefits is essential to reinforce legitimacy and support governance sustainability.

5.0. RECOMMENDATIONS

5.1. GOVERNANCE STRENGTHENING RECOMMENDATIONS FOR BOMA-MAHANDAKINI CFMA

Mahandakini (Jasini) BMU

i. Expand the BMU's management focus to include coral reefs and seagrass ecosystems, ensuring management plans reflect the full ecological landscape.
ii. Conduct participatory habitat mapping to define and integrate reef and seagrass zones into BMU by-laws.
iii. Establish clear penalties for non-compliance and integrate them into BMU operational procedures.
iv. Strengthen joint patrols with neighbouring BMUs (Moa and Ndumbani) to improve surveillance across shared boundaries.
v. Conduct regular awareness sessions on fisheries laws and governance responsibilities for BMU members and fishers.
vi. Display simplified summaries of key fisheries regulations on BMU notice boards.
vii. Provide targeted training for committee members on leadership, financial accountability, and conflict resolution.
viii. Pair BMU leaders with more experienced leaders from Boma-Subutuni for mentorship.
ix. Schedule monthly BMU executive and committee meetings with recorded minutes.
x. Develop communication channels (WhatsApp groups, village notice board updates) for improved coordination.

Ndumbani BMU

i. Secure an equipped BMU office and provide essential tools such as patrol gear, data recording tools, and basic furniture.
ii. Lobby village government and partners for co-financing of infrastructure.
iii. Train leaders on governance principles, resource management, financial procedures, and participatory decision-making.
iv. Introduce refresher training every six months.
v. Adopt monthly public disclosure of financial statements.
vi. Introduce a BMU internal audit sub-committee.
vii. Facilitate cross-BMU learning visits with Mwaboza and Boma-Subutuni.
viii. Ensure structured engagement with women, youth, and fish processors.
ix. Develop an enforcement plan with defined roles and responsibilities.
x. Introduce community-based surveillance systems using volunteer monitors.

Moa BMU

i. Provide targeted training on conflict resolution, leadership, ecological stewardship, and record-keeping.

ii. Introduce governance mentorship from high-performing BMUs (e.g., Boma-Subutuni).

iii. Establish formal enforcement teams with a duty roster.

iv. Provide basic surveillance gear and develop a reporting protocol.

v. Use local knowledge from octopus gleaners, elders, and seaweed farmers to inform seasonal closures.

vi. Maintain quarterly meetings with NGOs (e.g., Mwambao, FFI) and District Fisheries Officers.

vii. Document intervention plans to avoid duplication.

Mwaboza BMU

i. Prioritize acquisition of patrol boats, gumboots, and office infrastructure through CFMA-level resource pooling.

ii. Develop a maintenance schedule for any shared patrol assets.

iii. Conduct training on leadership skills, financial governance, and participatory planning.

iv. Introduce performance evaluations of BMU executives every 12 months.

v. Implement community-based surveillance using trained volunteers.

vi. Harmonize enforcement activities with neighbouring BMUs.

vii. Introduce noticeboards to publish financial records, decisions, and enforcement actions.

viii. Use village assemblies to enhance two-way communication with community members.

ix. Establish a stakeholder forum involving fishers, traders, processors, elders, and women/youth groups.

x. Hold regular joint planning meetings.

Boma Kichakamiba BMU

i. Develop a comprehensive governance improvement plan addressing leadership gaps, poor coordination, and weak regulation implementation.

ii. Reconstitute committees to ensure functional representation and clear responsibilities.

iii. Conduct intensive training on fisheries regulations, gear restrictions, and co-management rights.

iv. Translate and disseminate simplified BMU by-laws.

v. Schedule monthly meetings and ensure rotational participation of community members.

vi. Create a BMU communication board for public updates.

vii. Introduce transparent financial reporting and a leadership performance appraisal system.

viii. Establish mechanisms to report and address misconduct by leaders.

ix. Ensure women, youth, and marginalized groups are represented within committees.

x. Introduce targeted capacity-building for women in governance roles.

Boma-Subutuni BMU

i. Conduct targeted capacity building on coral reef, seagrass, and mangrove management.

ii. Organize experience-sharing sessions with ecologically advanced BMUs.

iii. Strengthen routine patrols and reporting mechanisms.

iv. Develop a local compliance monitoring checklist.

v. Improve coordination with government agencies, NGOs, and neighbouring BMUs for collaborative management.

vi. Participate actively in CFMA Coordination Committee meetings.

vii. Develop and implement a formal benefit-sharing plan.

viii. Publicly display both revenue and expenditure lists monthly.

ix. Offer governance training focusing on transparency, accountability, and participatory planning.

x. Introduce structured handovers between outgoing and incoming leaders.

Zingibari BMU

i. Formalize an enforcement team with rotational patrol responsibilities.

ii. Acquire minimum enforcement equipment through CFMA-level resource sharing.

iii. Conduct structured awareness campaigns for fishers, seaweed farmers, traders, and boat crew.

iv. Train BMU leaders on governance frameworks and legal mandates.

v. Develop leadership development programmes emphasising inclusivity, accountability, and communication.

vi. Promote participation of women and marginalized groups through dedicated governance roles.

vii. Establish monthly meetings and reporting frameworks.

viii. Strengthen links with District Fisheries Officers and local authorities.

ix. Secure a basic office structure, noticeboard, and data recording tools.

x. Request CFMA support for procurement of patrol gear and communication tools.

5.2. CFMA-WIDE GOVERNANCE STRENGTHENING ACTION PLAN

Strengthening Legal and Regulatory Compliance

To enhance compliance and promote uniform enforcement across the seven BMUs, the CFMA will adopt a harmonized enforcement framework. This will include:

i. Development and adoption of a CFMA-wide Enforcement Standard Operating Procedure (SOP), outlining uniform procedures for surveillance, reporting, penalties, and apprehension of offenders.
ii. Establishment of joint BMU patrol teams based on geographic clusters to ensure comprehensive surveillance of shared fishing grounds.
iii. Regular legal awareness sessions to strengthen understanding of fisheries laws, BMU by-laws, and ecological restrictions among leaders and community members.
iv. Installation of regulatory communication boards at each BMU office, summarizing prohibited gears, restricted zones, and relevant fines.

These actions aim to enhance compliance, reduce illegal fishing practices, and create a common enforcement culture across the CFMA.

Institutional Coordination and Governance Architecture

To address fragmented coordination and decision-making, the CFMA will establish consistent and transparent governance structures:

i. Formation of a CFMA Coordination Committee (CCC) composed of BMU leaders, District Fisheries Officers, village government representatives, and supporting NGOs.
ii. Standardization of BMU meeting schedules, ensuring monthly committee meetings, bi-annual BMU Assemblies, and quarterly CFMA-wide governance meetings.
iii. Development of a CFMA Governance Calendar aligning activities such as patrols, training, ecological monitoring, and review sessions across all BMUs.
iv. Implementation of conflict resolution mechanisms, including mediation committees to address internal disputes and inter-BMU conflicts.

These measures will strengthen coordination, enhance decision-making consistency, and facilitate collaborative management actions across BMUs.

Leadership, Capacity Building, and Awareness

Addressing leadership gaps and limited technical knowledge is critical for strengthening governance effectiveness. The CFMA will implement:

i. A Leadership and Governance Training Programme covering governance principles, financial accountability, conflict resolution, monitoring practices, and inclusive decision-making.
ii. A BMU leadership mentorship scheme, pairing less experienced or low-performing BMUs with stronger and more stable BMUs to enable skill transfer.
iii. Community-wide awareness campaigns promoting sustainable fishing practices, ecological stewardship, and responsible resource use.
iv. Development of Kiswahili governance toolkits, including simplified versions of BMU by-laws, fisheries laws, and role descriptions for BMU organs.

These interventions will build leadership confidence, strengthen institutional performance, and enhance the understanding of governance responsibilities at all levels.

Infrastructure, Tools, and Operational Resources

To support the effective functioning of governance and management operations, the CFMA will focus on improving BMU infrastructure and tools:

i. Establishment of a minimum operational infrastructure package for all BMUs, including office space, furniture, notice boards, and working materials.
ii. Provision of patrol gear and equipment, such as gumboots, raincoats, torches, walkie-talkies, and first-aid kits to support enforcement operations.
iii. Acquisition and management of shared patrol vessels at CFMA level to enhance surveillance and reduce operational costs per BMU.
iv. Deployment of ICT tools to support data recording, reporting, and communication, including smartphones/tablets and shared digital platforms.
v. Installation of ecological boundary markers and signposts to indicate no-take zones, closed areas, and restricted gear zones.

Enhancing infrastructure and operational tools strengthens enforcement, monitoring, and overall governance efficiency.

Transparency, Accountability, and Financial Governance

Strengthening transparency and financial accountability is essential for building trust and promoting fair management practices. The CFMA will implement:

i. Mandatory public disclosure of financial information, including revenues, expenditures, and fines, displayed monthly on BMU notice boards.

ii. Establishment of internal audit committees at BMU level to monitor financial integrity and compliance with approved procedures.
iii. A CFMA-wide benefit-sharing framework, clarifying how revenues from licenses, penalties, and user fees are allocated to community needs, operations, and governance.
iv. Introduction of leadership accountability measures, including performance assessments, clear disciplinary actions for misconduct, and structured leadership handovers after elections.

These measures will enhance trust, reduce leadership-related conflicts, and promote transparent financial governance.

Inclusivity, Gender Equity, and Stakeholder Participation

To ensure equitable governance and broaden participation, the CFMA will mainstream inclusion across all BMUs through:

i. Establishment of Gender Desks and Youth Desks within BMUs, assigning focal persons to support inclusive participation.
ii. Ensuring 30:40% representation of women and youth in BMU committees by promoting their active involvement during elections and governance processes.
iii. Involving non-fishing value-chain actors—such as gleaners, traders, processors, and seaweed farmers—in governance meetings, planning sessions, and decision-making processes.
iv. Offering inclusive training modules tailored for women and youth on leadership development, conservation, financial literacy, and entrepreneurship.

These actions will create balanced representation, enhance legitimacy, and ensure that benefits and roles are equitably distributed among all stakeholder groups.

Adaptive Management, Monitoring, and Ecosystem-Based Governance

To enhance ecological stewardship and data-driven management across the CFMA, the following measures will be implemented:

i. Development of a CFMA Monitoring and Data Management System that standardizes catch monitoring, ecological surveys, enforcement reporting, and data storage.
ii. Introduction of seasonal and spatial fisheries closures, especially for octopus and other vulnerable resources, guided by community knowledge and ecological indicators.
iii. Establishment of a CFMA knowledge-sharing platform, enabling BMUs to exchange experiences, share lessons, and monitor progress collectively.
iv. Integration of climate resilience and ecosystem-based considerations into BMU plans, including coral-reef monitoring, mangrove restoration, and climate vulnerability assessments.
v. Strengthening collaboration with scientific institutions (e.g., TAFIRI) to incorporate scientific data into decision-making.

These interventions support evidence-based governance, enhance ecological resilience, and improve the long-term sustainability of the CFMA.

5. REFERENCES

Anderson, J. (2004). ANALYSIS OF REEF FISHERIES UNDER CO-MANAGEMENT IN TANGA. IUCN Eastern Africa Regional Office.

Benjaminsen, T. A., & Bryceson, I. (2012). Conservation, green/blue grabbing and accumulation by dispossession in Tanzania. The Journal of Peasant Studies, 39(2), 335-355.

Bryceson, D. F., & Bank, L. (2001). End of an era: Africa's development policy parallax. Journal of Contemporary African Studies, 19(1), 5-23.

Castillo, L. S., et al. (2024). Enforcement, deterrence, and compliance in co-managed small-scale fisheries. Ecology & Society.

Cinner, J. E., Daw, T. M., McClanahan, T. R., Muthiga, N., Abunge, C., Hamed, S., ... & Jiddawi, N. (2012). Transitions toward co-management: The process of marine resource management devolution in three east African countries. Global Environmental Change, 22(3), 651-658.

Crean, K. (2000). The influence of boundaries on the management of fisheries resources in the European Union: case studies from the UK. Geoforum, 31(3), 315-328.

d'Armengol, L., Castillo, M. P., Ruiz-Mallén, I., & Corbera, E. (2018). A systematic review of co-managed small-scale fisheries: Social diversity and adaptive management improve outcomes. Global environmental change, 52, 212-225.

FFI & Mwambao. (2022). INCREASING SOCIO-ECOLOGICAL RESILIENCE THROUGH COMMUNITY-LED MANAGEMENT OF COASTAL ECOSYSTEMS—TANZANIA. Blue Action Fund.

Katikiro, R. E., & Kweka, O. (2020). Challenges and prospects of effective marine protected areas management in Tanzania. Marine Policy, 113, 103805.

Kuran, U., Krause, T., & Ünal, V. (2025). Co-management of small-scale fisheries in the Eastern Mediterranean: Insights and lessons from Türkiye's Gökova MPA. Maritime Studies, 24(2), 24.

La Jiji. (2024, March 10). Wavuvi wa pweza mkinga wachekelea kuvua tani 2.5 kwa siku; mwamba norad waahidi neema zaidi.

Makota, V., Mahika, C., & Mahika, H. (2015). Integrated Coastal Zone Management in Tanzania. Ocean & Coastal Management, 118, 264-272.

MNRT. (2015). Guidelines for the Establishment and Management of Beach Management Units (BMUs) in Tanzania.

NEMC (2024). State of the Coast for mainland Tanzania. National Environment Management Council (NEMC). Dodoma, Tanzania. pp. xxxiv + 293p

Nordic Development Fund. (2014). Coastal profile for mainland tanzania : volume ii: districts.

Ostrom, E. (1990). Governing the commons: The evolution of institutions for collective action. Cambridge University Press.

Pomeroy, R., et al. (2001). Conditions affecting the success of fisheries co-management. FMSP Working Paper.

Purcell, S. W., Samoilys, M. A., & Makoloweka, S. (2017). Ecosystem-based fisheries management in the Western Indian Ocean: A review.

Skerritt, D. J. (2024). Seeking clarity on transparency in fisheries governance. Marine Policy.
TAFIRI. (2022). Annual Report 2021/2022. Tanzania Fisheries Research Institute.

United Nations Division for Ocean Affairs and the Law of the Sea. (2021). Ocean governance study : united republic of tanzania.

URT. (1994). Marine Parks and Reserves Act. United Republic of Tanzania.

URT. (2015). National Fisheries Policy of Tanzania. United Republic of Tanzania.

Wells, S., Makoloweka, S., & Samoilys, M. (2007). Putting adaptive management into practice: collaborative coastal management in tanga, northern tanzania. Iucn eastern africa regional office.