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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP)

Lessons Learned: 2014 – 2019
Volume 1

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Cover photos:

Upper left: Mangrove restoration along river Ankobra in the Ellembelle district. Upper Right :Hon. Elizabeth Afoley Quaye, Minister of Fisheries and Aquaculture Development (right) receiving the Anti-Child Labor and Trafficking charter for the fisheries sector from Christopher J. Lamora, Charge d' Affaires of the America Embassy (left) at a ceremony in Accra in 2018. Lower Left: Oyster pickers measuring water quality in the Densu estuary. Lower Right: Fishing communities observed world day against child labor at Elmina in the Central region.

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ACRONYMS

AOR	Administrative Officer Representative
CEWEFIA	Central and Western Region Fishmongers Improvement Association
CLaT	Child Labor and Trafficking
CRC	Coastal Resources Center
CSO	Civil Society Organization
DAA	Development Action Association
DCPC	District Child Protection Committee
DFAS	Department of Fisheries and Aquatic Sciences
FAO	Food and Agricultural Organization of the United Nations
FC	Fisheries Commission
FEU	Fisheries Enforcement Unit
FoN	Friends of the Nation
FSSD	Fisheries Statistical Survey Division
FWV	Fisheries Watch Volunteers
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
HM	Hen Mpoano
IR	Intermediate Results
IUU	Illegal Unreported Unregulated
MASLOC	Microfinance and Small Loans Center
MOFAD	Ministry of Fisheries and Aquaculture Development
MPU	Marine Police Unit
NAFAG	National Fisheries Association of Ghana
NAFPTA	National Fish Processors and Traders Association
NGO	Non-Governmental Organization
OCA	Organizational Capacity Assessment
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
VSLAs	Village Savings and Loans Associations
WARFP	West Africa Regional Fisheries Development Program

TABLE OF CONTENTS

LIST OF FIGURES

Page

LIST OF TABLES

Page

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

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 two (2) 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.

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 an investment initiative in the sub-regional fisheries sector by 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 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) 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.

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.

Finally, 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 will serve as a useful tool for quickly accessing specific information about the project now, and in the future

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. As many as 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. 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:

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 Ankobra and Pra River estuaries, and the Densu Delta. In the Densu Delta, 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.

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 up 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 and 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 once the national co-management policy (drafted with assistance from SFMP) was adopted. 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 was carried out with stakeholders in several pilot community-based management communities. These programs included leadership training, conflict resolution, formation and principles 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.

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.

THE SFMP LEGACY DOCUMENT COLLECTION

A detailed record of the unfolding of the SFMP over the 20 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 is to highlight some of the most important lessons and accomplishments organized loosely around project intermediate results (IRs) areas. Most of the documents provided some 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 improvements (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.

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 five-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 a way forward for Ghana post-SFMP. 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 will translate into concrete results, enough momentum was generated for continued impact on the legal and policy front that will translate into improved fisheries management in the future well after the project. 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, it faced a number of challenges and the effort was suspended although later included in the 2018 Ministry of Finance Budget Proposal to Parliament. The Ministry intends to revisit this approach at a later date so information on this activity is included in the legacy collection. The SFMP also helped the Fisheries Commission complete the process of registering marine artisanal fishing canoes (Canoes Authorization Cards and Control of New Entrants of Canoes), which was scheduled to be undertaken in Years 4-5 (2018-2019), and reached consensus with the National Premix Committee that regulates subsidized fuel distribution that the card should be expanded to inshore canoes as well and linked to premix fuel purchases to reduce corruption and slippage in the system. SFMP supported printing of 15,000 cards with embedded QR codes that can be read in the field by authorized enforcement personal.

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 (DRAFT Policy Framework on Fisheries Co-Management) 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 plans in the Pra and Ankobra rivers and Densu Delta. 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 Fishers 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). In the final stage of the project, the first closed season for the small pelagics fishery was instituted, backed by information and proposals from the SFMP (Closed Season Brief).

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 improving 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 recommendations for using policies such as closed seasons for fishing to rebuild the collapse 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 electronic tablet 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 effort to upgrade land use planning and environmental data analysis 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.

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 final assessment for civil society organizations was completed (Synthesis Report: Final CSO Organizational Capacity Assessment, CSO and GOG Organizational Capacity development Outcomes: Qualitative Snapshot) in Year 5 of the project. 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 Canoe Council 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 interchanges of expertise within Ghana and strengthened the local enthusiasm to make post-harvest value chain improvements.

Post-Harvest Improvements

Under SFMP, learning and leading by doing (action learning) underpinned the cluster of activities aimed at testing and putting in to practice innovations in the fisheries sector of Ghana. Linked to various co-management policy ideas being tested in the Densu Lagoon, 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 to build their skills as small business entrepreneurs, as well as in making significant improvements in the cleanliness and safety of their products (Training on Hygienic Handling of Fish: Class 1 Certification Guidelines). These activities were the subject of careful monitoring and impact assessment (Adoption of Improved Smoking Technology among Fish Processors in Ghana). One of the biggest challenges led to an unexpected success when SFMP discovered that a fish smoking technology slated for support produced unsafe levels of polycyclic aromatic hydrocarbons (PAH). With support for adoption of this technology off the table, the search for a better technology, and financing to promote the adoption of modified stoves set back progress by close to two years as a result of the additionally required engineering design and testing. However, 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 hoped for several reasons explained in the post-harvest theme essay. In addition to direct funding from the SFMP and the Fisheries Commission, loan financing institutions have begun to materialize through a government backed Microfinance and Small Loans Centre (MASLOC) and creation of Village Savings and Loan Associations (VSLAs).

In addition, the innovative Fishers Future Plan is an affordable life insurance package for fisherfolk that is coupled with 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 and fish processors (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 efficiency of fish processing and quality of the fish that is caught, processed and sold. 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) and shaped how the SFMP, the Fisheries Commission, and its implementing partners set priorities to insure not just participation but capacity building and improved livelihood outcomes (Gender Mainstreaming in Fisheries Management: a Training Manual) that 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).

Combatting Child Labor and Trafficking

The SFMP project included a limited set of 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) 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 immanent downgrade to Tier 3 that would 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 om 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 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 straight Tier 2 ranking indicating an improvement with additional work needed.

ACHIEVEMENTS, LESSONS LEARNED AND THE WAY FORWARD

The project goal 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 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 will end in 2020, 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 collection provides the project story of accomplishments, lessons, and recommendations for Ghana's way forward.

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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's implementation of 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 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 and moratorium on new entrants into the artisanal sector
- Linking Canoe Authorization Cards to the national 'premix' subsidized fuel program
- 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 pelagics like sardinella, anchovies and mackerels. In the last two decades, 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

The grievous governance challenge confronting inshore fisheries in Ghana is open access leading to excess capacity and the current state of overexploitation of resources. Weak governance, political patronage, and interference in enforcement further complicates problems created by Ghana's 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 Agriculture before 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 includes expanding the institutional framework for decision making to include stakeholders, such as local communities, through co-management structures rather than top-down decision making that lack transparency. It also includes 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 that facilitate streamlining and deconcentrating of timely management decisions for 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 sustainbility, 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 against modern international sustainable

fisheries management norms and principles and came to the conclusion 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 include:

- 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 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 are ongoing instances in which people arrested for violations of fisheries regulations are set free and illegal fishing gears confiscated returned to owners as a result of intervention of people with political or traditional power.

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 related to fisheries. 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 encompasses high proportion 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

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

brought before the court are not 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 SFMP was asked by the Ministry to lead the development of the Fisheries Co-Management Policy which involved extensive consultations with key stakeholders. When the WARFP project ended in 2017, the SFMP was requested and 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 Legislative Reform Process

The development of new national legislation is preceded by policy approval for the process at the level of Cabinet. Although Cabinet approval was obtained under the previous political administration, it became apparent that the Ministry, under the new administration, would need 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 (625) by a World Bank consultant. The SFMP legal expert also collaborated with an FAO 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 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

[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: http://rhody.crc.uri.edu/gfa/

Memorandum detailing the justification for the new fisheries legislation was submitted to MOFAD and the Fisheries Commission Board for their consideration and transmittal to Cabinet. Finalization and transmittal of the draft Memo from MOFAD/FC to Cabinet was still pending as of July 2019.

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, formulating a co-management policy framework, 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.

Implementing the National Marine Fisheries Management Plan

The NFMP (2015-2019) was approved in 2015 as a key policy 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; weekly non-fishing day 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 Commission to develop capacity of its Fisheries Statistical Survey Division to conduct annual fish stock assessments and analysis, and work with the Fisheries Science and Technical Working group to develop consensus on the need for, and timing of a national closed season for all fleets.

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 registration cards and, ultimately, capping the number of canoes in the fishery. SFMP supported registration and final clean-up of the registry and the printing of 15,000 registration cards with QR codes that contain details

about each canoe including owner, home port, authorized gears, etc.[4] These Canoe Authorization Cards (CAC) can be read using 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 CACs could also be used for other purposes.

Identification and registration of artisanal vessels for the first time moves Ghana toward better governance of its fisheries sector. It moves Ghana's inshore artisanal fishery from an open access regime to a managed access regime, a major milestone on the road to sustainability and adoption of global best practices.

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.

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 government in many local areas is extremely limited. In Ghana, a dedicated policy outlining how co-management should be implemented was required. However, 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 and implementation of three co-management demonstration initiatives in three river 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 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

[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.

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 were 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, NAFTA, 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 initial 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 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 and needs to be revisited and mainstreamed in Ghana.

Gender Mainstreaming

There are over 33,000 women engaged in the fisheries sector in Ghana. Their roles were processing, marketing and trade of fish, although a sizable number of the women were also involved in financing fishing operations. From processing and trading perspective, to financing fishing expeditions, it is clear that women are equally capable of playing important roles in ensuring sustainability of fish 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-level 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 and special training for local women's groups and association members was provided 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.

- Establishing a National Gender Network
- Developing and disseminating of gender mainstreaming communications materials
- Monitoring and evaluating 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 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, districts in Ghana's Central Region proposed a collective total budget allocation of GJHS 1,145,725 for 2018 and GHS 4.5 million over five-years in their Medium Term Development Plans.

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.

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.

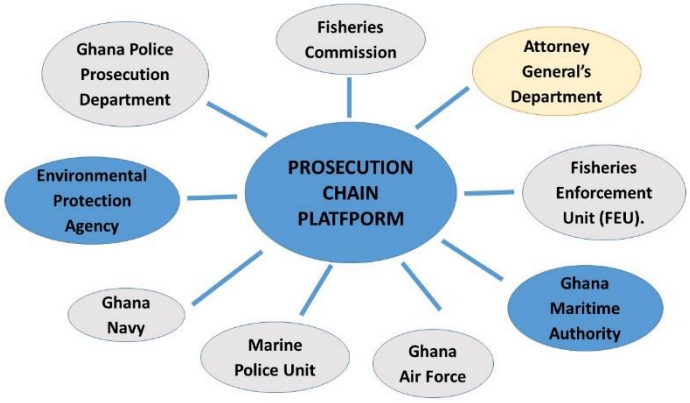

Figure 1. Stakeholder institutions on the Prosecution chain platform

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 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 was identified as the top obstacle 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 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 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. Government and development partner support for the STWG and possibly, in the future, formalizing advisory committees to the Commission to deal with specific issues should be a high priority. These can be instituted now under existing law.

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 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 expires in 2019. The current plan was developed largely without full stakeholder participation with the result that many stakeholders were completely unaware of its provisions. The NFMP is a key document that anchors dialogue, budgeting and, ultimately, action on the part of stakeholders and the government. Support should be provided to ensure that review and update of the NFMP is undertaken through bottom-up approach, with fisheries stakeholders playing active roles, integrating their inputs and concerns into the plan and not entirely through top-down processes.

Significant progress was made on the policy and legal reform front during the implementation of the SFMP. There is, however, the need to expedite action on key policy and legal reform deliverables before the policy window closes, ushering in the political campaign season leading up to the 2020 presidential and parliamentary elections. The outstanding legal and policy targets are; approval of the draft national co-management policy and the Cabinet Memorandum on the development of the new fisheries legislation to trigger finalization of Drafting Instructions towards preparation of the new Fisheries Bill and development of co-management plans for various co-management units.

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 in the 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 and responsiveness of government to fisheries sector issues.

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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" due to their importance 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 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

[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 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.

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. 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 but regional coordination needs to be increased.

The National Fisheries Management Plan provides an example of how low participation of stakeholders and lack of a strong constituency in demanding actions has hampered progress in rehabilitating the marine fisheries sector and subsequently created challenges in implementing the plan. The Fisheries Management Plan was developed in 2015 with a limited amount of stakeholder consultation. The limited consultation late in the development process resulted in less than optimal ownership by stakeholders. The national plan was approved quickly because 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 parts of it implemented.

Given the Ghana's governance and management environment, the majority of fishermen, especially in the artisanal sector, were completely unaware of the 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 final 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 while this provision had not been included in any previous draft during consultations.[7] This change was first visible when it was published in the Official Gazette. Lack of transparency in setting fisheries policy proved 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; to work on a 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, while at the same time trying 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. This simultaneously built awareness and interest in supporting demonstrations of new approaches to co-management at the community level in three estuaries along the coast. While 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. Based on Elinor Ostrom's design principles for governing commonly held resources, 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 endorsed the plans although formal approval is still required at the national level.

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, at the time of this writing in 2019, is awaiting Cabinet approval along with the three completed community-based management plans. The community-based plans, once approved, will 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.

The SFMP 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

[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.

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 demonstration in all three estuaries that were already aligned with the final draft of 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 in advisory groups. Now reflected in the national co-management policy draft, 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 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. Once a threshold capacity was achieved in local NGOs, SFMP's stakeholder engagement strategy evolved to what was called 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. The local co-management plan 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.

PROGRESS AND RESULTS

The overall implementation of the SFMP has yielded many positive results in highlighting the knowledge gaps, the challenges and the opportunities in Ghana's fishery sector. At the

beginning of the project few people in government or stakeholders 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. There is still somewhat of a blame game - where trawlers point out the transgressions of the canoe sector in using night-lights, fine mesh nets, and other illegal methods, while the canoe sector points to competition by in the trawl sector, accusing trawlers of entering the 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. 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. In creating and supporting the fisher-to-fisher dialogues, facilitated stakeholder meetings, community durbars that included government, industry associations, and the public, 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.

While not totally reflective of the effectiveness of SFMP interventions, project activities directly involved 9,559 (*5,890 men and 3,669 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 totally 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 in the fisheries sector to fishers was a strategy taken by the project. 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.) were added to the project 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 supported actions modeled co-management behaviors in Ghana in the absence of an explicit legal and policy framework. The innovations introduced with SFMP support now are becoming *de facto* institutions that will be formalized with the adoption of the draft national co-management policy and revision of the national fisheries act that are currently in process.

Now reflected in the proposed revisions of the national fisheries act and draft national co-management policy, the elements of fisheries co-management have been demonstrated 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 two consecutive years with plans to make them permanently annual events.

At the time of this report, these plans are not yet formally adopted as policy. Until the revision of the national fisheries act and adoption of the national co-management policy, this must be done at the national level. However, they now are *de facto* approved plans through statements made by the Minister, Deputy Minister, Director of the Fisheries Commission, local government, and traditional authorities at community events such as the closing and opening of fisheries within these management areas. This progress mirrors the national closed season for all fishing fleets that was, for the first time declared in 2019 with support from SFMP. This integrated progress at all 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.

While necessary to stimulate progress, scaling co-management success in the three demonstration sites to a national closed season for the artisanal sector faced 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. 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.

This included the initial declaration and failure of the 2018 closed season for the artisanal fleet, 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. Even the successful May-June 2019 closed season for the artisanal and inshore trawl fisheries was not without controversy, with the most cited objection being that it 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 around an August period. Political challenges played a prominent role in 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, 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 in 2018 was 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, continued to express their concerns for the crisis in the artisanal sector, and, led by the Minister, 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 with commercial trawler fishing closed in August and September, and artisanal and inshore trawler fishing declared 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 again stated 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.

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 Authorization Cards (CAC) 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 Authorization Cards.

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 concerns 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 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 capacity building essay) 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. While co-management at present remains ad hoc (i.e., not fully incorporated officially by government), establishing committees, training in community organization, community leadership, and

conflict resolution are critical to action learning processes to institutionalize co-management. Support at a political level continues to be needed to formalize co-management.

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 agree that if the monitoring shows this they are willing to move the closed season to a more scientifically recommended timing. The lesson here is the role 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 has resulted 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. 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 experience personally 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 to 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 that 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. However, SFMP has laid a solid foundation for co-management institutionalization in Ghana and final decisions are now reaching Cabinet level. Co-management implementation should receive high priority for any future donor support to marine or inland fisheries.

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 is moving toward formal adoption of a national co-management policy that will open 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 local 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 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.

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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. It has been established that effective fisheries management therefore requires an effective partnership between Ministry of Fisheries and Aquaculture development, the Fisheries Commission and fisheries stakeholders, guided by science-based information and advice.

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 end overfishing. 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.

Fisheries Act No. 625 provides a clear list of functions for the Fisheries Commission 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; and,
- development of artisanal fishing and aquaculture.

Among these, the main function of FSSD is to collect and disseminate catch information for policy development and planning. It conducts scientific assessments and studies on the status of fish stocks and determines 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 remain unknown.

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. In addition, 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. 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 recent 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 FA-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 recognizes 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. 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. 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 they capture 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 strengthened the Central Region's spatial planning capability through refurbishing its mapping center, and providing a coastal management toolkit document and training for LUSPA and district staff in the software Ghana 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, while collaborators received necessary equipment, software and training needed to operate and apply these cutting-edge technologies. The development of a functional UAV program followed a systematic approach and gradually introduced the technology, trained participants from the university, government and NGOs and worked directly with stakeholders to integrate the image products.

PROGRESS AND RESULTS

Operations of the Scientific and Technical Working Group (STWG)

For the last four years, 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 a 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 2018. A report on the biological and socio-economic impact of 2019 fishing closed season, underway at the time of this essay, will be completed in later 2019 and vetted through the STWG. STWG reports were presented to MOFAD, the Fisheries Commission and industry's associations and at several national forums. The STWG's Chairman, Professor Kobina Yankson of UCC, was invited on radio and national 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. They were asked to review and validate the most recent assessment made by the STWG considering the data available and to prepare a report on findings and advice for possible improvements.

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 is a step in a good direction and recommended to make it an official part of the management process. The panel further recommended that efforts to build relationships between FSSD and local universities had the potential for strengthening scientific knowledge to improve marine and coastal management in Ghana. They urged attention to developing domestic capacity for conducting fisheries stock assessments and their utilization in policy and decision-making based on best-science available.

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 the Volta Region rejected the recommendation citing conflict with their cultural practices (annual festivals) and the short noticed declaration by the Ministry (three weeks before the closure) resulted in rejection by the largest artisanal member association, the Ghana National Canoe Fishermen Council (GNCFC). As a result of this public outcry, the Minister rescinded the decision to close artisanal fishing in 2018 and subsequently assigned a special committee to review the STWG reports and advice in time 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. While the process was marred by conflicts between fishery associations on which had the legitimacy to represent fishers in setting the May-June period for artisanal closure, the acceptance by artisanal fishermen of the first ever artisanal fleet closure in Ghana's history marked a significant shift in the debate from totally rejecting a closure to discussion on the best suitable period and the support for science-based decisions. In the end, artisanal fishers embraced the closure, assisted through the SFMP-sponsored Fisher-to-Fisher dialogue platform (see essay on co-management and constituency building). When implemented, there was almost complete voluntary compliance among artisanal fishers across Ghana's entire coast. The SFMP role in building support for voluntary compliance was seen as critical given Ghana's limited resources for enforcement.

In order to measure the impacts (positive, neutral or negative) of the seasonal closure, biological and socio-economic monitoring and evaluation initiatives were developed by the STWG with SFMP support to provide a systematic assessment of the implementation and measure the biological results and socio-economic adaption strategies of fishers and fish processors. Monitoring and evaluation serves is essential to provide lessons and an informed

framework for future seasonal closures. Supported by SFMP and led by FSSD, the monitoring and evaluation teams 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) resulted in an increased appreciation of the importance of science-based guidance for fisheries management decisions, particularly in identifying peak spawning periods, maturity and recruitment events to properly time future closed seasons.

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 are 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 which are intended to guide fisheries managers in constraining harvests to within safe biological limits. Stock assessment results were presented in a visually friendly graphs in which it was easy to show current status of the stock and trends of excess fishing effort over time. 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.

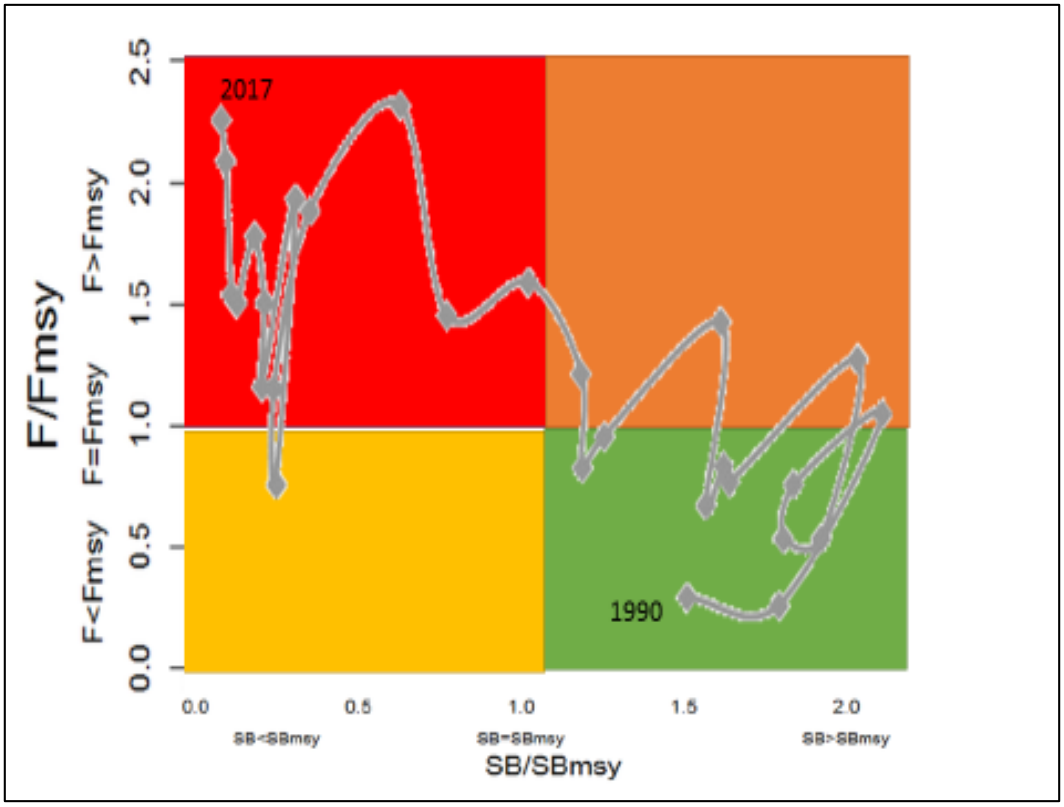

Figure 2. Kobe plot (control rule) showing the trends of the relationship between biomass and fishing mortality over time for Ghana's small pelagic fishery.

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 currently able to meet the Ministry's increasing demands for fisheries management due to insufficient human resource capacity, limited scientific resources and inadequate computer equipment. The Division manages large databases on marine fisheries production and oceanography. Data has been traditionally collected by field enumerators on paper forms in selected landing sites that are submitted to regional zonal officers who review and submit the completed paper reports to FSSD headquarters through Fisheries Commission regional offices. Data reports received undergo data editing and entry into specialized computer programs developed by FAO called *ArtFish*. The quality of information is limited, and there is a long lag-time between information collection and compilation and analysis that provides insights for decision-makers.

The SFMP completed series of capacity building training 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 Centre (CRC) and focused on fish population dynamics as it applies to fisheries management. In addition to training at the University of Rhode Island, they participated in scientific and 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 an FSSD 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). A pilot project was launched in fourteen landings sites with smartphones provided by SFMP and supported by training in tools for mobile data collection.

Despite some challenges in funding the data uploads from the field, the pilot project highlighted numerous advantages over the previously used 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 on the smartphones that were issued, a basic problem that the Fisheries Commission found difficult to resolve. However, the proof of concept remained valid and the SFMP pilot was later expanded by the support of WARFP to include all 42 landing sites.

A parallel data collection system using KoboToolBox was developed by SFMP and deployed in eight major landings 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 pilot, in 2019 the introduction of new technologies for fisheries data systems continues to promote innovation to increase data coverage, accuracy and resolution while reducing cost and providing managers with the tools for near real-time adaptive management 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 assist in achieving their vision to operationalize the Center for Coastal Management (CCM) and become an African center of excellence in marine and coastal management. Capacity development and training by SFMP, and support to UCC's own USAID direct-grant funded capacity development project enabled the CCM to become operational to the point that it recently was selected as one of the five new centers of excellence under the new World Bank African Center of Excellence Program in the theme

area of Coastal Resilience (ACECoR). Sustaining and building on USAID/Ghana's investment, UCC will receive $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, 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 is now providing fee-based short courses on a regular basis to government institutions, the fishing industry, NGOs and other public institutions. Centre for Coastal Management Ph.D. candidate researchers also have played integral roles in local fisheries co-management planning processes in in the Pra, Ankobra and Densu estuaries, priority geographies of SFMP. Supported by SFMP, they 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. An SFMP report on organizational development outcomes noted that the focus of DFAS was previously on fisheries and biological science. With SFMP support, DFAS now engages with the community and responds with 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 was based on applying the techniques 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 provide important information needed to delineate populations in West African which is important for regional harmonization of actions for sustainable fisheries management of 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 based on work in this laboratory were defended in May 2019.

The 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 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 between SFMP and USAID's Coastal Sustainable Landscapes Project (CSLP), and UCC Departments DFAS, CCM and the Department of Geography and Regional Planning, with district and regional planners in the Western and Central Regions

created a network of expertise that aided districts and the design of future projects by the World Bank and European Union. This broad collaboration also supported response to troubling events that caused storm-related damage to fish landing sites and communities such as Sanwoma at the mouth of the Ankobra River and Anlo at the mouth of the Pra River whose fish-processing work areas and installed smokers were damaged.

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 would remain in-country for partner training and be used for additional surveys 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 when the SFMP concludes. 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 post-capture process the UAV imagery.

By 2018, SFMP and its partners had collected multispectral baseline surveys to support local fisheries co-management plans covering the priority coastal wetland ecosystems in the Ankobra and Pra Estuaries, and the Densu Delta Protected Area. In the process, selected partner staff became trained as UAV operators and able to complete required Ghana Civil Aviation Authority (GCAA) testing in 2019. They are now awaiting their GCAA Remote Pilot Certifications (RPAS). Additional steps remain to have UCC officially licensed by GCAA to operate small unmanned systems for research and commercial purposes. Upon completion, all UAV equipment will be transferred from SFMP to UCC control.

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 have taken the CGAA certification exam and are waiting to receive their RPAS Operator Certificates.

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 their tablets or smart phones to upload data. 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 success of UCC/DFAS in achieving its objectives and, in fact, exceeding expectations, was due to the emphasis placed on effective communication and the significance 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 fisher local knowledge 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 revised for the next five-year period, science-based information for decision-making must be more robustly represented in its objectives. A June 2018 European Union delegation considered that the implementation of the NFMP remained weak and lacked an effective monitoring plan based on scientific impact assessments in critical areas such as effort control, catch documentation and illegal fishing. To a large extent, this situation continues at the time of this writing. There must be greater adherence to the NFMP in order for Ghana's fisheries sector to achieve objectives for its contribution to GDP and to avoid what may be a national crisis in the collapse of the small pelagic fishery.

Saiko, illegal transshipment of fish at sea from trawlers to canoes for landing is prohibited by Ghana's 2010 Regulations yet was tacitly condoned by the Ministry in 2018.[8] The use of monofilament and illegal net mesh sizes, also prohibited by law, remain normal activities in practically all the landing sites. A recent report by Hen Mpoano and the Environmental Justice Foundation (2019) estimated that approximately 100,000 metric tons of fish were landed through "saiko" fishing in 2017, worth between $52.7 to $81.1 million. A scientific

[8] Saiko is the local Ghanaian name for illegal fish transshipments, where industrial trawlers transfer fish to specially adapted canoes out at sea.

catch reconstruction exercise conducted by Nunoo et al. (2014) estimated that for every fish landed, another one is sold unreported in the illegal markets. Total marine catches were estimated at 20.8 million tonnes compared to 11.8 million tonnes reported by MOFAD. These realities point to hard decisions that must be made by government in order to sustainably manage fisheries resources, particularly small pelagics referred to as 'the people's fish' because of their importance to food security in Ghana.

In the near term, the Fisheries Commission should proceed to formalization of STWG as an official advisory subcommittee of the Fisheries Commission.

Ghana should foster more collaboration between the Fisheries Commission and universities, and engage students more in action learning research. This includes creating systems to support research, development, and delivery of action research programs that engage key stakeholders and institutions similar to the US Sea Grant Program which could be readily adapted for a Ghana context. As the National Fisheries Act is being revised, provisions for annual recurring budget for action research through a university network similar to the US Sea Grant University Program should be included. Parallel to this, continued involvement of fishers in research and data collection, as well as other scientific research, will help increase voluntary regulatory compliance.

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 graduate having never been to sea. A formal cooperation arrangement between UCC, GITA, and government could provide new energy in areas such as research to support new regulations on 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 Aquaculture and 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).

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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.[9] 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.[10] [11] 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 60 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 invested in assessment and development of organizational capacity within 19 governmental,

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

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

[11] 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.

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)[12]
7. Central Region Land Use and Spatial Planning Authority (LUSPA/CR)
8. University of Cape Coast/Centre for Coastal Management (UCC/CCM)[13]
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 enabling 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.

1. Ghana Industrial Trawlers Association (GITA)

[12] formerly the Town and Country Planning Department

[13] 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.

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.[14] 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.

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, development of staff capacity through training, material support (equipment), and physical facilities and operational environment. Government and university units benefitted from

[14] 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

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.

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 of a draft national co-management policy, development and adoption of a national fisheries sector gender mainstreaming strategy, and development and adoption of 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, a local area network (LAN) system supported by central servers, refurbishment of training facilities, laboratory equipment, and a small unmanned aerial vehicle equipped to take aerial imagery to create high resolution maps for environmental planning and assessments.

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 supported to revise their charters and management systems, and received training and physical support (office refurbishment and computers) 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)

"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 Figure 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.

Organizational capacity development support that led to positive outcomes in each organization is documented in Figure 3. These were tracked against baseline, mid-term and final OCA assessments. For CSOs, quantitative OCA results highlight the important differences in organizational capacity status for national membership associations. As shown in Table 2, 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. They started with low scores and have made very little progress. Although each national member 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 Council leader 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 leadership of the member associations changes.

Figure 3. 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.
- 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.
- 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 2. 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

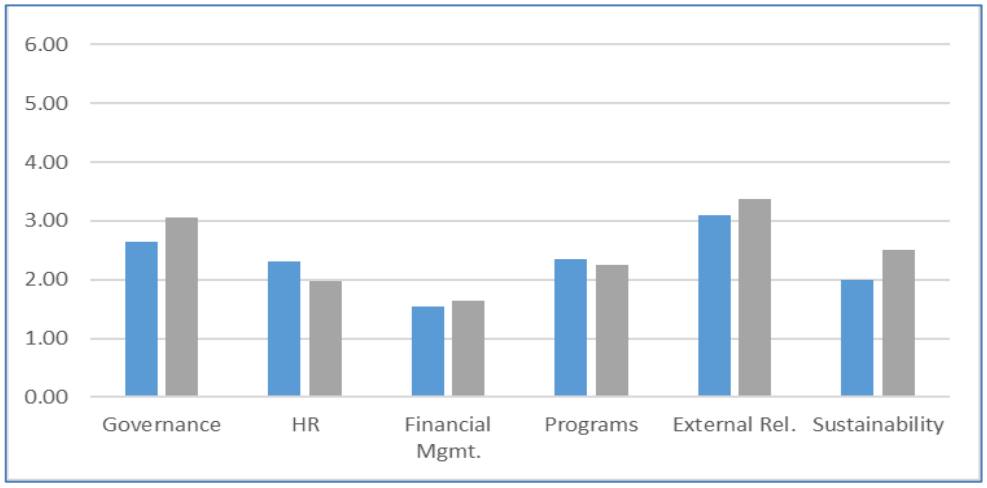

Figure 5. National membership associations (baseline and final) average OCA scores

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 will provide the

legal basis for many of the best practices identified and piloted with project support are still pending.

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 still pending, 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 been 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 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 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 have 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 and should be replicated in all 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. University of Cape Coast 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 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.

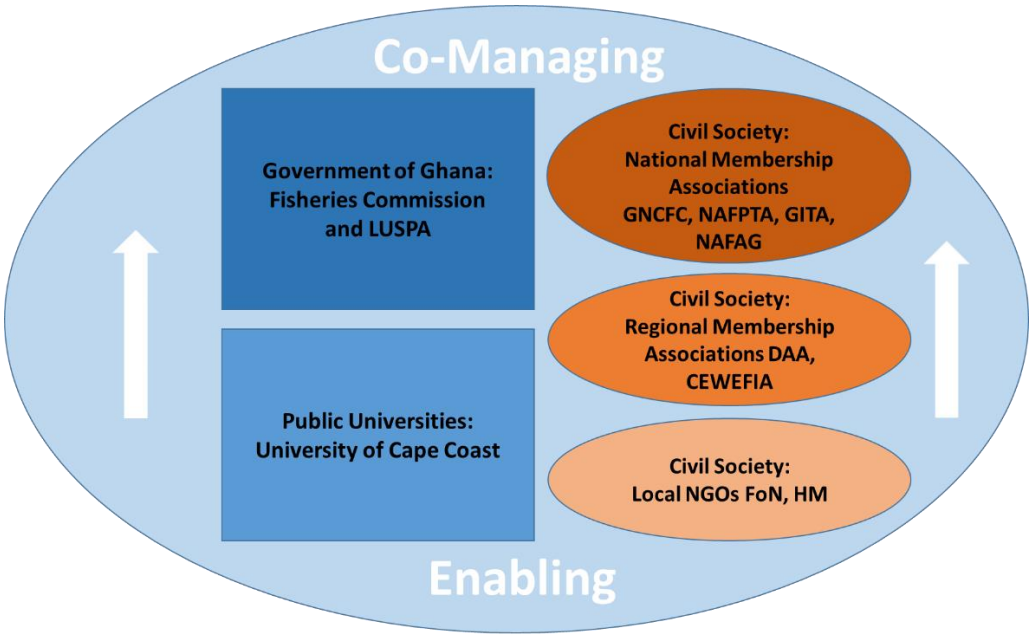

Figure 6. Organizations benefitting from SFMP capacity development support and their general institutional roles in the sector relative to one another

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 holds on to 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 involve 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 draft 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 cost. 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 draft National Fisheries Co-Management Policy, currently pending approval by the Minister, 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 Authorization 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 achievement of a closed season for the artisanal sector in 2019 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 finalizing and codifying the new National Fisheries Act, the draft National Fisheries Co-Management Policy to provide the legal basis for the institutional arrangements, and implementation and replication of fisheries management best practices identified and piloted with SFMP support.

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.

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