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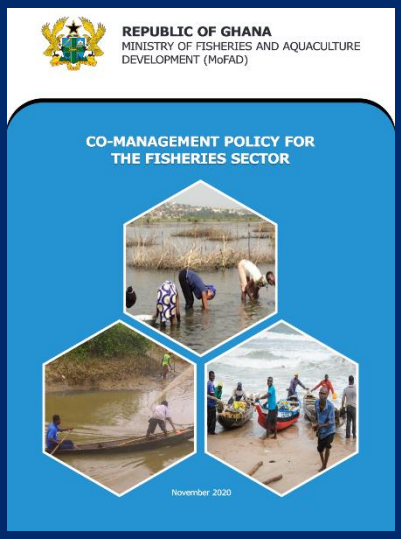

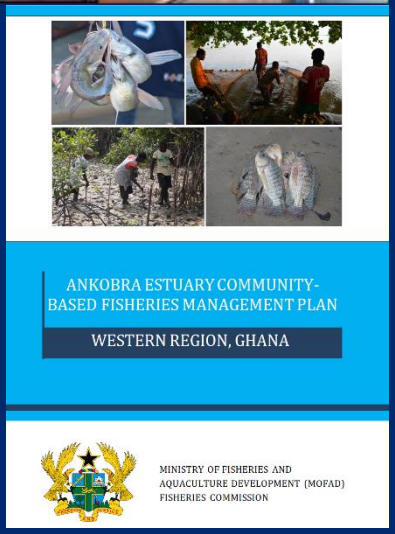

Lessons Learned: 2014 – 2021

Volume 1

THE UNIVERSITY OF RHODE ISLAND GRADUATE SCHOOL OF OCEANOGRAPHY | CRC COASTAL RESOURCES CENTER

Hɛn Mpoano

SNV SMART DEVELOPMENT WORKS

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Citation: Coastal Resources Center. (2021). Lessons Learned: 2014- 2021 Volume 1. USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_PGM354_CRC. 83 pp.

Authority/Disclaimer:

Prepared for USAID/Ghana under Cooperative Agreement (AID-641-A-15-00001), awarded on October 22, 2014 to the University of Rhode Island, and entitled the USAID/Ghana Sustainable Fisheries Management Project (SFMP).

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 SFMP 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 SFMP team and do not necessarily reflect the views of USAID or the United States Government.

Cover photos:

Co-Management Policy for the Fisheries Sector (MOFAD); Fisheries officer from Apam entering data on smartphone with two fishermen (Najih Lazar); Landing beach in Apam, Ghana (Najih Lazar); Joint CBFM committee members pledging their support for the co-management initiative (Credit: Socrates Apetorgbor); Ankobra Estuary Community-Based Fisheries Management Plan, Western Region, Ghana (MOFAD).

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Hen Mpoano	https://www.henmpoano.org
Resonance Global	https://resonanceglobal.com/
SNV	https://snv.org/usa

ACRONYMS

ACECoR	African Center of Excellence Program
AOR	Administrative Officer Representative
CDA	Coastal Development Authority
CEWEFIA	Central and Western Region Fishmongers Improvement Association
CIC	Canoe Identification Card
CLaT	Child Labor and Trafficking
COVID-19	Coronavirus Disease 2019
CRC	Coastal Resources Center
CSIR	Council for Scientific and Industrial Research
CSO	Civil Society Organization
DAA	Development Action Association
DCPC	District Child Protection Committee
DFAS	Department of Fisheries and Aquatic Sciences
DOPA	Densu Oyster Pickers Association
FAO	Food and Agricultural Organization of the United Nations
FC	Fisheries Commission
FDA	Food and Drugs Authority
FEU	Fisheries Enforcement Unit
FON	Friends of the Nation
FSSD	Fisheries Statistical Survey Division
FTT	FAO Thiaroye Processing Technique
FWV	Fisheries Watch Volunteers
GHS	Ghana Cedis
GIFA	Ghana Inshore Fishermen's Association
GITA	Ghana Industrial Trawlers Association
GIS	Geographic Information System
GNCFC	Ghana National Canoe Fishermen’s Council
GOG	Government of Ghana
GPS	Geographic Positioning System
HFIAS	Household Food Insecurity and Access Score
HM	Hen Mpoano
ICFG	USAID/Ghana’s Integrated Coastal and Fisheries Governance Project
IEC	Information, Education and Communication
IR	Intermediate Results
IUU	Illegal Unreported Unregulated
LABEC	Landing Beach Enforcement Committee
LEAP	Livelihood Empowerment Against Poverty
MASLOC	Microfinance and Small Loans Center
MDDS-W	Minimum Dietary Diversity for Women Score

MMDA	Metropolitan, Municipal and District Assemblies
MOFAD	Ministry of Fisheries and Aquaculture Development
MOGCSP	Ministry of Gender, Children and Social Protection
MOH	Ministry of Health
MOI	Ministry of Information
MPU	Marine Police Unit
MSMEs	Micro, Small and Medium-scale Enterprises
MTDP	Medium Term Development Plan
NAFAG	National Fisheries Association of Ghana
NAFPTA	National Fish Processors and Traders Association
NCCE	National Commission for Civic Education
NDPC	National Development Planning Commission
NGO	Non-Governmental Organization
NICFC	National Inland Canoe Fishermen's Council
NTS	National Targeting System
OCA	Organizational Capacity Assessment
PAHs	Polycyclic Aromatic Hydrocarbons
PHE	Population Health Environment
PPI	Poverty Probability Index
SBCC	Social and Behavior Change Communication
SFMP	Sustainable Fisheries Management Program
SNV	Netherlands Development Organization
STWG	Scientific and Technical Working Group
UAV	Unmanned Aerial Vehicle
UCC	University of Cape Coast
URI	University of Rhode Island
USAID	United States Agency for International Development
VPF	Virtual Platform for Fishers
VSLAs	Village Savings and Loans Associations
WARFP	West Africa Regional Fisheries Development Program

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LESSONS LEARNED AND THE LEGACY COLLECTION OF DOCUMENTS FROM THE USAID GHANA SUSTAINABLE FISHERIES MANAGEMENT PROJECT

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This report, referred to as "Legacy Set Document", is a collection of relevant policy and management documents and short essays on thematic areas/issues covered during the implementation of the USAID/Ghana Sustainable Fisheries Management Project (SFMP). The short essays describe the context at the start of the project, the project implementation approach, results, accomplishments, lessons learned and recommendations for the way forward. The report is organized into three Volumes. Volume 1 covers; legal and policy reform; co-management and constituencies; science for management and institutional strengthening. Volume 2 covers; post-harvest improvements; gender mainstreaming, and; combatting child labor and trafficking. Volume 3 covers additional work carried out in 2020 and 2021, under the SFMP COVID-19 Response to prevent infection and spread of the disease as well as mitigate the adverse socioeconomic effects of the pandemic on vulnerable households in fishing communities in Ghana.

INTRODUCTION

The goal of the five-year USAID/Ghana Sustainable Fisheries Management Project (SFMP) was to contribute to rebuilding of Ghana's important marine fish stocks through adoption of responsible fishing practices. The project contributed to the U.S. Government's Feed the Future Initiative (see Fisheries and Food Security Brief) and the Government of Ghana's fisheries development objectives. Funded by USAID/Ghana with matching support from the University of Rhode Island and other implementing partners, the inception of the project in October 2014, coincided with the implementation of a regional investment initiative in the fisheries sector by the World Bank of which Ghana was one of the beneficiary countries, the West Africa Regional Fisheries Program (WARFP). SFMP started just as Ghana's National Fisheries Management Plan (included in this legacy document collection) was being revised for adoption and implementation. The efforts of the project generated intense spotlight on the multiple challenges facing fisheries governance in Ghana and advocated for sustainability principles to be included in the National Fisheries Management Plan. The project was given a no-cost extension from the original completion date of October 2019 to September 2020, and further extended to April 2021 with a supplemental budget to address COVID-19 related challenges within the marine fisheries sector, following the outbreak of the disease in Ghana.

The SFMP was led by the University of Rhode Island's Coastal Resources Center at the Graduate School of Oceanography (CRC/URI), leveraging its experiences in the successful stewardship of a previous project, USAID/Ghana's Integrated Coastal and Fisheries

Governance Project (ICFG Lessons Learned, 2013) which focused on both fisheries and coastal management concerns in the Western Region of Ghana from 2009 to 2014.

The SFMP worked with a number of international and local implementing partners that were sub-recipients under the CRC/URI led banner. These included: Hen Mpoano and Friends of the Nation, both local advocacy and environmental Non-Governmental Organizations; Development Action Association and the Central and Western Region Fishmongers Improvement Association, both of which are membership based Civil Society Organizations focusing on capacity development for women fish processors and traders, and farmers; Daasgift Quality Foundation, a micro-finance NGO serving mostly a clientele of women in the Western Region, Spatial Solutions, a local consulting firm involved in coastal spatial planning; and two international groups – Resonance which led the public-private partnership activities focused on demonstrating mobile phone-based micro-insurance and savings plans in Ghana, and SNV Netherlands Development Organisation which supported post-harvest improvement, capacity development and gender mainstreaming strategies. For the COVID initiative, the University of Cape Coast's Centre for Coastal Management was added as an additional sub-recipient for assistance on monitoring and evaluation.

The SFMP team was committed to making the results of its efforts available to the public, by publishing plans and policies, technical studies and reports on the implementation of the project at several online sites and electronic platforms including: The CRC webpage for the SFMP, Ghanalinks, and The USAID Development Experience Clearinghouse.

An online SFMP Activity Tracker was created linking together the key SFMP thematic areas and related project activities, their location along the coast of Ghana, information on performance indicators, the extent to which project targets have been met and links to key documents, providing additional details on project activities and outcomes. The Activity Tracker serves as a useful tool for quickly accessing specific information about the project now, and in the future. The SFMP Activity Tracker is being upgraded into a Mapper to integrate spatial information on all SFMP COVID Response activities in addition to spatial information on all key original SFMP activities.

Finally, three video documentaries were produced that summarize SFMP accomplishments, lessons learned and the way forward for the marine artisanal fisheries sector in Ghana. These video documentaries which cover the same topics as the three volumes contained in this legacy set can be found on the CRC YouTube channel (https://www.youtube.com/user/URICRC).

Many members of the ICFG team transitioned to the SFMP project, building on their previous experiences with the Coastal Resources Center which places a strong emphasis on documentation and learning from experiences through an action-oriented learning approach. Good documentation provided a solid foundation and facilitated cross portfolio learning and knowledge sharing. Eighty-six documents were completed and posted online at the CRC ICFG Project webpage. The same philosophy of placing importance on documentation, learning and knowledge sharing was adopted in the implementation of the SFMP as evidenced by this legacy set document and associated outreach materials on the SFMP. The project implementation approach is based on the philosophy and perspective that building from past experiences has higher inclination towards avoidance and duplication of the same missteps, failures, and mistakes, and increases the potential of achieving desired outcomes, and subsequently advancing lessons captured and knowledge sharing.

In January of 2021, USAID/ Ghana requested proposals for a new project --- Feed The Future Ghana Fisheries Recovery Activity (GFRA) --- "to mitigate the near-collapse of the small

pelagic fisheries sector in Ghana and establish a durable basis for its recovery." It builds directly on the SFMP, noting that the

> "SFMP helped the Government of Ghana to implement its first fishing closed season, which reduced fishing efforts significantly and tested the conditions for future efforts to more closely align a closed season with the peak spawning period. USAID/Ghana helped to achieve the closed season by encouraging fisher-to-fisher dialogue (a platform to engage fishers and regulators to discuss sector issues); and collaboration with academia, civil society organizations, and industry to develop scientific evidence for MOFAD's decision-making. SFMP contributed to the National Fisheries Co-management Policy, introduced a canoe registry and identification cards, and piloted post-harvest value chain technologies to improve the hygienic processing and trading of fish. (GFRA Statement of Objectives)"

The specific lessons learned that could influence the design and implementation of future projects, just as ICFG provided inputs towards the design and implementation of the SFMP are as follows:

Understanding governance structures and building interlinkages and networks

The SFMP aligned with and, to the extent possible, integrated project support with the priorities and functions of the Ministry of Fisheries and Aquaculture Development and the Fisheries Commission, the institutions with the mandate to manage the fisheries resources. The primary activity of SFMP's engagements in this process was support for implementation of the National Marine Fisheries Management Plan. In addition, the SFMP opened new approaches for working with national fisheries membership organizations and associations representing the entire fisheries resource value chain including: The Ghana Industrial Trawlers Association (GITA), Ghana National Canoe Fishermen's Council (GNCFC), the National Fish Processors and Traders Association (NAFPTA), and the Ghana Inshore Fisheries Association.

Developing leadership and a shared vision

SFMP supported international study tours to the Philippines, Senegal, Gambia, Benin and the US for leaders and key players within the fisheries sector for them to see successful examples of fisheries management and value chain improvements, and to facilitate dialogue and adoption of improved management interventions within the fisheries sector in Ghana. The SFMP conducted regular fisheries leadership workshops, provided organizational capacity assessments for its implementing partners, national fisheries groups and the Fisheries Commission. Stakeholder events involving thousands of fishers and post-harvest workers were hosted or co-led by local or national organization leaders trained by SFMP.

Building greater capacity to facilitate stakeholder engagement in planning, policy, conflict resolution, and mediation

SFMP created and sustained support for the Fisheries Commission to formulate and carry out greater public engagement related to revision of fisheries policy and regulations. The strategic approach was to consciously model these engagements in the form that co-management was envisioned to be implemented following approval of the national co-management policy (drafted with assistance from SFMP). In this way, stakeholders; resource users and managers were involved in an action-oriented co-management learning process, focusing on such topics as; implementation of the national fisheries management plan,

amendments to the National Fisheries Act, gender mainstreaming, anti-child labor and trafficking, and fisheries co-management.

As ground-level demonstration efforts began to yield results, and policy and legal reform efforts progressed, SFMP worked with MOFAD and the Fisheries Commission to intensity outreach and communications activities in support of policy reform efforts. Staff were enlisted to write articles for publication in various media, television, and national and local media outlets. SFMP supported regular 'media soirees' (all day discussion meetings) in which Fisheries Commission and MOFAD staff met directly with the media to highlight and explain the importance of various issues within the marine fisheries sector. To support this effort, SFMP engaged a media relations specialist with deep knowledge of how editors and journalist chose stories to follow and publish and hired a media tracking firm to provide real time feedback on whether messages were reaching intended audiences. As these activities progressed, MOFAD and the Fisheries Commission took over leadership of media outreach.

An integrated program of capacity building and field visits were carried out with stakeholders in several pilot community-based management communities. These programs included leadership training, conflict resolution, formation of village savings and loans associations, small business development and accounting. Cross-site field visits enabled community members from different sites to share their experiences to enhance further capacity building.

Developing a knowledge base of ecosystem dynamics and routinely assessing associated changes

The project recognized the centrality of trust and science-based discourse on successful management interventions in order to limit the adverse impacts of the existing polarizing dialogue within the political realm. The SFMP-supported the setting up of the Science and Technical Working Group (STWG). The STWG subsequently provided leadership, advise and expert opinion on a number of issues in connection with application of science and research to policy and management, captured under the SFMP Intermediate Result 2. In the implementation of policy and legal reform initiatives such as the closed season and registration of all artisanal vessels with the intention of transitioning from an open access resource regime to regulated access, the STWG was the most cited and trusted source of information supporting these actions. SFMP developed the capacity of the Fisheries Scientific Survey Division (FSSD) to conduct its own stock assessments for the small pelagic fishery and also supported efforts by partners to prepare scientifically sound fisheries co-management plans for the Densu, Ankobra and Pra River estuaries. In the Densu estuary, local women from the Densu Oyster Pickers Association (DOPA) were assisted in the recording and collection of ecological and scientific data including pH, turbidity, salinity, and other pieces of information that informed improved management decision making and interventions.

Using effective monitoring and evaluation strategies

Results-oriented program management strategies supported by a robust monitoring and evaluation system was a core element of the SFMP design. Stemming from the theory of change in the project proposal, the use of Feed the Future standardized and custom indicators formed the basis of a Monitoring, Evaluation, and Learning Plan. The staff of SFMP conducted research to establish baseline conditions for fisheries as well as social and economic parameters in fishing communities, tracked stakeholder engagement and participation, conducted regular performance and impact assessments of project activities, deployed new technologies such as use of tablets and cloud databases for data consolidation and analysis, and piloted the use of unmanned aerial drones for documenting and assessing

changes in bio-physical and human settlement conditions in coastal landscapes and ecosystems. Monitoring and evaluation results were regularly compared with resource expenditures to ensure that financial and asset resources were deployed in a way that ensured achievement of desired outcomes.

A Strategic Approach to Build on Emerging Opportunities

The call for proposals for USAID's Ghana Fisheries Recovery Activity (GFRA) released in early 2021 set out five objectives that draw in large part upon the most promising approaches and advances made during the SFMP, seeking to "establish a durable basis for its recovery" given that "fish provides 60% of animal protein in the diets of coastal and far inland communities." (GFRA Attachment J-1, P.1)

The GFRA sets out five inter-related objectives:

- Align fisheries capacity with ecological carrying capacity of the small pelagic fisheries while enhancing the socio-economic well-being and resilience of artisanal fisherfolk.
- Increase the quality and value of artisanal fishers' products in order to better maintain household income and enhance availability of nutritious foods for local and regional markets.
- Strengthen transparency, accountability and co-management in government practices for fisheries policy-making, regulation, and enforcement.
- Strengthen constituencies to promote and implement sustainable fisheries management.
- Improve use of science and research for policy and management decisions.

The problems and their consequences described above are known by government and fisherfolk. The opportunities and a roadmap to recovery for stock rebuilding and economic recovery have been articulated recently in the Communique of the 2nd National Conference on Fisheries Management Conference in 2019, and are addressed to some extent in the previous Fisheries Management Plan (2015-2019) and current draft (April, 2021) National Marine Fisheries Management Plan. The recent approval of the Co-Management Policy for the Fisheries Sector offers hope that improved participatory governance can be achieved and institutionalized through formal co-management structures and institutions. The approved Co-Management Policy is applicable to the small pelagic fishery and provides for the establishment of an institutional framework for effective stakeholder participation in fisheries management decision-making. It builds on successful local community-based management experiences in the Pra, Ankobra and Densu estuaries.

When the new USAID Ghana Fisheries Recovery Activity gets started, a suggested strategic approach should focus on the implementation of recently adopted policies and plans of the Ministry of Fisheries and Aquaculture Development (MOFAD) and the Fisheries Commission (FC), especially the National Co-management Policy, and the draft National Marine Fisheries Management Plan (NMFMP). Those aspects related to the small pelagic stocks, the canoe fishery, and the cessation of trawler fleet incursions into areas exclusively reserved for the small pelagic fishery are especially important. The draft NMFMP is likely to be approved as policy on or about the planned start of the GFRA in 2021. The 2021-2025 plan includes an integrated set of actions emphasized during the SFMP such as a closed season on all fleets, a cap on the number of canoes, and reducing IUU fishing. The Fisheries Commission will need to promote development of alternative livelihoods for fisherfolk, and post-harvest improvements to relieve the social and economic effects of fishing restrictions as well as to create a sustained constituency to support better management towards realization of

the objectives in the GFRA. In addition, The Gender Mainstreaming and Anti-Child Labor and Trafficking (CLaT) strategies for the fisheries sector, developed through past USAID sector investments by the SFMP, also need better implementation to counter child labor and human trafficking in the sector and broaden the constituency for reform.

A focus on implementation of existing laws and policies will need to be accompanied by additional management measures to address existing gaps and ways to reduce barriers to action. For instance, even if the NMFMP is fully implemented, its outputs and or impacts may not be sufficient for full stock recovery. The 2021 draft plan still does not address canoe fleet reduction or input subsidies. While the efforts of SFMP on the legal reform front did not produce a new Fisheries Act as result inertia and inability of the Ministry to secure the necessary Cabinet approval, the project facilitated a comprehensive review of the existing Fisheries Act through extensive stakeholder engagement processes. The development of a new Fisheries Act therefore remains an outstanding issue to be taken up by a new project if there is expressed interest from the Ministry of Fisheries and Aquaculture Development (MOFAD) and the window of opportunity exists to do so. In this regard, the GFRA can educate stakeholders and increase awareness to facilitate demand for action.

Policy reform will be needed to address the persistent problem of political influence within the fisheries sector which compromises enforcement, compliance and prosecution of illegal fishing activities, both within the industrial trawl fishery sub sector with emphasis on the "saiko" problem, and illegal fishing practices in the artisanal fleet, particularly, the illegal use of light for fishing and fine mesh nets that have driven the small pelagic fishery to collapse. These issues are very difficult and challenging to address and require more than simple technical fixes. Behavior change by fishery stakeholder institutions and individuals is essential for a durable basis for recovery leading to long-term socio-economic improvements associated with a healthy and sustainable fishery, anchored on local ownership of initiatives.

An adaptive management approach that carefully prioritizes areas of action in the context of the problems in each fisheries sub sector stands the best chance of leveraging the transformational change in institutional and individual behaviors, and enabling environment needed for fishery recovery. The choice of actions must take into account the issues within the Fishery Commission's area of control and influence as well as the strategies, capacity and capabilities of projects carried out under the USAID Global Food Security Strategy Country Plan for Ghana, the Ghana Country Development Cooperation Strategy, and other relevant US Government policies on biodiversity, as well as the policies and projects under other development partners including the World Bank, the European Union etc.

THE SFMP LEGACY DOCUMENT COLLECTION

A detailed record of the unfolding of the SFMP over the 26 quarters of its implementation is available on CRC's SFMP webpage through quarterly and annual reports that highlight accomplishments, challenges and adjustments over the course of each project year since 2014. These reports capture both daily management issues of the project, and the annual review and project work plan preparation cycles. The executive summaries of the annual reports provide the best chronological overview of the project process in terms of the four main intermediate results areas (policy, science, communications, and applied management) and the three cross-cutting results areas (gender, public-private partnerships, and capacity development). The narratives on the complexity of the project reveals how many of the challenges encountered in the first two years of project implementation were resolved.

The aim of this Legacy Document Collection (lessons learned essays) and a hyperlinks to a collection of key SFMP reports is to highlight some of the most important lessons and

accomplishments organized loosely around project intermediate results (IRs) areas. Most of the documents provided as links in the essays and in this introduction give more context and background to the specific work and were chosen because they represented key actions, insights, scientific findings, results or unique approaches adopted by the SFMP to accomplish, and in some cases, exceed project targets, objectives and outcomes. In its simplest form, the SFMP project implemented activities to strengthen the legal and policy enabling conditions (IR1), develop the scientific basis for decision-making (IR 2) and built constituencies (IR 3), to facilitate and create broad-based support for more effective and sustainable fisheries management. Central to the success of the project was the application of improved fisheries management and post-harvest value chain improvement initiatives (IR 4) in a way that demonstrated tangible and sustained benefits from the adoption of better fishing practices that can translate into recovery of fish stocks, increased yields, and increased household income in fishing communities. The ongoing efforts of the Fisheries Commission have been enhanced by expanding the role of women in policy advocacy and value chain improvements (IR 5), the creation of public-private partnerships (IR 6), a previously missing element in fisheries improvement initiatives, and addressing the need for individual and organizational capacity building (IR7), accomplished partly through collaboration with the University of Cape Coast. The final 11 months of the project focused on the COVID-19 interventions which sought to prevent infection and spread of the virus among fishers and also piloted Economic Safety Net Assistance to poor and vulnerable fisheries dependent households and diversification of livelihood options for fishing households.

Throughout the implementation of the USAID/Ghana Sustainable Fisheries Management Project (2014 to 2021) a variety of information, education and communication materials were produced. A Compilation of USAID/Ghana Sustainable Fisheries Management Project Success Stories: 2014- 2021 captures 43 "success stories" and "Telling Our Story" materials submitted to USAID as part of quarterly and annual reports as well as on topics of special interest. These stories are organized by the key themes of the project, as described in detail in this Lessons Learned report.

LEGACY THEMATIC AREAS

The thematic areas in the legacy set do not exactly match the USAID theory of change intermediate result area constructs but reflect key highlights of the project implementation and achievements. While these thematic areas do not necessarily represent all the details of activities carried out by SFMP over its seven-year implementation period, they focus on what the project team, stakeholders and executive editors considered as important within the context of the existing situation. Where possible, recommendations were made at the end of each essay with some suggestions of the way forward for Ghana post-SFMP and could guide the choice of operational actions and decisions under the Ghana Fisheries Recovery Activity (GFRA). These thematic areas are summarized below.

Legal and Policy Reform

The SFMP supported the Ministry and the Fisheries Commission on several fronts and levels to improve the legal and policy environment. Although not all of the activities on the legal and policy reform front translated into concrete results, enough momentum was generated for continued impact that can translate into improved fisheries management in the future, well after the project ends. Several activities including a study tour to the Philippines served as an eye opener for policy makers who were introduced to the practical realities of delegating fisheries management to municipalities, public-private partnerships and the value of information technology to management and value-chain enhancement (Study Tour to the

Philippines). A policy review was conducted on the adverse effects of fuel subsidies on over-exploitation of Ghana fish stocks that included an assessment of potentially beneficial alternatives to aiding the fisheries sector (Subsidies in Ghana's Marine Artisanal Fisheries Sector). Support was provided to advance the preparation of a new Fisheries Management Legislation, and training programs offered to improve the competence of fisheries law enforcement agents (Selection of Key Competencies for a Ghana Marine Police Fisheries Law Enforcement Induction Curriculum). The SFMP also helped design and initiated a pilot Fisheries Watch Volunteer program for a number of coastal communities including training (FWC Volunteer Training Manual, Supporting the Fisheries Commission's Community Watchdog Committees: Design Document). However, this initiative faced a number of challenges during the official program launch and the effort was suspended. The Fisheries Watch Volunteer program has been reactivated under the EU supported 'Sustaining Fisheries Livelihoods' (*Far Dwuma Nkodo* or *FDN*), and now called Landing Beach Enforcement Committee (LaBEC). Updates on this activity is included in the legacy collection. The SFMP also helped the Fisheries Commission to complete the process of registering marine artisanal fishing canoes (Canoes Authorization Cards and Control of New Entrants of Canoes[now called Canoe Identification Cards]). The SFMP in collaboration with the Fisheries Commission has developed an application (software) to link the Canoe Identification Card (CIC) with the Canoe Register to facilitate various management functions including Monitoring, Control and Surveillance (MCS) activities and the sales and distribution of subsidized fuel through an interface (module) provided for access by the National Premix Committee to reduce corruption and slippage in the system. The Fisheries Commission with support from Government has extended the CIC program to the freshwater fisheries in the Volta Lake region. The SFMP has so far supported the printing of 10,000 cards with embedded Quick Response (QR) codes that can be read in the field by authorized enforcement personnel using the application developed with support of the SFMP.

The Fisheries Commission "Board" consists of a body of individuals that represent government agencies and fishing industry stakeholders that can be considered a form of a national co-management institution as it has the power and authority to make decisions on fisheries access and use, as well as determine management measures necessary to achieve national fisheries policy objectives. The Fisheries Commission has started implementation of the National Policy Framework on Fisheries Co-Management prepared with the assistance of the SFMP as one of its major policy instruments, setting the stage for approval of the first three co-management plans for coastal estuaries, as described in the next section. The Policy Framework provides for some delegation of authority to resource users and other stakeholders in the decision-making processes. There is no unique or specific right way for implementing co-management policies and the approach taken in Ghana considers the unique ecological, socio-economic and cultural characteristics of the fisheries industry. This Policy also provides an overview of Ghana's experience to date and lessons learned concerning fisheries co-management including assessment of the current policy and legal regime. It lays out the definition for co-management, the policy goal and objectives as well as the guiding principles for the Policy and its implementation. The Policy further provides the implementation arrangements including institutional roles and responsibilities to ensure a flexible framework, that can be adapted to suit the co-management system required, based on the unique nature of the various fisheries under the nation's jurisdiction.

Co-Management and Constituencies

In addition to publishing an edited and illustrated version of the National Fisheries Management Plan of Ghana to encourage broader readership and support, the SFMP aided

the Fisheries Commission in elaborating a fisheries co-management policy (mentioned above) that simultaneously provided the framework for SFMP partners Hen Mpoano, Friends of the Nation and the Development Action Association (DAA) to work with local stakeholders to formulate Ghana's second generation of coastal fisheries co-management pilots plans in the Pra and Ankobra rivers and Densu estuaries. One high point in the efforts of SFMP partners to engage fisheries stakeholders was the series of Fisher-to-Fisher dialogues (Fishermen to Fishermen Dialogues Supporting the Directive Actions of the National Fisheries Management Plan) led by the Ghana National Canoe Fishermen Council. Other important elements contributing to advances in fishery policies are the role of traditional leaders in fisheries governance (Uplifting the Role of Traditional Authorities in Fisheries Governance), working with the media (Media Outreach Event), addressing the broader concern of Illegal, Unreported and Unregulated fishing (IUU) (Lessons Learned Report on IUU Video Screening). Towards the final stage of the project, the first closed season for the small pelagics fishery was instituted by MOFAD in 2019, backed by information and proposals from the SFMP (Closed Season Brief). A proposed closed season in 2020 was suspended due to COVID-19 with expressions to reactivate this measure once the pandemic has ended.

Ghana's Fisheries Commission approved the first three local fisheries co-management plans in 2020. The efforts leading to the development of these Community Based Fisheries Management Plans provided learning experience for community participants, Fisheries Commission staff and the local partners who carried out technical work and guided these unique local plans. The approved plans provide for the first time in Ghana, use rights for specific fisheries in delineated geographic areas to local associations of fisherfolks.

The Ankobra Estuary Community-Based Fisheries Management Plan, Western Region, Ghana was prepared with the guidance of Hen Mpoano, a non-governmental organization based in Takoradi. The objective of this community-based fisheries management plan is to ensure sustainable management of the Ankobra River Estuarine fishery for improved food security and livelihood benefits, especially for participating estuarine fishing communities as well as those involved in the fishery value chain.

The Pra Estuary Community-Based Fisheries Management Plan, Western Region, Ghana was guided by the Friends of the Nation. This co-management plan is designed for management of the fishery in the Pra Estuary located in the Shama District of the Western Region of Ghana. The Pra estuary is approximately 100m wide at the point of entry into the sea and is an area of high landscape value covering a biologically rich and diverse ecosystem comprising mangrove forests, salt marshes and swamps. It falls within the geographic space lying to the South-South East border of Shama District.

The Densu Estuary Community-Based Fisheries Management Plan, Greater Accra Region, Ghana is a community-based Oyster Fishery Management Plan for the Densu Delta, guided by the Development Action Association along with help from the University of Cape Coast. It builds on the best practices and lessons learned from the 10-day Regional Study Tour on Women's Empowerment and Post-Harvest Improvements in the Gambia and Senegal in 2016 involving 11 members of five women-led Civil Society Organizations (CSOs) and the Fisheries Commission and supported by the Sustainable Fisheries Management Project (SFMP). The successes of TRY Oyster Group, a peer woman-based organization in the Gambia that developed successful community-based strategies for sustainable oyster and cockle fisheries management and value chain improvements, led to a realization that similar management practices could be implemented for the oyster fishery in the Densu estuary. The Densu estuary was designated as a RAMSAR site in 1992, recognizing it as a protected

wetland of international importance under the International Convention on Wetlands. A management plan for the estuary was developed in 1999 but did not make reference to oyster harvesting activities. The objective of this Community-Based Management Plan is to ensure sustainable management of the Densu oyster fishery for improved food security and other benefits, especially for women oyster harvesters and other participating estuarine communities who depend on this fishery resource for their livelihood. Unique to this plan and fishery is that it is predominantly women harvesters, and the Densu Oyster Pickers Association have been provided use rights to this fishery representing a great leap forward for empowering women in resource management.

Science for Management

SFMP drew upon its Science and Technical Working Group and collaboration with the Fisheries Scientific Survey Division (FSSD) to build Ghana's capacity for conducting fish stock assessments and improved data collection methods (Baseline Assessment of the Demersal Fish Stocks of the Western Region, Training Course Curriculum on Fish Stock Assessment Methods, Terms of Reference: Science and Technical Working Group). The project supported documentation and a specific analysis of the current crisis in the small pelagics fishery (Status of the small pelagic fish stocks in Ghana and recommendations to achieve sustainable fishing) and provided recommendations for using measures such as closed seasons for fishing to rebuild the collapsed fish stocks (Rebuilding Depleted Small Pelagic Fish Stocks in Ghana: A Closed Fishing Season Proposal). The SFMP sponsored international peer-reviews of previous stock assessment studies and updated its approach and applied standard fish stock modeling approaches to new data as it was released by the FSSD. The SFMP field tested and introduced digital approaches (tablet and computer-based survey techniques) that allowed scientists to remotely check the work of data collectors in real time via frequent cellphone-based data transfers that cut the time from data collection to analysis several fold. Additional scientific contributions included the project's social and economic baseline data (Report on the Baseline Survey of Small Pelagic Fishing Households along the Ghana Coast), plans to improve resilience of coastal settlements at risk from coastal erosion, flooding and storm events (Resilience Planning Workshop for the Pra Estuary) and the improvements made to the land use planning and environmental data analysis center in the Central Region (A Planner's Guide to Integrated Coastal Management in the Central Region, Advanced Training in the Application of GIS) through refurbishment and upgrade of the Land Use and Spatial Planning Authority mapping facility for the Central Region in Cape Coast, and providing digital data and computers running geographic information system software.

The STWG updated the status of the small pelagic fish stocks of Ghana through 2017. (Status of the Small Pelagic Stocks in Ghana in 2018). The data used in this assessment were provided by Fisheries Commission's Fisheries Scientific and Survey Division (FC/FSSD) and the Fridjoft Nansen survey program. Annual landings of *sardinella* have declined from 100,000 tonnes in mid-1990s to 19,000 tonnes in 2017 as fishing effort increased from 8,000 in 1990 to 13,650 canoes in 2017. The STWG completed an additional status report of the situation in 2019 (Status of the Small Pelagic Stocks in Ghana in 2019**).** This report provides an update of the status of the small pelagic fish stocks of Ghana through 2019. It was led by the FSSD, reviewed and validated by the Science and Technical Working Group (STWG). Annual landings of *Sardinella aurita* have declined to 9.9 per cent of their 1992 levels, from 119,515 tonnes in 1992 to 11,834 tonnes in 2019. This drastic decline in landings is caused largely by the artisanal fishing fleet, which operates without proper management controls in an open access regime. In addition, the unit of effort of a canoe is more efficient today than in

the past due to advanced technologies, modern fishing nets, powerful engines and big capital investments. For example, the average size of a purse seine was about 200-300 meters long in the 1970s but today it is 3 times larger - between 600-1000 meters in length and the average crew members on a canoe doubled from 10 to 20 fishermen. Canoe gross tonnage and capacity increased by 2.5-fold (from 2 to 5 metric tons) while the Catch per Unit Effort (CPUE) declined dramatically and the cost and timing of a fishing trip increased as fishermen spend more time searching for fish offshore.

These stock assessment reports are based on recorded landings of the canoe fleet and of industrial trawlers. Unaddressed in these reports is the volume of unrecorded catch that is landed as "saiko" in various ports along the coast. Some reports by EJF and Hen Mpoano provided very high estimates of saiko landings. As a result, systematic survey and analysis of these saiko landings in the future, even though illegal catch and landings, would help to improve the accuracy of these stock assessments. Nevertheless, the STWG findings of severe overfishing and overfished stocks of small pelagics would not change and could show even greater overfishing occurring than is currently estimated.

The Ministry of Fisheries and Aquaculture Development (MOFAD) implemented a one-month fishing ban for artisanal and semi-industrial fisheries from May 15 to June 15, 2019 to protect the spawning brood stock of small pelagic species, mainly *Sardinella aurita*, *Sardinella maderensis*, *Engraulis encrasicolus* and *Scomber colias* and reduce fishing effort on these stocks. Following the closed season declaration, the Fisheries Scientific Survey Division of the Fisheries Commission (FC/FSSD) in coordination with the STWG and with the support of the SFMP, established a monitoring and evaluation plan to assess the biological and socio-economic effects of the closed season and report the findings back to MOFAD. The final Report: Assessing the Biological Effects of the Closed Fishing Season Implemented for the Artisanal and Semi-Industrial Fisheries in Ghana, 2019, described the biological effects of the closed season. One of the key conclusions of the assessment was that the timing of the closure was not appropriate, and as result, the exercise likely had little effect on stocks recovery. In addition, the SFMP assessed the short-term socio-economic impacts - positive, neutral or negative of the closure on artisanal sector and the canoe fishing households (Assessment of the Socio-Economic, Food Security and Nutrition Impacts of the 2019 Canoe Fishery Closed Fishing Season in Ghana) The main methodology adopted for the study involved administration of a survey questionnaire by trained enumerators on a mobile network (paperless) KoBoToolbox Kit in eleven (11) communities during three designated phases relevant to the closed season: pre-closed, closed and post-closed seasons.

About 240 scientists and experts from Ghana's universities and research institutions, civil society, private sector, fishermen and fishmongers, government ministries and agencies, representatives from the USAID Sustainable Fisheries Management Project (SFMP) of the University of Rhode Island, convened in Accra for the first Conference on Fisheries and Coastal Environment (Conference on Fisheries and Coastal Environment, Accra, 2017, Book of Abstracts). The participants issued a statement on recommendations to improve the sector. (COMMUNIQUE from the Conference on Fisheries and Coastal Environment, Accra, 2017).

An even more successful and influential conference was held two years later, attracting 282 participants. (Conference on Fisheries and Coastal Environment, Accra, 2019, Book of Abstracts) It was jointly organized by the Centre for Coastal Management (CCM) of the Department of Fisheries and Aquatic Sciences of the University of Cape Coast (UCC), the Sustainable Fisheries Management Project of the Coastal Resources Center (CRC) - University of Rhode Island (URI), and the Ministry of Fisheries and Aquaculture Development (MOFAD) Ghana. The Conference was designed to strengthen policy linkages

and enable researchers, journalists, and think tanks connect their voices to the sustainable fisheries and coastal development agenda of Ghana. During the 2019 edition of the Conference, an expanded opportunity was given to industry and projects within the sector to showcase key products and milestones as well as emerging technologies for the sustainable management of fisheries and coastal resources. The resulting statement (Communique from the Conference on Fisheries and Coastal Environment, Accra 2019) sought to once again draw national attention to the urgency of the fisheries management challenges. The conference recognized the national importance of marine and coastal ecosystems and fisheries to the people of Ghana, emphasized that the fish stocks were at an alarming stage of decline and on the verge of collapse, and argued for the need for more inclusive decision making for better fisheries and coastal management. Twelve specific recommendations were made to address these concerns.

Institutional Strengthening

Strengthening civil society organizations, including SFMP's implementing partners, national industry membership associations, Government of Ghana organizations and the University of Cape Coast was woven throughout activities carried out under each IR work stream. Organizational capacity assessments were carried out with key groups at the outset of the SFMP, and at the mid-point of the project (Government of Ghana and Public University Units Mid-Term Assessment). An additional combined assessment for civil society and government organizations was prepared in 2018 (CSO and GOG Organizational Capacity Development Outcomes: Qualitative Snapshot) followed by a final version of the civil society assessment completed in 2019 (Synthesis Report: Final Civil Society Organizations (CSO) Organizational Capacity Assessment (OCA). The SFMP staff and its senior partners worked to improve civil society organization business and governance systems and engaged national level groups such as the Ghana National Canoe and Fishermen Council (GNCFC) and NAFPTA in leading stakeholder engagement activities. One of the highlights of this cross-cutting activity, which also had a strong gender element, was the 2016 regional study tour on women's empowerment and post-harvest improvements to Senegal and the Gambia (Regional Study Tour on Women's Empowerment and Post-Harvest Improvements). Lessons learned from that exchange led to further exchange of expertise within Ghana and strengthened local enthusiasm to work towards post-harvest value chain improvements. A key outcome of the OCA process was to ensure that local partners of the project have robust systems and structures to enable them improve upon their capacity to provide quality and sustainable services to their constituents by implementing and sustaining the fisheries sector results that SFMP supports, and also to improve their readiness and capacity to receive funding from donors, an increasingly important need, as donor strategies shift to more direct local project implementation.

Post-Harvest Improvements

Under SFMP, learning and leading by doing (action learning) underpinned the cluster of activities aimed at testing and putting into practice innovations in the fisheries sector of Ghana. Linked to various co-management policy ideas being tested in the Densu estaury, and Pra and Ankobra River estuaries, SFMP linked-in District and National level authorities and expertise to foster improvements in the post-harvest fisheries value chain (*Sardinella* and other small pelagics value and supply chain of the fishery sector, Market Segmentation Study Report). Through this effort, SFMP engaged thousands of women and built their skills as small business entrepreneurs and provided orientation on how they could make significant improvements on the cleanliness and safety of their products (Training on Hygienic Handling

of Fish: Class 1 Certification Guidelines). The skill development was based upon a comprehensive training manual (Class 1 Recognition Scheme (Operational Guidance) serving both processors who wanted to enroll on the scheme and government officials to serve as auditors of the scheme. These activities were the subject of careful monitoring and impact assessment (Adoption of Improved Smoking Technology among Fish Processors in Ghana). The identification of a major adverse effect associated with a fish smoking technology slated for adoption and support (the "Morrison" fish smoker) at the initial phase of the SFMP post-harvest value chain improvement program, was in fact a blessing in disguise. When it was discovered that the "Morrison fish Smoker" produced unsafe levels of polycyclic aromatic hydrocarbons (PAH), the project embarked on the search for a better technology, and financing options. Although this search for the appropriate technology for fish smoking took close to two years as a result of the need for a new engineering design and testing, the resulting new technology, the *Ahotor* (*comfort*) stove, proved to be safer, more efficient, and more acceptable to many fish processors. (Ahotor Oven Construction Manual, Ahotor Oven Users Guide). Even so, uptake has been slower than expected for several reasons, as explained in the post-harvest theme essay. SFMP and the Fisheries Commission under the WARFP constructed ahotor ovens for some fish processors. The assessment with respect to the uptake of the technology has been undertaken and the challenges outlined in two reports; the analysis of the market side challenges (Final Report on Ahotor Oven Market Development and Financing Outcomes and Lessons Learned) and the technology side challenges (Documentation of the Pains and Gains of the Ahotor Oven Improvement Process).

The SFMP facilitated credit for fish processors by the government backed Microfinance and Small Loans Centre (MASLOC) and the setting up of Village Savings and Loan Associations (VSLAs).

The innovative Fishers Future Plan is an affordable life insurance package for fisherfolk that is enabled on a mobile money platform for premium payments and a voluntary micro-savings plan. Once established, claims were made, and payments received on benefits owed to fishers. (Fisheries Future Plan: Lessons Learned Report). The micro-insurance and savings plans are now completely owned and driven by the private sector and continue to benefit fishers and fish processors in the post-harvest value chain.

Gender Mainstreaming: A Cross-Cutting Theme

In the face of declining fish catches and stocks in the artisanal sector, much still can be done to improve the quality of the fish that caught, reduce inefficiencies in the processing and trade of smoked fish. This put the spotlight on women who operate small- and medium-sized businesses that dominate the artisanal sector. It has long been clear that women who dominate the post-harvest sector bring special insights on what needs to be done in fisheries but these have been overlooked or set aside in the past. The SFMP Gender Mainstreaming Strategy building upon gender assessments (Gender Needs Assessment, Ghana Fisheries Gender Analysis) has shaped how the SFMP, the Fisheries Commission, and its implementing partners set priorities to ensure not only participation but also capacity building and improved livelihood outcomes for women (Gender Mainstreaming in Fisheries Management: a Training Manual) and made a real change in the agency of women in the fisheries sector. Women's advocacy and leadership training (Advocacy and Leadership Training for Kokohenes in the Western Region) included the emergence of a new approach, the "Hownam Dialogue" (Hownam Dialogue Report: Leadership and Conflict Management Training) and ultimately resulted in a key outcome: the adoption by the Ministry of Fisheries and Aquaculture Development of its own official gender strategy for the fisheries sector

(National Gender Mainstreaming Strategy for the Fisheries Sector). Gender strategy implementation under SFMP emphasized tangible results (A Formative Assessment of the USAID Ghana SFMP Mainstreaming Strategy). Actions to establish village savings and loans associations (VSLA Financial Literacy Training) were later assessed in the context of an evaluation of SFMP's gender program (MSME and VSLAs Formative Evaluation Report).

Other gender related assessments focused on key partners, Development Action Association and SNV Ghana (Report on Gender Lens Assessment for SNV Ghana). The study recognized the value of deliberate efforts by team members to include men, women and the marginalized in all programs and also make it convenient for nursing mothers and pregnant women to participate in meetings and activities conducted by the project. Reporting on attendance at all activities was segregated by gender. Training continued to target selected leaders from the various fishery associations (DAA, CEWEFIA, NAFPTA) in six SFMP communities in the Central and Western Region of Ghana. The communities included Ankobra, Axim, Shama, Elmina, Apam and Winneba. (Training of Trainers for Leaders of Fisheries Associations in the Western and Central Region). A broader case study **(**Learning Initiative on Women's Empowerment, Access to Finance, and Sustainable Fisheries Ghana Case Study) addressed learning questions on two hypotheses:

- Empowering women through access to finance and other capacity building interventions results in stronger fisheries management outcomes than programs lacking these elements, and
- Engaging women as key stakeholders in fisheries management and improving access to financial tools provides meaningful pathways for women's empowerment.

Interventions implemented through the Learning Initiative in Ghana included:

- Improving access to finance for women fish processors and traders through the establishment of Village Savings and Loan Associations (VSLA).
- Facilitating the acquisition of low interest loans from the Microfinance and Small Loans Center.
- Developing women's leadership skills and promoting gender inclusion in fishery decision-making and benefit sharing.
- Improving businesses of women processors and traders through business, literacy, and improved post-harvest training.

A case study was written based on this experience with several key lessons:

VSLAs and Microfinance make women more resilient and increase their ability to cope with financial disruptions, especially during closed seasons.
Banking crisis has increased mistrust of formal financial institutions.
Grants have helped increase uptake of the Ahotor oven technology.
Use of mobile money among women fisherfolks in general continues to increase.

Combatting Child Labor and Trafficking

The SFMP project included some activities related to anti-child labor and trafficking (CLaT) in the fisheries sector, with an emphasis on the Central Region, based in part on testimonials from fishers in the port of Elmina, as well as through extensive experience of partners such as the Central and Western Region Fishmongers Association (CEWEFIA) that is based in the area. The SFMP was encouraged by USAID to give additional attention to anti-CLaT activities given Ghana's placement on the Tier 2 Watch List for two consecutive years

indicating the potential for imminent downgrade to Tier 3 that could have stopped all US assistance to Ghana. Focusing on the situation in the most highly trafficked coastal fishing communities, SFMP built capacity at the local level to address CLaT at its source and among high-risk families and households. Key documents include the Anti-CLaT national strategy for the fisheries sector, adopted by MOFAD (Strategy on Anti-Child Labor and Trafficking in Fisheries) which is based upon a detailed literature review (Child Labour and Literature Review and Scoping Study Report) and situation assessment tools (CLaT Assessment Tool Workshop Report). Much of the work of the SFMP on Anti-CLaT was through partners including CEWEFIA, Friends of the Nation and the Development Action Association and included engagement meetings and drama performances led by Friends of the Nation, (Community Communication Durbars and Drama Performances on CLaT in the Central Region) regional workshops and training by FoN and SNV (Training of MOFAD/FISHERIES COMMISSION on Child labor and Trafficking Strategy, Fisheries Child labor Policy Socialization Engagement Workshops with District Assemblies Child Protection Committees), training of District Child Protection Committees and advocates by CEWEFIA (Refresher Training for Community Child Protection Committee and Anti-CLaT Advocates, Training on Advocacy Skills for CCPCs and Anti-CLaT Advocates) and the production of outreach materials such as the SFMP's Anti-CLaT factsheet (Reducing Child Labor and Trafficking in Ghana's Fishing Communities). In 2018, Ghana was moved off the Watch List and returned to Tier 2 ranking, indicating an improvement with additional work needed. The SFMP looked to successful examples within Ghana. The SNV Development Organisation guided groups on a tour to Torkor in the Volta Region to see the "Torkor model" (Report on Learning Tour to Torkor for SFMP Partners and Selected Stakeholders **).** Led by General Agricultural Workers Union (GAWU) the model involves organizing and mobilizing fish workers (including fishermen and fish processors) and employers (boat/canoe owners) and equipping them with the relevant knowledge, skills and motivation to combat child labor.

SFMP work against CLaT continued into 2019. Friends of the Nation (FoN) organized nine (9) separate District Child Protection Committees (DCPCs) meetings to Provide Support to District Assemblies for planning Anti- CLaT Intervention in MTDPs in March 2019. (Provide Support to District Assemblies for planning Anti- CLaT Intervention in MTDPs). The meetings were designed to assist the District Assemblies and the DCPCs to synchronize their action plans and community outreach programs for joint action (to increase efficiency, reduce duplication, and pool resources together to maximize efforts/results). In addition, Friends of the Nation organized a National level engagement meeting in collaboration with 10 Coastal Districts of the Central Region, MOFAD and Department of Social Welfare (DSW). (National High Level Engagement Meetings), to assist the Assemblies to design effective "messages" for their outreach programs on CLaT.

COVID-19 Prevent the Spread and Mitigate the Effects Among Vulnerable Households in Fishing Communities in Ghana

Following the outbreak of the COVID-19 pandemic in Ghana in March 2020, it was considered that this unanticipated development could have dire consequences on the artisanal fisheries sector, which is central to the economy and livelihoods of about 300,000 men and women in over 300 coastal communities given the communal nature of landing fish and the related post-harvest activities. To prevent infection and spread of the pandemic among fishing communities in Ghana, the project adopted a Social and Behavioral Change Communication (SBCC) Strategy. The SBCC strategy was informed by the perceived

susceptibility, severity, benefits, and barriers to action of the fishers. The key elements of the strategy were:

- Fisherfolk believed they were immune to the disease due to their constant contact with salty sea water.
- Fisherfolk believed the disease only affected rich folks.
- Fisherfolk did not believe the disease is fatal.

On the basis of these perceptions the SBCC Strategy employed various development communication, and health communication theories and strategies, especially the theory of planned behavior and the health belief model in the design and implementation of the components of the SBCC Strategy which were:

Development and dissemination of Information, Education and Communication (IEC) materials

The IEC materials were developed in collaboration with USAID Ghana, MOFAD/FC, GHS, MoH, MoI, GNCFC, and NAFPTA. The final materials were pre-tested and approved by all the aforementioned institutions before they were disseminated in the fishing communities. In the end, 10, 000 posters were printed. The posters covered 10 different themes on COVID-19. Three animations and jingles covering different themes on COVID-19 were produced and translated into 5 coastal languages. A campaign song with a video by one of Ghana's leading musicians, Kofi Kinaata was also produced. As of March 13, 2021, the music video had 364,826 views on YouTube. These IEC materials incorporated information on COVID-19, symptoms, safety practices (handwashing, wearing of nose masks and social distancing), precautionary measures for fisherfolk before and after fishing expeditions, breaking the cycle of spread, how to make a hand washing station, disposal of nose mask and care for reusable cloth masks. The messaging was situated in the context of fisher folk's everyday life to help them relate to and understand the messages taking cognizance of their perceived susceptibility, severity, benefits, and barriers to action. The posters, animations and jingles were translated into five of the widely spoken local coastal languages (Ewe, Dangbe, Fante, Ga, and Nzema).

Set up of a virtual communication platform on WhatsApp for fisherfolk

The safety protocols of social distancing and avoiding social gathering as much as possible to limit infection and spread of the virus required the need to adopt innovative approaches to providing information to the fishers. The SFMP therefore replicated its innovative Fisher to Fisher (F2F) dialogue in a virtual form with the formation of social media groups (WhatsApp groups) across the entire coastal fishing communities, linked to a collaborative decision-making center, a Virtual Platform for Fishers (VPF). The approach is in consonance with the vision of the USAID Digital Strategy of advancing progress in partner countries and communities on their journey to self-reliance through effective, efficient and responsible digital initiatives that enhance security and economic prosperity. A total of 21 WhatsApp groups representing both fishermen and fish processors at various levels were formed. All groups were interconnected or linked to one of the two groups representing the national executives of fishermen, the GNCFC, or fish processors, the NAFPTA, constituting a Virtual Platform for Fishers (VPF). The rest of the groups comprises; 8 groups each for GNCFC and NAFPTA at the district and community levels for the four coastal regions and 1 group each for NAFPTA, CEWEFIA, DAA at the community level. The 21 groups had a total membership of 787. Digital IEC materials such as video campaign song, posters and jingles and animations were disseminated throughout the groups and group members were provided

with data to be able to access the materials and also disseminate same to other community members.

A COVID safety competition for landing beaches and processing sites

The SFMP rolled out a COVID-19 safety practices competition amongst landing beaches in the 26 coastal districts. The competition dubbed "COVID-19 Safety Landing Sites Competition" sought to reward landing sites that best adhered to the COVID-19 safety practices, frequent handwashing, wearing of nose mask, and social distancing. The competition, which ran for three months, was held on a district-by-district basis. 242 landing sites in 26 districts in the 4 coastal regions participated in the competitions. Real time data was gathered by the SFMP through phone polling of site advocates trained to manage the handwashing stations provided by the project at 242 fish landing sites. Every month, these sites advocates were called to answer questions on behavior and practices of fisherfolk at the landing sites. Data provided was validated by routine announced and unannounced visits by the SFMP and its implementing partners and a committee made up of the Fisheries Commission and SFMP's partners. Each month, the winning landing beach in each district is awarded plastic chairs and a plaque. While the plastic chairs are kept by the wining landing site for the month, the plaque is taken and given to the winner of the competition in the subsequent month. The competition was designed to encourage adoption of, and practice of the approved safety practices.

Provision of Handwashing Stations

A University of Cape Coast team mapped fish landing beaches, processing sites and markets as well as collected baseline data on handwashing facilities, adherence to social distancing and wearing of facemasks in all coastal fishing communities from July to August, 2020, to build a baseline and database that enables monitoring and evaluation of the SFMP's COVID-19 response (COVID-19: Mapping and Baseline Survey of Fish Landing Beaches, Processing Sites and Markets). About 98% of the sites surveyed had inadequate hand washing facilities. There was gross disregard for key COVID-19 protocols on hand washing, physical or social distancing and wearing of face masks at most sites, which presented the need for behavior change communication at all sites.

As part of the project activities to provide hand washing equipment at landing beaches, sites advocates were trained to effectively manage the hand washing stations at selected landing beaches in project communities. Selection of site advocates (community volunteers) and their training was provided by SFMP's implementing partners - CEWEFIA, Hen Mpoano, DAA and Friends of the Nation. (Training of Handwashing Station Site Advocates From 76 Landing Beaches). The selection of the site advocates was done in collaboration with Chief fishermen from the (GNCFC) based on a set of criteria. Site advocates had the role of managing the use of the hand washing stations and were provided a stipend for their time and effort to maintain supplies of soap.

While the project initially targeted placement of handwashing stations at all artisanal landing sites listed in the FSSD 2016 Canoe frame survey, in the end, handwashing stations were provided for 242 sites. Many of the FSSD sites were either seasonal, abandoned due to construction of shoreline protection works or were not considered for handwashing stations as they were too remote or small, or were in areas with local land conflicts. Over the several months of support by SFMP, challenges included high turnover of volunteers requiring new individuals to be recruited continuously, and initial challenges of sending stipends via mobile money transfers. Whatsapp groups were established that enabled quick communications among the site advocates and implementing partners for troubleshooting issues concerning repairs to stations that broke down periodically or regarding receipt of stipends. Over the

period from October 2020 to January 2021, phone polling of site advocates showed improvements in adequacy of supplies and handwashing behaviors as well as social distancing and wearing of face masks. Scores for social distancing and wearing masks were lower than handwashing demonstrating more emphasis needed on these behaviors.

Provision of Cash Benefits to Vulnerable Fisheries Dependent Households

Following the outbreak of COVID-19 in Ghana, it was conceptualized that the spread of the virus could have dire consequences for the livelihoods of approximately 300,000 fisheries dependent households most of whom are already vulnerable to economic shocks. Of particular concern was the poor and vulnerable segment of the fisheries dependent households who could be at risk of not meeting basic food needs and who have not benefited from any on-going Government of Ghana social safety net schemes including the COVID-19 economic assistance programs, detailed by the President of Ghana on April 19th.

When the decision was made to target 2000 poor and vulnerable fisheries dependent households with Economic Safety Net Assistance to make it possible for them to avert hunger as a result of the COVID-19 pandemic, it was also thought that the methodologies and procedures for targeting the poor and vulnerable households could also be considered for application to future economic shocks, as well as complement sustainable fisheries management measures such as closed seasons in Ghana's artisanal sector. This is in relation to recommendations emanating from the socioeconomic assessment of the 2019 fisheries closed season for the marine artisanal sector in Ghana (Ofori-Danson et. al., 2020).

The design, implementation, monitoring and evaluation elements of the SFMP economic safety net intervention were informed by analysis of Ghana's vulnerability and poverty (World Bank, 2016b), and guiding principles espoused by the FAO (Social Protection Framework, FAO, 2017) which include: social inclusion, gender equality and sustainability. The first step in the targeting of the poor and vulnerable households was the development of the criteria for selection of beneficiary households. The criteria were developed by representatives of beneficiaries and was defined around three main themes: a) Health, b) Education, and Standard of Living. To integrate the methodological design principles, the two main groups representing the fisheries dependent households, fishermen represented by the GNCFC and fish processors represented by NAFPTA were tasked to identify the poor and vulnerable households in their respective communities across the entire coastal region of Ghana using the criteria they developed. A quota of 2000 for either group operating independently was to generate a total list of 4000 potential beneficiary households from which the final 2000 was to be selected.

While it was thought that each of the two groups using the same selection criteria to independently select poor and vulnerable households from the same communities would present a high level of overlap representing the truly poor and vulnerable in those communities, this was not the case. At the end of the selection process, 3244 (instead of the 4000) households identified and selected as poor and vulnerable from the two independent selection processes, only 24 households overlapped and could be labelled as truly poor and vulnerable. The rest of the 3,220 households were subjected to a Proxy Means Test (Poverty Probability Index (PPI) to establish their levels of poverty and vulnerability. As a result of the COVID-19, the PPI was administered through phone polling. The choice of administering the Proxy Means Test survey questionnaire via telephone introduced some difficulties as many of the poor and vulnerable households selected did not have telephones and had to be reached through intermediaries. As a result, out of 3,220 only 2,204 were able to participate in the survey. The SFMP Economic Safety Net also considered payment of the Economic Safety Net Benefit through Mobile Money Accounts for the purposes of limiting elite capture and

also reducing the risk of infection and spread of the virus through handling of physical cash. This element of the methodological design also introduced another level of difficulty in the targeting process as many of the poor and vulnerable did not have mobile money accounts. Payment to verified beneficiaries had to proceed in batches as verified beneficiaries were contacted to register mobile money accounts to facilitate payment of their Economic Safety Benefits. Consequently, the total number of beneficiaries who could be processed into the Safety Net Scheme was 1,878 instead of the anticipated 2000.

The lessons learned in this process include the following:

- While it important to consider the mode of payment to beneficiaries at the design stage, it important to note that in most cases the very poor and vulnerable are not likely to be part of the formal financial system or the evolving digital economy and as such extra effort would be required to transition them to be part of the formal economy through any payment process adopted.
- As much as possible, beneficiaries of Economic Safety Net Scheme should be part of the development of the criteria to be used in the selection process, Extensive awareness creation and education should follow the development of the selection criteria. This approach helps in reducing misunderstanding and tension related to why some households get selected and others do not.
- There is the need to make provision for sufficient time for each of the distinct phases along the chain of events involving development of criteria through verification of potential beneficiaries until final payment. At least a year is required for effective engagement with beneficiaries when a target of 2000 or more beneficiaries are required. This is because the poor and vulnerable are usually the segment of the population that is difficult to access and excluded from most social and economic activities.
- In the absence of COVID-19, sufficient in-person engagement is required especially during the administration of Proxy Means Test (PMT) which will allow project staff or staff of administrators of the Economic Safety Net Scheme or their representatives to have a firsthand information about the potential beneficiaries.

Piloting Diversified Livelihoods

The current state of the small pelagic stocks at the point of near collapse urgently requires the need to transition some fishers to other forms of livelihood options if stock rebuilding management measures such as closed season and effort or capacity reduction can be implemented effectively. Over the years, the low levels of education among fishers and their limited access to financial resources has constrained their ability to access livelihood opportunities outside of fisheries, particularly for older generations who have worked in the sector their whole lives.

With limited options to pursue other diversified livelihood opportunities, coastal communities continue to rely on the already overstretched fishery as their primary source of income. As part of its COVID-19 interventions, the SFMP piloted three livelihood options targeted at the youth (18 years -35 years) to encourage them to explore income earning opportunities outside of the fishing. Given the high failure rate of past diversified livelihood activities in capture fisheries communities, the SFMP as part of the COVID19 response, developed a strategy for livelihood diversification with a focus on identifying desirable and marketable non-fisheries livelihoods that requires resources that can be accessed locally. Based on the synthesis of

ideas from stakeholder engagements, three livelihood options were deemed suitable for piloting with the capacity to generate immediate income for beneficiaries. These were:

1. Production of handwashing soap.
2. Baking of confectionary.
3. Installation and repairs of digital television and air condition.

The COVID-19 safety protocol of frequent hand washing has precipitated the demand for handwashing soap. A total of 98 persons (96 females and 2 males) were trained in the production of soap and also given startup kit (chemicals and fragrances) to enable them to produce their first line of products. Some of these beneficiaries have been supplying liquid soap to the hand washing facilities installed by the SFMP.

Following market survey to identify interest and demand for some types of snacks, such as fish nuggets (made with local potatoes and fish), fish/beef pasties, coconut cookies, bread rolls and maize dumpling (locally known as '*abolo*'), the project trained 60 women in the production, packaging, labeling and pricing of these items. A total of 12 youth (11 males, 1 female) were also trained on the installation and repairs of digital TV and Air Conditioning.

Diversification of livelihood options, especially on sustainable basis requires adequate resources and time towards partnerships development. There was limited time for partnership formation and development. There were companies such as Zaacoal and Sky Fox Services with innovative and profitable livelihood options that could not be explored due to insufficient time and resources. For the benefit of fishers, there is the need to prioritize activities that yield income in the shortest possible time and also active stakeholder engagement is required throughout the processes of identification of livelihood options, prioritization, skills training, business and financial management skills.

ACHIEVEMENTS, LESSONS LEARNED AND THE WAY FORWARD

The overall goal of the SFMP was to contribute to rebuilding Ghana's marine fish stocks (see the Award Document Program Description and Design), with a focus on the small pelagic fishes consisting of anchovies, *sardinella* and chub mackerels. These fish are referred to as "the People's Fish" because of their critical importance as the most important protein food source for food security (see the Fisheries and Food Security Brief). They are a low-cost and highly nutritious source of animal protein. Fish provide approximately 50 percent of the animal protein in local diets with the contribution being much higher in some fishing communities. The project also focused on the artisanal canoe sector that provides approximately 80 percent by volume of the national catch, almost all of which is consumed locally and provides livelihoods and direct and indirect employment for approximately 2.2 million Ghanaians.

The project made a significant contribution towards achieving the project goal, but fish stocks in Ghana are still under threat, on the verge of collapse, and have a long path ahead to full recovery. SFMP marked a number of accomplishments that contributed to the enabling conditions and foundations necessary to recover and achieve a sustainable fishery. While the project ends in 2021, the journey has not ended for Ghana's fishery sector. Much remains to be done to achieve a sustainable and lasting fishery that can provide an abundant, nutritious, and locally sourced food supply, as well as help lift many fishing households out of poverty. The lessons learned essays in each volume of the legacy document collection provides the project story of accomplishments, lessons, and recommendations for Ghana's way forward.

LEGAL AND POLICY REFORM

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BACKGROUND

The overarching goal of the USAID Ghana Sustainable Fisheries Management Project (SFMP) was rebuilding the marine fisheries stocks and catches through adoption of responsible fishing practices. Improved legal and policy enabling conditions was necessary to achieve this goal. This essay focuses on SFMP's policy and legal interventions in Ghana's fisheries sector in support of rebuilding marine fisheries stocks, particularly small pelagics stocks that are referred to as 'the people's fish' because of their importance to Ghanaian food security and domestic livelihoods. Since its inception in 2014, SFMP supported a number of key legal and policy reform actions critical to sustainable management of Ghana's fisheries. These included:

- Supporting the Fisheries Commission to implement the National Marine Fisheries Management Plan 2015 – 2019 policy.
- Revision of the National Fisheries Act 2002 No. 625.
- Development of a National Co-Management Policy.
- Development of three Community Based Fisheries Management Plans for the Ankobra, Pra and Densu estuaries.
- Development of a National Fisheries Sector Anti-Child Labor and Trafficking Strategy.
- Development of a National Fisheries Sector Gender Strategy.
- Analysis of the impact of subsidies on fisheries management.
- Development of a National Artisanal Vessel (Canoe) Registration Program.
- Development and printing of 10,000 Canoe Identification Cards as the first step towards moving the marine artisanal sector from open access to regulated access.
- Development of Canoe Identification Software Application to link the Canoe Identification Cards to the Register.
- Development of a strategy to involve fishers in law enforcement.

State of Fisheries in Ghana

The fisheries sector plays a crucial role in the economy of Ghana and accounts for 1.2% of Gross Domestic Product (GDP) valued at US$ 500 million. The sector provides employment, income, and livelihoods for nearly 10% of Ghana's population. On average fish provides approximately 50% of national protein intake for Ghanaians, especially small pelagic species such as sardinella, anchovies and mackerels. In the last two decades, the small pelagic stocks have been in steep decline and are estimated at nearly 10% of 1996 levels. This decrease is associated with decreased incomes, increased poverty and food insecurity in the fishing

communities. The decline can be attributed to the lassitude in Ghana's fisheries management regimes that include open access to inshore fisheries resources, illegal, unreported and unregulated (IUU) fishing, high fleet capacity leading to overfishing, inadequate involvement of fisherfolk in fisheries planning, management and decision making, and inadequate institutional capacity at the central level resulting in weak management interventions that are further complicated by political patronage and interference.

Governance of Ghana's Fisheries

One of the critical governance challenges confronting inshore fisheries in Ghana is the open access regime leading to excess capacity and the current state of overexploitation of the resources. Weak governance, political patronage, and interference in enforcement further complicate the problems created by the open access regime. At the beginning of SFMP, the institutions and agencies mandated to manage the fisheries were weak, lacked coordination and focus, had weak technical and administrative capacity, and lacked effective stakeholder engagement skills.

The 1992 Constitution mandated the creation of the Fisheries Commission to regulate and manage the utilization of the fisheries resources of Ghana and coordinate policies in relation to them. The Fisheries Commission, led by a Board of Commissioners, was initially established under the Ministry of Food and Agriculture prior to the establishment of the Ministry of Fisheries and Aquaculture Development (MOFAD). Under that arrangement, the Commission, by default, undertook functions normally undertaken by Ministries such as the formulation and coordination of policies. With the establishment of MOFAD, an assessment of the original role and mandate of the Fisheries Commission in relation to ministerial functions revealed a lack of clarity and conflict of the roles and assignment of responsibilities. This needed to be addressed urgently in order to improve effectiveness and efficiency in fisheries management towards sustainability and profitability.

Redefining the mandates of the MOFAD and the Fisheries Commission will involve expanding the institutional and policy frameworks for decision making to include stakeholders, such as local communities and NGOs. It will also involve examining and, in some ways, redefining the socio-political context in which institutional expectations of organizational and individual behavior are established. Institutional arrangements that demand responsive and transparent management interventions can then be accompanied by the development and adoption of robust policies and legal frameworks. The national fisheries co-management policy developed by MOFAD with support from the SFMP has provided the processes and structures for inclusive decision making within the sector. The policy provides for bottom-up rather than top-down decision that lacked transparency at the start of the project. The implementation of this policy will involve devolution of authority, active participation of resource users in management decision making and coordination of all efforts towards stock rebuilding and sustainable management of Ghana's fisheries sector.

The Policy and Legal Context

Legislation provides the basis for sustainable management of fisheries resources, establishes basic management principles and provides the rules for monitoring, control and surveillance to ensure effective enforcement and compliance with management interventions. Robust legislation also provides the framework for the fisheries sector to support the government's development agenda and facilitate implementation of Ghana's international commitments and obligations.

The basic fisheries law in Ghana is the Fisheries Act, 2002 (Act 625). Other legal instruments within the fisheries sector come from the Fisheries Amendment Act of 2014, (Act 880) and

the Fisheries Regulations, LI 1968 of 2010 and LI 2217 of 2015. The general view among fisheries managers, international experts and the fishing industry participants is that (Act 625) is outmoded and that new fisheries legislation is urgently required to drive the necessary reforms in the sector to help secure its contribution to GDP and lay the foundation for long term sustainability, food security, and increased profitability.

In the last five years, the World Bank, European Union, and the USAID have provided financial and technical support to the Government of Ghana, civil society and other fisheries stakeholders to support fisheries sector reform. The reform programs included comprehensive reviews and analysis of Ghana's Fisheries Act within the context and requirements of modern international sustainable fisheries management norms and principles. The conclusion from the various review processes was that ACT 625, in its current form, falls short of the standards and demands of modern fishing industry. The shortcomings identified in the review of Act 625 included:

- Absence of clear sustainability principles and management measures to be pursued by officials responsible for managing the fisheries resources.
- Confusion in the respective roles and functions of the Fisheries Commission (FC) and the Ministry of Fisheries and Aquaculture Development (MOFAD).
- Absence of transparency provisions which increase the likelihood and avenues for corruption.
- Absence of comprehensive provisions to combat and deter illegal, unregulated and unreported (IUU) fishing in the waters of Ghana, resulting in widespread illegal fishing.
- Inadequate provisions on the participation of fishers in the management of fisheries resources.
- Absence of co-management arrangements that promote voluntary compliance and reduce conflict in the fishery.
- Absence of provisions that facilitate timely implementation of the growing number of Ghana's international fisheries obligations and commitments.
- These deficiencies require rectification to enable the sector to become sustainable.

Enforcement of Fisheries Laws

The Fisheries Enforcement Unit (FEU) was established in 2013 by section 94 of Act 625. The FEU consists of personnel from the Ghana Marine Police Unit, the Navy, staff of the Monitoring, Control, and Surveillance (MCS) Division of the Fisheries Commission and Attorney General's Department. Lack of clarity in fisheries law and on the functions, roles and responsibilities of the FEU and MCS Division of the Fisheries Commission has contributed to weak enforcement. However, the main obstacle to effective operations of the MCS and the FEU is political interference. There were several instances in which people arrested for violations of fisheries regulations were set free and illegal fishing gears confiscated returned to owners as a result of the intervention of people with political or traditional power and authority.

The enforcement of fisheries laws and regulation in Ghana remains weak in the absence of actions that deter recurring violations such as arrest, prosecution, fines and imprisonment of fishers engaged in illegal, unreported and unregulated (IUU) fishing. This is directly related to the absence of sufficient corrective authority in legislative provisions for the fisheries

sector. The use of illegal fishing gears such as undersize mesh sizes, prohibited nets, light fishing, use of poisonous substances, dynamite and transshipment of fish (Saiko) at sea also continues without abatement.[1] Saiko landings consist of high proportions of juvenile pelagic fish, stifling the capacity of the small pelagic stocks to recover through management interventions.

Other factors currently contributing to lack of effectiveness in fisheries law enforcement include insufficient personnel at all levels, inadequate logistics and equipment, and inadequate funding for surveillance patrol. Circuit courts designated to handle fisheries related offenses are ineffective due to lack of judicial training and the slow nature of the prosecution system. Arresting officers become frustrated and demoralized as many cases brought before the court have not been fully prosecuted for lack of proper forensic documentation, political interference, or lack of judicial action. These factors have contributed to low compliance with the fisheries laws in Ghana.

PROJECT IMPLEMENTATION STRATEGY

The SFMP adopted a two-pronged approach towards the achievement of results in the various intermediate results (IR) areas. High-level policy engagement with government to create an enabling environment for sustainable fisheries management was accompanied by concrete actions or field interventions at the local community levels. The project facilitated the creation of platforms through which policy makers at the national level directly interacted with stakeholders such as fishers, civil society organizations and NGOs, industry associations, and individuals on both existing and emerging fisheries issues.

The World Bank funded West Africa Regional Fisheries Program (WARFP), undertook a comprehensive review of the legal and policy environment of the fisheries sector. As a result of the fact that the SFMP built its legal and policy initiatives to align with the WARFP-led legal and policy reforms, the Ministry tasked the SFMP in 2016 to lead the development of the Fisheries Co-Management Policy. When the WARFP ended in 2017, the SFMP expanded its legal and policy portfolio by taking over the legislative reform process in addition to moving forward the development of the fisheries co-management policy for the sector. The processes leading to the development of initial policy draft and approval of the final policy document in 2020 involved extensive consultations with all key stakeholders.

The Legislative Reform Process

The development of a new national legislation is normally preceded by policy approval for the process at the level of Cabinet. Although Cabinet approval was obtained under the previous political administration in 2016, it became apparent that the Ministry, under the new administration in 2017, needed to obtain a new Cabinet approval to proceed with the development of a new fisheries legislation. SFMP supported the process through the engagement of a legal expert, a renowned Ghanaian international marine and fisheries expert, serving as emeritus professor and director of the Australian National Centre for Ocean Resources and Security who has worked on marine and fisheries legislation around the globe. The legal expert gathered information on previous and ongoing initiatives on the legal reform including reports from the technical committee set up in 2015 to develop drafting instructions for consideration by the Attorney-General and a review of the Fisheries Act 2002, (Act 625) by a World Bank consultant. The SFMP legal expert also collaborated with a legal expert engaged by FAO at the request of MOFAD to avoid duplication of efforts. In addition to collating and consolidating previous reports and ongoing efforts and documents, SFMP

[1] Saiko is the illegal transshipment at sea of trawler catch to canoes for landing.

collaborated with two EU projects implemented by CARE Ghana and the Environmental Justice Foundation to solicit inputs from stakeholders including fishers, CSOs, NGOs, industry associations, and MOFAD/FC staff [2] to support the legislative reform process.

To facilitate collation of inputs and comments on the process and initial draft document, the SFMP set up a web-based portal to support compilation and sharing of information.[3] This web portal holds relevant laws, reports, articles and documents relevant to the process and interested stakeholders were encouraged to review and post their inputs and comments. In February 2019, working with Fisheries Commission and MOFAD staff, a draft Cabinet Memorandum detailing the justification for the new fisheries legislation was submitted to MOFAD and the Fisheries Commission Board for their consideration, review and transmittal to Cabinet. After initial delays, the Memorandum for the development of a new fisheries legislation was finalized and submitted to Cabinet towards the end of 2020.

Improving the Policy Environment

There are a number of policies that provide general guidance on how fisheries should be managed in Ghana. Most of these policies point to the need for stakeholder participation in policy development and inclusive decision making which were also basic pillars of the SFMP project. SFMP collaborated with MOFAD, the Fisheries Commission and stakeholders in the development of a number of fisheries policies, plans, programs and strategies. These included support for the implementation of components of the National Marine Fisheries Management Plan, piloting a fisheries watch volunteer program, leading the development of the national co-management policy framework for the fisheries sector, development and adoption of a gender mainstreaming strategy, development and adoption of an anti-child labor and trafficking strategy for the fisheries sector, and development and adoption of a tiered hygienic fish certification program for post-harvest processing and improvement.

Implementing the National Marine Fisheries Management Plan

The NFMP (2015-2019) was approved in 2015 as a key policy in response to the European Union's Yellow Card imposition, triggered primarily by problems within Ghana's commercial tuna fishery sub sector. However, the NFMP was comprehensive, covering all fleets, and included specific provisions related to inshore and artisanal fisheries management. The NFMP set out a harvest strategy for the entire marine fisheries to prevent overfishing and provided direction for the formulation of management actions in the context of the fisheries laws and regulations.

The implementation of the plan was slow and most of the key performance indicators were still not realized at the end of the implementation period of the plans (2015-2019). Lack of action was primarily due to inadequate government funding, lack of commitment and political will. Through initiatives such as the SFMP-supported Fisher-to-Fisher dialogue program, local fishers, fish processors and their member associations were provided a platform to discuss elements of the NFMP and were encouraged to take local action in line with the plan. The Fisher-to-Fisher dialogue facilitated voluntary compliance and support for such fisheries management interventions such as: an additional non-fishing day within the week to reduce pressure on stocks, declaration of a national closed season for the artisanal and inshore trawl fleets, and registration of marine artisanal canoes and a moratorium on new entrants to the sector. Parallel to public engagement, SFMP supported the Fisheries

[2] The Environmental Justice Foundation also produced a document highlighting the obligatory and voluntary commitments of Ghana under international commitments and compacts as input into the law revision.

[3] See http://rhody.crc.uri.edu/gfa/

Commission to develop capacity of its Fisheries Scientific Survey Division to conduct annual fish stock assessments and analysis, and work with the Fisheries ad hoc Science and Technical Working Group (STWG), set up the SFMP, to develop consensus on the details of a national closed season for all fleets including the scheduling of the closure in order to maximize biological gains.

By July 2019, two key management actions within the plan were being implemented that were essential to addressing overfishing and the collapse of key marine fish stocks, especially inshore small pelagics. The first was the agreement and cooperation of the Ghana National Canoe Fishermen's Council on the issuance of a Canoe Identification Cards (CIC) as the first step towards moving the artisanal sector from open access to regulated access, representing a major milestone on the road to sustainability and adoption of global best practices. The SFMP supported registration and final clean-up of the registry and the printing of initial 10,000 CICs with QR codes that contain details about each canoe including owner, home port, authorized gears, etc.[4] These Canoe Identification Cards (CIC) can be read using software (application) installed on mobile phones in the field by enforcement personnel, and in the future, can be connected to the purchase of subsidized fuel to reduce corruption. Once issued, the CICs could also be used for other purposes. The development of this Application was supported by SFMP.

The second key management action achieved in 2019 was a closed season for the artisanal sector (see co-management and constituencies essay for more information on this issue). Closed seasons for the industrial trawl fleet and for the tuna sector had been relatively uncontroversial and on-going for several years. However, applying this measure in the canoe sector proved difficult and contentious but ultimately successful for the first time in 2019. Following the expiration of the NFMP (2015-2019), the Fisheries Commission is currently in the process of developing a new plan for the management of the fisheries sector.

Developing a Co-Management Policy

Co-management, also known as collaborative management, is a strategy for managing fisheries resources where responsibility for decision making on how to sustainably manage fisheries resources is shared between government, resource users and other stakeholders. It is globally viewed as best practice in fisheries management and considered more effective than conventional top-down command and control management systems, particularly in countries where the presence of central government agencies in many local areas is extremely limited. In Ghana, a dedicated policy outlining how co-management should be implemented was required because the existing fisheries and local government laws were not capable of supporting a co-management framework and hence the need for amendment or supplementation (Tsamenyi, 2013).

Working with the MOFAD and Fisheries Commission, SFMP led the process of drafting a co-management policy document. The drafting process involved extensive stakeholder consultations. In early 2019, the draft co-management policy was submitted to the Ministry for final review and onward submission to Cabinet for approval and implementation.

This policy document provided guidance for the implementation of co-management approaches specific to the Ghana fisheries sector. It draws on experiences and lessons learned from the challenges, and failures, of previous community-based fisheries management efforts. To demonstrate how the policy can work in Ghana, SFMP supported the development

[4] The QR code term stands for Quick Response Code. QR codes are square two-dimensional barcodes store information in a machine-readable optical label. The data contained by a QR code can be anything from simple text, to email addresses, to phone numbers and so on.

and implementation of three co-management demonstration initiatives in three estuaries – Ankobra, Densu and Pra. This action learning approach informed the development of the national co-management. The fisheries co-management policy supports the devolution of some fisheries management actions from the MOFAD and the Fisheries Commission to resource users. Such devolution of authority should be well managed to avoid conflicts within specific geographic locations with emphasis on provision of sufficient funding to support the initial co-management efforts. The Co-Management Policy for the fisheries sector was gazetted in November, 2020 for subsequent implementation.

The Fisheries Watch Volunteers Initiative

In 2015, the Ghana National Canoe Fishermen Council (GNCFC) discussed with MOFAD and the Fisheries Commission, the need for greater support towards local level law enforcement to stem various IUU fishing activities. To build the capacity of GNCFC and other local fisher's groups towards fisheries law enforcement, SFMP in collaboration with MOFAD, the Fisheries Commission, and the WARFP, sponsored 20 people on a study tour to the Philippines to observe firsthand, how fishers in that country have been supporting law enforcement through the "Sea Watch" (*Bantay Dagat*) system. The delegation was guided by SFMP staff and included staff of MOFAD and the Fisheries Commission, Marine Police/Fisheries Enforcement Unit, and various fisheries associations – GNCFC, NAFPTA, GITA, GIFA. Lessons learned from the visit provided inputs for the formation of a group that adopted the approach of the *Bantay Dagat*.

In collaboration with SSG-Advisors (now Resonance) experts from the Philippines and USA were invited to lead formation of volunteer groups. Staff from SFMP, Fisheries Commission, and the GNCFC supported the selection, training, and formation of the pilot Fisheries Watch Volunteers (FWV) in two districts (Accra Metropolitan Assembly and Ada East District). A manual for the operations of Fisheries Watch Volunteers was developed based on an approach (philosophy) with the acronym ***ERASE****:*

E - Educate the community on fisheries law and raise awareness of fisheries conservation.
R - Report infractions to the police and fisheries authorities.
A - Assist in the prosecution of cases by serving as a witness in court.
S - Sea and land-based patrols.
E - Ensure registration of canoes and fishing vessels.

The institutionalization of the FWV was approved in 2016 when the Parliamentary Select Committee on Food, Agriculture and Cocoa Affairs met with the SFMP and the Ministry. The launch of FWV in May 2017, at Ada in the Greater Accra Region was, however, met with strong resistance as a result of misunderstanding by a group of fishers within the Ada West District who viewed the FWV as political organization set up to curtail their illegal light fishing practices. The FWV program was then suspended to enable the Ministry to undertake further engagement with stakeholders prior to its implementation.

The Ministry of Finance's 2018 budget statement to Parliament included budgetary provisions for the formation of more FWV committees in the other coastal regions. The FWV concept shows great promise in support of fisheries law enforcement. Under the European Union (EU) supported project 'Sustaining Fisheries Livelihoods' (*Far Dwuma Nkodo* or *FDN*) being implemented by Environmental Justice Foundation and Hen Mpoano), a platform was created to engage artisanal fishers to contribute to improved collaboration in fisheries enforcement. Based on the concept of the Fisheries Watch Volunteers (FWV), the project collaborated with the Fisheries Commission (FC) to successfully establish 48 Landing Beach Enforcement Committees (LaBECs) at various beaches in the Central Region.

Over 700 fishers were engaged and trained to involve resource users in monitoring, surveillance and evidence gathering on land and at sea related to IUU fishing. A mobile application called 'Dase', a Fanti word for 'Evidence' was developed and installed on fisherfolks mobile phones for at sea evidence gathering. A Code of Ethics on responsible fishing was drafted, validated and adopted as an illustrative guide while posters, booklets and flyers of illustrations were developed. Over 700 visibility jackets with logos of the FC and EU embossed on them were distributed to trained volunteers to facilitate the work of the LaBECs. The LaBEC was inaugurated by officials of the Fisheries Commission in December 2020.

Gender Mainstreaming

There are over 33,000 women engaged in the fisheries sector in Ghana. Their roles include processing and marketing of fish, although a sizable number of them are also involved in financing fishing operations. Given the important roles that women play in the fisheries value chain in addition to financing of fishing expeditions, it is clear that women are equally important and capable of influencing management decision and advocating for interventions to ensure sustainability of fisheries resources when they are given the necessary training and organizational support (capacity building).

Through its gender mainstreaming strategy program, SFMP focused on empowering women using its two-pronged approach; action-oriented intervention and learning on the ground and policy development at the national level. At the local community level women were directly involved in all activities. Special trainings were organized for local women's groups and association members in conflict management, hygienic fish processing, and small business development, among others. At the national level, a National Gender Mainstreaming Strategy for the Fisheries Sector was developed and adopted by MOFAD (see the strategy document in the legacy collection). The strategy focuses on activities in five action areas to strengthen the role of women in fisheries management.

- Establishment of a National Gender Network.
- Development and dissemination of gender mainstreaming communications materials.
- Monitoring and evaluation of gender mainstreaming effectiveness.
- Ensuring gender-equitable participation in meetings.
- Conducting gender-oriented training for local government partners and fishery associations.

Developing the Anti-Child Labor and Trafficking Strategy

Child Labor and Trafficking (CLaT) within the fisheries sector remains a major area of concern. With over 50,000 children involved in fishing and associated activities, the SFMP and partners supported the Ministry of Fisheries and Aquaculture Development to develop a national Anti-Child Labour and Trafficking in Fisheries Policy that was adopted in 2018. The strategy document identified priorities and related actions to address challenges. The SFMP also supported the formation of Community and District anti-CLaT Committees that provided direct outreach in communities known for high levels of child trafficking and labor, focusing particularly on highly vulnerable households. As a result of efforts by the SFMP, a total of 9 coastal districts in the Central Region proposed a collective total budget allocation of GHS 1,145,725 for 2018 and GHS 4.5 million over five-years in their Medium-Term Development Plans (MTDP 2018-2021) to address CLaT issues. With the current MTDPs ending in December 2021, these assemblies in the Central Region and others in the Volta Region have

approached SFMP Implementing Partners (IPs) to assist them to integrate CLaT issues in their next MTDPs, 2021- 2025.

Review of Input Subsidies to the Artisanal Sector

The detrimental effect of subsidies on sustainable management of fisheries was captured in Sustainable Development Goal 14, Target 6 which stipulates that, "By 2020, (countries) prohibit certain forms of fisheries subsidies that contribute to overcapacity and overfishing, eliminate subsidies that contribute to illegal, unreported and unregulated fishing, and refrain from introducing such subsidies, recognizing that appropriate and effective differential treatment for developing and least developed countries should be an integral part of the World Trade Organization fisheries subsidies negotiation."

The biggest problem confronting the artisanal fisheries subsector in Ghana is excess capacity exacerbated by fuel and other input subsidies in an open access regime. Weak law enforcement and the use of illegal fishing methods and gears, fuel and equipment subsidies camouflage the true cost of fishing and prevent this cost from being internalized by fishers resulting in overcapacity of the artisanal sector. This means, there are more boats than are necessary to harvest the maximum sustainable amount of fish annually. While the initial intent of the subsidies was costs reduction and profits maximization for the canoe fleet, these benefits had been dissipated long ago and lost due to open access regime and the increasing number of canoes.

Recognizing the political dynamics of subsidies in the fisheries sector, SFMP commissioned a study (see the legacy collection for a copy of this report) to assess the magnitude of the problem. The study provided and discussed examples of how the $45 million that the Government of Ghana spends annually on "bad" subsidies could be channeled into "good or neutral" non-fishing capacity enhancing subsidies or eliminated altogether. The SFMP collaborated with the University of Cape Coast's Centre for Coastal Management, to organize an engagement with political parties on fisheries and coastal issues under the theme, "Towards 2020 National Elections: Town Hall Engagement with Political Parties on Fisheries and Coastal Management Challenges in Ghana" on the 22nd September, 2020. One of the key issues discussed was the subsidies to the fisheries sector in the form of premixed fuel which has contributed to the increased fishing effort leading to collapse of major fish stocks within the artisanal sub-sector.

Improving Law Enforcement and the Prosecutorial Chain

The key strategic actions employed by SFMP to address illegal fishing included prosecution chain workshops to review the prosecution process and develop strategies to address challenges and forensic weaknesses in arrests and prosecutions. The project also collected and assessed arrest and prosecution data to develop strategies to address identified weaknesses in prosecutions and worked particularly with Ghana's Marine Police on capacity development. This included design, development and pilot implementation of competency-based capacity development programs for fisheries enforcement officers. These combined actions focused on increasing arrests and successful prosecutions and different approaches to improve compliance.

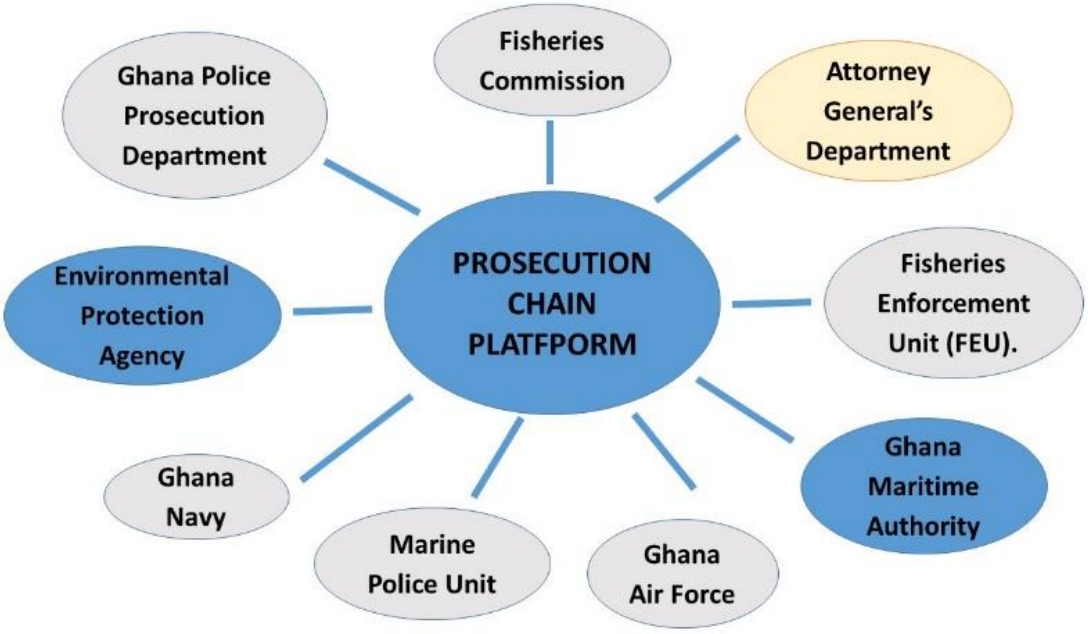

Figure 1 Stakeholder institutions on the Prosecution chain platform

Inadequate interactions by the stakeholders listed in Figure 1 was identified as an important obstacle, even though they were all working on prosecuting fisheries violations and related issues. The SFMP-supported fisheries prosecutorial chain workshops and provided a platform that promoted inter-agency dialogue and collaboration to support deterrence of fisheries sector violations. The workshop adopted the competence-based capacity development approach, particularly for the Marine Police Unit (MPU) and Fisheries Enforcement Unit (FEU). The process identified, profiled, and jointly processed key knowledge, skills, and attitude requirements for effective fisheries enforcement.

A 'fisheries enforcement induction training curriculum' was developed and used to train 160 MPU and FEU personnel. A Training-of-Trainers program was designed by SFMP in partnership with the UNDP Organized Crime Unit to facilitate knowledge and skills transfer program for the Marine Police Unit.

Through the process, inadequate political commitment and support for prosecution of fisheries offenders were identified as the top obstacles for successful prosecution of violators. High-level political interference in prosecution processes favor offenders and is carried out by politicians or political functionaries who are connected to violators in various ways, or who are looking to gain political favor. Inadequate financial and logistics for enforcement agencies further reduces effectiveness and morale of enforcement agencies.

LESSONS LEARNED

It is critical to understand the operating legal and policy environment and related requirements that can drive or compromise project engagements and delivery. This requires tolerance for intermittent forward and backward movements in the engagement process. This was illustrated in the Fisheries Watch Volunteers program when implementation was suspended due to unanticipated resistance, although captured in the 2018 Ministry of Finance budget proposal to Parliament. Bureaucratic processes can be laboriously and frustratingly slow to the extent that it throws programing and budgets out of planned cycles. To be effective, projects must remain responsive and adapt to dynamics within key government implementing partners as these partners navigate their associated bureaucracy. Relationships

and influences in the political economy are often not visible or, when they seem to be, can be deceptive. Effective navigation of these complexities means that interim plans must change while loosely keeping in mind project timelines and related outcomes. The importance of continuous engagement, understanding, and support to key counterparts and partners cannot be overstated.

Inclusivity at all levels is critical to achieving appropriate policy reform outcomes and compliance with those outcomes once adopted. The SFMP and its predecessor USAID program, the ICFG Program, had a strategy for high level stakeholder engagement that established and enabled bottom-up as well as top-down communications. Over the life of the project, this resulted in institutional change in the way organizations and individuals understood expected performance and engagement. At the same time, this approach intensified and amplified public demand for better performance on the part of government as awareness among fishermen in communities increased.

Platforms such as the Fisher-to-Fisher program, led initially by the Ghana National Canoe Fisher Council and later involved staff of the Fisheries Commission, allowed fisheries stakeholders to interact with each other on key issues in a way that resonated within their individual communities. This enhanced their knowledge of fisheries issues, particularly implementation of the National Fisheries Management Plan, but also gave them an important sense of participation and increased agency in decisions affecting their livelihoods. Change champions emerged through SFMP's high intensity stakeholder engagement process who otherwise might not have found an opportunity for their own individual agency. Many of these became vocal proponents of reforms which ultimately were critical to the success of SFMP. However, when dealing with the government bureaucracy in policy and legal reform, it is important to provide consistent and continuous support to stakeholder groups to build trust and provide an opportunity to learn and create their own dialogue to enable them to articulate and demand desired legal, policy and sustainable management changes.

Fisheries sector stakeholder associations emerged during the life of SFMP as critical players willing to take stands on key issues that create political pressure for action. Improving the governance structures of these associations and increasing their ability to communicate with their members must be an important element of future programs. Ideally, the Fisheries Commission and Ministry of Fisheries and Aquaculture Development should actively and openly support this. However, at least in the near-term, lack of sufficient government budget and domestic politics are likely to combine and define the ability of government to provide this support. As a result, it is important that development partner support projects to build internal capacity of fisheries associations to augment government policies for sustainable fisheries management.

Circumstances around the fisheries sector, such as political influence in the provision of input subsidies and selective interference with fisheries enforcement for electoral capital, continue to create political divisions within fishing communities and the sector. It is important for non-political and external actors to improve the substance of dialogue and facilitate processes that minimize the role of politics in fisheries reform and law enforcement processes. Science-based information provided through the Fisheries Science and Technical Working Group was considered above any political interests and has become one of the most cited and reliable sources of information. Following approval of the fisheries co-management policy, the Fisheries Commission is mandated to set up a Science and Technical Committee (recommended by the SFMP as Science and Technical Working Group). If properly constituted and established, the Science and Technical Committee can provide dependable and credible source of information and

advise the Fisheries Commission on the development, collection, evaluation, and peer review of information relevant to the sustainable management of the fisheries resources of Ghana.

Evidence across the world suggests that relying solely on voluntary compliance without provision of adequate measures of enforcement and deterrent undermines desired results in the fisheries sector. While necessary, collaboration and engagement are not solely sufficient to achieve sustainable management of fisheries resources. Successful arrest and prosecution of those who violate fisheries laws is also required, and in Ghana this eventually must include a collaborative effort with community members who can assist in reporting and serving as witnesses in enforcement actions. Also, to achieve effective prosecution, a high level of professionalism and forensic competence must be developed in the rank and file of the enforcement agencies, especially in evidence gathering and processing, and presentation of evidence in court.

A near-term solution to the issue of illegal transshipment at sea of by-catch and non-targeted species from trawlers to canoes (*saiko*) is critical to rejuvenating and reversing the declining fish stocks as the practice is related to the harvesting and transshipment of juveniles. The apparent endorsement of saiko by MOFAD in 2018 has created a perception that *saiko* is legal. This is unfortunate as it undermines concrete steps by the Fisheries Commission to control *saiko* through requirements for all by-catch to be landed at only two ports in the country. With the suspension of the directive from the Fisheries Commission in respect of landing by-catch at only designated ports, saiko activities resumed in full swing. The Fisheries Scientific Survey Division (FSSD) of the Fisheries Commission largely avoided tracking the extent and composition of *saiko* shipments, fearing that monitoring might legitimize the practice and institutionalize it. However, several studies point to the detrimental impact of *saiko* operations and its relevance to the rejuvenation and sustainability of the small pelagic species. Fishermen in Elmina often complain about the fact that the Fisheries Enforcement Unit (FEU) selectively confiscated illegal nets but openly ignored the illegal activities of *saiko* operators at the same landing sites. Transparency and fairness in dealing with compliance issues is critical to fostering stakeholder support for fisheries reforms and sustainable management interventions.

Fisheries Commission is understaffed and ill-resourced making it difficult for them to assign sufficient time to routine internal management requirements as well as the demands of multiple development partner programs and projects, especially with some donner funded activities overlapping and sometimes having competing priorities and schedules. In December of 2017, SFMP hosted a “Development Partner Project Meeting” that focused on initiating and sustaining cooperation and information sharing among similar donner funded projects with the same sector. The meeting resulted in cooperation and cost sharing arrangement among some and between some projects with avoidance of duplication of efforts and reduction of confusion among communities in which multiple projects worked. This initiative is important and requires coordination and should be institutionalized in future development partner supported projects and led by the Fisheries Commission.

The Development Partner Project Meeting also identified the challenge faced by the Fisheries Commission and MOFAD in tracking and responding to multiple and sometimes, simultaneous requests for meetings, participation in events and technical involvement in planned programs and activities of development partner supported projects. Two recommendations emerged from the discussion. The Fisheries Commission and MOFAD, as well as development partner projects themselves, would benefit from a sponsored desk officer who can coordinate and communicate the engagement of MOFAD and Fisheries

Commission with all development partner supported projects within the fisheries sector. This coordinating unit /desk, would in no means, usurp the ability of projects to conduct their own one-on-one engagements with government and other stakeholders.

Secondly, the group recognized the importance of engaging and seconding technical staff or advisors to the Ministry and the Commission. This initiative will serve the dual purpose of helping to anchor key policy and technical reform efforts as well as create learning opportunities for cadre of new staff within the Ministry and Commission to be mentored by experienced and senior personnel with expertise to advance operations of both MOFAD and the Fisheries Commission. As development partners strategize to align with the vision of government within the context of 'Ghana Beyond Aid', such direct technical supports to MOFAD and the Fisheries Commission will be instrumental in strengthening the capacity of the institutions mandated to manage the fisheries resources of Ghana.

NEXT STEPS FOR GHANA

The National Marine Fisheries Management Plan (NFMP) adopted in 2015 expired in 2019. This initial plan was part of corrective actions required for the European Union to remove a "yellow card" imposed on Ghana and as a result, was prepared largely without full stakeholder participation. The preparation of the new NFMP, 2021-2025, has adopted a more consultative approach to ensure inputs and concerns of stakeholders are well integrated to facilitate effective implementation process.

Significant progress was made on the policy and legal reform front during the implementation of the SFMP. The project was able to support the Ministry and the Fisheries Commission to secure approval for the Co-Management Policy. Subsequently, the SFMP designed and printed 1,500 copies of the policy and supported MOFAD/FC to undertake regional stakeholder engagements on the policy. The key issues emanating from the regional stakeholder engagements on the policy included the need for the Fisheries Commission to develop an operation plan and make necessary budgetary allocations to be able to operationalize the policy and monitor the progress on key deliverables including the setting up of the Science and Technical Committee and the Small Pelagics Management Committee.

The project was unable to make progress on the development a new Fisheries Legislation as a result of apparent lack of action and interest from both the Ministry and the Fisheries Commission and taking into consideration the political election cycle in Ghana, the project sought permission from the Mission in October 2019 and curtailed pursuit of a new Fisheries Legislation. In June 2020, when MOFAD eventually decided to take action on the draft Cabinet Memorandum presented to the Ministry in February 2019 to seek policy approval to pave way for the new legislation, the document was finalized and presented to Cabinet. However, Cabinet could not consider and approve the Memorandum before the presidential and parliamentary elections in December 2020. The development of a new Fisheries legislation to address existing gaps and weaknesses in Ghana's fisheries laws, therefore, remains one of the key issues to be addressed and should be taken up by government and or any new support for the fisheries sector if there is demand and interest from the Ministry of Fisheries and Aquaculture Development and the Fisheries Commission.

Developing a formal multi-stakeholder prosecution review and fisheries enforcement coordination platform at the national and regional level with FEU, prosecutors, marine police, CSOs, and representatives of fisherfolk associations should be considered to improve transparency and coordination for effective prosecution of fisheries cases. There is a need to continue work on the Marine Police Competence-based process working with the UNDP Organized Crime Unit and the Marine Police hierarchy to consolidate the gains made. A

series of review meetings should be organized to track and assess the level of implementation and integration of the competence-based capacity program.

Fisheries governance at present is under-resourced within MOFAD/FC annual planning and budgeting and lacks cooperative financial support from other agencies that also have responsibilities overlapping with fisheries. MOFAD and FC are under-staffed and overburdened. There is therefore the need for capacity assessment and revision of staff numbers and responsibilities with implications for planning and budgeting to facilitate and improve the responsiveness of government to fisheries sector issues.

REFERENCES

Ministry of Fisheries and Aquaculture Development and Ghana Fisheries Commission. (2016). Fisheries Management Plan of Ghana. A National Policy for the Management of the Marine Fisheries Sector. 48 pp. http://www.crc.uri.edu/download/GH2014_POL005_FC_FisheriesMgtPlan2016.pdf

Ministry of Fisheries and Aquaculture Development. (2014-2017). Sector Medium Term Development Plan. Ministry of Fisheries and Aquaculture Development. Government of Ghana. 71 pp.

Republic of Ghana Fisheries and Aquaculture Sector Development Plan (2011 to 2016). Ministry of Fisheries and Aquaculture Development. Government of Ghana. 33 pp.

Tobey, J., Normanyo, A. K., Osei, P., Beran, K.. Crawford. B. (2016). Subsidies in Ghana's Marine Artisanal Fisheries Sector. USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_POL059_CRC. 53 pp. http://www.crc.uri.edu/download/GH2014_POL059_CRC_-FIN508.pdf

Tsamenyi, M. (2013). Analysis of the Adequacy of Legislative Framework in Ghana to Support Fisheries Co-Management and Suggestions for a Way Forward. Coastal Resources Center, University of Rhode Island. USAID Integrated Coastal and Fisheries Governance Program for the Western Region of Ghana. 29 pp. https://www.crc.uri.edu/download/GH2009IFISH008_508.pdf

Voluntary Guidelines for Securing Sustainable Small-Scale Fisheries in the Context of Food Security and Poverty Eradication. 2015. Food and Agriculture Organization of the United nations. Rome. 34 pp.

CO-MANAGEMENT & CONSTITUENCIES

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BACKGROUND

Co-management is a process in which fisherfolks and government work together and share power in making decisions regarding the management and allocation of fisheries resources. It is sometimes related to but distinct from decentralized fisheries decision making. The management of Ghana's fisheries resources since the colonial era has been a highly centralized process. The Fisheries Commission established under the Constitution creates a committee of mainly government officers along with a few select industry representatives to make decisions regarding licensing and other management measures. Decisions regarding fisheries regulations are made by this central body with the support of professional directorates and through policy under the direction of the Ministry of Fisheries and Aquaculture Development. In practice, most of the regulatory decision making is initiated by the professional staff of the Fisheries Commission and the Ministry. While the government authorities hold public consultation meetings, these are usually towards the end of the regulatory development process and as a result incorporate little to no influence of industry and, in particular, the artisanal sector on the final outcomes. This system forms a loose co-management structure where limited consultations are conducted but most of the power and decision making is retained by central government.

Scientific evidence, supported by local knowledge from fishers, shows that the inshore marine sector is on the verge of collapse with annual artisanal landings falling dramatically over the last decade, especially small pelagic stocks referred to as "the people's fish." Low cost and highly nutritious, it provides about 50 percent of food protein in the Ghana diet and therefore important for local food security of Ghana's population. The impacts of the small pelagic stock depletion and decline in catch are especially relevant for pregnant women and young children who are particularly vulnerable to drops in daily protein intake. There are many reasons for this collapse including the open access nature of the artisanal fishery and increasing fishing capacity which over time has led to overfishing.[5] Widespread use of

[5] In open access fisheries, there are no restrictions to new or expanded entrants into the industry. Anyone with a boat can fish, entry thresholds are low due to the lack of formal education needed to fish, and the relative

unsustainable and illegal fishing practices (e.g. use of light, fine mesh nets, poisons, and the emergence of "Saiko[6]") by the local fleets can be attributed in part to poor participation of the fisherfolk themselves in the decision making process. Chief Fishermen, highly respected leaders in the canoe sector, have little power other than moral suasion in decision making and many feel their influence in promoting responsible fishing has declined in the modern era of centralized governance. Women are poorly represented in decision-making and have only one seat on the Commission itself. Ghana's top-down approach has produced conditions directly contributing to an unsustainably managed fishery.

Over the years, many of Ghana's fisheries policies called for the implementation of a co-management approach in recognition of the limitations of the centralized, top-down approach employed in the past. The National Fisheries Management Plan for the Marine Sector, the National Fisheries and Aquaculture Development Plan and various policies and government statements all reflect calls for a more robust co-management approach.

Ghana experimented with community-based fisheries management in the 1990s with support of the World Bank. That past attempt to establish Community-Based Fisheries Management Committees failed due to a number of challenges including the lack of enabling legislation establishing the committees and defining their authorities or jurisdiction. Coastal district assemblies set other issues as high priorities and took little interest in the co-management committees nor did they support the adoption of local ordinances to manage fisheries. Other barriers included a lack of sustainable financing, insufficient capacity development of the committees and government, and low participation of women.

Although the community-based approach has shown promise in Asia and the Pacific Islands, the context in Ghana is quite different. In Ghana, there are no isolated islands or coral reefs with clearly identifiable local stocks and confined fishing grounds. Instead, Ghana's coast is dominated by long stretches of sandy beach or rocky shore fronting its open expanse of sea. The fish of most importance to the canoe fishers migrate regionally. Many of the fishermen simply migrate regionally with the fish along the Gulf of Guinea sustaining high fishing pressure particularly through the spawning seasons when the fish aggregate in large numbers and are easier to catch. There is also an absence any local maritime jurisdiction or territory delegated to community fisheries committees or local district government units as part of recent decentralization initiatives. There is no structure for coordinating the decisions of hundreds of individual community level committees for the long ranging small pelagic fisheries stocks. Some countries, such as Senegal, are making progress in demonstrating models adapted to West Africa and generating lessons learned (CRC, 2018) but regional coordination needs to be increased.

The National Marine Fisheries Management Plan---adopted in 2015---provides a roadmap to fishery recovery. However, low levels of stakeholder consultation in its development and lack of a strong constituency in demanding actions has hampered implementation. Limited consultation late in the drafting process resulted in less-than-optimal ownership by stakeholders. The national plan was drafted and approved quickly in part since completing the plan was a condition of lifting the European Union yellow card potentially restricting Ghana's high-value fisheries exports for tuna and other large pelagic species. Once the plan was officially adopted as Ghanaian policy, it essentially became a paper plan with only a few

availability of materials required for boat building, nets, etc. In Ghana, this is aggravated by fuel subsidies that further reduce entry thresholds.

[6] Fish transshipped from trawlers to shore by canoes and with a high proportion of juvenile fish and small pelagic species, in direct completion with the main targeted fish stocks of the small canoe fleet.

parts of it implemented. As of 2020 the NFMP is now being revised to cover the period 2021-2025 and provides a new opportunity for substantive stakeholder participation.

Given Ghana's governance and management environment, the majority of fishermen, especially in the artisanal sector, were completely unaware of the initial plan's provisions and without engagement would not have necessarily agreed that the new rules were beneficial or necessary. Implementation of the actions contained in the plan required a larger process of stakeholder engagement. For critical actions, such as establishing closed seasons during spawning periods, extensive engagement would be required through multiple channels to raise awareness and build support. One critical aspect of the 2015 version of the Fisheries Management Plan created significant obstacles to one of the two most important management actions needed: the canoe sector was exempt from a closed season in the final published version of the official document. The canoe sector had not been excluded from closures in any previous draft during consultations.[7] This change became first visible only when it was published in the Official Gazette. Such a lack of transparency in setting fisheries policy has proven to have serious negative consequences as the story of declaring a closed season in the canoe sector in the following pages reveals.

PROJECT IMPLEMENTATION STRATEGY

The SFMP (USAID/Ghana Sustainable Fisheries Management Project) used a "two-track" approach by working at the national and local levels simultaneously. The SFMP worked on a national policy that would lay out a new roadmap or framework for developing co-management institutions at the national level, building on the lessons of past attempts. It also tried to model co-management processes on the ground so that fishers and community members could themselves demonstrate the efficacy of this approach in Ghana. The project supported dialogues with and among fishers to foster the implementation of policies and management measures contained in the national marine fisheries plan. Awareness and interest grew for supporting demonstrations of new approaches to co-management at the community level in three estuaries along the coast. Along with engaging with stakeholders in other sectors, SFMP prioritized an integrated, national approach to restoring small pelagic fisheries, 'the people's fish', given their importance in food and economic security.

After extensive engagement with artisanal sector fishers and fish processors, and as the declining small pelagic fishery reached crisis levels, SFMP began community pilots at the mid-point in the project. The SFMP drew upon Elinor Ostrom's institutional design principles (Ostrom, 1990) for governing commonly held resources, and URI's extensive experience with multi-sector coastal area plans in the U.S., Ecuador, Sri Lanka, Thailand, Indonesia, Tanzania and Mexico. SFMP teams began organizing stakeholders in the Pra, Ankobra and Densu estuaries toward developing their own management plans and local institutional framework for management of key species of economic importance to the local fisherfolks. Using community resource mapping and highly interactive approaches, all three communities developed and are now adhering to their community-developed fisheries and mangrove resource management plans. Local government and the Fisheries Commission Zonal Officers were involved in the full process and once plans were developed local government and the Fisheries Commission formally approved the plans for the Pra, Ankobra, and Densu estuaries in 2020.

[7] The other critical management measure was registration of all artisanal fishing boats and a moratorium on new entrants, and eventually reducing the total number of artisanal vessels permitted to fish, to align fishing capacity more appropriately to achieve maximum sustained yields and reduce overfishing.

To ensure a sound legal framework and national-level sustained support, the SFMP-supported a multi-year process to draft a national co-management policy that included national and sub-national governments, Ghanaian non-governmental organizations, fisher and fish processor associations, and other stakeholders. The resulting National Co-Management Policy for the Fisheries Sector was approved by Cabinet, signed by the Minister and gazetted in 2020 along with the three community-based management plans. The community-based plans grant exclusive use rights to legally established resource user associations in designated management areas in the Pra, Ankobra and Densu estuaries based on specific sustainable fisheries management principles. This is the first time that use rights in fisheries have been granted to local stakeholders in Ghana.

The SFMP's learning-by-doing approach when engaging fishing communities enabled lessons learned to be directly incorporated into the final drafts of the national co-management policy based on this field experience. Since national and sub-national government were involved in successive drafts, actions in the field were guided by the draft national policy guidelines. This bottom-up and top-down approach resulted in co-management demonstrations in all three estuaries that were already aligned with the national co-management policy. One important element that emerged at the community level was to form user group associations to serve as co-management committees. Other stakeholders such as government representatives and traditional authorities were assigned to serve on advisory groups. Now reflected in the national co-management policy, this in-real-time reworking of the concept avoids elite capture of decision making and empowers more fully, local resource users as the main resource management decision makers.

The initial focus of constituency building by SFMP was on strengthening environmental NGOs and regional or area-based fish processor and trader associations (see the essay on capacity development) to act as facilitators of community stakeholder dialogues. However, SFMP's stakeholder engagement strategy evolved by the project's third year to what became the "Fisher-to-Fisher" dialogues. These were public meetings in specific geographies that created sustainable platforms for direct interaction among and between fisheries stakeholders on key management issues. These dialogues supported the two main national stakeholder associations, the Ghana National Canoe Fishermen's Council (GNCFC) and the National Fish Processors and Traders Association (NAFPTA) in directly organizing their membership into meetings and workshops where issues of local and national importance could be discussed, particularly those concerning rehabilitating the artisanal fishery. These two national membership associations then engaged other stakeholders and the Ghana Fisheries Commission in negotiations and movement towards jointly agreed actions. This strategy fostered a bottom-up, demand driven approach from developed and identifiable constituencies that, though not always fully consolidated in any one position, is required to support and encourage action by national policy makers.

Gender mainstreaming is critical to successful co-management. Making up approximately 50 percent of employment in the artisanal fisheries sector, (see the gender mainstreaming essay), SFMP engaged women-led membership associations to lead advocacy campaigns on improved quality fish processing and the need to promote responsible fishing to sustain fish supplies essential to their businesses. Women's groups led campaigns such as the "Say No to Bad Fish" (a campaign against buying illegally caught fish) effort to help drive changes towards sustainable harvesting practices. Women also led efforts to combat illegal "night-light caught" fish that tended to be of poorer quality for processing than those harvested without night-lights. One of the local co-management plans focused on the shellfish fishery in the Densu estuary, which is harvested, processed, and marketed almost exclusively by women, set a national model for women's involvement in co-management.

To increase the use of science-based information fisheries management, as called for in both the National Fisheries Act and the National Fisheries Management Plan, SFMP supported the establishment of a scientific and technical working group (STWG) made up of scientists, Fisheries Commission staff, NGOs, industry representatives, fishers, and fish processors to bridge communications gaps within the sector and have stakeholders directly contribute local knowledge into scientific assessments (see separate essay on Science for Management for more information on this group). As of this writing, the Commission has stated its intent to form the STWG as an official advisory body to the Commission. The newly gazetted co-management policy provides for the establishment of a science and technical advisory committee. This would move the SWTG from an ad hoc project supported working group to a formal, sustainable, institutionalized component of Ghana's fisheries governance framework.

PROGRESS AND RESULTS

The emphasis on constituency-building and fisheries co-management has yielded many positive results in highlighting the knowledge gaps, the challenges and revealing opportunities in Ghana's fishery sector. At the beginning of the project few people in government or stakeholders even acknowledged the emerging crisis in the artisanal fishery. Now, most fisherfolk agree that there is a crisis in the artisanal fisheries sector and there is broader agreement as to the causes and recognition of the range of potential solutions. Resistance to reform continues to be manifested in an ongoing blame game - where trawlers defect their own responsibility by pointing out the transgressions of the canoe sector in using night-lights, fine mesh nets, and other illegal methods. Meanwhile the canoe sector withholds its support for management measures by pointing to illegal competition by the trawl sector, accusing trawlers of entering their artisanal exclusive zone, and of the growing illegal transshipment at sea from trawlers to specially equipped canoes and resulting heavy landings of juvenile small pelagics – the so called "Saiko" fishery. Government contributes to this problem by failing to effectively lead in fisheries management decisions. The result is insufficient and ineffective governance of all fisheries resources. The SFMP countered the blame game in creating and supporting the fisher-to-fisher dialogues, facilitated stakeholder meetings, community durbars that included government, industry associations, and the public. As a result, the SFMP established a new level of dialogue that addressed conflicts and involved all partners in finding solutions, as well as created a sharp increase in public discourse on fisheries issues. The success of this approach was exhibited in two events supported by SFMP and the University of Cape Coast – the Communique of the National Conference on Fisheries and Coastal Environment held in August of 2019, and, the dialogue on the fisheries sector among National Political Party representatives held prior to Ghana's 2020 presidential elections.

One indication of the effectiveness of these SFMP interventions is that project activities directly involved 9,849 (*5,890 men and 3,959 women*) fisherfolk resulting in improved knowledge and skills via training in natural resources management. Training carried out by SFMP teams included sustainable fisheries management, leadership training and community organizing, conflict resolution, gender mainstreaming, basic ecology & biology, mangrove restoration and management, woodlot plantation management, peer-to-peer learning study tours (local, regional and international) and peer-to-peer, fisher-to-fisher dialogues. While not sufficient, the number of people directly and indirectly gaining knowledge as a result of SFMP activities changed the social and political ecosystem which resulted in improved capacity for the national institutions such as GNCFC, NAFPTA, other local civil society

organizations, the Fisheries Commission (FC), and the Ministry of Fisheries and Aquaculture Development (MOFAD).

At the national scale, early in the SFMP's life cycle, a major emphasis was placed on educating and sensitizing fishers. Use of visuals and drama to communicate issues and challenges to fisherfolks was a strategy taken by the project to broaden the recognition that the artisanal fishery was in crisis. The project developed several video, audio, and drama pieces for communicating specific fisheries management issues with fishers and held workshops to discuss pros and cons of various management measures. These engagements enabled the SFMP to better understand the limitations of the capabilities of national stakeholder associations to organize their membership as advocates of responsible fishing. As a result, organizational strengthening activities for these national membership associations (producers, processors, etc.), not originally targeted, were added to the projects list of clients for institutional strengthening so they could more fully lead advocacy and engage in the policy dialogues rather than relying on intermediary organizations.

In the absence of a legal framework for a national co-management program, the SFMP facilitated a participatory process that directly led to the formulation of a co-management policy framework aimed at guiding the structure and implementation of co-management institutions in Ghana. With early components co-sponsored by the World Bank supported West Africa Regional Fisheries Project (WARFP), SFMP support for Fisher-to Fisher Dialogues, demonstration of community-based co-management committees, and government involvement in developing these initiatives, SFMP modeled co-management behaviors in Ghana in anticipation of an explicit policy framework. The innovations introduced with SFMP support can metamorphize from *de facto* to formal government endorsed institutions with the adoption of the national co-management policy in November of 2020. While the project was unsuccessful in jump-starting the adoption of a new Fisheries Act (see the essay on legal and policy reform) with MOFAD, this is as yet an unmet but needed reform.

Reflected in the proposed revisions of the national fisheries act and the newly adopted national co-management policy, the elements of fisheries co-management have been demonstrated in three (3) community-based fisheries management areas in the Densu, Ankobra and Pra estuaries. These pilots started in Year 3 (2017). Co-management in each estuary started with participatory appraisals to characterize the fishery management areas, identification of the priority species of concern to the stakeholders on which the management plans would focus, and the resource users/owners of those resources who needed to be directly involved in management decisions. Civil Society Organizations including the Development Action Association (DAA – in the Densu), Hen Mpoano (HM – in the Ankobra) and Friends of the Nation (FoN – in the Pra) led community facilitation processes alongside Fisheries Commission zonal officers. Issue definition and plan development integrated local ecological knowledge of stakeholders with existing scientific information. Local leaders, traditional authorities and local district officials were consulted and engaged to support the process. Early actions such as mangrove planting, community-based water quality monitoring, and user group formation and leadership development were carried out parallel with the planning process emphasizing a 'learning-by-doing' approach. All three plans include annual closed seasons that now have been implemented for three consecutive years with plans to make them permanently annual events. The co-management communities have revised their action plans through 2024 and additional activities are being contemplated. For instance, the Densu Oyster Pickers Association is starting to seek assistance for diversified income generating opportunities and establishing Village Savings and Loan Associations, and the local district authorities are considering support for further mangrove reforestation. An important part of the success of the community-based management plans

includes statements of support made by the Minister, Deputy Minister, Director of the Fisheries Commission, local government, and the presence of traditional authorities at community events such as the closing and opening of fisheries within these management areas. This reinforces and motivates local community action. This process is mirrored in how the national closed season for all fishing fleets was---for the first time---declared in 2019 with support from SFMP. This integrated progress at both local and national levels is evidence of changes directly resulting from SFMP support and critical to revamping Ghana's larger-scale marine fishery management regime. The successful implementation of closed seasons within the three demonstration sites provided proof-of-concept to MOFAD and stakeholders that in turn, supported the acceptance of a first-time closed season at the national level for the artisanal sector.

There are signs that the SFMP supported community-based approach in the three pilot sites is gaining traction for uptake in other areas. FAO conducted study tours at the pilot sites to understand lessons learned for application in a new area--- the Keta Lagoon. Hen Mpoano has been applying the approach in another new area with communities involved in the Volta estuary clam fishery. These local engagement processes take time and likely need additional external donor support to bear fruit.

While necessary to stimulate progress, scaling co-management success beyond the three demonstration sites to a national closed season for the artisanal sector faces a number of challenges. Even though closed seasons were called for in the National Fisheries Management Plan, the artisanal fleet was specifically excluded from any closed season. Intensive engagement by SFMP with decision makers and key change agents across industry, associations, the public, and government was required to prompt the Fisheries Commission to utilize this management tool. The SFMP Science and Technical Working Group (see Science for Management essay below) became instrumental in providing sound scientific support for a seasonal closure. A delicate balance between facilitation of dialogue and enabling Ghanaian ownership of decisions was required that also included a very public and politically charged process of trial and error, mistakes, and retrying.

The initial declaration of a closed season for the artisanal fisheries ended in failure in 2018. This was blamed in part on a late declaration by MOFAD combined with a lack of effective and timely communications between MOFAD, the Commission and key fisheries associations representing artisanal fishers. Subsequently even the successful May-June 2019 closed season for the artisanal and inshore trawl fisheries was not without controversy. The most cited objection was that the planned closure did not align with the Fisheries Science and Technical Working Group recommendation that the optimal timing of an artisanal and inshore trawler closure would be during the August period. Political challenges played a prominent role in both 2018 and 2019 as a result of poor relations and an inability to resolve conflicts between the leaders within the Ministry and the Ghana National Canoe Fishermen's Council. In particular, the leadership of the Ghana National Canoe Fishermen's Council felt that they were not sufficiently consulted in decisions and excluded from the process. In response, the Canoe Council mounted substantial challenges at the presidential level to both the 2018 and 2019 closed season declarations. The GNCFC challenge was strong enough in 2018 to become the main reason the closed season declaration for the artisanal sector failed.

The failure of the 2018 closed season declaration dealt a significant blow but most parties agreed not to abandon the effort and continued to express their concerns for the crisis in the artisanal sector. The Minister of Fisheries vowed to make an attempt again in the following year. The 2019 schedule for the national closed seasons for all fleets was declared earlier in calendar 2019, giving more notice to the sector. Commercial trawler fishing was closed in

August and September. Fishing by the artisanal and inshore semi-industrial fleets was declared closed from May 15th – June 15th. While recognizing the May-June period as not the optimal time for artisanal closure as recommended by the Science and Technical Working Group, MOFAD understood that voluntary compliance was critical to the success of the first artisanal closed season in Ghana. The recommended period around the August peak spawning season, referred to as the bumper harvest season for canoe fishers, was likely to spark significant resistance and could result in low compliance. In addition, it conflicted with traditional celebrations around fisheries in some parts of the country, certainly engendering additional resistance in those areas.

As in 2018, the leadership of the Ghana National Canoe Fishermen's Council stated again in 2019 they were not consulted properly as the 'proper' channel for communication with artisanal fishers. Instead, MOFAD engaged the National Association of Fisheries Associations of Ghana (NAFAG), an umbrella organization of all fisheries processor and producer associations to lead the public dialogue on the closed season for all fleets. While the leadership of the Canoe Council claimed it was never asked for input into the closed season decisions, and stated they preferred the STWG recommended period of August that coincides with the peak small pelagic spawning period, the decision not to participate was politically driven by ongoing conflict directly between the Ministry and Canoe Council leadership. Unlike in 2018, the Canoe Council was not able to consolidate its membership's objections to the May-June closed season period and ran the risk of being completely marginalized in the process.

In the end, the Canoe Council did go along with the government-proposed dates, albeit with protest. This consent consolidated support for the closed season, enabled chief fishermen and traditional authorities to support the closed season period with far fewer political divisions, and, coupled with strong statements from the Fisheries Commission to fiercely enforce the closure, ensured that canoe fishers voluntarily complied. The National Fish Processors and Traders Association, a key partner for SFMP, supported the closure.

While the 2019 artisanal closed season proved to a success in terms of high voluntary compliance, the benefits in terms of stock rebuilding are uncertain. While the Canoe Council acquiesced to the non-peak spawning season May-June 2019 declaration in the end, the GNCFC influence was substantial in terms of setting the stage for future closed seasons during or close to peak spawning periods when there will be maximum benefit to stocks. In addition, the Ministry has stated its intention to in the future have all fleets closed at the same time during peak spawning period to maximize stock replenishment.

Ecological and socio-economic studies were subsequently conducted by SFMP concerning the effectiveness of the closed season. The ecological study (Assessing the Biological Effects of the Fisheries Closed Season Implemented for the Artisanal and Semi-Industrial Fisheries in Ghana) demonstrated that---as expected--- the timing was wrong. The socio-economic study (Assessment of the Socio-Economic, Food Security and Nutrition Impacts of the 2019 Canoe Fishery Closed Fishing Season in Ghana) demonstrated that fisherfolk in the canoe sector suffered from a large loss of income during this period with household hunger increasing and dietary diversity among women of reproductive age declining. A promised 2020 closed season was postponed by the Ministry due the COVID pandemic and this may also put a 2021 closed season at risk. The socio-economic study demonstrates a need to consider social safety nets for fisherfolk during a closed season and a need to support diversification of income generating livelihoods other than fishing related, for fisherfolk (see the COVID essays for more on this topic). Some women that established VSLAs also said this helped them to cope and adapt to the closed season whereas they had prepared savings to

draw on during the anticipated drop in fish processing and trading during the closure. Supporting such developments can help build fisherfolk household resilience and likely improve support for future closures.

An annual closed season for all fleets during the peak spawning is critical to rebuilding Ghana's fisheries stocks, especially 'the people's fish' that includes small pelagics. However, while necessary, closed seasons alone are not sufficient to achieve sustainability for Ghana's fisheries. Over-capacity in the artisanal sector must be addressed. Currently there are over 13,000 artisanal canoes fishing in Ghana's coastal and inshore areas while the estimated sustainable level of canoes is slightly above 9000. Immediately eliminating thousands of canoes from the sector is not socially or political possible. Achieving a sustainable level requires a thoroughly planned, sequential process over a longer period of time.

To start this process, SFMP used the Fisher-to-Fisher dialogue to raise awareness of provisions in the National Fisheries Management Plan that require all artisanal canoes be registered and licensed to fish. In fact, this had been a provision in policies for nearly a decade. After three years working with the Ministry, the Fisheries Commission, the National Premix Fuel Committee (subsidized fuel), and fishers, fishermen accepted a plan to issue Canoe Identification Cards (CIC) for all operating canoes. This is the first step towards establishing a moratorium on entrance of new canoes and ultimately decisions to reduce the fleet size. This is moving the canoe fishery closer to a managed access regime and away from open access. This would not have been possible without the co-management approach supported by SFMP. In addition to moving the artisanal fishery toward a managed access regime, the National Premix Committee has stated its intention to link purchase of premix subsidized fuel for both marine and inshore canoes to Canoe Identification Cards. SFMP supported the printing and distribution of the first batch of over 10,000 cards and contracted a software developer to work with the fisheries Commission in developing a mobile App for reading the cards and accessing the Commission's database concerning the vessel registry any fishing violations, and eventually for monitoring pre-mix disbursements.

Finally, the co-management process supported by SFMP resulted in fishermen in all four coastal regions of Ghana proposing an additional weekly non-fishing day in addition to their traditional one-day per week. Although this action is included in the National Fisheries Management Plan, the Ministry declined to support this co-management effort because MOFAD and FC were not consulted sufficiently beforehand and due to the concern that this could derail the closed season proposal which was seen as a more important management measure. Even so, a second weekly non-fishing day was implemented in the Volta region in the absence of any official endorsement by the Ministry or Fisheries Commission.

LESSONS LEARNED

Valuable lessons were learned through the implementation of SFMP at national and local scales. **First, a lesson learned from the attempted 2018 closed season failure is that leaders in the Fisheries Commission and Ministry have stated that policies and management actions would henceforth be demand-driven and bottom-up.** As one official stated at the time: "the paddle has broken the pen!" implying the need to have fishermen and their associations on-board and supporting any decisions concerning new management measures before they are officially carried out. This new attitude of inclusiveness is a sea change for Ghana. However, the intent for inclusiveness needs to be supported by legal and policy frameworks, and recurring annual budget allocations, which are not yet in place.

The higher profile of the Canoe Council and the National Fish Processors and Traders Association leadership in national advocacy for fisheries reform and co-management signals a new order for public participation in sustainable fisheries management. However, these associations are still weak (see the Institutional Strengthening essay below) and initial gains could fade without stronger internal systems. An example of this is the Canoe Council press conference prior to the 2019 closed season GNCFC where members started arguing in front of press over the preferred closed season timing. Largely due to lack of internal GNCFC ability to effectively reach its membership, it caught leadership by surprise and demonstrated that not all members were unified in supporting the leadership position.

Fishermen-to-Fishermen dialogues and political level interactions with the Ministry, Fisheries Commission, leaders of associations, traditional authorities are all necessary and, at times, critical to modeling the behaviors required in a co-management process. The new co-management policy provides opportunities for the Fisheries Commission and stakeholders to put in place institutions and sustained practices modeled under SFMP. Establishing committees, training in community organization, community leadership, and conflict resolution are critical to action learning processes to institutionalize co-management. The Fisheries Commission has recently stated the desire to set up a small pelagic co-management committee as called for in the policy and is working to integrate budget allocations annually for its implementation, now that it is approved. Support at a political level will continue to be needed to make it work.

The high degree of voluntary compliance with the 2019 closed season owes much to the engagement and recognized value of the influence of traditional leaders and chief fishermen. While formal structures continue as the law of the land, traditional authorities hold considerable power of moral suasion with their peers. The SFMP all-in strategy that included national government, local government, traditional leaders, women and civil society organizations eventually achieved the needed critical mass for adoption of the first ever artisanal fishery closed season in Ghana. In addition, SFMP direct engagement and mobilization of national, regional, and local media in 2018 and 2019 played a key role in developing public and political support. It is important to recognize and accept that the process toward co-management in Ghana, including modeling co-management structures and using inclusive, co-management approaches to support policy and legal reform was messy, loud, and contentious at times, but necessary for ownership and action. While the 2019 closure was not at the optimal time (peak spawning season), stakeholders and government agreed that if the monitoring shows this was wrong, they are willing to move the closed season to a more scientifically recommended timing. The lesson here is that widespread engagement results in stronger constituencies in support of management actions and eventual adjustment of government roles. It also demonstrates that with open and on-going communications among all, adaptive management through trial and error and adjustment can result in significant progress in sustaining fisheries resources in Ghana.

The co-management process supported by SFMP in Ghana also demonstrated the **value and influence of science-based decision making.** Throughout implementation of the project, and the contentious policy and governance decisions that were made, no one tried to discredit the Science and Technical Working Group's findings of a collapsing fishery or the recommendation on the best timing for a closure. The STWG report was cited frequently by all groups and in the media. The quality of discussions among government and fisherfolk from the early years to later period of the project changed dramatically as a result of an established non-political, scientific body providing recommendations and information. Involvement of fisherfolk in stock assessment and the closed season assessment helps build a

better understanding of the role of science, and ultimately stakeholder support for science-based decisions. While decisions on fishery management are ultimately political in nature and attempt to factor in social and cultural considerations, the value of establishing an independent scientific body cannot be overstated.

The community-based management approach demonstrated quick small-scale examples of successful closures that helped bolster arguments in 2019 for its replication in the marine sector. While probably not critical in tipping the balance of opinion for the marine closure, they did provide tangible local evidence of potential efficacy. These were started late in the project and in hindsight perhaps could have been started much earlier when these small-scale tangible successes could have been used more effectively in the communications.

Another important lesson is that you can "Sail the ship while building it." **Action learning was a pivotal element of SFMP,** particularly in the middle of the project when the strategic direction and engagement effectively weathered through a government administration change. Action learning was important in demonstrating success in co-management even without formalized policy and legal frameworks. The project modeled the institutions and behaviors as they needed to be reflected in formal policy and legal frameworks in an ad hoc but purposeful way at the local level in the three estuaries, through the Fisher-to-Fisher dialogues, through engagement of associations and their memberships and in direct dialogues with the government. Stakeholders were able to personally experience the value of co-management, ensuring that the lessons of their experience were incorporated into final versions of the co-management policy and captured in drafting instructions for a new fisheries law that may come at a later date. The hope is that those final legal instruments have benefitted from this process and are positioned to be more effective when adopted as a result of SFMP experiences.

It is difficult to tease out the **specific degree of influence women had on final decisions about co-management and related policy issues such** as the closed season. However, observing women's support in meetings directly with the Minister made sure that an important constituency did have increased agency over the life of the SFMP. The Densu oyster harvesters, predominantly women, became a voice for collective action by women in Ghana and regionally in West Africa through learning exchanges and shared training. They demonstrated that if given the authority, tools, and knowledge, women will play lead roles in implementation of co-management across Ghana.

APPLICATIONS AND NEXT STEPS FOR GHANA

The experience of the Sustainable Fisheries Management Project shows tha**t active stakeholder participation resulted in successes** that would not have been otherwise achieved. Public participation, interaction between stakeholders, and interaction between stakeholders and government in a co-management framework will be critical to future decision making on fisheries regulations and policies. Application of formalized and legal institutional arrangements that result in recurring annual budgets are critical but SFMP demonstrated that in the absence of these, modeling co-management behaviors and structures paves the way for demand-driven action by governments. The policy and legal agenda to support co-management, stakeholder participation, and to sustain strong constituencies for fisheries reform is still emerging. SFMP has laid a solid foundation for co-management institutionalization in Ghana with the approved co-management policy. A priority moving forward is putting it into practice. Legal reform in terms of a new Fisheries Act is also needed but must await a policy window away from election periods and when there is

significant interest and demand for legal reform emanating from stakeholders and policy makers alike.

A two-track approach of working on national policy while supporting direct local action on the ground is an effective project design strategy and should be applied in future projects. These work streams do not have to be sequential, with policy first and then implementation, but can run in parallel in an action-learning process– "Building the ship while sailing it."

The successful community-based fisheries management pilots of the SFMP represent a second generation of experimentation by Ghana in community-based management. At this stage in time, Ghana has learned from past mistakes and with SFMP support formally adopted a national co-management policy that opens the door to scaling up all along the coast and in Ghana's estuaries, rivers and lake areas. As scaling up takes place it is important to remember that co-management is not a one size fits all approach but allows variations based on the scale of the natural resource to be managed, local human and financial resources, users, economic conditions and other factors. Putting resource users in control using a highly adaptable co-management framework will naturally produce wide variations in implementation. Monitoring new generations of examples will ensure that lessons continue to be learned and that these lessons contribute to sustained adaptations and implementation, as well as inform government and donor actions. While scaling of community-based approaches is staring to emerge in Keta lagoon and the Volta estuary, examples are also needed in the lake and riverine systems. Lake Bosumtwi where there are concerns regarding exotic species introductions, and Stratum II of Lake Volta where there is significant aquaculture growth, could be early scale-up candidates for support and can incorporate some of these unique issues not found in the original pilot sites.

While the Fisher-to-Fisher dialogues have shown their promise, they remain ad hoc and fragile without direct support. Ghana's small pelagic fisheries, 'the people's fish', still hover near total collapse. The Fisher-to-Fisher program offers a mechanism for gaining more momentum among those who are closest and most dependent on this fishery for their livelihood and should be supported by government and donors in the future. With a national co-management policy, priority should be given to establishing a formal co-management committee for the small pelagic stocks.

Illegal fishing is still rampant, both the saiko trade by trawlers, and use of light and fine mesh nets by the canoe fleet. The finger pointing and blame game still goes on to some extent and works against problem solving and cooperation. When fishers see others violating the law with no consequences, when they are not, it forces them to do illegal activities. These are concerns expressed by fisherfolk such as in the Volta region that ask canoes from outside their region not to engage in illegal fishing, but to no effect. The interest in doing the right thing is there among many in the community, but hard to sustain when law enforcement authorities do nothing to support them or make arrests. The political interference in the fisheries sector and in law enforcement remains a continuing challenge that the SFMP was not able to solve.

REFERENCES

Coastal Resources Center. (2018). Feed the Future and Biodiversity COMFISH Plus Project: Final Project Report October 1, 2016 – October 31, 2018. Feed the Future and Biodiversity COMFISH Plus Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. 96 pp. https://www.crc.uri.edu/download/COMFISH-Plus-Final-Report_English-Fin1.pdf

Ghana Ministry of Fisheries and Aquaculture Development and Fisheries Commission. (2020). Densu Delta Community-Based Fisheries Management Plan, Greater Accra Region, Ghana. Accra: Ministry of Fisheries and Aquaculture Development, Fisheries Commission. 59 pp. https://www.crc.uri.edu/download/GH2014_ACT139_MOFAD_FC_FIN508.pdf

Ghana Ministry of Fisheries and Aquaculture Development and Fisheries Commission. (2020). Ankobra Estuary Community-Based Fisheries Management Plan, Western Region, Ghana. Accra: Ministry of Fisheries and Aquaculture Development, Fisheries Commission. 70 pp. https://www.crc.uri.edu/download/GH2014_ACT084_MOFAD_FC_FIN508.pdf

Ghana Ministry of Fisheries and Aquaculture Development and Fisheries Commission. (2020). Pra Estuary Community-Based Fisheries Management Plan, Western Region, Ghana. Accra: Ministry of Fisheries and Aquaculture Development and the Fisheries Commission. 47 pp. https://www.crc.uri.edu/download/GH2014_ACT094_MOFAD_FC_FIN508.pdf

Lazar, Najih, Darko, Charles, Ansong, Ernest, Boateng, Kusi. (2020). Assessing the Biological Effects of the Fisheries Closed Season Implemented for the Artisanal and Semi-Industrial Fisheries in Ghana, 2019. USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI077_CRC. 23 pp. https://www.crc.uri.edu/download/GH2014_SCI077_CRC_FIN508.pdf

Ministry of Fisheries and Aquaculture Development and Ghana Fisheries Commission. (2016). Fisheries Management Plan of Ghana. A National Policy for the Management of the Marine Fisheries Sector. 48 pp. http://www.crc.uri.edu/download/GH2014_POL005_FC_FisheriesMgtPlan2016.pdf.

Ministry of Fisheries and Aquaculture Development (2020). Co-Management Policy for the Fisheries Sector, Government of Ghana. 41 pp. https://www.crc.uri.edu/download/GH2014_POL112_MOFAD_FIN508.pdf

Ofori-Danson, P. K., Asiedu, B. ,Amponsah, S. K. K. ,Crawford, B. (2019). Assessment of the Socio-Economic, Food Security and Nutrition Impacts of the 2019 Canoe Fishery Closed Fishing Season in Ghana. USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI076_CRC. 109 pp. https://www.crc.uri.edu/download/GH2014_SCI076_CRC_FIN508.pdf

Ostrom, E. (1990). Governing the Commons: The Evolution of Institutions for Collective Action (Political Economy of Institutions and Decisions) *Cambridge, UK: Cambridge University Press.* 308 pp.

SCIENCE FOR MANAGEMENT

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BACKGROUND

The USAID Ghana Sustainable Fisheries Management Project (SFMP) outlined the main problems in Ghana's fisheries sector and established that the current weak institutional framework limits the ability to set strong fisheries management processes based on sound and unbiased interpretation of the science. In addition, the lack of new technologies and innovation to add value to production and marketing in the value chain has kept fishing households in poor conditions, and less likely and less able to change behavior or engage in more sustainable practices.

Globally, modern trends in sustainable fisheries management requires effective partnership between regulators and resource users guided by science driven management decision making. Therefore the Ministry of Fisheries and Aquaculture development and the Fisheries Commission need to be guided by science in both policy intervention and management interventions, in addition to establishing effective engagement and partnership with the various fisheries stakeholders in order to establish durable basis for the recovery of collapsed fish stocks and move the sector towards sustainability and profitability.

The SFMP's approach was founded on promoting technological innovations and effective participation of stakeholders in research and development (action learning) that supports strong and effective policies. Science is vital not only to understand how fisheries ecosystems function, but also how to monitor the conditions and trends of marine fisheries resources, how to unravel the causes and consequences of exploitation, and for finding appropriate solutions to ending key challenges such as overfishing, use of unauthorized fishing gears and methods and fish habitat destruction. An SFMP result area was to build the capacity of the Fisheries Statistical Survey Division (FSSD), complementing efforts by the Fisheries Commission and the World Bank's West Africa Regional Fisheries Program (WARFP). The project also worked to facilitate the engagement of universities in actionable research, working hand-in-hand with stakeholders to formulate research questions and offer practical solutions to demand-driven problems.

The Fisheries Act, 2002 (Act 625) mandates the Fisheries Commission to carry out specific functions which include:

- Preparation and review of management plans.
- Establishing priorities for the utilization of resources.
- Preventing overfishing; reducing fishing gear conflicts.
- Research and stock assessment work.
- Ensuring monitoring control and surveillance.

- Supporting international cooperation in fisheries management.
- Development of artisanal fishing and aquaculture.

In consonance with the provisions in the Fisheries Act, 2002 (Act 625) and the mandates of the Fisheries Commission, one of the main functions of the FSSD is to collect and disseminate catch information for policy development and planning. The FSSD is required to conduct scientific assessments and studies on the status of fish stocks to determine the effects of management measures on the sustainability of marine resources. The Division is also responsible for research in aquaculture and inland fisheries. The SFMP outlined a capacity building strategy and assisted FSSD to carry out its mandate by introducing modern techniques and technologies for monitoring and evaluation of marine fisheries management plans.

Fisheries constitute an important sector in the national economic development of Ghana. The small pelagic fisheries that was a focus of SFMP make up about 70% of the total marine fish landings and are of major importance to the artisanal fleet that lands more than 80% of the total small pelagic fish catch. The small pelagic fishery consists mainly of round sardinella (*Sardinella aurita),* flat sardinella (*Sardinella maderensis),* anchovies (*Engraulis encrasicolus),* and mackerel (*Scomber colias).* Despite the important contribution of marine fisheries to the national economy, the marine small pelagic resources are considered severely overfished (STWG, 2016; STWG, 2017; FAO/CECAF, 2015) due to poor management and inadequate data to support decision making. When managed properly, this sector can provide a stable source of employment and contribution to food security in Ghana.

Efforts have been made to reform the fisheries sector and put in place management plans to end overfishing and assure sustainable utilization of marine resources. Ghana developed a National Fisheries Management Plan, (2015-2019) which set out a formal management strategy and provided a five-year road map to restore marine fish populations just as the SFMP was started in 2014. This provided SFMP an opportunity to support its development. The NFMP focused on effort reduction, protection of essential habitats, strengthening catch data collection, and enforcement. The Plan's commitment included the deterrent of IUU (illegal, unregulated and unreported) fishing by enacting an amendment to the National Fishery Act, Act-625, that granted authority to the Minister responsible for the Ministry of Fisheries and Aquaculture Development (MOFAD) to give effect to international conservation and management obligations and authorize strict enforcement and sanctions for vessels and/or companies involved in IUU fishing. The plan included a closed season for the industrial trawlers as an effort control measure (the SFMP focused on near-shore artisanal small-scale pelagic fisheries, not commercial trawling). Three closed fishing periods for commercial trawlers were implemented (November 2016), February-March 2017 and January-February 2018), followed by a first seasonal closure for the artisanal fisheries (May 15-June 15, 2019). However, the timing and duration lacked scientific basis while the impacts on fish populations was expected to be only marginal since the closed season did not coincide with the major spawning period of the small pelagic species.

The management authorities of Ghana's fisheries sector, the Ministry of Fisheries and Aquaculture Development and Ghana Fisheries Commission and its divisions lack the capacity to effectively manage marine fisheries. They have relied upon international donor organizations or external scientific research vessels such as Norway's R/V Fridtjof Nansen to provide snapshot estimates of biomass for small pelagic and demersal stocks. Unfortunately, the data analysis and reporting often takes several months to years before the Fisheries Commission has access to the results and then lacks full ability to disseminate and act on them. Even though scientists from FSSD have in the past participated as onboard observers to

these scientific surveys, they have not participated in the data analysis, report writing or the dissemination of the results Although the scientific sub-committee of the Fishery Committee for the Eastern Central Atlantic of the Food and Agriculture Organization (FAO/CECAF), composed of member nations from Morocco to the Democratic Republic of Congo, reports on the status of fish stocks and coordinates research and training between member countries, the reports do not provide specific policy and management recommendations for member states to facilitate effective management. Sessions of the scientific sub-committee are normally held every two to five years with management recommendations, decided by majority votes, then submitted to the responsible authorities of member countries. These regional decisions are non-binding and often get disregarded. This situation has raised questions about FAO/CECAF's efforts and their pursuit to promote the use of science-based regional fisheries management advice.

Low performance in the implementation of the Ghana National Fisheries Management Plan and the continuous deterioration of biological and socio-economic conditions in the fisheries sector has prompted fishers to question government's decisions and actions.

The declaration by the Minister to close access for one month (May 15 to June 15, 2019) for the artisanal and inshore fisheries raised the national debate about the objectivity and impartiality of this important management decision and the lack of its scientific merit. This decision was contrary to the scientific recommendation of the Science and Technical Working Group (STWG) that called for a closure for all fleets during peak spawning periods (July-August). The STWG recommendation was consistent with the principles of Fisheries Act 625 article 42-1(a) which states that "A fisheries plan prepared by the Fisheries Commission for management and development of fisheries shall be based on the *best scientific information available*". The Fisheries Act, 2002 (Act 625) recognized the privileged place of science advice in the policy debate and resulting decisions because of its factual, well-informed, objective, non-political and unbiased statements.

At the same time, SFMP recognized that taking stronger steps to curtail overfishing is a learning process. In 2018, the decision to call a closed season for small pelagics and other fisheries during the August time period was met with strong resistance from the artisanal sector and its primary member association, the Ghana National Canoe Fishermen Council (GNCFC), and eventually was overturned by the President of Ghana. In 2019, while the STWG recommended dates were not adopted, the largely successful closed season, with broad voluntary compliance, was monitored for both compliance and biological impact. The STWG assessment of the 2019 closure (Assessing the Biological Effects of the Fisheries Closed Season Implemented for the Artisanal and Semi-Industrial Fisheries in Ghana) concluded that the timing was off, and reaffirmed that an August – September annual closure during peak spawning is needed, and the May-June closure probably had little if any effect on the small pelagic stocks. Many lessons can be drawn both by fishers and managers to improve the process, decision-making and implementation of what is hoped will become an annual closed season starting in 2020.

PROJECT IMPLEMENTATION STRATEGY

In 2015, the SFMP established a multi-stakeholder's scientific group (STWG) to support the Ministry of Fisheries and Aquaculture Development and the Fisheries Commission with the implementation of the marine National Fisheries Management Plan (NFMP). The STWG was formed, and to date remains, an ad-hoc scientific group with an overarching mission to provide science-based management advice to the Ministry and the Commission. SFMP's goal in establishing the STWG was to assure long-term sustainability of fish stocks based on the best

available, non-biased, scientific information. Members of the STWG represent government and academic institutions, fishing industries and traditional authorities (Table 1).

Table 1 Members of the STWG (2015-2019)

Name	Affiliation
Prof. Kobina Yankson	University of Cape Coast (Chairman)
Mrs. Patricia Markwei	Retired – Fisheries Commission (Vice Chairman)
Prof. Patrick Ofori-Danson	University of Ghana
Mr. Paul Bannerman	FC/Fisheries Scientific and Survey Division
Prof. John Blay	University of Cape Coast
Mr. Kojo Sortoh	Ghana Inshore Fisheries Association (GIFA)
Mr. Kyei Yemoah	Friends of the Nation
Capt. Claude Noah Amfo	Ghana Industrial Fisheries Association (GITA)
Mr. Emmanuel Dovlo	FC/Fisheries Scientific and Survey Division
Mr. Nana Jojo Solomon	Ghana National Canoe Fishermen Council (GNCFC)
Mr. Kofi Abogah	Hen Mpoano
Mrs. Beatrice Wradi	National Fish Processors and Traders Association

Members of the STWG worked in close collaboration with FSSD staff, which provided data and expertise, to carefully examine existing data and other fisheries related studies to improve understanding of the current status of various fish stocks. The STWG also worked to establish practical indicators to monitor fisheries management performance measures toward a healthy and sustainable state of fisheries. Fishermen were included as key members of the STWG to add their local knowledge and experience in the formulation of scientific reporting and the development of management recommendations.

The science for management effort also focused on the key issue of natural hazards damaging fishing communities and putting the lives of fishing and fish-processing families at risk. This built upon work carried out by the predecessor project to the SFMP, the USAID/Ghana Integrated Coastal and Fisheries Governance Project, that focused on the Western Region. Advances in technologies of Unmanned Arial Vehicles (UAVs) and the application of imagery captured for coastal fisheries research and shoreline management was used to improve fishing community resilience. In support of this strategy, a UAV program was developed as a multi-year collaborative effort between the SFMP, Ghana's Land Use and Spatial Planning Authority (LUSPA) and the University of Cape Coast (UCC) Department of Fisheries and Aquatic Sciences - Centre for Coastal Management, and UCC Department of Geography and Regional Planning. The focus of this partnership was to build institutional capacity to manage spatial information and utilize UAV technology in the push for sustainable development and sound resource management at the district and community levels of coastal areas, including the locations of fishing communities, fish landing sites, settlements, and processing centers.

The SFMP also strengthened the Central Region's spatial planning capability through refurbishing its mapping center, provided a coastal management toolkit document and training for LUSPA and district staff and upgraded the software government has set for all districts to use in land use mapping. In addition, high-resolution UAV imagery is now serving as a baseline measure for mapping priority areas to monitor resource health and evaluate policy implementation. The SFMP collaborators received necessary equipment, software and training needed to operate and apply these cutting-edge technologies.

PROGRESS AND RESULTS

Operations of the Scientific and Technical Working Group (STWG)

The STWG served as the primary scientific and technical advisory group to the Fisheries Commission on the status of the small pelagic stocks. The STWG assisted the Fisheries Commission to develop implementation strategies for the National Fisheries Management Plan (NFMP), recommended terms of reference for the planned operational committee to monitor implementation of the NFMP and advised on other fisheries-management related matters. The STWG produced annual status reports of the small pelagic and demersal stocks from 2015 to 2019. A report on the biological and socio-economic impact of 2019 fishing closed season was also completed. STWG reports were presented to MOFAD, the Fisheries Commission and industry's associations and at several national forums. The STWG's Chairman, Professor Kobina of UCC (of blessed memory), participated in national radio and TV programs to discuss scientific findings on the status of fish stocks and science-based recommendations of the STWG.

In recognition of the variability in fish dynamics, changes in the environmental conditions, human behavior and managerial uncertainties, the STWG included peer-review of stock assessment reports for additional scientific review and validation before the results of the stock assessment models were communicated to fisheries managers. The STWG invited scientists from the U.S. National Oceanographic and Atmospheric Administration to Ghana for ten days to provide technical support and advice on current assessment techniques, and to provide advice on addressing uncertainties due to data gaps and missing information. The team reviewed the stock assessment report prepared by the STWG within the context of available data and prepared a report on findings and made recommendations for improvements.

The General conclusions by the peer-review panel were that improved data and better access to existing information remains a priority for fisheries management decisions and that the application of the Biomass Dynamic Model is appropriate for the management of fisheries in Ghana. The panel noted that the formation of the STWG was a step in the right direction and recommended that the STWG should be institutionalized as an official part of the management process. The panel further recommended the establishment of a formal relationships between FSSD and local universities to strengthen the development and targeting of scientific research and knowledge to improve marine and coastal management in Ghana. They emphasized the need to develop domestic capacity for conducting fisheries stock assessments and establish systematic processes and procedures for utilization of best available scientific information in policy formulation and review as well as fisheries management decision-making as provided for in section 42(1)(a) of the Fisheries Act, 2002 (Act 625).

Following the approval of the Co-Management Policy for the fisheries sector, which mandates the Fisheries Commission to establish a Science and Technical Committee (STC) to act as an advisory panel to the Commission and its Co-Management Committees, it can be concluded that SFMP's goal of institutionalizing the STWG or STC has been realized.

The STWG's 2018 Stock Assessment report covering 2017 data, and the STWG's recommendations for the national, all fleets closed season in the August time period, have become the reference points of various studies on the fish stock levels and potential collapse of the small pelagic fishery. In 2018, the Ministry and Fisheries Commission accepted the recommendation by the STWG to implement a closed season for all fleets during the peak spawning period in August to maximize the biological gains of the initiative. However, fishers in some regions rejected the recommendation citing conflict with their cultural

practices (annual festivals) and the short notice prior to the commencement of the intended closure. Subsequently, the largest member association of artisanal fishers, the Ghana National Canoe Fishermen Council (GNCFC) also rejected the idea. As a result of the public outcry, the Minister rescinded the decision to close artisanal fishing in 2018 and subsequently formed a special committee to review the STWG reports and advice on the scheduling for a 2019 closure.

This issue of timing for the artisanal fleet closure in 2019 became the main topic of discussion in many forums, workshops, radio and TV programs. Fishers ultimately agreed to a closure from May 15 – June 15, 2019 even though the agreed period lacked scientific backing. The acceptance by artisanal fishermen of the first ever artisanal fleet closure in Ghana's history marked a significant shift in the debate from outright rejection of a closure to discussion on the best suitable period to maximize biological gains and support for science-based decisions. In the end, artisanal fishers embraced the closure, facilitated through the SFMP-sponsored Fisher-to-Fisher dialogue platform (see essay on co-management and constituency building). When the 2019 closure was implemented, there was almost complete voluntary compliance among artisanal fishers across Ghana's entire coast. The SFMP's role in building support for voluntary compliance was seen as critical given limited resources at the disposal of Government for enforcement.

In order to measure the impacts (positive, neutral or negative) of the closure, biological and socio-economic, monitoring and evaluation procedures were developed by the STWG. SFMP provided support to ensure a systematic assessment of the implementation and measured the biological and socio-economic effects, as well as the adaption strategies of fishers and fish processors. Monitoring and evaluation was essential in providing lessons learned and an informed framework for future seasonal closures. Supported by SFMP and led by FSSD, the monitoring and evaluation team included respected fishermen from all coastal regions to lend credibility to the monitoring and evaluation effort, and to improve collaboration between fishers, scientists and regulators. Through the active participation of fishers in the identification of the maturity stages of the fish (i.e., whether or not fish were spawning during the closed season), they (the fishers) became more informed and appreciated better the scientific basis is scheduling the closed season to coincide with the peak spawning period of the fish species of interest to management, the small pelagic species.

The STWG introduced new assessment techniques for fisheries stock management such as Biomass Dynamic Modeling and Surplus Production Modeling to estimate annual fishing mortality rates and standing biomass of fish stocks. Other techniques for calibrating observed fishing effort collected by FSSD were tested and applied. It was well known, before SFMP, that stock assessments conducted by FAO/CECAF using non-standardized effort data did not produce accurate estimates of fishing mortality and stock size. For example, the fishing trips of 1990 were less efficient than those observed in recent years due to trip duration, new technologies (depth sounders, GPS), and larger boats, nets and crew size. The efficiency of the fishing trip increased by as much as 155% since 1990 which required the introduction of standardization methods to calibrate fishing trips and therefore remove bias from the catch per unit effort (CPUE) data to accurately characterize the status of the stocks. A new time series of CPUEs were generated using the Generalized Linear Modeling (GLM) technique and were subsequently used in the Biomass Dynamic Modeling to estimate non-biased estimates of fishing mortality and standing biomass.

The STWG introduced the concept of fisheries management benchmarks, based on biological reference points (see Figure 2 below). It was associated with the acceptable fishing mortality rates (F_{msy}) and the level of biomass needed to maintain the sustainability of fish stocks

(B_{msy}). These reference points set boundaries intended to guide fisheries managers in constraining harvests to within safe biological limits. Stock assessment results were presented in visually friendly graphs to facilitate understanding of current status of the stock and trends of excess fishing effort over time. In Figure 2 below, the green quadrant represents restored status while the red quadrant represents a state of overfishing and depleted biomass. The use of these presentations has become a gold standard in fisheries management monitoring and evaluation techniques.

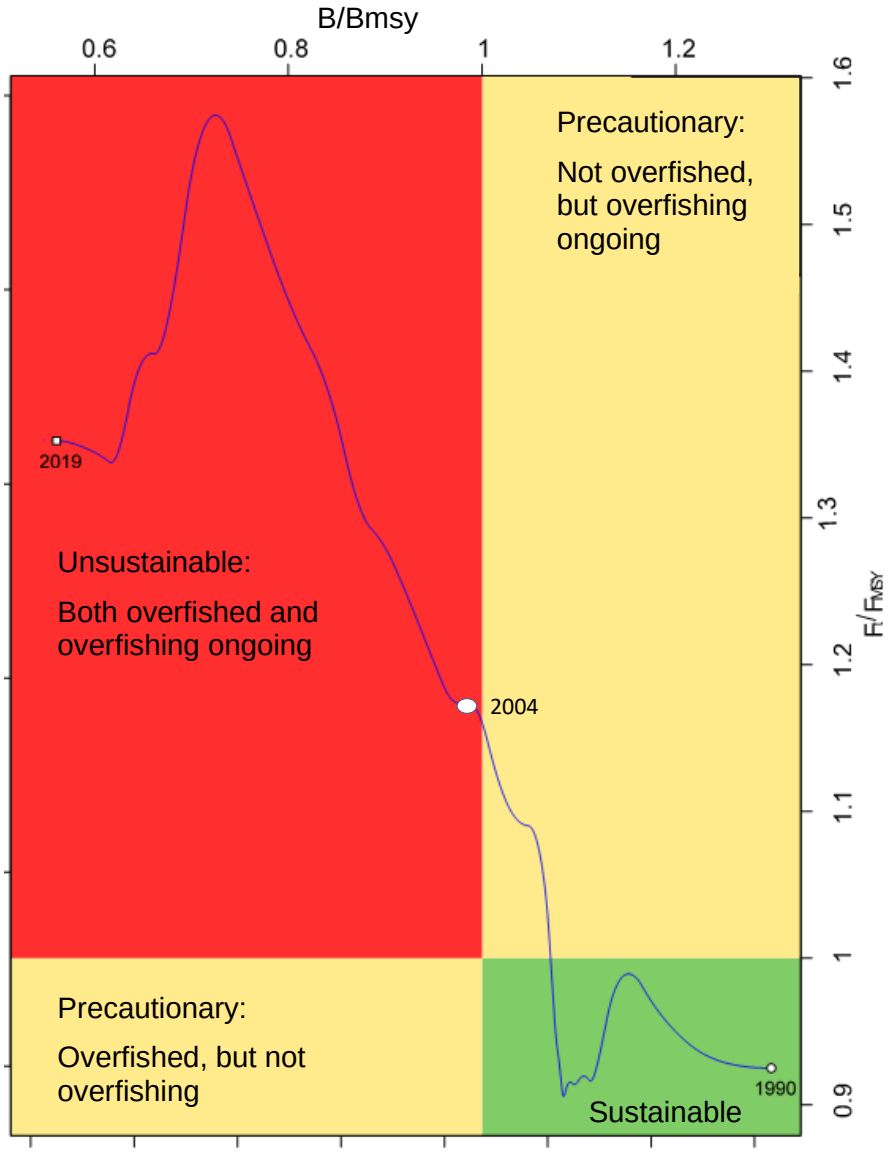

Figure 2 Kobe plot (control rule) showing the trends of the relationship between biomass and fishing mortality over time for Ghana's small pelagic fishery

The final stock assessment report prepared by the STWG in 2020 concluded that the Sardinella and small pelagic stocks had collapsed. This is a sad state of affairs and demonstrates that in spite of all the advancements made to date in Ghana, there is still a long road to rebuilding these important fish stocks.

Strengthening the Fisheries Scientific Survey Division

The Fisheries Scientific Survey Division (FSSD) is one of the five divisions of the Fisheries Commission. The SFMP's plan for organizational capacity development outcomes identified key areas requiring improvements in stock assessment, and use of information technology, statistics and data management as key areas for improvement for FSSD. At the time of the initial assessment, it was concluded that FSSD was not well positioned and equipped to provide scientific data and information in support of effective management of the fisheries sector due to insufficient human resource capacity, limited scientific resources and outmoded information technology and equipment. The Division manages large databases on marine fisheries production and oceanography. Data used to be collected by field enumerators on paper forms in selected landing sites that are submitted to regional zonal officers for review and subsequent submission to FSSD headquarters through Fisheries Commission regional offices. Data and reports received undergo data editing and entry into specialized computer programs developed by FAO called *ArtFish*. The quality of the data eventually captured into the *ArtFish Application* was poor as result handling of the paper on which data was captured at multiple stages and there was usually a long time lag between data collection, entry, compilation and analysis to generate information for decision-makers.

The SFMP completed a series of capacity building training events for FSSD staff in fisheries statistics, stock assessment, networking, database management, data entry and analysis, data collection using mobile technologies and fisheries management techniques. In addition, SFMP provided the FSSD with sampling material and computer equipment, servers, tablets, smartphones, printers, and office furniture to complement the resources provided through the WARFP and the Fisheries Commission.

Following the completion of two stock assessment training workshops in basic and advanced fish stock assessment techniques, two staff of FSSD benefited from a three-month specialized training program at the University of Rhode Island. The training was coordinated by Coastal Resources Center (CRC) and focused on fish population dynamics applicable to fisheries management. In addition to training at the University of Rhode Island, they participated in scientific and fisheries management meetings in the US New England and Mid-Atlantic regions.

The themes of the training program included advanced methods in fish stock assessment, fisheries management, fisheries data collection, and information management. Upon return to Ghana, these staff led the FSSD to undertake a national stock assessment analysis for small pelagics and demersal fish stocks and presented the results to the Ministry, Fisheries Commission and the STWG. The presentation was timely as Ghana was at the time embarking on the second round of debates regarding closed seasons for 2019, as well as effort reduction programs for the artisanal fisheries that required registering all artisanal vessels and issuing a moratorium on new entrants.

To make further improvements in the data collection program, SFMP partnered with the World Bank West Africa Regional Fisheries Program (WARFP), the UN Food and Agriculture Organization (FAO), and Fishery Committee of the West Central Gulf of Guinea (FCWC) to develop a catch documentation application for FSSD that was compatible with smart phones and tablets. The application was developed on an Android platform for smartphones and tablets using an Open Data Kit (ODK). This initiative was piloted at fourteen landings sites and SFMP provided smartphones and training on the Application to facilitate mobile data collection.

Despite some challenges in funding the data uploads from the field, the pilot initiative on mobile data collection highlighted numerous advantages over the previous paper-based data

collection process. Digital data collection substantially reduced the time and cost of data entry and submission and presented a direct link of communication with the enumerators. Initial problems were encountered by the Fisheries Commission in paying enumerators for data plans for the smartphones used for data collection. However, the concept proved to be relevant and valid and the SFMP pilot was later expanded with the support of WARFP to include 42 landing sites.

A parallel data collection system using KoboToolBox was developed by SFMP and deployed in eight major landing sites for biological monitoring of the effects of the first ever closed fishing season of artisanal fisheries. Building on lessons learned in the initial mobile data collection piloted by SFMP, in 2019, the FSSD needs to continue exploring new technologies for fisheries data systems and promote innovation to increase data coverage, accuracy and resolution while reducing cost in providing managers and policy makers with necessary scientific inputs to facilitate near real-time adaptive management and decision making to help end overfishing and reverse the trends of stock depletion.

Collaborations with the University of Cape Coast

SFMP partnered with the University of Cape Coast (UCC) and its Department of Fisheries and Aquatic Sciences (DFAS) to operationalize their vision for setting up the Center for Coastal Management (CCM). The SFMP supported the CCM in the implementation of the Center's Fisheries and Coastal Management and Capacity Building Project funded by the USAID. The support and capacity building provided by the SFMP made it possible for the CCM to strengthen its internal processes and structures and also expanded its network. This made it possible for the World Bank to recognize and select the CCM as one of the five new centers of excellence under the World Bank's African Center of Excellence Program, in the thematic area of Coastal Resilience (ACECoR). Sustaining and building on USAID/Ghana's investment, UCC received $5.8 million from the World Bank to expand its capacity building programs, train graduate and post-graduate students, provide technical and professional training, and increase fisheries and coastal policy engagement.

Working with UCC, in particular, the Centre for Coastal Management, the SFMP supported the development of short courses in fisheries management, integrated coastal management, Geographic Information Systems (GIS), and climate change through faculty exchanges between URI and UCC. As a result, UCC developed fee-based short courses on a regular basis, targeting government institutions, the fishing industry, NGOs and other public institutions. Ph.D candidates and researchers affiliated to the Centre for Coastal Management have played integral roles in local fisheries co-management planning processes in the Pra, Ankobra and Densu estuaries, priority geographic areas of the SFMP. Supported by SFMP, the researchers from CCM trained and empowered fishers in basic data collection on water quality, biology and fisheries production for their own local knowledge and adaptive decision-making. Citizen science in this context facilitated collaboration between fishers, students, and faculty researchers to find solutions to local overfishing and habitat degradation problems. SFMP report on organizational capacity development outcomes noted that the focus of DFAS was previously on fisheries and biological science. However, with SFMP support, DFAS has included in its scope of work and research, engagement with local communities and demand driven research. Every student now has a project outside of the campus rather than being limited to working in a laboratory or doing document research as was often the case previously.

SFMP commissioned a regional population study for two sardinella species (*Sardinella aurita* and *Sardinella maderensis)* in West Africa by supporting a UCC student to obtain a master's degree at URI. The graduate student from Ghana was trained in advanced genetic

techniques to identify genetic fish stock structures and her thesis has provided basis for applying the same techniques with respect to the main species for food security in West Africa. The thesis improved understanding of stock units and established boundaries of genetically isolated populations along the Atlantic African coast. The genetic research was the first of its kind in Africa and resulted in UCC being invited as key member of the international marine fisheries genetics working group led by the FAO/Nansen project. The results of these studies provided important information needed to delineate specific fish populations in West African considered important for harmonization of regional actions for sustainable fisheries management including marine resources of Ghana.

SFMP provided technical training and equipment support for UCC/DFAS fisheries age and growth laboratory which is now responsible for determining the age of fish through reading scales and otoliths. The information is used by student researchers and FSSD for stock assessment and fisheries management to support sustainable fisheries in Ghana. The first two Ph.D. dissertations facilitated through the availability of equipment and upgrade of the UCC/DFAS laboratory were defended in May 2019.

An agreement for a dual graduate degree program was signed between the University of Rhode Island's College of Environment and Life Sciences (URI-CELS) and the University of Cape Coast, Department of Fisheries and Aquatic Sciences (UCC/DFAS) in 2019 and this has fostered collaboration between the two universities beyond SFMP. Students from the U.S. and Ghana have the opportunity to simultaneously pursue a dual PhD degree in biological and environmental science from UCC and URI.

Data Management for Coastal Resilience and Use of Unmanned Aerial Vehicles for Coastal and Fisheries Management

The collaborative work among SFMP and USAID's Coastal Sustainable Landscapes Project (CSLP), and UCC; DFAS, CCM, and the Department of Geography and Regional Planning, district and regional planners in the Western and Central Regions created a network of expertise that aided the districts assemblies in the planning processes and facilitated the design of related projects by the World Bank and European Union. This broad collaboration also supported response to challenges including storm-related damage to fish landing sites and communities such as Sanwoma at the estuary of the Ankobra River and Anlo Beach at the estuary of the Pra River where fish-processing facilities and ovens were damaged.

In 2016, the SFMP undertook refurbishment of a training facility at the Cape Coast central region Town and Country Planning office (now the Land Use and Spatial Planning Authority). The refurbishment works included fixing of new doors, burglar proof systems, new lighting, air condition systems and floor tiles. Furniture and computers for training up to 16 persons per session were also provided. In addition, a LAN system was installed (Figure 3). The refurbished GIS Data Hub was inaugurated in September 19, 2016, with representatives from USAID and the TCPD Headquarters in Accra. The National Director of Land Use and Spatial Planning (formerly Town and Country Planning, TCPD) indicated that the USAID investment was not only supporting better planning in coastal areas, but also facilitate the work of other agencies in need of spatial planning and mapping services, including the Lands Commission and the Ministry of Agriculture. He indicated that the facility was going to serve as a spatial mapping and service center for the entire region

Figure 3 GIS Training for Town and Country Planning Department Personnel in the Western Region

SFMP facilitated a series of meetings with selected planners from the Central Region Land Use Planning Authority (LUSPA) to outline an Integrated Coastal Management (ICM) tool kit. Imagery from existing ortho-photos, Google Earth and those generated from UAV flights using the drone purchased for use in Ghana were used for the meetings/trainings materials which helped in identification of potential issues for subsequent analysis and management actions. (Developing Capacity in Spatial Planning) Among others, issues identified in specific sites included uncontrolled beach tourism development, degradation of coastal ecosystems and shoreline erosion. SFMP provided additional technical support to the Central Region Land Use Planning Authority to further enhance the capacity of 13 planners in managing coastal landscapes as well as the coastal zone through the use of advanced planning tools and state-of-the-art equipment. A key product from this collaboration was "A Planners' Guide to Integrated Coastal Management in the Central Region of Ghana." While the Land Use Planning Authority does not have direct fisheries management responsibilities, it was able to gain expertise and strengthen its capacity to regulate coastal development, road networks, and other physical infrastructure development that can have significant impacts on the socioeconomic development of artisanal fishing communities.

Beginning in 2015 a pilot study was conducted using an available multi-propeller, helicopter-style DJI Phantom 2 Vision + to assess the utility of small unmanned aerial vehicles (UAVs) as a cost-effective data collection tool for SFMP, with the idea that these may be transferrable for use in Ghana. SFMP worked closely with the Ghana Civil Aviation Authority (GCAA) to ensure all activities satisfied existing UAV permitting and operating requirements within Ghana. Case studies were developed for coastal inundation and shoreline change (Ankobra), mangrove identification and delineation (Kakum estuary), and fisheries landing site vulnerability (Axim). Early successes with the Phantom led to the 2016 purchase of a DJI Phantom 3 Pro that has been transferred to UCC for partner training and for use in additional surveys requirements of priority areas identified by partners. The UAV Program also began

coordinating directly with regional and district LUSPA offices to collect imagery that would support ongoing planning efforts. It was clear by 2017 that a long-term sustainability plan was needed for UCC to support the continued operation of the UAV program after the SFMP. This led to the decision to make a significant increase in capability through the investment in a fixed-wing UAV (Bramor ppX by C-Astral Aerospace) that was acquired and capable of surveying large coastal wetland complexes as well as operate both RGB and multispectral cameras (sensors). Partners received training from the manufacturer on how to operate the equipment safely, along with all necessary software to process the UAV imagery. Both the fixed wing and quad-copter UAVs purchased by SFMP were transferred to the Centre for Coastal Management at UCC.

In total, the SFMP UAV program has conducted baseline image surveys for 22 discrete locations, resulting in 327,442 images covering 125 km^2. All imagery (raw and processed) was provided to project collaborators and stakeholders. In addition, image mosaics have been made available free of charge to view or download through the SFMP Online Map and Data Center (http://tinyurl.com/sfmpdata). Four individuals from UCC have taken the CGAA certification exam and have obtained RPAS Operator Certificates.

UCC continues to utilize UAV capabilities for research. For example, at the onset of the COVID-19 pandemic, UCC initiated a study on physical distancing in fish landing sites and markets, relying on UAV imagery to assess crowding. SFMP provided partial support for this study and the research was published in December 2020 in Scientific Reports, Nature Sustainability Journal. (Physical Distancing and Risk of COVID-19 in Small-Scale Fisheries: a Remote Sensing Assessment in Coastal Ghana). This work was carried out with UCC's DJI Phantom 4 UAV, a quad-copter.

LESSON LEARNED

The SFMP has succeeded in boosting Ghana's ability to generate reliable information for fisheries management decisions, and to focus attention on the resilience of fishing communities and fish processing infrastructure. One of the major lessons learned in the implementation of the project is that significant stakeholder engagement in the formulation and implementation of key management measures is critical to success. Even the slightest delay in bringing stakeholders into the process has the potential to reduce ownership. As an example, even though the STWG is made up of representatives from all the key marine fisheries associations, it failed to recognize the key role of NAFAG in the implementation of fisheries management measures. Due to the vague organizational structure of NAFAG and issues between NAFAG and other associations as to the validity of NAFAG as the true umbrella of all fisheries associations in Ghana, NAFAG was often left out of stakeholder engagements. Key members of the association were never involved in STWG's activities yet NAFAG was chosen by the Minister to lead a process that resulted in a proposed timing for the 2019 closed season inconsistent with the STWG findings. Effective engagement of all key and relevant associations in the management of the marine fisheries sector is important for successful implementation of conservation measures with high voluntary compliance.

The technology and programming for moving to paperless forms and smartphones for fisheries data collection was easily developed. The main challenges that slowed its adoption by the FSSD arose from inefficient administrative systems that had difficulty paying remuneration of field enumerators and mobile phone data transfer costs/plans needed to transfer collected data from the tablets or smart phones of Enumerators and upload data into the database. While the head of the FSSD fully supported the effort, the inability to overcome this minor problem signified that additional internal work was needed to ensure Fisheries

Commission ownership. In addition, some field enumerators engaged by the Fisheries Commission to collect data on mobile platforms were not fully familiar with smart phones features and had difficulty learning how to use basic functions and additional difficulty in understanding data collection and internet-based transfer. Information technology solutions cannot be viewed simply as a technology issue but needs a whole ecosystem-wide approach that includes administrative and financial operation and human resources development.

The principal factors contributing to the success of UCC/DFAS and the achievement its objectives, and in fact, exceeding expectations, include the emphasis placed on effective communication and integration of participatory research that energized student researchers and faculty to engage in adaptive management. It brought together a diversity of stakeholders for the common goal and built a bridge between local ecological knowledge of fishers and experimental research that is continuing with World Bank support.

NEXT STEP FOR GHANA

It is vital for Ghana to continue the momentum created through the successes attained during the SFMP and WARFP projects. As the National Fisheries Management Plan 2015-2019 is being reviewed to ascertain targets achieved and lessons learned to inform the development of a new National Fisheries Management Plan 2021-2025, it important that the entire process is dominated by science-based information for decision-making in setting realistic targets and in the implementation phase including monitoring and evaluation expected outcomes. A report issued in June 2018 by the European Union delegation indicated that the implementation of the NFMP, 2015-2019, was weak and lacked an effective monitoring plan based on scientific impact assessments in critical areas such as effort control, catch documentation and regulation of illegal fishing. To a large extent, this situation continues at the time of writing this report. There must be greater commitment to the implementation of measures outlined in the new NFMP (2021-2025) in order for Ghana's fisheries sector to achieve its objectives and contribute to GDP but more importantly for the sector to contribute its quota to national food security and sustain the livelihoods of millions of Ghanaians.

In the near term, the Fisheries Commission should proceed to constitute the Science and Technical Committee (STC), following approval of the Co-Management Policy with the mandate for the Commission to form the STC. The STC should be tasked with the responsibility of developing standard procedure and processes to foster more collaboration between the Fisheries Commission and universities and engage students of relevant disciplines in more effectively in action learning research. This will include creating systems to support research, development, and delivery of action research programs that engage key stakeholders and institutions similar to the U.S. Sea Grant Program which could be readily adapted for a Ghana context. As the National Fisheries Management Plan is being revised, provisions should be made for annual recurring budget for action research through a university network similar to the US Sea Grant University Program. Parallel to this, there should be active involvement of fishers in research and data collection, as well as other scientific research, to help increase buy-in and voluntary compliance with adaptive management measures based on research outputs.

Opportunities for public-private partnerships (PPP) between government, universities and the private sector are emerging in Ghana. One particularly opportunity is cooperation between government, the University of Cape Coast, and the Ghana Industrial Trawler Association (GITA) to provide on-board experience for fisheries students. Currently, many fisheries students and graduates have never been to sea. A formal arrangement between UCC, GITA,

and government could provide new opportunities and identify new areas for research to improve operations of with the sector including redesign and regulations of fishing gear.

Stakeholder institutions at the national level need more strengthening to incorporate science-based decision-making and advocacy into their programs. This includes: The National Fisheries Associations of Ghana (NAFAG), the Ghana National Canoe Fishermen's Council (GNCFC), the National Fish Processors and Traders Association (NAFPTA), the Ghana Inshore Fisheries Association (GIFA) and the Ghana Industrial Trawlers Association (GITA).

REFERENCES

Adams, O., Donkor, P., Kankam, S., Mensah, J. (2017). A Planners' Guide to Integrated Coastal Management in the Central Region of Ghana. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island; Spatial Solutions Limited, Accra; Hen Mpoano, Takoradi; and University of Ghana, Cape Coast, Ghana. GH2014_SCI037_SpS_HM_UCC. 65 pp. https://www.crc.uri.edu/download/GH2014_SCI037_SpS_HM_UCC_FIN508.pdf

Adams, O., Kankam, S., Owusu Donkor, P. (2016). Vulnerability Assessment for Axim Fish Landing Site, Nzema East District. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and Spatial Solutions, Accra, Ghana. GH2014_ACT047_SpS. 21 pp. https://www.crc.uri.edu/download/GH2014_ACT047_SpS_FIN508.pdf

Brown B., Moustahfid, H. (2015). Evaluation of Stock Assessment and Management of Small Pelagics in Ghana. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and National Oceanic and Atmospheric Administration (NOAA). GH2014_SCI001_CRC. 16 pp. https://www.crc.uri.edu/download/GH2014_SCI001_CRC_FIN508.pdf

Coastal Resources Center. (2016). Developing Capacity in Spatial Planning. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI023_CRC. 14 pp. http://www.crc.uri.edu/download/GH2014_SCI023_CRC_FIN508.pdf

Ghana Ministry of Fisheries and Aquaculture Development and Fisheries Commission. (2020). Ankobra Estuary Community-Based Fisheries Management Plan, Western Region, Ghana. Accra: Ministry of Fisheries and Aquaculture Development, Fisheries Commission. 70 pp. https://www.crc.uri.edu/download/GH2014_ACT084_MOFAD_FC_FIN508.pdf

Kankam, S., Asare, C., Nortey, D., Mensah, J., Agbogah, K., Lazar, N. (2015). Small Pelagic Fisheries Data Collection: Orientation Training Manual. May 4-5, 2015, Boyboison Hotel, Takoradi, Western Region, Ghana. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Coastal Resources Center of University of Rhode Island and Hen Mpoano, GH2015_ACT032_HM. 42 pp. https://www.crc.uri.edu/download/GH2014_ACT032_HM_FIN508.pdf

Kent, K. (2018). CSO and GOG Organizational Capacity Development Outcomes: Qualitative Snapshot. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of

Oceanography, University of Rhode Island. https://www.crc.uri.edu/download/GH2014_CAP046_CRC_FIN508.pdf

Kent, K. (2015). Organizational Capacity Assessment Report for Government and Public University Units. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and SNV Netherlands Development Organization. GH2014_CAP003_SNV. 36 pp. https://www.crc.uri.edu/download/GH2014_CAP003_CRC_FIN508.pdf

Lazar, N. (2016) Proceedings of the National Fisheries Stock Assessment Peer Review Workshop. The status of small pelagic fisheries of Ghana. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI024_CRC. 18 pp. http://www.crc.uri.edu/download/GH2014_SCI024_CRC_FIN508.pdf

Lazar, N., Yankson K, Blay J., Ofori-Danson P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2016) Rebuilding Depleted Small Pelagic Stocks in Ghana. A Closed Fishing Season Proposal to the Ministry of Fisheries and Aquaculture Development. The Scientific and Technical Working Group. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI002_CRC 17 pp. https://www.crc.uri.edu/download/GH2014_SCI002_CRC_FIN508.pdf

Lazar, Najih, Darko, Charles, Ansong, Ernest, Boateng, Kusi. (2020). Assessing the Biological Effects of the Fisheries Closed Season Implemented for the Artisanal and Semi-Industrial Fisheries in Ghana, 2019. USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI077_CRC. 23pp. https://www.crc.uri.edu/download/GH2014_SCI077_CRC_FIN508.pdf

Lazar, N., Yankson, K., Blay, J., Ofori-Danson, P., Markwei, P., Agbogah, K., Bannerman, P., Sotor, M., Yamoah, K. K., Bilisini, W. B. (2020). Status of the Small Pelagic stocks in Ghana in 2019. Scientific and Technical Working Group. USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI083_CRC. 16 pp. https://www.crc.uri.edu/download/GH2014_SCI083_CRC_FIN508.pdf

Mensah, J., Amoako, O.A., Kankam, S. (2015). Ankobra River Estuarine Community Climate Vulnerability Assessment. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and Hen Mpoano. GH2014_ACT023_HM. 70 pp. https://www.crc.uri.edu/download/GH2014_ACT023_HM_FIN508.pdf

Ofori-Danson, P.K., Asiedu, B., Amponsah, S.K.K., Crawford, B. (2019). Assessment of the Socio-Economic, Food Security and Nutrition Impacts of the 2019 Canoe Fishery Closed Fishing Season in Ghana. USAID/Ghana Sustainable Fisheries Management Project. Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island. GH2014_SCI076_CRC. 109pp https://www.crc.uri.edu/download/GH2014_SCI076_CRC_FIN508.pdf

Okyere, I. Chuku, E.O., Ekumah, B., Angnuureng D.B., Justice K. Boakye-Appiah, David J. Mills, Raymond Babanawo, Asare, N.K., Aheto D.W., & Crawford, B. (2020). Physical Distancing and Risk of COVID-19 in Small-scale Fisheries: a Remote Sensing Assessment in Coastal Ghana. *Nature Research Scientific Reports*, 10:22407. https://doi.org/10.1038/s41598-020-79898-4

Owusu Donkor, P., Mensah, J. C, Adams, O. & Mohammed, M. (2017). Manual for GIS Training of Central Regional TCPD Officers. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and Spatial Solutions. GH2014_SCI060_SpS. 31 pp. http://www.crc.uri.edu/download/GH2014_SCI060_SpS_FIN508.pdf

INSTITUTIONAL STRENGTHENING

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BACKGROUND

A robust institutional ecosystem of engaged and performing, representative, transparent, and accountable government, public university, and civil society organizations is critical to drive and sustain the transformational change urgently needed to reverse unsustainable fisheries in Ghana and secure future fisheries-based livelihoods and food security. The challenges of managing the fisheries sector currently surpasses the limited human and financial resources capacity of the central government alone. Resources at regional and district levels are even more constrained. Fishers, fish processors, and other stakeholders in the large artisanal sub-sector are likewise limited in their capacity to coordinate and effectively take concerted action to manage common resources for their own and common benefit without organization and representation at scale. Unless Ghana's institutional ecosystem is developed, it is likely that information, knowledge, expertise, and institutional, organizational and individual agency will be insufficient to sustainably manage Ghana's fishing sector given its size and geographic scope relative to human and financial resources likely to be available in the near future. This is especially true of the artisanal sub-sector that provides the majority of fish landings in Ghana.

Approximately 2.8 million Ghanaians rely directly or indirectly on fishing for their livelihoods equal to almost 10 percent of Ghana's population (MOFAD, 2018). The recently updated Artisanal Vessel Registry System of the Fisheries Commission shows that the canoe fleet has increased from 12,700 in the 2016 to over 14,700 canoes in 2018.[8] Based on the total number of vessels operating in the marine sector and an estimated average crew per vessel, it is likely that the sector directly employs over 135,000 fishermen in the marine capture sub-sector alone, 92% of whom are artisanal fishers.[9] [10] The SFMP committed to assisting the Ministry of Fisheries and Aquaculture Development (MOFAD) and its Fisheries Commission (FC) to rebuild targeted marine fisheries stocks and catches through adoption of responsible fishing practices, with a particular emphasis on inshore small pelagics species, often referred to as 'the people's fish' because of their importance to food security in Ghana. Fish provide an estimated 50 percent of protein intake in Ghana with higher levels in some coastal fishing villages. The 'people's fish' are especially important for pregnant mothers and developing children below the age of 5 years.

SFMP committed to assisting the Ministry of Fisheries and Aquaculture Development (MOFAD) and its Fisheries Commission (FC) to rebuild targeted marine fisheries stocks and catches through adoption of responsible fishing practices. One key result area was improved capacity of key stakeholder organizations involved in fisheries governance. The SFMP

[8] Fisheries Commission Final Artisanal Vessel Registry, 2019.

[9] FAO, 2016, http://www.fao.org/fishery/facp/GHA/en

[10] SFMP 2018 estimates figures are based on the Fisheries Commission 2018 National Canoe Registry with an estimated 8-9 people on average working with each canoe. In addition, there are upwards of 75 commercial trawlers plus over 500 inshore industrial trawlers operating in Ghana with tens of crew per trawler.

invested in assessment and development of organizational capacity within 19 governmental, public university and local civil society organizations through approaches that would be locally appropriate, aligned with organizational objectives and needs, and lay the foundation for further institutional and organizational development post-SFMP.

PROJECT IMPLEMENTATION STRATEGY

The objective of the project's capacity development initiative was to facilitate and support strengthening of key local partner organizations' capacity to develop and implement managed access fisheries management plans and improve the quality and sustainability of the training and outreach services local organizations provide to their constituencies (i.e., sustained and improved institutional ecosystem growth post-SFMP). In the case of civil society organizations (CSOs) the purpose was three-fold: (a) build internal systems including financial and technical management; (b) develop materials and standardized training modules and receive national or internal certifications that recognize their capacity; and (c) position them to be ready and capable of receiving and effectively managing direct funding from USAID and other donors.

The SFMP focused on the following nine Government of Ghana and Public University Units identified during project design phase as key enabling, implementing, and change initiating organizations in Ghana's fisheries sector.

1. Monitoring, Control and Surveillance Unit of the FC (MCS).
2. Fisheries Scientific Survey Division of the FC (FSSD).
3. Post-Harvest Unit of the FC (PHU).
4. Marine Fisheries Management Division of the FC (MFMD).
5. Fisheries Enforcement Unit, an interagency body (FEU).
6. Western Region Land Use and Spatial Planning Authority (LUSPA/WR).[11]
7. Central Region Land Use and Spatial Planning Authority (LUSPA/CR).
8. University of Cape Coast/Centre for Coastal Management (UCC/CCM).[12]
9. University of Cape Coast/Department of Fisheries and Aquatic Science (UCC/DFAS).

The SFMP also engaged five local civil society organizations for implementation and capacity development to boost organizational capacity, increase inter-CSO coordination, and increase public participation in the sector. Engaging local CSOs also enabled SFMP to support bridging the outreach-gap from smaller numbers to larger numbers of geographically disbursed fishers and processors. This also capitalized on local knowledge and trusted relationships at the community level and fostered increased local ownership and sustainability. Local CSO partners included Friends of the Nation (FoN) and Hen Mpoano (HM – 'Our Coasts'). Regional membership associations included the Central and Western Fishmongers Improvement Association (CEWEFIA), the Development Action Association (DAA), and the Daasgift Quality Foundation (DQF).

Although not part of the original project design, SFMP quickly recognized the need to include capacity development support for national civil society organizations that directly represent their membership. This resulted in inclusion of five additional national membership associations to the capacity development portfolio:

[11] formerly the Town and Country Planning Department

[12] As part of its overall program in the sector, USAID/Ghana awarded $5.5 million directly to UCC for a 5-year program in fisheries and coastal management capacity development and simultaneously designated SFMP to provide a portion of its budget for support to UCC capacity development.

1. Ghana Industrial Trawlers Association (GITA).
2. National Fish Processors and Traders Association (NAFPTA).
3. Ghana National Canoe Fishermen Council (GNCFC).
4. National Fishermen Association of Ghana (NAFAG).
5. Fisheries Alliance (FA).

The project conducted an initial baseline organizational capacity assessment (OCA) for each organization to benchmark its status, identify priority areas for capacity development, and facilitate SFMP and partner decision-making on how the SFMP might best contribute.

For government and public university units, the OCA process employed a qualitative survey using key informant interviews within and outside the units assessed. This was complemented by in-depth technical needs assessments conducted by subject matter experts for some organizations to ensure the technical depth of the capacity development needs were appropriately captured. For example, specialists were used for assessment of the FSSD's Management Information System (MIS) platforms and technical capacity for fisheries data collection and stock assessment analysis, for certain organizational training needs in fisheries leadership, to assess enforcement units' readiness to adopt competency-based programs, to identify specific areas of gender disparities and mainstreaming opportunities, to assess and develop plans for GIS capacity building for coastal spatial planning, and development of academic curricula for UCC, among others. The World Bank-funded West Africa Regional Fisheries Program (WARFP) organizational capacity needs assessment of the Fisheries Commission was also considered. SFMP's potential contributions to the capacity development opportunities relative to the WARFP effort were identified to avoid duplication of effort and enhance the value added of USAID's contribution through SFMP.

For CSO's, the project initially employed a standardized scoring methodology using an OCA tool adapted from USAID.[13] Following an orientation workshop, the three-step process included (1) self-assessment, (2) a full OCA on-site assessment, and (3) participatory evaluation of results and action plan development. The tool scored each organization on six topical categories on a scale of 1 (needs urgent attention) to 6 (no need for improvement). The six areas assessed were governance, financial management, human resources, programs, external relations and partnerships/sustainability. The assessment scale was instrumental in understanding the status of local organizations and in prioritizing focus areas during action plan development. This detailed process was undertaken with CSOs because the opportunity for a project like SFMP to make significant contributions to strengthening governance, financial management and human resources systems of CSOs is much greater than for government agencies where those systems are embedded in bureaucracies beyond the control of the units partnering with SFMP. Mid-term and final OCAs using these same methodologies were conducted for each government, university and CSO organization to document progress, successes, challenges, and lessons learned. The final assessments and basis for the lessons learned presented here were conducted in 2019.

Project support for organizational capacity development focused on high priority needs of each organization that were not addressed by other development partners and were within the scope and resource limits of SFMP. SFMP support mostly focused on the areas of improved governance and management systems, development of programs and partnerships,

[13] See https://www.usaid.gov/sites/default/files/documents/1864/OCA%20Tool%20for%20USAID-Funded%20Organizations%20Participants%20Copy.pdf and https://www.usaid.gov/sites/default/files/documents/1864/OCA%20Tool%20for%20Community%20Based%20Organizations.pdf

development of staff capacity through training, material support (equipment), and physical facilities and operational environment. Government and university units benefitted from leadership courses, study tours, stock assessment training, training in fisheries laws and policies, competency-based certification approaches, training and material support for application of GIS, and formal degree training, laboratory equipment, and a small unmanned aerial vehicle equipped to take aerial imagery to create high resolution maps for environmental planning and assessments.

With the Fisheries Commission and MOFAD particularly, technical assistance and capacity development was provided to support revision of the Ghana National Fisheries Act, review of fisheries regulations and organization roles and responsibilities, development and adoption of a national co-management policy, a national fisheries sector gender mainstreaming strategy, and a fisheries sector anti-child labor and trafficking strategy. In addition, technical support and capacity development was provided to the Fisheries Commission Post-Harvest Unit to promote value chain improvements, to the Marine Fisheries Unit to design and develop an electronic marine canoe registration program, and various physical facility and operational support including vehicles, computers, and a local area network (LAN) system supported by central servers.

CSOs benefitted from construction (DAA) and refurbishment (CEWEFIA) of their fish processing and training centers including development of business plans, leadership training, study tours, and training on a variety of topics including public, private partnership training, co-management, gender mainstreaming, child labor and trafficking, and post-harvest improvements.

The project provided technical and financial support and training for selected process and system improvements identified as crosscutting needs among the CSO partner organizations. These included financial and administrative procedures, board development, and monitoring and evaluation systems. The SFMP provided software and licenses, trained and coached five local CSO implementing partners' financial staff on QuickBooks. Annual external financial audits of implementing partners by international audit firms were carried out to assess the progression of financial management systems development. Combined programmatic and financial audits were conducted by the SFMP core team to ensure activities and targets were being achieved. An Organizational Development Manual covering each of the areas assessed in the OCA process was finalized and validated with all CSO partners. National Membership Associations (e.g. NAFPTA, GNCFC) benefitted from training and support to revise their charters and management systems, and received training and physical support (office refurbishment and computers) and interns to equip them to carry out evidence-based advocacy and be actively involved in policy formulation and implementation.

PROGRESS AND RESULTS

A transformation of attitudes and perspectives about the critical roles and most effective approaches of the various institutional actors in the sector is among the most important and enduring outcomes of SFMP's organizational capacity development efforts. Statements shared by key stakeholders illustrate this result.

> *"There is a crisis in fisheries. It is glaringly clear that the traditional approach is not working. We need to win the hearts and souls of fishermen. We needed a new skill set" (Fisheries Commission).*

> *"FSSD staff awareness was raised about how a fisherman could have scientific knowledge in spite of their low level of education in the formal system, far exceeding our expectations. Getting fishermen to understand scientific data has made them open and*

supportive of FSSD as they see it in their interest that the quality of the data be good. They are now willing to cooperate and don't see it as science that can be used against them. We now better know their needs and can provide need-based science. FSSD is very much in demand now and much of it we will be able to meet and maintain." (Fisheries Commission/FSSD).

"Fishermen never used to talk to fishermen about conservation issues. Each one was for himself. SFMP improved communications between the Fisheries Commission and fishermen, and among fishermen themselves." (Ghana National Canoe Fishermen's Council).

"Women need to make money in order for the men to make money. Women and fishermen have one voice. It is win/win if fish are sustainably managed and thriving." (National Fish Processors and Traders Association).

"We want to reverse the status quo on policy, not government telling us what to do, but telling them. The SFMP study tour to URI in the U.S. was highly influential in our thinking. We are taking time to evaluate bad practices. If we had not had this education, we would never have understood the need for a closed season." (Ghana Industrial Trawlers Association).

Changes in attitude and approach were translated into concrete actions and outcomes for sustainable fisheries management. A summary of key outcomes achieved by the various institutional actors supported by SFMP's capacity development initiative is presented in Table 2. These outcomes directly contributed to higher order outcomes (actual action on the ground) from the SFMP project including on-the-ground demonstrations of applied management for targeted fish stocks including a national closed season for artisanal fisheries from May 15 – June 15, 2019 implemented with widespread voluntary compliance, and three local co-management plans implemented using a participatory, rights-based, ecosystem-based approach with annual closed seasons observed in each location. In addition, all three local co-management initiatives resulted in habitat restoration actions conducted by local community members.

For CSOs, quantitative OCA results highlight the important differences in organizational capacity status for national membership associations. As shown in Table 3, and Figures 4 and 5 below, national membership associations are still nascent organizations with lower scores on average than the initial implementing partners who received greater support from SFMP. National membership associations started with low scores and have made very little progress. Although each association has revised governance and management documents, developed with SFMP support, none have measurable changes.

The nascent status and critical gaps in organizational capacity of national membership associations constitutes a major challenge for their contribution to sustainable management of the small pelagic fishery. Conflicts in the relationship between the Ministry and the Ghana National Canoe Fishermen's Council presented one of the most significant barriers to progress on implementing urgently needed fisheries management measures. While there is general agreement on the urgency for concerted action to reduce over-exploitation of the small pelagic fishery, conflicts tended to be around issues of process, relationship management, and trust. This is not considered a permanent feature of the fisheries sector institutional map for Ghana, and likely will evolve as government administrations change and evolve and governance of the member associations develops.

Table 2 Summary of Key Outcomes

Government of Ghana: FC, FEU and LUSPA
• Fisheries data timeliness, quality and access improved through transformation from paper to IT systems. • FSSD/STWG small pelagic stock assessments available to stakeholders and decision-makers. Catalyzed consensus on need for closed seasons. • Biological data to monitor the impact of Ghana's first ever national scale canoe fishery closed season from mid-April to mid-May 2019 collected and e-reported. • MCS land patrols and sensitization missions increased. • More than 200 Marine Police trained on Fisheries laws and policy. • FEU approach at landing sites provides more effective problem resolution. • Gender mainstreaming strategy validated. Stakeholders perceive new and accepted norms for women's participation and quality/value added due to their inclusion. Gender data systematically disaggregated. • Improved fish smoking oven developed (the Ahotor), adopted and promoted by the FC. Use scaling up. • Certification and labelling to add value to hygienic small-scale fish processing established and scaling up. • Central Region LUSPA Training Center. Coastal and fisheries issues better integrated into land use plans. Coastal resiliency increased. Example: Permit to build on Pra wetland buffer zone denied. Plan for relocation of villages vulnerable to erosion and flooding agreed with villagers, new land identified, demarcation started. • Anti-CLAT Strategy approved and applied. Infractions intercepted. • Fisheries Co-Management Policy Framework awaiting approval as of mid-2019 (Later approved in 2020, as well as 3 estuarine Co-Management Plans delegating fisheries use rights to resource user associations). • Fisheries Act revisions proposed and awaiting approval as of mid-2019.
Public Universities: UCC
• Chair of the Science and Technical Working Group (STWG). • Outreach supporting local co-management plans. • Drone program and database and fisheries age and growth lab permanently hosted. Used in teaching, faculty and student research. • Fisheries leadership, climate change, coastal management, GIS, fisheries management short courses. • 5 students earned URI advanced degrees. • 12 of 16 current PhD candidates are women. • Joint Degree program with URI instituted.
Civil Society Organizations
National Membership Associations: GNCFC, NAFPTA, GITA, NAFAG
• Revised constitutions, trained boards, SOP Manuals. • Advocacy actions taken. • Ahotor improved ovens in use by individual processors. • Processors eye health screened. • Collaborative Cuttlefish gear research conducted (UCC/GITA).
Local NGOs (FoN, HM); Regional Membership Associations (DAA, CEWEFIA) (SFMP Implementing Partners)
• Trained 56% of the 6,583 people and 63% of the women trained by the project in natural resources management, biodiversity conservation, and climate change by end of year 4. • 3 Local Co-Management Plans implemented (Annual closed seasons observed). Participatory, rights-based, ecosystem-based approach and model demonstrated. Organizational capacity to replicate. • Over $1.2 million diversified funding from other donors. • 2 Fish Processing and Training Centers operational with Business Plans. One with Ghana FDA Certification. • Ahotor improved ovens in use by individual processors. • Revised constitutions, trained boards. Effective automated financial management systems and SOP Manual implementation verified by 3 successive annual external audits.

Table 3 CSO Average OCA Scores and Progress Over Life of Project

	Average OCA Score			% of Ideal (6)	% of Ideal (6)	Action Plan
CSO Type	Baseline	Mid	Final	Baseline	Final	% Done
SFMP IPs	4.19	5.22	5.49	70%	91%	89%
NATL. ASSOC.	2.31	0.00	2.48	38%	41%	24%

Figure 4 SFMP CSO implementing partners (baseline, midterm and final) average OCA scores

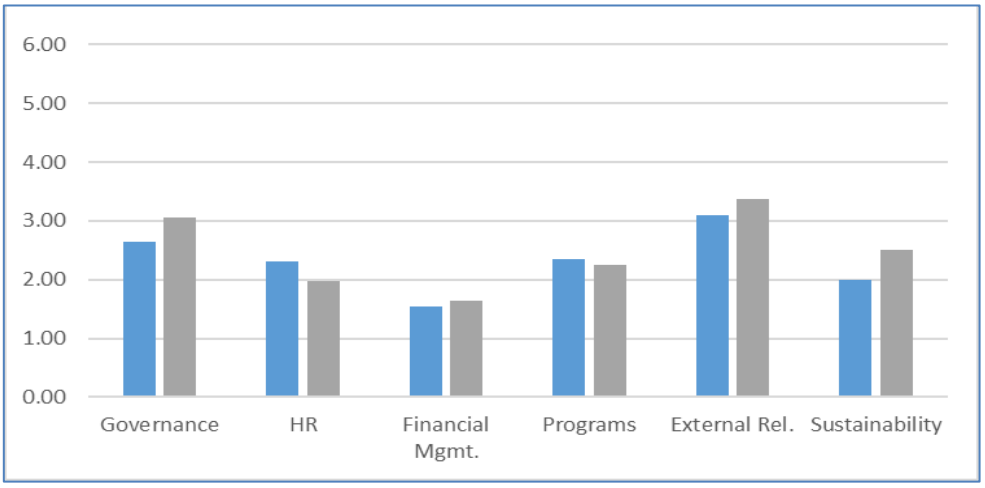

Figure 5 National membership associations (baseline and final) average OCA scores

Fisheries Commission organizational restructuring and functionality improvements anticipated since the beginning of SFMP as a result of WARFP investments did not fully materialize. This was perceived to be a barrier to the Fisheries Commission functioning in a more effective policy development and implementation role. For example, prosecution of illegal practices is still perceived to lack transparency and suffer from selective enforcement actions and lack of effective punishment of offenders. Fisheries Act revisions, a national fisheries co-management policy and three local co-management plans that provide the legal

basis for many of the best practices identified and piloted with project support were still pending in mid-2019 (although the Fisheries Co-management Policy Framework and three Co-Management Plans have since been approved in 2020).

Important enabling conditions for sustainability of quality fisheries data collection, analysis and application in fisheries management decision-making have not yet been secured. Lack of human resources, Fisheries Commission staff training and operating budgets for data collection are still insufficient. Official integration of the ad-hoc, SFMP project supported Science and Technical Working Group as an official advisory body to the Fisheries Commission is yet to be implemented, notwithstanding its significant influence as an ad hoc body.

Financial sustainability through tested service provision business models and diversified project and donor portfolios remains a challenge for local CSOs/NGOs, regional membership associations, and the University of Cape Coast Centre for Coastal Management. Government funding remains insufficient for the LUSPA Central Region Training Center.

Even with a significant effort by SFMP to raise capacity and understand of the health, environmental, and financial benefits of the *Ahotor* oven, a critical mass of early adopters of the *Ahotor* by fish processors is yet to be sufficiently catalyzed for widespread market-led adoption. In addition, the Class I Certification Scheme for hygienic kitchen certification is scaling up just as the SFMP is ending (see the Post-Harvest Improvements essay in Volume 2 for more on these initiatives). Continued review and capacity development is needed in the post-harvest arena to ensure these initiatives fully serve Ghanaian citizens. Building capacity in the Fisheries Commission and CSOs to carry forward to widespread adoption of these and other post-harvest innovations demonstrated by SFMP will be critical.

LESSONS LEARNED

The SFMP organizational capacity assessment and development initiative helped all stakeholder organizations to clarify and more deeply understand their unique institutional roles in the sector, and their status as contributors to the enabling environment and as resource managers for sustainable fisheries management. Figure 6 below and the following summary statements illustrate this point.

Local NGO and regional membership association implementing partners of SFMP measurably increased their contributions to the enabling environment for sustainable fisheries management. They increased organizational capacity and began inserting themselves more confidently and forcefully into national dialogues. This resulted in a more robust local NGO and regional membership association civil society presence in fisheries sector political processes than was present prior to SFMP. The intensive engagement model for capacity development employed by SFMP should be replicated in future projects, recognizing the focus of capacity development efforts will change.

SFMP contributed to strengthening UCC capabilities but the direct USAID capacity development grant to UCC was also influential in creating these changes. The approach of having UCC manage a direct grant and have the SFMP also provide another layer of support worked due to close coordination between the institutions and MOUs developed early on in the life of both projects. UCC's Department of Fisheries and Aquatic Sciences and its Centre for Coastal Management are now poised to be fully engaged by the government and development partners as evidenced by the World Bank award to UCC as an African Centre of Excellence. Working with universities as a critical part of the institutional ecosystem in Ghana is critical for sustained progress in coastal and fisheries management in Ghana. With

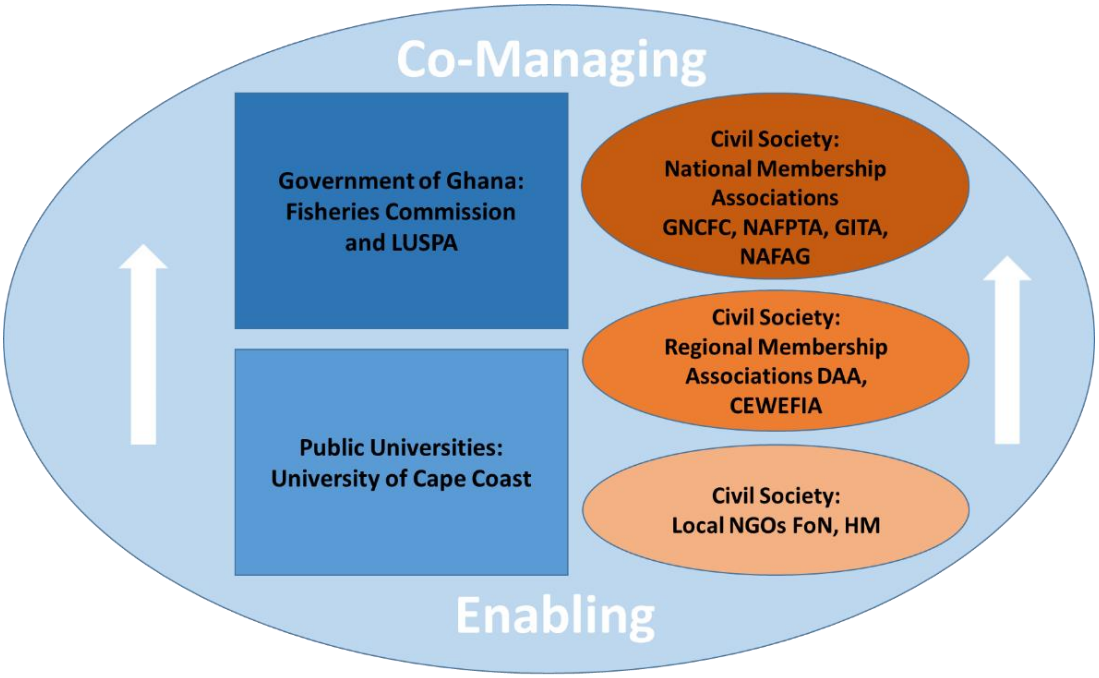

Figure 6. Organizations benefitting from SFMP capacity development support and their general institutional roles in the sector relative to one another

the progress under USAID support, the UCC now is positioned to anchor a national network such as could be adapted from the US Sea Grant University system in the United States.

The dual degree relationship between UCC and URI further enables UCC to effectively contribute to higher quality development and implementation of sustainable fisheries management policy and planning as a non-partisan, science-based institution. Currently, UCC provides an opportunity with its new focus on off-campus extension and outreach, and direct stakeholder engagement providing evidence-based research, advisory support, and communications and outreach. Importantly, under the direct USAID funded grant, UCC intentionally more than doubled the representation of women students in fisheries science related studies. Institutional development and cooperation across ministries will be important to grow a sustained fisheries sector that can absorb the increase in qualified research professionals, particularly from a gender equity perspective.

MOFAD and the Fisheries Commission are Ghana's primary fisheries management authorities. The Fisheries Commission's attitudes have shifted based on a deeper understanding of the mutual interest of government and civil society. Government capacity parallel with CSO capacity development has resulted in a new level of receptivity on both sides to open cooperation while each maintains its special role within Ghana's institutional setting. Capacity development under SFMP measurably contributed to the emergence of stronger, more transparent and more accountable governance parallel to stronger presence and involvement of national and regional civil society organizations representing or directly involved with artisanal fishermen and processors. The baseline, mid-term, and final OCA assessments conducted by SFMP documents an evidence-base contribution to the institutional ecosystem of sustainable fisheries management in Ghana.

National membership associations represent resource users whose behavior ultimately impacts sustainable management of the resource directly. These associations have an increased understanding of their potential as leaders of sustainable fisheries management in Ghana, and of strategic approaches for achieving that goal. At the same time, the OCA process and capacity development support provided by SFMP gave their leadership and many of their members an understanding of the significant gaps that exist between their organizational reality and the vision of a well-managed, transparent and accountable national association that effectively represents and enables its constituents.

The organizational capacity assessment and development process conducted simultaneously with multiple organizations resulted in peer-to-peer learning and motivated organizations to take the OCA process more seriously as a mechanism to identify and adopt best practices. This was especially the case as CSOs that had improved their governance, standard operating procedures and financial management systems were able to attract new funding from donors. Local SFMP partner CSOs are now carrying their own voluntarily periodic internal and external assessments.

At the same time, analysis of the five-year application of the OCA process to the SFMP portfolio of partners revealed that OCA tools and approaches can be better adapted when more closely designed by organization type. Support to national membership associations in particular could have benefitted from a tool that focused more on the structural challenges they face, such as staffing strategies, collection of membership dues and related systems, and national outreach, rather than focusing more tightly on charters, election and officers and board structures.

APPLICATIONS AND NEXT STEPS FOR GHANA

National membership associations should be a priority focus of intensive and comprehensive capacity development support in the coming years, while recognizing that this is a highly political environment for engagement. With the right kind of engagement, national membership associations provide unique and largely ready platforms for broad public engagement. As illustrated in Figure 4 above, local NGOs and public universities/academia are institutions that play extremely important enabling roles in fisheries management. Along with government, civil society apex organizations (i.e., national membership associations) can be direct actors in resource management to the extent that they represent their members who are resource users and whose behavior directly affects the status of the resource.

The full potential of national membership associations to lead transformational change to achieve sustainable management of Ghana's small pelagic fisheries at scale remains unrealized due to significant gaps in organizational capacity characteristics of this group of organizations. Internal governance and leadership issues were and remain of paramount importance since strong national associations that transparently and inclusively represent resource users and value chain actors are required to help formulate and implement sector mechanism that are laid out in the National Fisheries Act revisions and the national fisheries co-management policy, annual closed seasons, gender mainstreaming, anti-child labor and trafficking initiatives, *Ahotor* oven promotion, and Class I Hygienic Processing Certification strategies, among others. The success of these policies and strategies depends on representative participation of all stakeholders, especially small-scale fishers and processors, who previously were not empowered to participate effectively.

Fisheries co-management institutions that are delegated use-rights and management responsibilities in current or future co-management policies, whether local or national, should be prioritized in future capacity development initiatives. As with the national membership

associations, these organizations are front line actors in fisheries management. SFMP assistance resulted in the development of three local fisheries co-management plans and the official registration of three local area fisheries management associations/committees. This presents a proven model for local level action toward sustainable fisheries management. Organizational capacity developed in several local organizations to facilitate and develop community-based management systems should be used to replicate these in other estuaries along the coast. While the Fisheries Commission should institutionalize such support in their budgets and work responsibilities at regional offices, future efforts like these can be carried forward as a collaborative, with development partner assistance, through local NGO partners, outreach from the UCC Centre for Coastal Management, and engagement by the Fisheries Commission Zonal Officers. The National Fisheries Co-Management Policy, now approved by the Minister and gazetted, will enable scale-up of co-management creating the need for intensive capacity development support at all levels.

Supporting Fisheries Commission capacity to implement effort control measures, including an annual closed season for all fleets including the artisanal fishery, evolving managed access based on the SFMP-initiated Canoe Identification Card scheme, an enforced moratorium on new entrants into the commercial and artisanal fleets, and removing or re-aligning subsidies should be top priorities for future projects in the sector.

Sustaining and institutionalizing the 2019 achievement of a closed season for the artisanal sector is urgent and challenging. The lessons learned about stakeholder engagement and organizational capacity remain in the forefront to enable continued progress in this area, particularly regarding effort control and input subsidies.

The Government should immediately advance the process for implementing the National Fisheries Co-Management Policy approved in 2020 which provides the legal basis for the institutional arrangements, implementation, and replication of fisheries management best practices identified and piloted with SFMP support. Efforts to finalize and codify the National Fisheries Act should continue in order to further support these efforts.

The Government should ensure that budgets are allocated to implement priority initiatives such as further development of co-management plans at all scales and capacity development of co-management institutions and national membership associations that will participate in them. Government resources also are needed to support gender mainstreaming and child labor and trafficking strategies, as well as for continued support to local organizations for the scale up of improved fish processing technologies and practices related to *Ahotor* oven adoption and implementation of the Class 1 Hygienic Kitchen and Fish Processing Certification Scheme.

Government, academia and CSOs of all types should continue to apply regular organizational capacity assessment processes and continue to implement organizational capacity development action plans as an integral part of their operations. A key resource for these processes is the SFMP Organizational Capacity Development Manual. Communities of practice among institutions and organizations regarding organizational capacity development should be encouraged.

National membership associations should implement the governance and management reforms documented in their revised constitutions, board charters and standard operating procedures. This is an urgent priority as the confidence of their membership/constituencies is weak. The confidence of other partner institutions in the sector and potential donors also is at stake.

Proactive Leadership in developing opportunities to address the economic hardship faced by fishing communities remains lacking. Economic restriction is a main obstacle for broader adoption of sustainable management measures.

Local NGOs, regional associations, UCC Centre for Coastal Management and the LUSPA Central Region Training Center should implement and analyze the results from implementation of their business plans and sustainable financing mechanisms developed with SFMP support. This may require additional support to anchor these organizations in terms of focusing on the plans and actions they developed.

REFERENCES

Agbey, S., Etsra, H.E. (2019). Synthesis Report: Final Civil Society Organizations (CSO)Organizational Capacity Assessment (OCA). The USAID/Ghana Sustainable Fisheries Management Project (SFMP) Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and SNV Netherlands Development Organisation. GH2014_CAP045_CRC. 23 pp. https://www.crc.uri.edu/download/GH2014_CAP045_CRC_FIN508.pdf

Agbey, S., Tsikata, S., Childress, A. (2016). Organizational Development Manual, 2016. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island SNV Netherlands Development Organisation. GH2014_CAP002_SNV. 73 pp. https://www.crc.uri.edu/download/GH2014_CAP002_SNV_FIN508-2.pdf

Kent, K. (2018). CSO and GOG Organizational Capacity Development Outcomes: Qualitative Snapshot. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island GH2014_CAP046_CRC. 35 pp. https://www.crc.uri.edu/download/GH2014_CAP046_CRC_FIN508.pdf

Kent, K. (2017). Government of Ghana and Public University Units Mid-Term Organizational Capacity Assessment Report. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island GH2014_CAP025_CRC. 67 pp. https://www.crc.uri.edu/download/GH2014_CAP025_CRC_FIN508.pdf

Kent, K. (2019). Government of Ghana and Public University Units Final Organizational Capacity Assessment Report. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island GH2014_CAP047_CRC. 69 pp.