WOMEN SHELLFISHERS AND FOOD SECURITY PROJECT

Technical Report

Multi-stakeholder review of mangrove restoration initiatives to improve biodiversity in Ghana and The Gambia

July 2024

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Citation: Carsan, S., Obiri, D.B., Bah, A., Muthee, K., and McMullin, S. (2024). Multi-stakeholder review of mangrove restoration initiatives to improve biodiversity in Ghana and The Gambia. World Agroforestry (ICRAF), Nairobi, Kenya and Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. Narragansett, RI, USA. 43 pp.

Authority/Disclaimer:

Prepared for USAID under the BAA-AFR-SD-2020 Addendum 01, (FAA No. 7200AA20FA00031) awarded on August 12, 2020 to the University of Rhode Island and entitled "Women Shellfishers and Food Security."

This document is made possible by the support of the American People through the United States Agency for International Development (USAID). The views expressed and opinions contained in this report are those of the Project team and are not intended as statements of policy of either USAID or the cooperating organizations. As such, the contents of this report are the sole responsibility of the authors and do not necessarily reflect the views of USAID or the United States Government.

Cover photo: Participants during the multi-stakeholder consultations at Baobab Holiday Resort in Banjul, Gambia. Photo credit: World Agroforestry (ICRAF)

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

List of Annexes

ACRONYMS

AFD	French Development Agency
AGFP	All-Gambia Forestry Platform
CAPED	Community Action Platform for Environment and Development
CCM	Centre for Coastal Management
CFA	Community Forest Association
CRC	Coastal Resources Center
CREMA	Community Resource Management Area
CSLP	Coastal Sustainable Landscapes Project
CSIR	Council for Scientific and Industrial Research
DAA	Development Action Association
DCFMP	Densu Co-Management Fishery Management Plan
DoF	Department of Forestry in The Gambia
DOPA	Densu Oyster Pickers Association
DPWM	Department of Parks and Wildlife
EbA	Ecosystem-based Adaptation
FAO	The Food and Agriculture Organization
FC	Forestry Commission
GCF	Green Climate Fund
GEF	Global Environment Facility
ICRAF	World Agroforestry (International Centre for Research in Agroforestry)
MECCNAR	Climate Change and Natural Resources
MOFAD	Ministry of Fisheries and Aquaculture Development
NEMA	National Agricultural Land and Water Management Development
NGOs	Non-Government Organizations
PAs	Protected Areas
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SwS	Sea Water Solutions

TRY	TRY Oyster Women's Association
TWNP	Tanbi Wetland National Park
UCC	University of Cape Coast
UNEP	United Nations Environment Program
URI	The University of Rhode Island
USAID	United States Agency for International Development
WABSA	West African Bird Study Association
WACA	West Africa Coastal Areas management program

1. INTRODUCTION

1.1 Activity Background

The Women Shellfishers and Food Security project seeks to address the need for greater attention to food security for women shellfishers and their families while improving biodiversity conservation of the ecosystems on which their livelihoods depend. The project goal is to foster the adoption and scaling-up of an integrated approaches to the conservation and restoration of mangrove and estuarine ecosystems in West Africa to provide cross-sectoral benefits in terms of gender equality and women's empowerment, economic development, and household food resiliency (CRC, 2022).

World Agroforestry (ICRAF) is contributing to the implementation of project work components under **Objective One** to demonstrate the biodiversity and socio-economic value of integrated rights-based, co-management of mangrove shellfisheries and proximate landscape food ecosystems in two countries in West Africa: Ghana and The Gambia. **Objective 1.3** of the project focuses on mangrove co-management in the two countries, through mangrove restoration and management best practices (**Objective 1.3.1**) and developing mangrove community management plans in the Densu delta and Lamin in the Tanbi Wetlands National Park where shellfish co-management plans are implemented by women's shellfisher associations (**Objective 1.3.2**). This report is an output of **Objective 1.3.1** to conduct multi-stakeholder review of local mangrove restoration initiatives opportunities and challenges on improving biodiversity. It builds on mangrove stakeholder mapping and engagements following site level workshops conducted in Ghana and The Gambia. Feedback from the stakeholder workshops and additional findings from desktop review and key informant interviews on past and current mangrove restoration initiatives are combined to augment site-level situational analysis for more informed and collaborative implementation of stakeholder actions.

These workshop objectives involved:

i) sharing of evidence and lessons from the Women Shellfishery and Food Security project,
ii) mapping stakeholders involved in mangrove restoration initiatives and their priorities,
iii) appraising lessons, constraints, and opportunities on mangrove co-management and
iv) helping understand incentives and disincentives for mangrove restoration, to inform strategies for future opportunities

The workshop activities fall under project activity 1.3 on mangroves co-management that broadly aims to map stakeholders undertaking different mangroves restoration and management interventions, in addition to reviewing local initiatives, opportunities and challenges on improving biodiversity.

1.2 Mangrove Ecosystems Management

Mangrove and non-mangrove forests are threatened by degradation associated with human activities. These resources have deteriorated in both size (deforestation) and quality (degradation) over the past century (UNEP, 2007; Bunting et al. 2022). Deforestation for timber, cropland, fuelwood, pasture, urbanization, and commercial industry has had a profound impact on rural communities. Loss of forests further exposes critical watersheds, accelerates soil erosion and sedimentation of rivers and reservoirs, exacerbates flooding, and leads to reduced land's capacity to regenerate and sustain productive functions.

A multistakeholder approach to mangrove conservation and restoration is essential for addressing the complex ecological, social, and economic dimensions of conservation and restoration initiatives. This approach brings together diverse stakeholders, including local communities, government agencies, NGOs, private sector entities, and international organizations, to collaborate on restoration projects. Overall, communities in Ghana and The Gambia, use and manage their forests in diverse ways - use rights and management responsibilities vary widely, depending on historical factors, social and political contexts, and national policies. Community involvement is proving to be a cost-effective, socially just, and environmentally sound approach to stabilizing use of natural forests and other biodiversity resources.

The current challenge is to facilitate devolution of greater authority to forest-based communities while minimizing conflicts and supporting new partnerships among communities, government, and the private sector to ensure meeting of community needs, forest resource conservation and sustainable use. Clarifying forest use rights and responsibilities and creating adaptive policies and programs that allow for access controls can lead to more sustainable forest management. This requires appropriate institutional arrangements to empower and shift authority over forest resources back in the direction of local forest-dependent community groups and indigenous peoples.

The contribution of stakeholders (resource users, government, NGOs, etc.) towards management of forests through co-management plans for example is crucial in the maintenance of forest resources in the long term. The purpose of this review therefore is to demonstrate the value of multi-stakeholder engagements in local mangrove conservation and restoration initiatives, opportunities, and challenges for improving biodiversity in Ghana and The Gambia to inform policy formulation on mangrove conservation and use.

2. METHODOLOGY

2.1 Multi-stakeholder engagements

This multistakeholder review assesses the participation of various stakeholders, such as government agencies, local communities, NGOs, private sector entities, and international organizations in mangrove restoration work. The review was conducted through workshops engaging stakeholders involved in mangrove conservation and restoration initiatives such as women shellfishers, mangrove projects, government departments, NGOs, academia, and others. In Ghana, the workshop was held at the Development Action Association (DAA) Fisheries Training Center conference room in the Densu, and in The Gambia, at the Baobab Holiday Resort in Banjul, on 26th January and 19th January 2023, respectively. At least 34 and 28 participants in Ghana and The Gambia respectively, took part in these workshops. Feedback obtained from the consultative forums were augmented with feedback gathered from project site workshops with communities in Densu & Narkwa (Ghana) and Bulock & Lamin (The Gambia); and desk reviews and key in-country consultations on the status of mangrove co-management (Carsan et al. 2024).

The stakeholder workshops conducted in Ghana and The Gambia sought to raise awareness on the Women Shellfishers and Food Security project activities and assess stakeholder interest and influence on the project goal to improve mangrove resource management. Participants mapped stakeholder types as either 'internal' or 'external' to the community regarding mangrove conservation and restoration activities. In Ghana, participants grouped themselves as either NGO's, Academia, Government, or Community. These discussions identified 'incentives and disincentives' on stakeholder engagement in mangrove conservation and restoration work and priority actions for implementation during the period 2023 to 2025 as a means of supporting conservation and restoration activities.

Presentations on the Women Shellfishers and Food Security project findings from site-based research obtained to date, and lessons learned from the first phase as a basis for scaling in the second phase ending 2025, were used to set the scene for in-depth discussions. Information sharing was facilitated *via* interactive poster sessions (Figure 1) focused on sharing evidence obtained from Ghana and The Gambia project sites on:

i) Mangrove land use and land cover changes between 2000-2020 (Annex 3)
ii) Drivers of mangrove degradation
iii) Nutritious food portfolio: promoting diversity for nutrition and food security

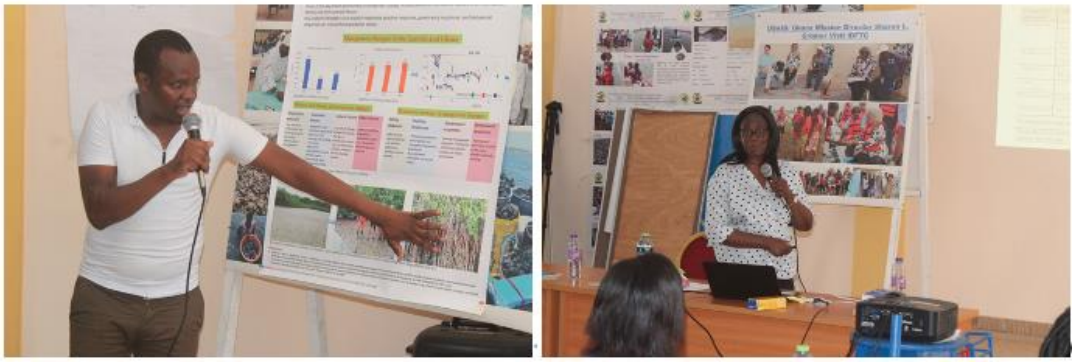

Figure 1: Poster presentation on drivers of mangroves degradation in Ghana and The Gambia.

Plenary discussions were used to capture stakeholder feedback on this work and record emerging issues. Subsequent participants groups work (Figure 2) were used to evaluate incentives and dis-incentives on mangrove ecosystem conservation and restoration, priority areas for intervention, and mapping of stakeholder engagements.

Figure 2: Group feedback on incentives for mangrove conservation and restoration in Ghana.

3. FINDINGS

3.1 Background: Ghana and The Gambia project sites

Discussion with communities from the Densu delta and Narkwa lagoon (Ghana) and Bulock and Lamin (The Gambia), identified various benefits obtained from mangrove ecosystems (Table 1). Mangroves nurture estuaries and provide essential sources of food such as oysters, cockles, fish, and crabs, which support the livelihoods of the local communities, especially the women shellfishers. They also stabilize the coastline ecosystem and provide natural protection during extreme weather events

such as windstorms. The dense and complex network of mangrove root systems helps bind soils, slow down water flows, and encourage sediment deposits that reduce coastal erosion.

The mangrove forests also provide habitat to a wide array of biodiversity including wildlife (birds, fish, invertebrates, mammals, microorganisms, etc.). In The Gambia, communities reported that mangroves improve the quality of water flow within the marine ecosystem including from the bolongs (creeks) into the River Gambia. Workshop participants from Lamin identified Lamin Lodge as a popular tourist destination site, where visitors enjoy boat trips through the bolongs of The River Gambia to see oysters collected by the local women in the mangrove forest, and other attraction sites. Periodically tourists also visit the mangroves and other resources around the Bulock Bolong.

Table 1: Community identified mangrove benefits in Densu and Narkwa (Ghana), and Bulock and Lamin (The Gambia).

Benefits	Densu	Narkwa	Bulock	Lamin
Support livelihoods through oyster collection, shell fishing	×	×	×	×
Fish, birds, and biodiversity breeding and habitat grounds		×	×	×
Floods control			×	×
Source of construction materials (poles, roofing materials, fish traps)	×			×
Regulation of water salinity				×
Ecotourism activities (bird watching, river cruising, etc.)	×			×
Wind breaking			×	
Source of food to humans and marine life		×	×	
Social cultural benefits e.g., medicine source	×		×	
Firewood source (dead mangroves)	×	×	×	

3.2 Mangrove conservation and restoration challenges

Mangrove encroachment through illegal logging and housing development are some of the key challenges affecting some sites such as the Densu and Lamin (Table 2). Such illegal activities are leading to habitat loss and degradation, thus reducing their ability to provide important ecosystem services. Illegal waste dumping is further leading to sea and landscape pollution, especially in Lamin. In Bulock, a few unnoticed cases provide minimal threat to the mangrove ecosystem. In Bulock, the Village Development Committees (VDC) were previously used to monitor the Bolong to curb any illegal activity.

Table 2: Mangrove conservation and restoration challenges reported in Densu and Narkwa (Ghana), and Bulock and Lamin (The Gambia).

Conservation and restoration challenge	Densu	Narkwa	Bulock	Lamin
Mangrove encroachment, degradation, illegal felling and logging	x		x	X
Development pressures				X
Inadequate enforcement of set rules and regulations				X
Diebacks due to age, unsustainable oyster harvesting, lightening			x	X
Illegal dumping leading to sea and landscape pollution	x	x	x	X
Soil erosion leading to high siltation levels			x	
Changing tides, precipitation patterns and other climate change effects			x	X
Inadequate community monitoring and co-management activities				X
Slow regeneration			x	
Diseases			x	
Inadequate community capacity			x	
Low mangrove stock		x		
Lack of mangroves and shell fishing co-management plan and clear laws		x		
Land tenure systems – land privatization		x		x

NB: Non recording of a challenge at a given site does not imply it does not exist but rather that it might not have been prioritized during the discussions due to limited time.

3.3 Community engagement in mangrove conservation and restoration

Communities participate in diverse activities that enhance mangrove restoration activities as critical oyster fisheries habitat particularly in areas considered to be degraded (Table 3). The women shellfishers have further initiated oyster farming for individuals (particularly in Lamin) and expressed interest in group activities with support from the Women Shellfishers and Food Security project in Lamin, and elsewhere with support from other projects. Considering the limited nature of oyster resources and narrow harvesting window, the women in Bulock expressed renewed interest to venture more into cockle farming. In addition, most are involved in vegetable gardening both at home and communal levels. Communal gardens were reported to contribute to income generation,

improved livelihoods, and household economic welfare. Inclusion of tree components was more prominent in Bulock due to availability of land at both the homesteads and landing sites. In Lamin and Bulock, women also often engage in petty trading as a means of diversified livelihoods for their families. The women shellfishers in Lamin, who are mostly members of TRY Oyster Women's Association (TRY) already have an established '*Cockle and Oyster Fishery Co-Management Plan for the Tanbi Special Management Area*'. Through this co-management plan, TRY was delegated exclusive use rights to harvest cockles and oysters from this area and is responsible for the co-management of the cockle and oyster fisheries in partnership with other stakeholders including governmental and local authorities[1]. Women shellfishers in the Densu delta in Ghana have a similar *Densu Delta Community-Based Fisheries Management Plan* for the oyster fishery in the Densu delta that delegates exclusive use rights and management authority for the oyster fishery in the Densu delta to the Densu Oyster Picker's Association[2]..

Table 3: Community engagements in mangrove related conservation and restoration activities.

Proposed activity	Densu	Narkwa	Bulock	Lamin
Mangroves restoration activities	x	x	x	x
Oyster farms establishment	x		x	x
Cockle farming			x	
Tree, vegetables, and crops production systems	x	x	x	x
Village savings scheme				x
Capacity building activities		x	x	
Development of management plans		x		
Diversified livelihoods establishment		x		
Nursery establishment	x			
Continuous monitoring of both mangroves and shellfisheries health	x			
Value addition for oysters (processing and packaging)	x			

[1] Cockle and Oyster Fishery Co-Management Plan for the Tanbi Special Management Area, The Gambia (2012)

[2] Densu Delta Community-Based Fisheries Management Plan (2020)

3.4 Stakeholder analysis

Consultations with communities on local actors regarded as important stakeholders in mangrove restoration work revealed at least eight stakeholder types (Table 4).

Table 4: Summary of local stakeholder types reported in Densu, Narkwa, Bulock and Lamin.

Stakeholder types	Densu	Narkwa	Bulock	Lamin
User groups – fishers, oyster harvesters, farmers	×		×	×
Development and management committees e.g., Village Development Committees, Community Forestry Associations	×	×	×	×
Administrators, e.g., alkalo, local chiefs, village elders	×	×		×
Government agencies, e.g., line ministries, line departments, national and regional government, forest commission/department, fisheries commission/department	×	×	×	×
Local and international NGOs, e.g., TRY, IUCN, DAA, Arocha		×	×	×
Private sector, e.g., birdwatchers, tourist guides, fish processors	×			×
Members of the Assembly	×	×		
Research and academic institutions	×			

4. Stakeholder feedback on mangrove conservation and restoration

4.1 Ghana

Presentations and discussions covering (i) Mangrove land use and land cover change from 2000 to 2020 in Ghana; (ii) Drivers for mangrove degradation and; (iii) Use of food portfolios - how to promote plant diversity for nutrition and food security; provided an opportunity for lively discussions and to obtain key feedback on the state of Ghana's fisheries and mangrove ecosystems:

Key messages

- Ghana has over 100 coastal water bodies supporting fisheries.
- Fishing (both sea fishing and shell fishing) is on the decline.
- Causes for decline in sea fishing, shell fishing, and farming across sites include inappropriate fishing practices and over harvesting of fishery resources, sale of farmlands, climate

irregularities, and reduced soil fertility. Sea fishing is affected by use of light fishing and use of fine mesh nets.

- Food feed, fiber, and income benefits from the land- seascapes have declined over the last decades.
- Shell fishing challenges include pollution, siltation of the lagoon due to erosion, mangrove destruction, wooden traps competing for space and using mangrove wood, high-water levels during the rainy season for women to collect shellfish, and filthy sea/lagoon shores.
- Mangroves provide key ecosystem goods and services (e.g., food, wood, coastal area stabilization) that support ecosystem functioning and community livelihoods
- Mangroves are facing deforestation and degradation (unsustainable use). Key drivers and threats to mangrove change include population pressures, economic drivers, natural factors, and other sporadic factors.
- Narrow focus on a few nutritionally limited crops undermines human health and degrades ecosystems.
- Local, contextually relevant food supply solutions can be co–developed with communities based on food production diversity, local diets, and priorities.

Subsequent group discussions with stakeholders representing NGO's, local community, government, and academia were conducted covering three discussion issues:

4.1.1 *What incentives contribute to mangrove ecosystem conservation and restoration?*

Participant discussions were grouped under four stakeholder types and identified several 'incentives and disincentives' for mangrove conservation and restoration. Incentives were regarded as anything that encourages change in behavior to produce a desired outcome while disincentives are deterrents of the same. A summary of the stakeholder feedback is shown in Table 5:

Table 5: Incentives and disincentives for mangrove conservation and restoration by various stakeholders.

Stakeholder Type	Incentives	Disincentives
NGO's:	Climate change resilience and mitigation	Inadequate and short-term funding
	Ecosystem restoration	Weak enforcement of laws and polices
	Livelihoods and food security	Systems that do not secure land tenure
	Increase in fish recruitment and stock	Political will and power imbalance
	Coastline protection, ecotourism	
Academia	Opportunity to do research	Research outputs not utilized
	Provide evidence-based decisions/policy	Lack of resources to undertake research
	Funding for capacity development	Poor linkage between science, policy, and practice
	Livelihood improvement	
	Environmental conservation	
	Career development	

Stakeholder Type	Incentives	Disincentives
Government	Encouragement from resource users	Lack of collaboration among government agencies in managing the ecosystem
	USAID support, e.g., through DAA efforts encourage the government to provide their support	Lack of resources in government institutions
	Improved ecosystem to support the development of other sectors	Some traditional councils don't know the importance and the usefulness of the resources
		Taboos are no longer recognized in our traditional set up
Community	Mangroves help to get more oysters and shellfish, and this is beneficial for health and income generation	Lack of tools and equipment for the work, e.g., wellington boots and cutlass, etc.
	Grow both white and red mangrove to enable more oysters to be harvested	Lack of diversified sources of livelihood to support families during closed seasons
	The oyster project will help to grow not only mangroves but other trees like coconut and other fruits	Lack of financial support to workers within the duration of planting to harvesting
		Flooding caused by opening of the Weija dam

4.1.2 What are considered priority actions with timelines for scaling mangrove conservation and restoration?

Stakeholder group discussions evaluated actions considered a priority for the success of mangrove conservation and restoration in their context. Focus group discussions representing NGO's, academia, government, and community identified priority areas such as mangrove planting, awareness, and sensitization, and monitoring as key areas (Table 6).

Table 6: Priority actions with timelines for scaling mangrove conservation and restoration.

Stakeholder Type	Priority Actions	2023	2024	2025
NGO	• Nursery establishment • Replanting of mangroves • Monitoring • Livelihoods (supplementary) • Formalized structures (co-management, conservation committees)	✓	✓	✓

Stakeholder Type	Priority Actions	2023	2024	2025
Academia	• Active collaboration on land use planning and conservation • Develop local control and enforcement mechanisms • Enforcement of existing national laws • Zonation of mangrove areas in collaboration with local people • Feasibility research on suitable diversified livelihoods in mangrove ecosystems, e.g., aquaculture • Mangrove planting • Awareness and sensitization	✓	✓	✓
Government	• Education and sensitization • Planting of mangroves • Committee collaboration (co- management) • Community consultation	✓	✓	✓
Community	• Planting more mangroves • Monitoring mangrove survival • Replacing lost mangroves	✓	✓	✓

4.1.3 Mapping of partners involved in mangrove conservation and restoration

Discussions on stakeholder engagements in mangrove conservation and restoration revealed the range of internal and external stakeholders involved in mangrove conservation and restoration activities (Table 7). Discussions further identified scope, roles, and engagement approach used.

Table 7: Internal and external stakeholders involved in mangrove conservation and restoration work.

Stakeholder Type	Internal Stakeholders	External Stakeholders
NGO	Forestry Commission, Fisheries Commission, Traditional Authority, District Assembly, Communities, Research Institutions	Donor Agencies, Foundations, Private Sector, Philanthropists, Spontaneous Movements, e.g., Go Fund Me
Academia	Local communities, Traditional authorities, District Assemblies and Municipal and District Assemblies Community Based Organizations (CBOs) (e.g., DOPA), Fishers Associations, NGOs (e.g., DAA), Youth groups	Forestry Commission, Fisheries Commission, Environmental Protection Authority (EPA), Academia and research institutions, Development parties, NGOs International conservation bodies (e.g., Ramsar, IUCN)

Stakeholder Type	Internal Stakeholders	External Stakeholders
Government	Landowners, Traditional council , Resource users, MMDAs	Fisheries Commission, Land Commission, Land Use and Spatial Planning Authority , Water Resource Commission, EPA
Community	Community leaders like Chiefs, Co-management committees, Youth leaders, DOPA	The police

4.2 The Gambia

Following poster sharing sessions on evidence and experiences by the ICRAF team covering: (i) Land use and land cover change between 2000-2020 in Lamin (Tanbi) and Bulock; (ii) Drivers of mangrove degradation and; (iii) Nutritious food portfolios - how to promote plant diversity for nutrition and food security; plenary discussions emerged with some key feedback obtained as follows:

- There is need for a wholistic approach to mangrove restoration. This includes reforesting upland areas to create buffer areas where communities can still earn their livelihoods without damaging remaining the mangrove areas.
- There is need to focus on soil erosion issues that are aggravated by farming practices in the uplands. Increased siltation is damaging mangrove forests, and this can be resolved through increasing vegetation in the uplands as the rivers drain to the sea and other water bodies.
- Value chains: There is need for product value addition such as honey. The participants established the need for standardization and urged the government regulators to have clear guidelines on the same, while also supporting better market linkages.
- Participants observed the need to enhance behavioural change on how people interact with the environment for sustainability on interventions proposed. Needs include better settlement plans and land-use management to reduce encroachment on the mangrove areas.
- There was feedback that biodiverse species are critical indicators of healthy mangrove ecosystems in line with the Women Shellfishers and Food Security project goal.

Subsequent participant group discussions were based on three key discussion issues as highlighted below.

4.2.1 *What incentives contribute to mangrove ecosystem conservation and restoration?*

Participant discussions identified several 'incentives and disincentives' on mangrove conservation and restoration. Incentives were regarded as anything that encourages change in behavior to produce a desired outcome while disincentives are deterrents of the same. Improved livelihood factors, food, incomes, healthy ecosystems, and finance were important incentives, while poor law enforcement, illegal logging, and public participation constitute examples of the disincentives (Table 8).

Table 8: Stakeholder incentives and disincentive for mangrove conservation and restoration.

Incentives	Disincentives
• Increased fish, oyster, and other marine biodiversity production to support lives • Improved income generation for the users and consumers • Improved functioning of ecosystems and provision of ecosystem goods and services such as medicine, erosion control, carbon sequestration • Improved local capacity for mangrove conservation and restoration • Funding and financial support for mangrove restoration	• Weak enforcement of laws and guidelines leading to encroachment of mangrove areas • Illegal logging and habitat destruction • Pollution from domestic and commercial wastes • Inadequate stakeholder consultations and involvement in restoration and use • Siltation due to poor farming approaches upland • Inadequate or inaccurate data on extent of degradation and effectiveness of restoration practices • Natural factors including forest fires, climate change effects, etc.

4.2.2 What are considered priority actions with timelines for scaling mangrove conservation and restoration?

Stakeholder group discussions also evaluated actions considered of priority to realize success of conservation and restoration during the duration of the Women Shellfishers and Food Security project. Awareness raising, planting work, monitoring, livelihood support and strengthening local institutions were identified as critical (Table 9).

Table 9: Priority actions for strengthening mangrove restoration.

Actions	2023	2024	2025
Awareness raising	×	×	×
Mangrove planting, restoration and management	×	×	×
Mangrove growth monitoring and evaluation	×	×	×
Establishment of management committee	×		
Community livelihood support (including oyster farming, value addition, agroforestry, etc.)	×	×	×
Community engagement exercises	×		

4.2.3 *Mapping of partners involved in mangrove conservation and restoration*

Discussions on stakeholder engagements revealed the combinations of actors such as local resource users, NGO's, CBOs, and government departments involved (Table 10). Discussions further identified scope, roles, and engagement approach used by various stakeholders in supporting mangrove biodiversity conservation and restoration work. Further, these engagements are expected to help the project gain "buy in" from different stakeholders, throughout the project implementation process. Internal and external stakeholders that play a key role in the management of the communities' natural resources have been identified (Table 10).

Table 10: Stakeholder types, roles, and engagements in mangrove conservation and restoration.

Stakeholder *(Type/Scope)*	Role	Engagement approach
Department of Parks and Wildlife *(Government/National)*	Biodiversity management and supporting mangrove restoration	Policy implementation Community support in restoration
Department of Forestry *(Government/National)*	Regulation of forestry policies	Extension, enforcement
Department of Fisheries *(Government/ National)*	Management of oyster culture	Extension and advisory services
Department of Agriculture *(Government/National)*	Agriculture and agroforestry activities	Extension and advisory services
The Large-scale Eco-System Based Adaptation (EbA) project of the Ministry of Environment *(Government/Regional/National)*	Mangrove restoration	Participatory
Try Oyster Women's Association *(NGO/Regional)*	Livelihood improvement	Community engagement and support in mangrove restoration
West African Birds Study Association (WABSA), All Gambia Forestry Platform (AGFP), Kombo-Foni Forest Association (KONAFORA), Kartong Responsible Tourism (KART), Sahel Wetland Concern, Makasutu Wildlife Trust (MWT), Great Institution, Gambia Environment Alliance (GEA) *(NGO/CBO/ National, regional, District)*	Local community support and engagement on restoration	Community support, research, etc.
FAO – FISH4ACP project (*Development Partner/National/International)*	Value chains	Complementing value chain development and women's engagement

Further group discussions categorized stakeholders as either 'internal' or 'external' (Table 11). Internal stakeholders were regarded as local actors directly involved or having interest in mangrove related

activities; while external stakeholders were outsider actors who are affected by or can affect mangrove conservation and restoration activities. External stakeholders do not necessarily have a direct relationship with the resource but have interest in positive environmental outcomes.

Table 11: External and internal stakeholder types involved in mangrove conservation and restoration.

External Stakeholders	Internal Stakeholders
Government ministries – Agriculture, Environment, and Climate Change, National Environment Agency, etc. Government departments – fisheries, forestry, parks, and wildlife	Resource User Groups: shellfishing groups, fishermen, e.g., Bullock Bulloya Association, Bulock Kapogha Youth Development Association, Santaba Youth for Advanced Development Farmers, wood collectors; Private sector: Tourist guides and birdwatchers, local farmers, tree nursery operators and orchard specialists, fish processors
Government departments – fisheries, forestry, parks, and wildlife	Village Development Committee (environment sub-committee), Community Forest Associations
NGOs such as, TRY, TARUD, Red-Cross, WABSA	Traditional chiefs (Alkalo), Village elders

5. Desk review: Multistakeholder engagements in mangrove management in Ghana and The Gambia

The following section highlights typology of mangrove conservation and restoration initiatives often requiring multistakeholder institutional arrangements for example in co-management models as reported in ICRAF's Women Shellfishers and Food Security project milestone six report (Carsan et al. 2024).

5.1 Ghana

Several governmental institutions (The Wildlife Division of The Forestry Commission, The Fisheries Commission, The Environmental Protection Authority, Metropolitan and District Assemblies, Ministry of Food and Agriculture, Survey and Meteorological Services Department, the Universities, Council for Scientific and Industrial Research (CSIR) as well as NGOs, among others, are responsible for the protection and conservation of coastal ecosystems. Local communities, government, policymakers, and relevant stakeholders' efforts are however much needed for effective management, utilization, and conservation. The concept of co-management is appreciated as a means of conserving and managing the available natural resources (Aheto et al., 2016). This process promotes sharing the power, responsibility, and function of coastal resource management with resource users as partners.

Decisions concerning resource access and utilization, as well as rules and institutional arrangements, are outlined by the participating organizations.

Success of community-based participatory mangrove and coastal ecosystem restoration from the Eastern Volta estuary, the Densu estuary, the Pra estuary, and the Western Amanzule coastline is reported in Carsan et al. (2024) (Women Shellfishers and Food Security project ICRAF Milestone 6 report). To date, experience reveals a need for shared responsibilities between the local communities and authorities to manage conservation and restoration activities effectively and sustainably.

Joint management arrangements can involve governments, user organizations, non-governmental organizations, and academic institutions. Drafting and enforcement of rules through local government units (e.g., District Assembly) close to resource management areas have been identified as a crucial part of the initiatives (Aheto et al., 2016).

Community-based, participatory mangrove and coastal ecosystem restoration interventions have been implemented by communities from the Eastern (Volta estuary) to Western (Amanzule) coastline of Ghana with the support of public and private sector institutions. The review has identified these initiatives:

5.1.1 The Anyanui Mangrove Planters and Fishmongers Association

The association is a community-based organization in the Volta estuary registered by the Keta District Assembly in 1991, to collectively put an end to degradation of mangroves while replanting and restoring degraded mangroves areas. Local customary regulations were instituted and effectively enforced with institutional arrangements to mediate mangrove exploitation and conservation (Aheto et al., 2016).

The association has a constitution and leadership structures for its management. Customary agreements have been reached between the association, landowners, and chiefs for exclusive rights to mangrove forests established by the association. Members are rewarded with monetary incentives for participation in mangrove seedling collection/production, planting, and maintenance activities.

5.1.2 The Wildlife Division of the Forestry Commission

The commission assists coastal communities in the Volta estuary with seedlings to restore degraded mangrove lands. Additional support covered strategies on capacity building, enforcement of rules and regulations, public awareness, monitoring and collaborative resource management. In collaboration with SNV Netherlands, Ghana and Friends of the Earth (an NGO), restoration of community degraded mangroves in Galo-Sato in the Volta estuary was supported.

5.1.3 Sea Water Solutions (SwS) Ghana

SwS is a UK based NGO operating a community-led adaptation project in the Volta estuary. It has planted over 100,000 mangrove seedlings at Fiaxor, one of its project sites within the Keta Ramsar

area in the Volta estuary. SwS partnered with communities in coastal areas to restore mangroves that had been over exploited for commercial purposes to build communities' resilience against the impacts of climate change. The Fiaxor community is partnering with SwS Ghana to establish a woodland system to provide alternative sources of fuelwood for household and commercial purposes to support livelihoods as a measure to safeguard mangrove restoration efforts (Boateng, 2022).

5.1.4 A Rocha Ghana

A Rocha Ghana (an NGO) has been involved in replanting mangroves on 7.5 ha out of 30 ha of degraded areas along the shore of the Muni lagoon in the Pomadze area of the Central Region of Ghana. The aim was to restore the site's ecological integrity as bird migratory route, turtle nesting site, and fish spawning ground. Beneficiaries were trained and equipped with alternative livelihood ventures to reduce over dependence on mangrove resources.

5.1.5 Hen Mpoano

Hen Mpoano (an NGO) has implemented mangrove restoration projects in the Western Region since 2014. In conjunction with Coastal Sustainable Landscapes Project (CSLP) implemented by the U.S. Forest Service with support from USAID, mangrove restoration activities were implemented in three communities - Yabiw and Krobo in Shama district and Akwidai in Ahanta west district. A total of 25.15 hectares out of an area of 263.18 hectares of mangrove areas mapped were replanted (USFS-IP, 2018). Communities' capacities on sustainable mangrove harvesting and installing governance structures involving natural resources co-management were supported (Hen Mpoano u.d: Annual reports[3]).

Beginning in 2022, Hen Mpoano planned to plant 200,000 seedlings over 50 ha of degraded mangrove forest lands within the Greater Amanzule Wetlands under the AFR 100 initiative, which is on-going. The goal of the project is to sequester 1.8 million mega grams of Carbon in the long term.

5.1.6 The World Bank

The World Bank funded West Africa Coastal Areas management program (WACA) was launched in 2018 to help West Africa's coastal areas address coastal erosion, flooding, and pollution challenges. Participating countries were Benin, Cote d'Ivoire, Mauritania, São Tomé and Príncipe, Senegal, and Togo. The goal is to help stabilize coastlines, prevent loss of critical infrastructure like roads, and support healthy and productive coastal waters needed for food security and natural capital. In 2022,

[3] Hen Mpoano (u.d) Annual Report for Conservation of Greater Amanzule Wetlands Phase II. Report Prepared for Coastal Sustainable Landscapes Project (October 1, 2015 – September 30, 2016).

Hen Mpoano. (u.d) Final Project Report on Greater Amanzule Wetland Conservation. Report prepared for United States Forest Service (December 2018– March, 2020)

the bank approved $246 million financing for Phase II of the *West Africa Coastal Areas Resilience Investment Project (WACA ResIP 2)* which includes The Gambia, Ghana, and Guinea-Bissau. The project, includes a $5m PROBLUE grant for Ghana that supports a pilot mangrove blue carbon deal financed by the Danish energy company Ørsted, marine spatial planning, and marine plastics pollution management (WorldBank Press Release No: 2023/033/AFW). The project will undertake mangrove protection and reforestation to serve as a buffer to inundation and sea-level rise, and/or sand fill to restore shorelines between communities and the sea along the coast of Anyanui-Agbledomi-Dzita in the Volta estuary as well as in the Pra river estuary. It plans to support interventions for social development and economic recovery based on the needs of affected coastal communities. Emphasis will be placed on opportunities for marginalized groups, including women and indigenes of the area. The project is expected to support participatory activities *via* social sub-projects to work with communities on nature protection and conservation and alternative livelihoods for an estimated 20-30 communities. This second WACA project includes a grant to the West African Economic and Monetary Union (WAEMU) to coordinate regional organizations in improving regional integration, managing environmental flows, and achieving economies of scale in managing shared coastal resources needed for climate resilience.

5.1.7 The USAID/Ghana Coastal Sustainable Landscapes Project (CSLP) (2013 to 2018)

CLSP was implemented by the United States Forest Service and partners in six coastal districts namely, Shama, Sekondi-Takoradi, Ahanta West, Nzema East, Ellembelle and Jomoro Western Region of Ghana. The project, originally a three-year project (2013-2016) and non-Feed the Future funded, was extended to September 2018 with Feed the Future funding. The CSLP worked with existing Community Resource Management Area (CREMAs) bodies or similar entities to strengthen community based natural resource management and monitoring. The focus was on coastal landscapes, including mangroves, other wetlands, and forests and agricultural areas (within and outside protected areas) managed under a diversity of land tenure regimes. The CSLP sought to demonstrate and transfer effective agroforestry and reforestation methods (technology and practices) to restore native ecosystems (CSLP, 2014). By 2015, about 1,200 hectares of land had been improved through different natural resources management (NRM) approaches to improve livelihoods, biodiversity, and carbon sequestration. Further, different incentives that the project put in place had economically benefitted over 600 people, in addition to improved institutional and human capacity on NRM. Local partners included the Forest Services Division of the Forestry Commission and Ministry of Food and Agriculture. From 2014 to May 2018, a total of 22,563 seedlings were raised and used to replant degraded mangrove areas and at least 82 communities were reached (USFS-IP, 2018).

5.1.8 Densu Oyster Pickers Association (DOPA)

The association is implementing the Densu Delta Community-Based Fisheries Management Plan for the oyster fishery under which DOPA was delegated exclusive use rights to and management authority for the oyster fishery in this area. DOPA, is a community-based organization comprised of

mainly women shellfishers, as the primary stakeholders of the oyster resource development in the Densu. Estuarine fisheries management is a big contributor to mangrove management in Ghana (Crawford et al., 2022). The Densu plan is an example of multistakeholder engagement jointly designed by government institutions (i.e., by the Fisheries Commission, Forestry Commission, Universities, etc.), NGOs (namely DAA) and local communities (mainly oyster harvesters) to manage the Densu River Basin's oyster fishery and oyster habitat sustainably. It is an oyster fishery co-management plan that incorporates an ecosystem-based approach for promotion of a healthy mangrove ecosystem as essential habitat for a sustainable oyster fishery (Crawford et al., 2022). Since 2017 with the support of USAID projects, including the Women Shellfishers and Food Security project, DOPA has planted 41.57 ha of mangroves in the Densu. Management of the estuary involves several stakeholders such as:

The Ministry of Fisheries and Aquaculture Development (MOFAD) and Fisheries Commission role is to lend support through the district, zonal and regional offices. They assist in the enforcement of community co-management rules and regulations through the district and regional representatives especially where the co-management committee experiences difficulty in sanctioning offenders.

The Ga South Municipal Assembly is tasked with following roles (i) to coordinate fisheries co-management activities and incorporate needs of fisherfolk into short and medium-term development plans such as maintenance of sanitary conditions and removal of solid waste at Densu Delta landing sites, enforcing restrictions on dumping refuse and other pollutants into the Delta and its tributaries. (ii) support capacity building of the co-management committee and the DOPA registration with the Municipal Assembly, and; (iii) Funds allocation to support the co-management committee and implementation of the management plan.

The Weija Dam Authority is tasked to (i) provide up-to-date water spillage information to members of DOPA; and; (ii) undertake controlled water spillage to the extent practical, to maintain normal water salinity downstream at the delta to reduce incidences of oyster die-off due to excessive and sustained discharge of fresh water.

The Wildlife Division, Forestry Commission role includes: (i) prohibition of construction of permanent structures within the Ramsar core management area; (ii) ensuring sanitation (no dumping including solid and liquid waste); (iii) preventing removal of vegetation (mangroves and trees); (iv) assisting in mangrove restoration activities and by-law enforcement (v) train, educate and sensitize communities on importance of mangroves and other vegetation for oyster restoration, and; (vi) support livelihood diversification programs.

Universities and Research Institutions roles are envisaged to: (i) conduct research to determine spat fall periods for the Densu River delta (ii) assist in the collection and interpretation of research data on water quality (ii) harvesting volumes and rate of decline or increases of the oyster resource, and: (iii) conduct action research with DOPA members on the potential of oyster culture in the Densu delta.

Civil Society and Private Sector Organization's mandate includes: (i) support training and capacity building for the co-management committee and DOPA members; (ii) facilitate stakeholder engagement associated with implementation of the plan, (iii) provide additional logistics, human and financial resources and services in support of implementation of the plan, and; (iv) develop the means for post-harvest improvements of oysters that can provide value-added economic improvements for processors and harvesters, as well as a safe and healthy product for consumers.

5.2 The Gambia

Mangroves in The Gambia are either under the Department of Forestry (categorized as mangrove forests) or Protected Areas (PAs)/national parks under the management of the Department of Parks and Wildlife Management (DPWM). There are nine Protected Areas and fourteen Indigenous Community Conservation Areas (ICCA) in The Gambia, totaling 89,851 ha and 4,858 ha, respectively[4].

The PAs are designated per Part 111, Section 14-32 of the Biodiversity and Wildlife Act, 2003 and managed by the DPWM. National Parks have been gazetted to manage the country's remaining biodiversity. Any conversion of a PA or parts of it to another land use or any alternation of the park border requires re-demarcation and re-designation. The National Forest Policy (2023 – 2032) underscores mangrove ecosystem roles such as spawning ground for fish and crustaceans, sanctuary for birds and other marine and terrestrial life forms, and as carbon sinks. Given these multiple functions, protection and management of mangroves calls for the collaboration of public and non-public sector interests. The Department of Forestry is however constrained by human and financial resource limitations. The National Forestry Fund, created to finance forest development activities is virtually exhausted. Another challenge faced by the department is linked to conflicts of mandates with related sectors such as wildlife, lands, and agriculture, resulting from overlap of institutional responsibilities.

Local women, particularly resource users actively participate in all tiers of mangrove restoration in significant numbers. This has increased their awareness and understanding of the importance of conservation, thus creating opportunities for involvement in alternative income-generating activities.

Given the importance of mangroves in The Gambia's seascape, projects, community-based organizations, and development partners implement yearly restoration initiatives. The reasons for conservation and restoration may vary, but most are intended to rehabilitate degraded areas to improve ecosystem services. The major initiatives on mangrove conservation and restoration in The Gambia include:

[4] https://meccnar.gov.gm/information-protected-areas-gambia

5.2.1 *The Large-Scale Ecosystem-based Adaptation Project*

The Large-scale Ecosystem-based Adaptation (EbA) project is a six-year project funded by Green Climate Fund (GCF) secured from United Nations Environmental Programme (UNEP) and implemented by the Ministry of Environment, Climate Change and Natural Resources. It has been actively involved in mangrove planting since 2018 in selected project intervention communities. As of 2022, the project had planted mangroves (*Rhizophora spp.*) in nearly 27 communities in the Lower River Region, Central River Region North and South totaling 531 ha. The project has planted hundreds of thousands of mangrove propagules in partnership with local communities and community-based organizations, such as the West African Bird Study Association (WABSA) and the Community Action Platform for Environment and Development (CAPED).

5.2.2 *The Women Shellfishers and Food Security Project (2020-2025)*

The USAID funded Women Shellfishers and Food Security project aims to strengthen the evidence base, increase awareness, and equip stakeholders to adapt and apply successful approaches to rights-based, ecosystem-based, participatory co-management of shellfisheries by women in mangrove ecosystems in West Africa. The project seeks to address the need for greater attention to food security for women shellfishers and their families while improving biodiversity conservation of the ecosystems on which their livelihoods depend. The project aims to foster the adoption and scaling-up of an integrated approach to the conservation and restoration of mangrove and estuarine ecosystems in West Africa that provides cross-sectoral benefits in terms of gender equality and women's empowerment, economic development, and household food resiliency.

This project aims to demonstrate the biodiversity and socio-economic value of more fully integrated rights-based co-management of linked shellfish - mangrove - proximate landscape food ecosystems in The Gambia. Several response actions have been identified by the participating communities using a participatory rights-based shellfisheries co-management approach that empower and motivates women shellfishers to more actively steward the mangrove ecosystems on which their shellfisheries depend. Key activities include development of community-based action plans for mangrove management to enable sustainable use of oyster and mangrove resources (Carsan et al., 2023). Also, the project supports initiatives geared towards social fencing of conserved areas and supporting natural regeneration of the mangroves by providing technical support to the women shellfishers and other resource users (Duguma et al., 2022).

5.2.3 *NEMA-CHOSSO*

The National Agricultural Land and Water Management Development (NEMA) project (2012 – 2019), invested in promoting viable and sustainable climate adaptation and resilience options in The Gambia. NEMA has received an additional component named "NEMA-CHOSSO", to optimize the effectiveness of NEMA interventions in the face of increasing climate-related threats to smallholder agriculture. NEMA-CHOSSO's interventions for watershed development have included promoting

mangrove restoration as both a productive resource and an important element in river management. The project has contributed to the restoration of nearly 1,400 ha of mangrove areas all over the country, benefiting around 160,000 people. Mangrove restoration is expected to generate valuable ecological benefits, including carbon sequestration, nutrient and sediment retention, enhanced biodiversity habitats, reducing the risk and impacts of flooding, wastewater treatment, water supply, and recharge to improve local livelihoods and enhance biodiversity.

5.2.4 FAO-FISH4ACP (2020-2025)

The FISH4ACP, initiative goal is to support sustainable fisheries and aquaculture development. It seeks to contribute to food and nutrition security, economic prosperity, and job creation by ensuring the economic, social, and environmental sustainability of fisheries and aquaculture value chains in Africa, the Caribbean, and the Pacific. In The Gambia, FISH4ACP aims to enhance the productivity and competitiveness of the mangrove oyster sector to improve food security and incomes for rural communities, increase exports, create jobs, and stimulate investment.

The FISH4ACP supported oyster value chain upgrading strategy (Macfadyen et al., 2023). in The Gambia over the next ten years, aims to enhance the management of natural resources, including consideration for climate change. A key activity under Outcome 1 of the strategy, entails the restoration of mangrove ecosystems in clearly defined priority areas. The implementation of this activity would require the support of the French Development Agency (AFD), the Department of Forestry, and value chain actors.

5.2.5 AFD/MECCNAR

The Ministry of Environment, Climate Change and Natural Resources in partnership with the French Development Agency (AFD) is implementing a climate resilience project in The Gambia. To preserve the country's natural capital and help protect biodiversity and combat climate change, AFD is supporting The Gambia through a grant of €7 million to help in the preservation and restoration of mangrove ecosystems in the marine protected areas. This project is promoting the development of income-generating activities in the 100,000-ha area it covers, and it is bolstering the legal framework and the capacities of The Gambian authorities so that they can better deal with climate change. Ultimately, the project will lead to a clear strategic and technical approach to strengthening the resilience of coastal communities and natural ecosystems.

5.2.6 PROREFISH (2022-2027)

The Climate Resilient Fishery Initiative for Livelihood Improvement in The Gambia (PROREFISH) is a new GCF-funded project to build resilience against climate change and improve livelihoods. One of the key project components is to scale up adaptation measures to support the strengthening of the restoration capacity and community management of artisanal fisheries habitats, designed to reverse the degradation of mangrove ecosystems (which play a key role as breeding grounds and nurseries for fish and shellfish) by investing in restoration through replanting and assisted natural regeneration,

coupled with support to sustainable ecosystem management. PROREFISH adopts a community-driven restoration approach, working together with the local populations, as well as investing in post-restoration activities designed to support sustainable mangrove management. Further, the project strives to invest in mangrove restoration of 2,350 ha (1,100 ha of degraded mangrove areas and 1,250 ha of assisted natural regeneration) in 10 areas prioritized during project preparation using local species that are particularly salt tolerant.

5..2.7 Conservation and Restoration of The Mangrove Ecosystem in The Gambia Through the REDD+ Mechanism (2022 – 2052)

The Conservation and Restoration of the Mangrove Ecosystem in The Gambia Through the REDD+ Mechanism project, with an initial lifetime of 30 years, is an initiative supporting the restoration and conservation of mangroves in The Gambia. The project aims to mitigate climate change through carbon storage and enhance biodiversity to yield positive rural livelihood impacts, including enhanced oyster collection, fishing, and fiscal revenues to the participating communities. The Government of Gambia is the main project proponent through the Department of Parks and Wildlife Management (DPWM) under The Ministry of Environment, Climate Change and Natural Resources. The DPWM leads project implementation in partnership with three other Gambian NGOs - Sahel Wetlands Concern, West African Bird Study Association (WABSA), and Kombo Foni Forestry Association. The project collaborates closely with more than 60 communities adjacent to the mangrove areas who are also the key beneficiaries.

A Danish energy company, Ørsted Nature Based Solutions, is financing parts of the project and is responsible for the development of carbon certification and project documentation processes through the DPWM, which shall engage in programs and policies that will enable the development of a sustainable greener economy. As a carbon offsetting project, it is envisaged that emission reductions and removals generated based on mangrove restoration and conservation activities in the participating communities are closely monitored, verified, and reported through the Verified Carbon Standard Program. As such, part of the revenue from the carbon credits will be reinvested in climate and biodiversity initiatives in The Gambia to support local communities in sustainable development. So far, the project has planted at least 200 ha of mangroves. The estimated annual greenhouse gas emission reductions/removals of the project are 20,000 – 100,000 tCO_2e/year.

5.2.8 Enhancing Resilience of Vulnerable Coastal Areas and Communities to Climate Change in the Republic of Gambia (2013 – 2018)

The UNDP-supported GEF-financed project was implemented by the National Environment Agency with the main objective of reducing The Gambia's vulnerability to sea-level rise and associated impacts of climate change by improving coastal defenses and enhancing the adaptive capacities of coastal communities. The project was implemented in five areas - Kotu, Tanji, Bintang, Darsilami, and Tendaba (Sobey and Bah, 2018). The terminal project evaluation report revealed that successful mangrove

plantings were achieved at various sites, including eroded and bare tidal coast areas covering 1,197 ha (out of a target of 2,500 ha). At least 1,506 families directly benefitted from the project for their livelihoods, including fishermen and oyster collectors/cultivators, who have received direct project support in equipment, including 433 women.

5.3 Community-based Organizations Involved in Mangrove Co-management

5.3.1 All-Gambia Forestry Platform (AGFP)

The All-Gambia Forestry Platform is a national program designed to support the implementation of The Gambia's National Forestry Policy and Act of 1998. The platform helps to strengthen participatory community forestry management throughout the country, with a set target to register robust sustainable forestry management in all regions. In 2018, AGFP in collaboration with the communities of Niro Jataba in the Lower River Region and some members of cross-border associations, planted over 500,000 mangrove saplings, where the project is piloted. Nema-CHOSSO supported the project under the Ministry of Agriculture. The project targeted to restore 50 ha of land within four communities, three of which are in the West Coast Region and one in the Lower River Region.

5.3.2 Community Action Platform on Environment and Development (CAPED)

Community Action Platform on Environment and Development is a grassroots initiative in The Gambia by a group of people focused on restoring degraded mangroves and forest areas geared towards improving the livelihoods of communities, with a particular emphasis on youth. CAPED works closely with communities through coordinated actions. Since 2009, CAPED has planted up to 3 million mangrove propagules covering over 570 ha in 14 communities across five different regions in The Gambia: West Coast, Lower River, Kanifing Municipality, Upper River and Banjul.

5.3.3 West Africa Bird Study Association (WABSA)

The West Africa Bird Study Association, a charitable non-profit organization was established in April 1994 by a group of Gambian youth. WABSA's main objective is to support governmental and non-governmental agencies in their conservation efforts, including the conservation of bird species and the protection of the environment, which play a vital role in the country's sustainable development.

A key aspect of WABSA's strategic goals is to support the restoration of mangrove forests in The Gambia. The association has previously implemented a Global Environment Facility Small Grant Fund for the 'Restoration of Ecological Function and Environmental Services of Niumi National Park' project. WABSA has planted mangroves in partnership with several projects such as Nema CHOSSO, EbA, and other CBOs. WABSA has previously planted mangroves along Jokadou National Parks of Tambana and Karantaba wetland in the North Bank Region to help restore the biodiversity and ecosystems.

5.3.4 Kanifing Municipal Council

In 2022, the Kanifing Municipal Council through its Environmental Transformation Program in collaboration with the Bakau Environment Movement planted 5,000 mangrove propagules in Bakau Cape Point, as part of its fight against climate change in the country. The project intended to plant 190, 000 native tree species over three years to improve resilience, biodiversity, air quality, and local livelihoods. The tree planting exercise is achieved through a participatory process involving local stakeholders including local residents, AGFP, and youth groups interested in planting trees in the municipality.

5.3.5 TRY Oyster Women's Association

In 2012, the Gambia government approved an 'Oyster and Cockle Co-Management Plan' for the Tanbi Wetlands National Park, as a special management area. Exclusive use rights to oyster and cockle resources within the designated area and authority over resource management were delegated from the government to the TRY Oyster Women's Association (TRY). The ecological benefits of maintaining healthy and functional mangroves are fundamental in protecting important habitats of oysters and other shellfish, as well as mitigating climate change through carbon sequestration. Oyster harvesters have been trained on sustainable oyster harvesting techniques, which help preserve the mangroves.

For the conservation of the mangroves, the communities are mandated to undertake joint monitoring, control and surveillance activities within the Tanbi Wetland National Park with the Department of Parks and Wildlife Management and engage in mangrove reforestation activities in areas where mangroves are being depleted. This effort is complemented by TRY as well, as a key stakeholder. Since 2009, more than 33 hectares have been restored through the initiatives of TRY in partnership with NGOs and other actors.

TRY was established in 2007 as a non-profit association to bring together women oyster and cockle harvesters based in the Tanbi wetland area. It has a membership of over 500 oyster harvesters from about 15 villages. Before TRY, women harvesting activities happened with no coordination and there was no regulation to manage the extent of harvesting in the wetland, which threatened the ecosystem and the future livelihood of the women dependent on these ecosystems. The association gained traction as more women began to focus on securing their future rather than only considering what could be obtained from the ecosystem today.

Consensus on management measures to reduce the harvesting season from six months annually to only four (March to June) to allow for oyster growth and reproduction has been realized. The association has helped harvesters gain a collective voice when marketing, and the longer closed season has resulted in larger oysters that receive a higher market price. Improved oyster harvesting techniques, such as a shift from cutting the mangrove roots using machetes, to using small knives targeting only the oyster, have also reduced destruction. Interventions have promoted biodiversity

conservation through reduced destruction of mangrove forests from oyster harvesting and from unsustainable timber harvesting through value addition and income diversification. Through the association, many women shellfishers receive technical and material support for sustainable shellfisheries management, which includes the need to maintain a healthy mangrove ecosystem for better productivity of shellfishing activities.

TRY interventions focus on: (i) training women harvesters on better sanitation, ensuring women are able to sell their oysters at relatively better prices, and reduce the need to cut down the mangroves for firewood; (ii) collective savings to cushion women against economic vulnerabilities during closed seasons especially, and; (iii) awareness raising on the importance of the mangroves for the communities to motivate women to restore degraded areas and engage their communities in these efforts. The association in several instances also alerted government authorities on illegal mangrove cutting by commercial operators, facilitating government in its' enforcement role.

DISCUSSION

The multistakeholder review on mangrove conservation and restoration reveals that diverse perspectives and expertise can be integrated into planning, collaborative implementation, and monitoring of often complex mangrove restoration work. In the context of Ghana and The Gambia, this method can offer unique opportunities to address challenges on mangrove restoration and improving biodiversity. Reviews show that shared interest exists by stakeholders at different levels of community, government, NGOs, privates, research and academia, and international partners. The review involving stakeholder workshops in Ghana and The Gambia, was successful in identifying incentives, disincentives, priority actions, and the various stakeholder types' engagements in restoration work. It is clear that government mandate institutions in both Ghana and The Gambia face resource and capacity challenges and are open to apply collaborative and multi-sectoral approaches in implementing mangrove ecosystem work to achieve sustainability. Mangroves as forests fall under the authority of forestry departments. When they do not occupy large tracts of land, mangroves are often left as part of the wetland systems under fisheries, parks, or wildlife departments. The unclear sectoral affiliation requires multi-stakeholder engagements to enable mangroves to get the attention of forestry, parks and wildlife, or fisheries departments (Duguma et al. 2022).

The review has further drawn on mangrove restoration initiatives in both Ghana and The Gambia where co-management models show the value that can be realized when state and non-state actors work together (Carsan et al 2024; milestone six). Efforts have progressed extensively to initiate several mangrove related projects in both Ghana and The Gambia.

The promotion of the shellfish co-management in the Densu and Tanbi supported by the USAID Women Shellfishers and Food Security project has helped demonstrate how mangrove restoration

and conservation can uniquely be supported under a fisheries co-management plan previously not foreseen in typical forestry co-management models. Reviews have shown that promoting alternative livelihood options such as oyster harvesting, fisheries, and aquaculture, non-timber forest products, ecotourism, and development of proximate foods portfolios can help mitigate mangrove degradation (Duguma et al., 2022; Crawford et al. 2022). It is clear development of multi-stakeholder approaches for the Narkwa (Ghana) and Bulock (The Gambia) shellfisheries involving mangrove conservation and restoration could benefit from multi-stakeholder engagements. In these contexts and others, this approach offers unique opportunities to overcome local restoration and biodiversity management challenges such as:

i) Collaboration and resource sharing: Bringing together stakeholders with different expertise can lead to more effective restoration strategies and help in resource mobilization from multiple sources, including international donors, NGOs, and private companies.
ii) Community engagement: Engagement at the community level offers the opportunity to incorporate local knowledge and practices into restoration projects while promoting ownership and stewardship to ensure the sustainability of restoration efforts. The Ghanaian government has for instance shown commitment to environmental conservation through policies and programs that support mangrove restoration, such as the Community Resource Management Areas (CREMAs), that highlight the potential for community-driven restoration efforts. Providing alternative livelihoods for local communities, such as eco-tourism, sustainable fishing, and alternative food sources such as through the food portfolio approach is an important component of community engagement in conservation actions and can be delivered through a multi stakeholder approach.
iii) Policy support and advocacy: A multistakeholder approach can help influence and shape supportive policies for mangrove conservation and restoration. Collective voices can be more effective in advocating for environmental protection and sustainable development. The Gambia's National Forest Policy (2023 – 2032) for example seeks to, "*Promote an integrated approach to sustainable forest management through involvement of local councils, Civil Society Organizations (CSOs), women and youths as well as other non-state actors, and to harness indigenous knowledge for the purpose*".
iv) Monitoring and evaluation: Diverse stakeholders can contribute to more robust monitoring and evaluation frameworks and data sharing, ensuring better tracking of restoration progress and outcomes. Feedback from stakeholders can also allow for adaptive management practices, improving the effectiveness of restoration efforts.

Implementing multistakeholder approaches in mangrove conservation and restoration for biodiversity improvement is nonetheless fraught with some challenges such as:

i) complexity in managing diverse stakeholders with varying interest

ii) balancing stakeholder divergent goals such as conservation priorities versus economic development interests

ii) funding constraints, especially securing sustained funding for long-term restoration projects
iii) technical challenges given that mangrove ecosystems are complex - restoration requires careful planning and implementation to promote ecological balance - limited technical expertise and capacity in some regions can therefore be a barrier to effective restoration

CONCLUSIONS

A multistakeholder approach to mangrove restoration for improved biodiversity in Ghana and The Gambia presents significant opportunities for enhancing the effectiveness and sustainability of mangrove ecosystem conservation and restoration efforts. By leveraging on the strengths of diverse stakeholders to address the challenges collaboratively, it is possible to achieve successful and sustainable mangrove restoration outcomes. To be effective, the approach requires careful management and coordination.

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Annex 1: Speech by the Executive Director, Fisheries Commission, Ghana

On The Occasion of The Consultative Forum On Mangrove Management Held at The DAA Training Centre, Kokrobite

26TH JANUARY, 2023

Mr. Chairman, Our development partners, Niimei and Naamei, Chief Fishermen, Gallant Fishermen,

NAFPTA leaders and members, DAA Executives, Fellow Officers of the Fisheries Commission of the Ministry of Fisheries and Aquaculture Development and Fisheries Commission (MOFAD/FC), All other Fisheries stakeholders present, Our Friends from the Media, Distinguished Invited Guests,

Ladies and Gentlemen,

Indeed, it is deemed a great honor to be delivering a statement during this all-important meeting. Greetings to you all and congratulations to you, our Fishers. Fisheries stakeholders for working hard to provide fish and fishery products for the populace.

This consultative forum is to share experiences and help map stakeholder engaged in mangrove resource management in the country with particular focus in Narkwa and Densu estuaries is very much welcome.

Mr. Chairman, Ghana Government and myself are very appreciative to the US Government and the US PEOPLE for their efforts to help Ghana particularly efforts at restoring the Fisheries ecosystems leading to the restoration of its Fisheries resources.

We continue to say thank you to the USAID for providing funding for the project. Implementers namely University of Cape Coast (Ghana), Development Action Association (DAA), The World Agroforestry (ICRAF), Try Oysters Gambia, and University of Rhode Island (URI) focused in the Densu and Narkwa mangrove ecosystems may the living God see to your progress and welfare all the time.

Mr. Chairman, Today is another memorable day, As we gather at this forum to map stakeholders involved in mangrove restoration initiatives and associated biodiversity enterprise.

Ghana has been known to be among high consumers of fish globally; consuming about 25kg of fish per person annually, which represents almost twice the world average of 13kg per person annually.

If we consider one of the objectives like 'Share evidence and lessons from the Women Shellfishery & Food Security project', it can be appreciated that the whole USAID funded project will also bring increase in Fisheries production. This will help mitigate the dwindling fish stock problem. Mr. Chairman, distinguished Ladies and Gentlemen, the focus is so appropriate to bring to the fore the

importance of working together so that Fisheries and Fisheries ecosystems will be restored and thereby improve the small scale fisheries in these ecosystems.

The unique opportunity of enhancing efforts of feeding the populace of Ghana as well as your indispensable contribution towards poverty alleviation and wealth creation in terms of livelihoods, income and employment for coastal communities in Ghana need not be over-emphasized. Emphasis is being laid on your immense impact on the domestic economy. You also facilitate the achievement of aspects of the 17 Sustainable Development Goals of the United Nations like SDG 1and 2 and SDG14 which states that "there should be no POVERTY- SDG1 and Zero hunger -SDG2.

Mr. Chairman, Niimei, Naamei, our dear stakeholders and the Media and all well-meaning Ghanaians in the Fishing communities are to come on board and get committed to preserve this very important natural resource.

To conclude, Mr. Chairman, distinguished Ladies and Gentlemen, and our friends from the media, please permit me to thank each and every one of you, especially the project funding source and implementers, Niimei and Naamei, the MOFAD/ Fisheries Commission, our Chief Fishermen, community leaders, fishers. NAFPTA leaders and executives of various groupings who have graced today's forum.

We all have to continue to uphold the policy of co-managing the Fisheries Resource.

Thank you all.

Madam Hannah Agyei, Regional Director for The Executive Director, Fisheries Commission

Annex 2 Statement by Principal Climate Change Officer, MECCNAR, The Gambia

Mr. Modou Chan on behalf of the PS, MECCNAR

Ladies and gentlemen,

It is my pleasure to be part of this stakeholders forum to foster integrated approaches to mangrove conservation and restoration through co-management approach

Mangroves are one of the most important vegetation types in our coastal areas. They provide numerous ecosystem services, including wood, edible products (fish, oyster, etc.), coastal area stabilization, and many more. They also support lives and livelihoods of thousands who are dependent on them.

Ladies and gentlemen,

Despite these immense contributions, mangrove forests are being degraded and converted into private land uses that seem more attractive economically in The Gambia. In several cases, the ecosystems are degraded due to the increased extraction and pollution from waste dumping. Four critical drivers and threats have been identified: population dynamics, economic activities, natural factors, and sporadic seasonal drivers.

Opportunities to improve biodiversity conservation will remain unrealized without a systematic, integrated approach that can potentially provide significant cross-sectoral benefits, namely women shellfishery food security, more resilient livelihoods, reduced risks from climate change and disasters, enhanced ecosystem services, and gender equality and empowerment. This opportunity has been largely unrecognized by conservation and development communities.

The Women Shellfishery and Food Security Project, Implemented by Try Oysters and the World Agroforestry (ICRAF), University of Rhode Island, University of Cape Coast (Ghana) in collaboration with Ministries of Environment and Fisheries, Parks and Wildlife in the Gambia and funded by USAID is therefore very timely.

We indeed all have a shared goal to foster the adoption and scaling-up of an integrated approach to conservation of mangrove and estuarine ecosystems in the Gambia, that provides cross-sectoral benefits in terms of gender equality and women's empowerment, economic development, household food resiliency and nutritional benefits for women of reproductive age.

With these few remarks, I wish to take this opportunity to wish you all fruitful deliberations and look forward to learning more on the outcomes of this very important forum not only to the Gambia but also to the region who share declining and now critical mangrove resource.

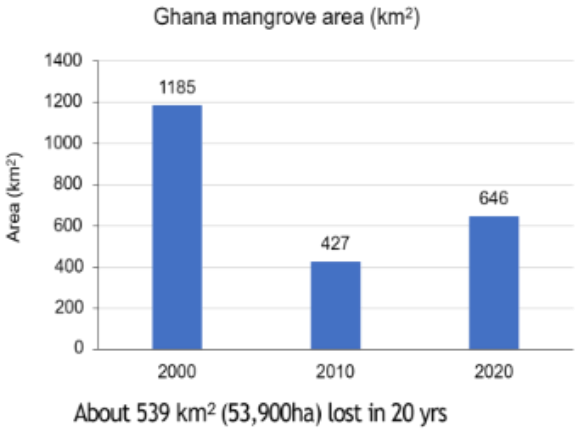
Annex 3 Media Article on the Stakeholder Form

Media article on the Stakeholder forum

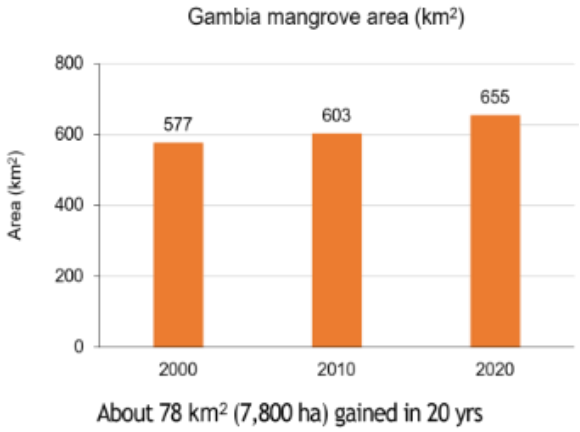
Madiba Singhateh. Forum On Co-management Of Mangroves for Women Shell-Fishers Held.

January 25, 2023. Link: https://foroyaa.net/forum-on-co-management-of-mangroves-for-women-shell-fishers-held/

Annex 4 Mangrove Land Use and Land Cover Changes Between 2000-2020: Ghana and The Gambia



About 539 km² (53,900ha) lost in 20 yrs



About 78 km² (7,800 ha) gained in 20 yrs