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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP) ANNUAL PROGRESS REPORT



October 1, 2015 – September 30, 2016
(Revised 10-31-2018)



Hen Mpoano



Friends of the Nation

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DEVELOPMENT
WORKS



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Cover photo: Fish landing site, Western Region (Photo Credit: Hen Mpoano)

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ACRONYMS

AOR	Administrative Officer Representative
CCM	Centre for Coastal Management
CDCS	Country Development Cooperation Strategy
CEWEFIA	Central and Western Region Fishmongers Improvement Association
CoP	Chief of Party
COTVET	Council for Technical, Vocational Education, and Training
CRC	Coastal Resources Center
CSLP	Coastal Sustainable Landscapes Project
CSO	Civil Society Organization
DAA	Development Action Association
DQF	Daasgift Quality Foundation
DFAS	Department of Fisheries and Aquatic Sciences
FAO	Food and Agricultural Organization of the United Nations
FC	Fisheries Commission
FEU	Fisheries Enforcement Unit
FMOC	Fisheries Management Operational Committee
FoN	Friends of the Nation
FSSD	Fisheries Statistical Survey Division
FtF	Feed the Future
FWG	Fisheries Working Group
HM	Hen Mpoano
GIFA	Ghana Inshore Fishermen's Association
GIS	Geographic Information System
GNCFC	Ghana National Canoe Fishermen's Council
GoG	Government of Ghana
ICFG	Integrated Coastal and Fisheries Governance
ICT	Information, Communications Technology
IEC	Information, Education and Communications
IEE	Initial Environmental Examination
IR	Intermediate Results
IUCN	International Union for Conservation of Nature
IUU	Illegal Unreported Unregulated
LoP	Life of Project
MCS	Monitoring, Control and Surveillance
MOFAD	Ministry of Fisheries and Aquaculture Development
MOU	Memorandum of Understanding
M&E	Monitoring and Evaluation
MSMEs	Micro, Small and Medium-scale Enterprises
NAFAG	National Fisheries Association of Ghana
NGO	Non-Governmental Organization
NRM	Natural Resources Management
PMP	Performance Management Plan
SFMP	Sustainable Fisheries Management Program
SNV	Netherlands Development Organization
SpS	Spatial Solutions
SSG	SSG Advisors
STEP	Sustainable, Transparent, Effective Partnerships
STWG	Scientific and Technical Working Group
UCC	University of Cape Coast
URI	University of Rhode Island
USAID	United States Agency for International Development
USG	United States Government
WARFP	West Africa Regional Fisheries Development Program

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1. PROGRAM OVERVIEW / SUMMARY

Program Name:	Sustainable Fisheries Management Project
Activity Start Date And End Date:	October 22, 2014 to October 31, 2019
Name of Prime Implementing Partner:	Coastal Resources Center, University of Rhode Island
Agreement Number:	AID-641-A-15-00001
Name of Sub-awardees:	Hen Mpoano Friends of the Nation SNV Netherlands SSG Advisors Spatial Solutions Central and Western Fish Mongers Association (CEWEFIA) Development Action Association (DAA) DQF Quality Foundation
Major Counterpart Organizations	Ministry of Fisheries and Aquaculture Development Fisheries Commission
Geographic Coverage	Ghana: Central Region, Western Region, Greater Accra Region, Volta Region
Reporting Period:	October 1, 2015 – September 30, 2016

1.1 Program Description/ Introduction

The USAID/Ghana Sustainable Fisheries Management Project (SFMP), a five-year project (October 2014-October 2019) is aimed at rebuilding marine fisheries stocks and catches through adoption of responsible fishing practices. The project contributes to the Government of Ghana’s fisheries development objectives and US Government’s Feed the Future Initiative. Working closely with the Ministry of Fisheries and Aquaculture Development and the Fisheries Commission, USAID/Ghana SFMP aims at ending overfishing of key stocks which are important to local food security through the achievement of the following intermediate results:

- Improved legal enabling conditions for co-management, use rights and effort-reduction strategies
- Strengthened information systems and science-informed decision-making
- Increased constituencies that provide the political and public support needed to rebuild fish stocks
- Implementation of applied management initiatives for several targeted fisheries ecosystems

More than 100,000 men and women involved in the local fishing industry are expected to benefit from this project and tens of thousands of metric tons of additional high quality low cost food supply from fisheries can be regained via improved and sustainable management of the marine fish stocks in Ghana’s waters.

The Coastal Resources Center (CRC) at The University of Rhode Island’s Graduate School of Oceanography is the lead implementer of the SFMP and works in consortium with other international and local partners, including SNV Netherlands Development Organization, SSG-Advisors, Hen

Mpoano (HM), Friends of the Nation (FoN), the Central & Western Fish Mongers Improvement Association in Ghana (CEWEFIA), Daasgift Quality Foundation (DQF), Development Action Association (DAA), and Spatial Solutions (SpS).

The project compliments and coordinates closely with two other sister projects in the USAID/Ghana Coastal Program Portfolio: The Coastal Sustainable Landscapes Project (CSLP) and the University of Cape Coast/Department of Fisheries and Aquatic Science (UCC/DFAS) Institutional Strengthening Project.

The SFMP builds on the best practices and lessons learned from the USAID-Ghana's Integrated Coastal and Fisheries Governance (ICFG) Program, known locally as the *Hen Mpoano* (Our Coast) initiative. In this follow-up, SFMP is focusing efforts on small pelagic fisheries along the entire coastline as well as the demersal fisheries and essential mangrove fish habitat in the Western Region. Additionally, improvements in the value chain of smoked fish, important to tens of thousands of women fish processors will be supported. The project is also adopting deliberate steps towards reducing child labour and trafficking in the Central Region of Ghana.

Key government clients of this project include MOFAD, FC and the Regional Coordinating Councils and associated districts in the Central and Western Regions; the Marine Police are also being provided with direct support to build their capacity. Additional direct support is provided to the University of Cape Coast and a number of local NGOs and women's associations that are active in fisheries management issues and serving either as core or supporting partners in the implementation of this project.

This progress report hereby details activities, results, lessons learned during Year 2 (October 1, 2015 to September 30, 2016). It further explains how partners significantly contributed to the achievement of set targets and how these achievements will be sustained to meet the overarching goal of SFMP.

1.2 Summary of Results to Date

This section provides a summary of the results achieved in Year 2 based on PMP targets and in relation to the Project goal and intermediate results targets. The first two years have also generated much experience and lessons learned as well concerning the evolving context within the marine fisheries sector and a better understanding of what can be achieved over the life of project. Reflections on this evolving context and future directions are also provided in the narrative below.

Progress towards Achieving the Project Goal: Rebuild targeted fish stocks via adoption of sustainable practices and exploitation levels

The main goal of the project is to rebuild key marine fish stocks important for local food security. This remains our goal with targets of increasing biomass and reduced fishing pressure expected over life of project. Initially, it was thought that significant management measures could be put in place in Year 2 that could start to see changes in fishing effort and subsequent beneficial effects on the biomass of fish in the sea. While a seasonal closure in the industrial trawl fishery for three months has in fact been established with public notice and should have a beneficial effect on the demersal resources, no other major management measures have been implemented yet for the canoe and semi-industrial sectors. While the seasonal closure for the industrial sector represents some level of reduction in fishing effort, it is unlikely that significant progress on improvements in the biological biomass indicator can be achieved without instituting major management measures for the canoe fleet that makes up more than 70% of the fishing effort and marine fish catch.

Year 2 also represented the start of a Presidential campaign year and this is believed to be one of the reasons why no new restrictions on fishing effort are being applied to the canoe fleet as it is likely to be seen as politically sensitive. Nonetheless, fisheries stakeholder groups are being educated on management measures and stakeholder meetings and dialogues have started to see a consensus among these groups that business as usual is not preferred and that a crisis is looming in the fishery as evidenced by the historical low catches. Support among stakeholders is growing to consider

additional measures which may or may not be contained in the current National Marine Fisheries Management Plan, such as a cap on numbers of canoes (managed access) an additional fishing holiday, or a seasonal closure for all fleets as recommended by a science and technical working group (effort reduction). Artisanal fishermen have agreed to close fishing on Sundays across all landings sites starting in January 2017. The proposal submitted by the GNCFC to MOFAD is awaiting a ministerial directive.

Additional measures are anticipated in Year-3 through a Fishermen to Fishermen consultation process sponsored by the SFMP project. It is anticipated that fishermen will propose and implement new management measures contained within the national management plan. This includes the additional day, canoe registration, the moratorium on new entrants and co-management initiatives. Fish processors are starting to protest the use of illegal fishing methods and in some areas boycotting the purchase of “bad fish”-- fish poorly handled at sea, juveniles, or caught by illegal methods. We anticipate that in Year 3, there will be the opportunity to see additional major management measures implemented that can have a noticeable effect on targeted fish biomass if there is a continued groundswell of grassroots stakeholder support for such measures.

The Ghana Industrial Trawlers Association is also now more engaged in discussions and negotiations with the Ministry on management measures such as the recent three month closure on trawling. The SFMP supported a study tour of key leaders in this association to the New England ground fishery in Year 2, which helped them understand the need to engage more substantially in management decision making and support measures to rebuild the marine demersal fish stocks. They have also participated in SFMP leadership courses to build capacity of trawler owners to engage with the Fisheries Commission and other stakeholders in a more substantive way. Additionally, with SFMP support, they are attending more stakeholder meetings that include canoe and inshore and processor representatives and engaging in dialogues and discussions with these groups.

As a result of these developments, a change in the timing of achieving the high level goal indicators is warranted. The major management measures originally forecasted to be implemented in Year 2 that would result in fishers and processors benefiting economically, are now more likely to occur in Year 3. Implementing these management measures is beyond the direct sphere of influence of the SFMP, as only the Fisheries Commission has the authority to put in place and enforce such measures. The project indirectly influences and supports this outcome via the scientific studies on status of the stocks and by creating a grass roots constituency among stakeholders that support and comply with specific measures implemented. Such demand driven measures are believed to enable the political will needed to gain acceptance of such actions. It is also likely to result in higher compliance if fishers believe these measures are beneficial, and ultimately leading to successful outcomes for the fishery including fishermen and women.

Risks in implementing this approach remain. Decision makers may still fail to take sufficient actions, the stocks may be so badly overfished that recovery may take longer than anticipated, and annual variability in environmental conditions or climate related changes could stall stock recovery. Such uncertainty is not unusual in fisheries management. Stock assessments completed in Year 2 show biomass trends continuing to decline. However, with evidence of additional management measures put in place and complied with by fishers, this decline should start to taper off and show an increase in stocks over time. Fishing mortality has in fact been falling in the past few years due to the near collapse of the fishery but effort levels are still too high to allow rebuilding of stocks. With additional management measures implemented, fishing effort will continue to decline but it is uncertain if it will yet reach levels for rebuilding stocks in Year 3. However, we expect that trends will be moving in the right direction as evidenced by the trawler closed season.

If major measures are put in place in Year 3 it is still possible for the goal of the project to be achieved during life of the project given the high fecundity and short life cycles of the main species targeted, the small pelagics. If major measures are instituted until Year 4 or 5 of the project, then the goal could still be achieved after the life of the project due to lag times in when actions are taken and when the stocks

and landings rebound as a result thereof. If no major management measures are put in place during life of project, then the goal cannot be achieved even if there is significant progress on achieving targets for the intermediate results. However, meeting the targets set for the intermediate results will nevertheless provide a much more solid foundation and progress towards achieving the goal of the project and the government of Ghana of rebuilding marine fish stocks.

IR1: Strengthened enabling environment for marine resource governance. Five policy initiatives are moving forward in this result area. First, one of the project's main objective is to improve the legal enabling framework to provide for co-management and use rights in the fisheries sector, two proven best practices for fisheries management that cannot be effectively implemented in the current legal context in Ghana. To this end, the project, along with the World Bank financed WARFP, drafted a co-management framework policy with considerable inputs from fisherfolk associations and academia that will set the stage for specific revisions to the Fisheries Act expected to occur in FY18. Related to this was assistance provided to the Fisheries Commission to design a citizen fisheries watchdog program to provide additional deterrence to IUU (illegal, unreported and unregulated) fishing activities. The Minister has endorsed this program and pilot site selection to kick start implementation is underway. The project was also provided a seat on the legislative drafting committee for the Fisheries Act revisions that started meetings in the later part of FY 16.

This year, the project has also assisted in drafting an anti-child labor and trafficking strategy for the fisheries sector that was jointly developed by the Ministry of Fisheries and Aquaculture Development and the Ministry of Gender, Children and Social Protection. This is of particular note given the Tier 2 classification of Ghana concerning trafficking in persons by the US Department of State. The strategy has been submitted to MOFAD for final review prior to its expected adoption in FY 17. In addition, the project has also drafted a gender strategy for the Fisheries Commission that is also in final stages of stakeholder consultation and expected to be adopted in FY 17. While not a specific target, but related, a review of the pre-mix fuel subsidy that is considered to exacerbate overfishing was completed with a list of potential options for alternative neutral or good subsidies.

IR2: Increased use of applied science to inform decision-making. Most notable contributions to this result in this reporting year is the completion of a stock assessment on the small pelagic fisheries and preliminary assessment of the demersal fisheries. These assessments provide more detailed quantitative information on the state of overfishing and recommend target reference points for biomass and fishing mortality that are necessary to rebuild the fishery. The capacity of the University of Cape Coast and the Fisheries Commission Fisheries Statistical Survey Division to provide improved scientific information has been strengthened through a number of short-term training programs in data analysis and stock assessment, along with material support provided including scientific instrumentation and IT equipment. Five professionals from the Fisheries Commission and UCC are also studying for advanced fisheries and ocean science graduate degrees in the US at URI.

IR 3: Improved constituencies and political will for policy reform and sustainable use practices. This result is being achieved through a wide array of behavior change communications taking place on the ground at over a dozen key fisheries landing sites and through mass media campaigns that reach well beyond these targeted sites. These include advocacy campaigns conducted during major public events such as World Rural Women's Day and World Day Against Child labor. Training were implemented for the local press to improve their knowledge on and ability to report on fisheries sector issues. This year, an increase in fisheries reporting has been documented with 21 information products disseminated by the project and an uptick in media reporting on the problems in the fisheries sector, including better reporting on illegal fishing and the crisis of collapsing fish stocks.

IR 4: Applied Management improved in targeted sites. With respect to managing priority fish stocks important for food security, a national marine fisheries management plan has been formally adopted and the project contributed to its widespread dissemination and discussion of its contents via meetings and workshops that involved over 6000 stakeholders, including printing and distribution of copies of the final gazetted version of the plan. The project's Science and Technical Working Group also

completed a small pelagic fishery profile and stock assessment that showed continued overfishing and declining biomass well off the target reference points. The working group provided recommendations for additional actions to rebuild these stocks to the Fisheries Commission. Data collection for an assessment of the demersal stocks was also completed and preliminary analysis shows significant overfishing of these resources as well. In addition 1047 persons (53 % women) both among stakeholder groups and in government and academia received training on various aspects of Natural resources Management with special focus on fisheries and coastal resource management.

The project had also completed two climate change vulnerability assessments for areas in the Western region and is working with the District Assemblies to incorporate findings into district spatial and development plans. Profiles of the Pra and Ankobra estuaries have been conducted and this information and the vulnerability assessments will feed into community based management plans in FY 16. Reforestation activities started in the Ankobra estuary, one of the targeted estuaries for developing an ecosystem-based approach to fisheries management. A nursery was established and over 5000 mangrove seedlings have been re-planted in an 11 hectare degraded area.

Six Village Savings and Loans Associations (VSLAs) have been established in several rural and highly isolated communities in the Ankobra estuary and the provision of micro-credit services provided to MSMEs in the Axim and Shama areas, aimed at enabling them to expand their fisheries post-harvest businesses and improve their livelihoods. Out of the total loan amount of 23,982.75 GHS, a 99 % repayment rate has been achieved to date. A total of 985 MSMEs (81% women led) have received various kinds of business services including business development training, provision of micro-loans and subsidies for more fuel efficient and profitable stoves.

Scale up of more fuel efficient stoves was halted early in FY 16 when it was discovered the new more profitable design had high levels of PAH (a carcinogen found in smoked fish) that was well above the traditional “*Choker*” smoker design in use and above international standards. Resources were used in FY16 to work on a modified design that is both fuel efficient and has low PAH. This was successful and the new design is ready for additional roll out and scale up in subsequent project years.

Cross cutting Indicators on Gender, Private Partnerships and Capacity Building. The number of women participating in project supported meeting and training events has been increasing and this year the number of women exceeded men in NRM related training events. The number of MSMEs benefiting from the project is primarily women-led businesses as the project activities in this component specifically target the post-harvest sector which is women dominated. Through project supported leadership events and *hownam* dialogues, women are increasingly active in supporting responsible fishing practices. In some communities such as Apam, women are leading a “say no to bad fish” campaign, boycotting purchase of illegally caught and poorly handled fish.

This year two public partnerships were under development, one that provides a micro-insurance opportunities for fishers (the partnership agreement was officially signed on Oct 11, 2016). The other is a Togo fisher’s network that will provide free calling among members in the network and provide other information and services to fishers such as weather, price information, mobile money and information from the Fisheries Commission such as the start of a closed season. In both cases digital financial services and payments will be incorporated into the delivery of these products.

Capacity building of targeted institutions, both government and CSOs, has been multifaceted with over 1000 persons trained as noted above, a majority women. This year, significant material support was provided to the Fisheries Commission Enforcement Unit, the Fisheries Statistical Survey Division, the Marine Police Training Academy and the Town and Country Planning Department of the Central region, including of vehicles, training and IT equipment. This is providing additional capacity to conduct law enforcement, generate scientific assessments of the state of the fishery and improve coastal spatial planning to reduce coastal hazard risks. The University of Cape Coast received substantial short-term training in stock assessment and received specialized scientific equipment that will provide better information for age and growth and related stock assessments of various fish

species. Five persons (4 women) from the Fisheries Commission and UCC are training for advanced scientific fisheries degrees in the US. Targeted CSOs have received significant training in financial management and project reporting, financial management software upgrades, training of their Board of Directors, development of improved standard operating procedure manuals among other interventions that have strengthened their capacity to manage donor funds and improve delivery of services to beneficiaries in targeted communities.

Table 1 below shows performance results achieved in FY 16 relative to targets in Year 2 for each group of indicators for each intermediate result area. Table 1 shows the FtF standard indicators that SFMP reports on. However, for a full list of indicators (FtF, other standard USAID indicators, and custom indicators) and narrative on each, see Annex 1.

Table 1 Summary of Results to Date on FtF standard Indicators

Standard Indicators	Baseline FY 2016	Annual Target	Year 2 (FY16) Results	Q1 FY16	Q2 FY16	Q3 FY16	Q4 FY16	Annual Performance Achieved to the End of Reporting Period (%)	On Target Y/N
Number of hectares in areas of biological significance and/or natural resource showing improved biophysical conditions as a result of USG assistance (EG 4.8.1-1)	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Number of agricultural and nutritional enabling environment policies completing the following processes/steps of development as a result of USG assistance in each case: (FTF 4.5.1(24)) 1. Analysis 2. Stakeholder consultation/public debate 3. Drafting or revision 4. Approval (legislative or regulatory) 5. Full and effective implementation	0	Fish Act analysis Small pelagic analysis Child labor analysis Demersal analysis (4)	5	1 (Small pelagic analysis – stock assessment)	N/A	1 (Fish Act Analysis: FWC and Co-mgt policy)	3 (Gender, Co-mgt policy, demersal stock analysis)	125%	Y
Number of institutions with improved capacity to develop and implement managed access fisheries management plans	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Number of days of USG funded technical assistance in NRM and/or biodiversity provided to counterparts or stakeholders (EG 4.8.1-28)	0	956	1019	194	244	320	261	107%	Y

Standard Indicators	Baseline FY 2016	Annual Target	Year 1 (FY15) Results	Q1 FY16	Q2 FY16	Q3 FY16	Q4 FY16	Annual Performance Achieved to the End of Reporting Period (%)	On Target Y/N
Number of hectares of biological significance and/or natural resources under improved natural resource management as a result of USG assistance (EG 4.8.1-26)	0	0	N/A	N/A	N/A	N/A	N/A	N/A	
Number of DAs supported with USG Assistance (Ghana CDCS, IR 2.3 indicator)	0	4 (Ongoing)	4	4 ongoing	4 ongoing	4 ongoing	4 ongoing	100%	Y
Number of climate vulnerability assessments conducted as a result of USG Assistance (EG 4.5.1)	0	3	2	0	0	0	2	67%	Y
Number farmers and others who have applied new technologies or management practices as a result of USG assistance (FtF 4.5.2)	0	N/A		N/A	N/A	N/A	N/A	N/A	
Number of micro, small and medium enterprises (MSMEs), including farmers, receiving business development services from USG assisted sources (FtF 4.5.2)	0	751	985 M-186 (19%) F-799 (81%)	0	138 M- 32 (23%) F - 106 (77%)	441 M-83 (19%) F-358 (81%)	406 M-71(17%) F-335 (83%)	131%	Y
Value of new private sector investments in select value chains (FTF 4.5.2-38)	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations(CBOs) receiving USG assistance (RiA) (WOG) (FTF 4.5.2(11))	0	3	3	0	2	1	0	100%	Y
Number of members of producer organizations and community based organizations receiving USG assistance (S) (FTF 4.5.2(27))	0	1144	1144	N/A	1144 ongoing	1144 ongoing	1144 ongoing	100%	Y

Standard Indicators	Baseline FY 2016	Annual Target	Year 1 (FY15) Results	Q1 FY16	Q2 FY16	Q3 FY16	Q4 FY16	Annual Performance Achieved to the End of Reporting Period (%)	On Target Y/N
Number of public-private partnerships formed as a result of Feed the Future assistance (S) (FTF 4.5.2(12))	0	1	1	0	0	0	1	100%	
Number of people receiving USG supported training in natural resources management and/or biodiversity conservation, and climate change, disaggregated by gender (EG 4.8.1-27/ 4.8.2-6)	0	826	1047 M-497 (47%) F-551 (53%)	200 M- 22 (11%) F-178 (89%)	384 M- 193 (50%) F- 192 (50%)	284 M-164 (58%) F-120 (42%)	179 M-118 (65%) F-61 (35%)	127%	Y
Number of person hours of training in natural resources management and/or biodiversity conservation supported by USG assistance (4.8.1-29)	0	16,080	18,846	4,674	4,137	3,417	6618	117%	Y

¹ This indicator is similar to the Feed the Future indicator: Number of rural households benefiting directly from USG interventions (FtF 4.5.2-13)

* Entire table revised to capture quarterly results.

* Number of direct project beneficiaries (number), the percentage of which are female (percent) (IDA Core Indicator) disaggregated by rural, urban (IR 2.1 indicator from Ghana CDCS) was revised from direct to indirect and taken off from the list of standard indicator.

2. ACTIVITY IMPLEMENTATION PROGRESS

2.1 Progress Narrative & Implementation Status

IR 1: Strengthened enabling environment for marine resources governance

This component employs a combination of legal and policy reform initiatives to be carried out at the national level with significant stakeholder engagement through a blend of a bottom-up and top-down approach. MOFAD/Fisheries Commission is mandated to spearhead all fisheries policy arrangements. The SFMP is working closely with the Ministry/Commission to facilitate effective marine resource governance.

1.1 National Workshops on Key Issues in the Marine Fisheries Sector

National Dialogue on the National Marine Fisheries Management Plan: A national dialogue was held in November 2015 to discuss the content of the newly gazetted national marine fisheries management plan. The dialogue brought together key fisheries stakeholders including industry representatives: Canoe Fishers (GNCFC), Inshore Fishers (GIFA), Industrial Trawlers Association (GITA) and National Association of Women Processors (NAFPTA). Others included traditional authorities, parliamentarians, academia, World Bank, USAID mission, local and international universities, local NGOs and other civil society groups. Stakeholders deliberated on the marine fisheries management plan and recommended approaches for operationalizing and implementing the plan. Participants were supportive of the implementation of a closed season as noted in the management plan and called for widespread consultations in order to build support for implementation.

The National Marine Fisheries Management Plan (2015 to 2019) proposes very useful management measures that can contribute to rebuilding marine fish stocks such as a closed season, reduction of fishing days and vessels, introduction of protected areas, co-management, etc. A meeting was held in June with FC regional and zonal officers, as well as with regional executives of NAFTPA and GNCFC, to inform FC regional and zonal staff and selected fishing association leaders about the NMFMP and to plan for an outreach campaign on its contents. Over 6,000 fishers and stakeholders were educated on the management plan and copies of the NFMP were also distributed through 28 landing sites meetings, four meetings with Regional Fisheries Working Groups, meetings with the Fisheries Alliance, and three separate meetings with the National Executives of NAFAG, NAFPTA and the GNCFC. Through these meetings significant social capital is being built to support the implementation of the NFMP.

Fisheries Co-management: There have been a number of changes in the project direction concerning progress on key policies in the fishery sector. In Year 2, SFMP supported MOFAD in the drafting of a co-management policy guideline for Ghana. . (Steps 1 and 2 on the policy indicator). This was through the review of existing policy and legal documents as well as documents/documents of outcomes of earlier workshops under the previous USAID Ghana ICFG project and analysis of co-management approaches from both Ghana and internationally. The draft policy guidelines have been refined through the inputs from a national stakeholders' workshop which was co funded by the USAID Ghana SFMP and the World Bank WARFP project. The workshop brought together over 40 participants from the fisheries industry, including GNCFC, GIFA, GITA, NAFAG, NAPFTA, GNICFA, Volta Estuary Clam Harvesters Association, CSO's working in both the marine and freshwater fisheries, academia and graduate students, the Marine Police, and MOFAD/Fisheries Commission. The guideline policy document is undergoing final revisions and expected to be adopted by the Government of Ghana in the early part of Year 3. This will then set the stage

for amendments planned for the Fisheries Act to further enable and fully implement co-management initiatives.

In 2016, the Cabinet approved the revision of the Fisheries Act 265 of 2002. Amendments to the Fishery Act are slated to reach Parliament in 2018 (during project Year 4). The SFMP is participating in and supporting a task force that was established by MOFAD to work on redrafting of the Act. The draft co-management policy framework will inform necessary amendments to the Fisheries Act to provide effective authority to establish co-management groups at different ecosystems scales. Co-management arrangements are the main focus of the SFMP's contribution to the amendments to the Act, with WARFP focused on a comprehensive review and updating of the other sections. Stakeholders have already participated in the consultations on the co-management policy that are laying the groundwork for the legislative changes.

In addition, the project has already drafted recommended legislative language to support a major initiative of the Minister to establish the citizen – led Fisheries Watchdog Committee (FWC) program. The project conducted an analysis of the current legal regime and concluded that while some pilot initiatives can get started under the existing framework, it will require explicit language added in the amended Fisheries Act. Stakeholders participated in this legislative review. Hence, the project has already contributed to steps 1 and 2 (analysis and stakeholder participation) of this particular policy process. These steps will not be claimed as a result yet until further analysis and stakeholder consultation is supported in Year 3 on the drafting of Fisheries Act amendments, with submission of a revised Act and adoption of the new legislation still anticipated for Year 4. Again, while the project can directly support analysis and drafting of new language and facilitate stakeholder meetings on the new Fisheries Amendment Bill, the MOFAD and Parliament ultimately determine whether a new Act will be legislatively adopted. This outcome lies beyond the direct ability of the project to guarantee as a result and therefore no certainty it will be achieved. Nevertheless, this will be set as a target in Year 4.

Four Fisheries Working Group (FWG) meetings were held in Year 2 in each of the four coastal regions to discuss the co-management policy framework and the co-management provisions in the NFMP. These meetings also discussed the role of the FWGs in the co-management framework to determine whether the FWGs can start to become an ad hoc co-management committee at the regional level. The meeting participants recommended the need for stakeholder consultations to design the co-management structures and a legal framework to ensure local ownership of the processes. It was also recommended that only a few co-management committees should be piloted before scaling up with the formation of others.

National Workshop on Coastal Zone Management: National media attention was brought to bear on the continued annual “King Tide” flooding events occurring in several areas along the coast where hundreds of homes have been washed away and lives lost, from the Volta to Western regions. In response, SFMP organized a national workshop on coastal zone management that was co-sponsored by the University of Cape Coast (UCC) and the University of Ghana. This was the first time key national agencies have been brought together to discuss challenges of accelerated sea level rise resulting from global warming and associated impacts on public and private infrastructure and public safety. Several donors were also present including the World Bank WACA program and the UNCDF's Local Climate Adaptive Living (LoCAL) Facility. This workshop highlighted the utility of using small unmanned aircraft (SUA) for both planning and damage assessment. Participants unanimously agreed that a national interagency task force and stronger coastal zone

management program is needed to reduce risk, economic losses and protect public safety in the future. SFMP developed a number of informational pieces and other communications materials on this topic that have been reproduced in the national press

Policy Analysis on potential alternatives to the fuel pre-mix subsidy: A study was completed on potential alternatives to the current subsidies such as pre-mix fuel that exacerbates overfishing. The pace of overcapacity and overexploitation of fisheries resources is exacerbated by capacity-enhancing subsidies such as fuel and engine subsidies. The premix fuel subsidy and tax waivers cost the Government of Ghana US\$44 million annually. It is a ‘capacity-enhancing’ subsidy, meaning it promotes increased fishing effort, overexploitation of fish stocks, lowers fishing productivity in the long run, and makes fishermen, boat owners and everyone in the fishery sub-sector poorer. The outboard engine subsidy is also a capacity-enhancing subsidy that is costing the people of Ghana over US\$4.5 million/year.

Fisheries actors would be better off without the capacity-enhancing subsidies and funds used toward these programs could be redirected to programs that promote conservation, research, monitoring and enforcement of fisheries which are referred to as beneficial subsidies. However, outright removal of subsidies could result in severe short-term socio-economic consequences.

Based on this analysis, phasing out capacity enhancing subsidies in fisheries is recommended, while at the same time redirecting investment toward programs that will make fishermen and fisheries stakeholders better off in the medium to long term. Possible alternative investment programs that are unlikely to exacerbate overfishing include closed seasons, fish sanctuaries, reducing days fishing, improving extension services to the sector, better stock assessments, supporting alternative livelihoods and life insurance schemes for fisherfolks (See IR 6).

1.2 Strengthened Law enforcement

Prosecutorial Chain Workshops: As part of efforts by SFMP to strengthen fisheries enforcement, a series of trainings were held for Marine Police and FEU officers to contribute to the adoption of responsible fishing. Over 95% of the 105 participants in these events were receiving such fisheries training for the first time. FoN organized two 3-day training workshops in May and June with total of 60 officers trained. At the end of the training, participants were equipped with knowledge in the following areas: Fisheries laws (Act 625, LI 1968, Act 880, etc.), Fisheries Management Plan, Fisheries Enforcement Operational Manuals, International Fisheries Monitoring Control and Surveillance, Eco-system Based Approach for Fisheries Governance, Strategies for effective beach combing, Traditional Fisheries Governance and Challenges, Lessons and Global Experiences for Improved Fisheries Management, Introduction to Child labor and Trafficking in Fisheries, Stakeholder interaction and communication for enhanced fisheries enforcement and compliance.

Marine Police, FEU and MCS training in the Central Region: FoN organized a 2-day competence based workshop in June with officers from Marine Police Unit (MPU) and other stakeholders. The purpose of this workshop was to support the MPU in meeting their mandate to enforce fisheries laws with an approach to organizational development of staff capacity and performance. This workshop was the first time that the MPU staff and partner agencies met to discuss the competence-based approach and how to apply it to improve the performance of MPU staff in fisheries enforcement.

Material Support to Law Enforcement: Material support for the Marine Police Aiyinase School was delivered to the school in the month of May. Key items delivered included; conference chairs, projectors, office desks and executive chairs, computers, printers, photocopies and bookshelves. The furniture and equipment have been installed. The

Inspector General of Police toured the facility the IG for Marine Police after its outfitting. While the facility is operational for training events, it still has a number of issues concerning poor quality of the dining facilities, barracks and lack of an electrical line to the buildings.

Baseline and Tracking of Fisheries Prosecutions: There has been a slow-down in the number of arrests and prosecutions of fisheries infractions that have occurred this year in spite of all the interventions the project has made both in terms of the police training and prosecutorial chain workshops and the behavior change communications workshop. This is not an indication of less illegal activities and hence less arrests. This has been observed in most Presidential election campaign years in Ghana. We are hopeful that after the elections, there will be a significant uptake in law enforcement activities to serve as a strong deterrence factor to illegal fishing.

Fisheries Watchdog Committee Program (formerly Citizen Watch on Water Program): SSG completed and submitted a design document for the Citizen Watch on Water (CWOW) initiative, now known as the Fisheries Watchdog Committee (FWC) program. The Design document serves as a framework and operational tool for pilot design and implementation and also outlines long-term considerations for the program. Two legal reviews to support design and implementation of the FWC program were submitted. The reviews assessed the extent to which existing Ghanaian law, policy, and efforts support the creation of the FWC program. Also drafted is a legal framework included in the FWC Design Document outlines specific language that might be included in an Amendment to the Fisheries Act.

The FWC initiative has been approved by the Sector Minister for piloting and a launch event later in the 2016 calendar year. An interim FWC Coordinating Team was formed to supervise activities to kick-start the pilot. The Coordinating Team shortlisted two communities - Ada and Jamestown - for the FWC pilot. Support for the pilots included a training design and initial training of trainers' workshop. A Training Manual has been prepared to guide volunteer trainings which will be further developed and tailored by SFMP for this program. Training of the initial groups of volunteers is slated for early in Year 3.

1.3 Harmonizing Regional Fisheries Policies

SFMP attended the second Fishery Committee for the Eastern Central Atlantic (CECAF) meeting held in April 2016, in Dakar, Senegal. The session was attended by representatives of 23 member states and numerous regional organizations. The Terms of Reference protocols for collecting samples of fish of (*Sardinella aurita* and *Sardinella maderensis*) for the DNA genetic study was discussed with selected collaborators from 12 countries in West Africa. Initial samples were collected between July and September 2016 to coincide with the spawning season of sardinella. The purpose of this regional study, endorsed by FAO and CECAF, is to identify the genetic diversity and map the boundaries of sardinella stocks along the coast of the Eastern Atlantic from Morocco to Angola. This is very important in regional fisheries management, particularly for rebuilding fish stocks by understanding the spatial distribution of each unit stock. Currently the CECAF considers sardinella of Ghana as a sub-unit of the stock extending from Liberia to Nigeria. Samples will be analyzed using a state of the art genome sequencer at the University of Rhode Island. Results will be disseminated in a workshop to be coordinated with FAO and FCWC in Year 3. In addition, a portion of the samples will be used for special research in fish genetics by the UCC graduate students currently studying at the University of Rhode Island.

1.4 Informing the U.S Government on Key Fisheries Policies Issues in Ghana

Several briefs were prepared for senior US government personnel on issues pertaining to IUU fishing and child labor and trafficking in fisheries. The SFMP also prepared a presentation on

SFMP activities on IUU fishing and other maritime security issues that was presented by the Economic Growth advisor of the USAID/Ghana during an April meeting in Washington DC. The CoP and partners involved in the SFMP anti-child labor and trafficking activities attended a meeting with the Mission Director, Economic Growth Director, AOR and representatives from the US Embassy and briefed them on the project child labor and trafficking prevention initiatives (see section below) as well as on the projects activities to reduce IUU fishing. On that same day, the SFMP CoP and AOR presented an overview of the project and its relationship to food security at an USAID Agrilinks webinar.

The Chief of Party and National Activities Manager attended a meeting on the State Departments Security Governance Initiative held on June 2nd at the US Embassy and presented on SFMP and BUSAC funded activities on this topic.

The US Ambassador and USAID Officials including the USAID Mission Director visited the CEWEFIA Fish Processing Center where new fuel efficient stove technologies developed by the SFMP are being demonstrated. However, the main focus of the visit was to highlight the work the SFMP is undertaking to combat child labor and trafficking in fisheries, meeting with child labor advocates and victims that are sharing their story (see section below for more information on the SFMP child labor and trafficking initiatives).

1.5 Reducing Child Labor and Trafficking (CLaT) in Fisheries

The focus of SFMP Anti-CLaT component is to contribute to the reduction of CLaT practices in the Central Region through stakeholder engagement, strategic partnerships and extensive communication to make the practice socially unacceptable.

Strategy to Combat Child Labor and Trafficking in the Fishery Sector: In Year 2, SFMP worked with the MOFAD and Fisheries Commission and the Ministry of Gender, Children and Social Protection to develop an anti- child labor and trafficking strategy for the fisheries sector. Analysis, and stakeholder consultation and drafting of the strategy document (through step 3 of the policy process) have been completed. The strategy is undergoing some additional revisions and will include one more stakeholder meeting before being submitted for approval and adoption (steps 3 and 4 in the USAID policy cycle), projected to occur in Year 3. The project will support to some extent implementation of the strategy but will not target over LoP the full and effective implementation of the strategy as the resources dedicated to this will not be sufficient to guarantee this outcome.

Training of Anti-Child labor and trafficking advocates: CEWEFIA conducted a refresher and sensitization trainings for CLaT advocates and the Community Child Protection Committee (CCPC) members in targeted communities in the Central region. They learned the difference between child labor, child work and worse form of child labor (trafficking). Most of the anti- CLaT advocates shared their experiences to date, some indicated that they are using their position as youth leaders and Elders in their churches and communities to create awareness on the need to prevent child labor and trafficking .They are also carrying out intensive household interactions on CLaT, and have identified some drivers (poverty, early marriage, single parenting etc.) of CLaT. Advocates indicated that through their counseling and awareness creation, many households have enrolled their children in school in the last academic year which reduces the risk that they will be used in illegal labor or be trafficked.

Radio Programs on CLaT: FoN and DAA, organized a radio discussion program on CLaT on Radio Peace in Winneba. The Fante language was used for the radio discussions to ensure that the targeted audients understood the key messages. Scenarios in relation to the subject were cited to deepen the understanding of listeners to appreciate the issues discussed. There was a phone-in session for listeners to comment, ask questions and seeking clarification to

the issues discussed. The program ended with the firm assertion that there was the need for improved stakeholder collaboration to reduce and stop CLaT practices in Central Region. Callers on the program also noted that there is the urgent need for enforcement of laws on CLaT to ensure that perpetrators on CLaT practices are arrested and prosecuted. It was highly recommended that agencies such as District Assemblies, Department of Social Welfare, Fisheries Commission, Anti-Human Trafficking Unit of the Ghana Police Service, etc. need to be strengthened and equipped for effective enforcement on CLaT.

As part of the effort to preventing child labor and trafficking in fisheries, CEWEFIA also organized radio discussions on Ahomka FM to create awareness on the effects of child labor and trafficking. Some crucial topics discussed were PTA/SMC role in preventing CLaT, the effect of CLaT in the society, and discussion on world day against child labor theme “End Child labor in fisheries supply chains; its everyone’s business”.

Documentary on CLaT: SNV developed a CLaT documentary and edutainment movie for Behavior Change Communication campaigns. Adjetei Anang, a Ghanaian movie celebrity and an anti-CLaT crusader played the lead role in collaboration with a local drama group in the Central region. The videos were finalized for use by partners for their community level CLaT campaigns. SFMP partner CEWEFIA held a community launch of the SFMP anti-CLaT documentary and local drama in Apam on 10th June 2016.

2016 World Day against Child Labor: SFMP partners joined the rest of the world to mark the 2016 World Day against Child Labor. A grand durbar was held on 14th June 2016 at Biriwa in the Central region. The ceremony which was under the theme “End Child Labor in Fisheries Supply Chains; It’s Everyone’s Business” was attended by government agencies, project partners, traditional authorities, fisher folks and school children. Participants did a placard walk through the streets of Biriwa, led by some community members, anti-CLaT advocates, and members of the SFMP Community Child Protection Committees. Participants carried messages to create awareness on the alarming rate of child labor activities confronting fishing communities, particularly those along the coast of Ghana, in an attempt to elicit behavioral change. A radio program was broadcast in Elmina in conjunction with the Central Regional Department of Social Welfare prior to this event to discuss the dangers of child labor in fisheries and call for action from community leaders.

Training of IPs and government on Child Labor Households at Risk Tool: SNV trained project partners and other stakeholders in the fisheries sector on the ‘Child Labor Household at risk’ tool in Cape Coast. In attendance were representatives from DAA, CEWEFIA, FoN, Department of Social Welfare, Fisheries Commission, Ghana Health Service, NAFPTA, Ghana Education Service and the Ghana Journalist Association. The Child Labor Household at Risk tool is a matrix used for identifying households susceptible to child labor in a particular community. Through group discussions, the participants were involved in shaping the eligibility criteria for identifying vulnerable households in their communities. This is to ensure that interventions are better targeted at the household level. It also ensures that child labor programs are credible. The workshop evaluation showed that participants had gained a better understanding of what constitutes “at risk households” and how this is closely linked with the Ghana Livelihood Empowerment against Poverty (LEAP) program.

IR 2: Science and Technology Applied to Policy and Management

This component area seeks to improve fisheries management processes by engaging scientific research and findings as part of the driving forces and rationale for management. It has included the establishment and function of a Science and Technical Working Group and numerous trainings for the Fisheries Statistical Survey Division of the Fisheries Commission and University personnel. Accomplishments this year include considerable training of the Fisheries Commission staff at the Fisheries Statistical Survey Division and UCC staff and faculty on stock assessment and fisheries data collection. In addition, a strategy to link the research between UCC and FC-FSSD was identified as high priority need to provide needed research and fish stock assessment for fisheries management.

These trainings and the work of the STWG have increased capacity of the fisheries scientific community in government and universities to process fisheries data and provide useful management recommendations to decision makers.

2.1 Scientific and Technical Working Group

A Scientific and Technical Working Group was formed in Year 1 to provide information on status of small pelagic stocks to inform decision-making.

The Scientific and Technical Working Group (STWG) completed its annual small pelagic stock assessment review process during a workshop held on April 13 to 15, 2016 in Cape Coast. The peer review panel was composed of Dr. Bradford Brown and Dr. Hassan Moustahfid from the National Oceanic and Atmospheric Administration (NOAA).

The overall objective of the peer review workshop was to review and validate the stock assessment report presented by the STWG on the status of the stock of small pelagic fish in Ghana. The panel shared their experiences on stock assessment and provided input regarding appropriate methods based on existing fisheries data available in Ghana

The review panel endorsed the stock assessment findings which demonstrated that 2014 fishing mortality rate for the *Sardinella* fishery is 0.74 instead of the ideal of 0.4, an indicator of the overexploited nature of the stock. In addition the panel agreed that the rebuilding biomass target is adequate, however it may change due to the influenced of rising sea surface water temperature and declining upwelling forces. The panel further recommended additions to the 2015 data and update the stock assessment. The panel proposed that the STWG could become a technical arm of the Fisheries Commission after the tenure of the SFMP to help provide up to date scientific advice on the status of fish stocks and propose efficient management measures for sustainability.

The panel also endorsed the proposal by the STWG to close the fishery during the month of August during the highest upwelling index in Ghanaian waters. This is also the peak spawning season for *Sardinellas* and other small pelagics and the period when processors record the most economic losses due to low prices and the poor nature of fish flesh around this time. A seasonal closure of all fishing fleets except tuna in August was proposed by the STWG and accepted by the review panel as the major management measure needed to help revive the declining status of small pelagics. The key weaknesses and gaps in data were reviewed and listed. The panel concluded that a “no action” measure to fisheries management will lead to a total collapse of the small pelagics stocks of Ghana. Immediate action needs to be taken to revive the fish stocks and the major measure will be to establish a closed season in August which will include all fleets except the tuna fleet.

2.2 ICT Innovations for Effective Fisheries Management

SSG conducted a collaborative design workshop – with SFMP, the Government of Ghana, Marine Police, and Fisherfolk Associations. The ICT Strategy document was completed, which captured and synthesized the ideas put forward in the workshop. The Strategy will serve as an ICT roadmap for fisheries management in Ghana.

SFMP undertook discussions with USAID’s Digital Development team to explore possible support USAID might provide for ICT activities under SFMP. USAID now plans to provide an ICT expert to support the project in implementing the ICT strategy. The consultant assisted mainly with the digital financial services being promoted through two private – public partnerships. The first is the offering of life insurance to fisherfolks and the second is the development of a fisher network modeled loosely off the Vodafone farmer’s network.

SFMP is assisting the FC-FSSD to establish a strategy and develop a plan to improve the fisheries data collection system. A workshop organized in August by the MIS Manager of URI-CRC to develop, with the staff of FC-FSSD, a collective vision and objectives for the improved data collection system. It also involved developing synergies between SFMP and WARFP relative to fisheries data systems and develop ICT tools necessary to implement and efficient data collection system through E-reporting using tablets and smartphones. The FC-FSSD agreed to adopt the use of tablets as a pilot project to increase the efficiency of data flow and accessibility for fisheries managers. The design of the E-reporting was completed for 10 major fishing sites. The purchase of 10 tablets was recommended. The implementation of the data collection system will begin in January ahead of the second fisheries closure scheduled during the months of February and March, 2017.

2.3 UCC/DFAS/CCM Capacity Development

The “Leadership for Fisheries Management” course held in July in Takoradi, with 27 participants including staff from the Fisheries Commission and several national NGOs representing canoe and industrial fishing as well as the small pelagics processing value chain



Figure 1 Leadership for Fisheries Management course

and focused on the application of an ecosystem approach and a whole systems view to fisheries management as the overarching themes of this leadership development experience. The participants explored new and innovative concepts in fisheries management with a focus on small pelagics in Ghana that draw lessons from case studies around the world.

The course used a range of methods including lectures, field trips, small group work, simulations and case studies to create a robust interactive and dynamic environment to learn new insights and skills for managing fisheries more sustainably. Site visits were conducted to the major fisheries landing site of Elmina – Central Region, followed by a stakeholder meeting to practice new competencies and gather perceptions by the fishing community on rebuilding the small pelagics fishery.

At the conclusion of this course, the participants developed strategies that included leverage points and quick wins with stakeholders focusing on eliminating the use of chemicals in fishing and community based management of the Ankobra estuary shared by Ellembelle and Nzema East districts. They also committed to working as a team to build off of their unique positions throughout the fishery system.

During Year 2, SFMP and UCC agreed on a joint strategy to scale his course to reach a wider number of participants and target mid-level FC staff zonal officers and community groups and stakeholder leadership involved in the applied management initiatives for targeted areas and stocks – the small pelagics and community based fisheries management areas in the Pra, Ankobra and Densu estuaries and elsewhere in the country.



Figure 2 President Dooley from URI and Vice Chancellor Domwini Dambire Kuupole from UCC commit to strengthening collaborative ties for research, education and outreach

In April, URI President Dr. David Dooley visited UCC at the invitation of the UCC Vice – Chancellor. He was accompanied on this visit by Dr. Deborah Sheely, Director of Cooperative Extension and Dr. Anton Post, Director of the Coastal Resources Center. His visit was part of a larger tour that included visits to SFMP partners and field sites and a visit to KNUST where URI also is involved in cooperative activities on the USAID West Africa ASSESS project. A MOU was signed between UCC and URI that laid out specific arrangements and guidelines for further cooperation between UCC’s CCM and DFAS and the URI Coastal Resources Center. The discussions have resulted in a number of follow-up actions that support the two USAID projects and university linkages beyond these projects with other non-marine and fisheries related activities. A follow-up visit by several URI Dean’s took place in August, 2016.

The SFMP, in coordination with UCC and the FSSD, are completing the procurement of a list of equipment for the age and growth laboratory renovated under USAID-Capacity Development grant implemented by UCC-DFAS. This laboratory will be managed by UCC with shared access to FSSD for applied stock assessment and research. Age and growth information allows managers to understand the dynamics of fish stocks and how fish populations react to environmental stresses (i.e. climate change). The Senior Fisheries Advisor will oversee the installation and training of staff to operate and maintain the equipment.

As part of the SFMP-UCC collaboration, Professor Richard Burroughs a coastal management specialist from URI, visited UCC for a period of two weeks in May 2016. The purpose of the visit is to continue working on the operation plan of the Center for Coastal Management (CCM). Working closely with Professor John Blay from UCC, he participated in an extension activity of the CCM aimed at restoring a degraded lagoon (Awiane Aluonu) at Half Assini in the Jomoro District of the Western Region. This activity is also part of the UCC project on monitoring the biodiversity and health of coastal ecosystems. Professor Burroughs delivered a public lecture on Coastal Management and made inputs on reviewing the strategic plan, and developing a business plan for the Centre. He also participated in meetings with District Assemblies in the Half-Assini to introduce the USAID/UCC Project and activities planned for some communities in the selected Districts.

UCC Faculty Visit URI: Two faculty members, two lab technicians and a Ph.D. student from the Department of Fisheries and Aquatic Sciences at the University of Cape Coast spent two weeks at the University of Rhode Island in September 2016 in parallel study tours. Dr. Prof. Edward Obodai and Mr. Joseph Debrah focused on Oyster Culture and Shellfish Management, led by Dr. Mike Rice and assisted by Azure Cygler. Prof John Blay, Thomas Robin Davis and Prosper Dordunu participated in the Operation and Maintenance of AAS and Gas Chromatograph Instrumentation tour, working at the laboratory of Dr. Rainer Lohmann and visiting other laboratories at URI, Roger Williams University and Harvard University.



Figure 3 Deans from the University of Rhode Island Visit UCC

A high level delegation of Deans from different faculties at the University of Rhode Island, visited UCC to strengthen ties and further explore academic partnerships between the two universities. The 5-day visit (July 31–August 4), was a follow-up to a previous inaugural trip of the President of URI to Ghana in April 2016, which was intended to establish and strengthen cooperative relationships between the URI Coastal Resources Center and UCC Department of Fisheries and Aquatic Sciences in the implementation of each other's USAID-funded projects. The results of the visit were to establish a dual-degree program for graduate students of URI and UCC in biology and environmental sciences. Another delegation from URI will visit UCC in year-3 to work on the detailed aspects of the dual-degree program and

set a stage for the implementation phase with the support of the USAID-SFMP and USAID-UCC FCMCBSP.

2.4 Improving FC Data Systems and Stock Assessment Capacity

As part of a comprehensive improvement strategy of the fisheries data collection systems, the SFMP conducted a series of technical trainings for the Fisheries Commission-FSSD staff:



Figure 4 Participants at the Fisheries Data Collection Systems workshop

Fisheries Commission’s staff were trained in fish data collection systems. The primary objective of this event was to strengthen the capacity of the Fisheries Commission’s staff in modern techniques in fisheries sampling and statistical computing using MS Excel. The FC staff identified challenges preventing the advancement of staff with modern techniques in fisheries data collection. The FC staff had the opportunity to learn the new techniques on biological sampling including maturity, fecundity and the collection of fish age and growth information followed by a special training on the use of MS Access for fisheries databases and database development. At the end of the training, the trainees created a database relative the biological data collected and managed to do queries and develop reports.



Figure 5 Participants at the fisheries sampling and databases workshop

The SFMP provided computer equipment to the FC-FSSD to improve the quality of fisheries data processing at the central data center in Tema. A local area network was setup by SFMP in collaboration with FSSD trained staff to allow data exchange and data entry on a web-based database.

Two officers from FC-FSSD completed a six month training in computer networking and data management. This allowed the FC-FSSD to improve the quality of the data by increasing efficiency and timeliness of data analysis and easy access by fisheries managers.

Following the capacity development program, SFMP provided computer equipment to the FC-FSSD to improve the quality of fisheries data processing at the central data center in Tema. A local area network was setup by SFMP in collaboration with FSSD trained staff to allow data exchange and data entry on a web-based database. These initiatives allowed the FC-FSSD to improve the quality of the data by increasing efficiency and timeliness of data analysis and easy access by fisheries managers.

The SFMP and FSSD continued working on the fisheries data improvement process through special meetings and technical workshops. A pilot project on the use of mobile technologies (tablets) for fisheries data collection was identified as urgent for monitoring the performance of the national fisheries management plan, in the absence of a comprehensive M&E plan. SFMP trained FC-FSSD staff in Kobo-Toolbox and other steps in setting-up data forms in electronic tablets.

The data entry and processing backlog improved considerably in the last year with the support of SFMP training, equipment and technical support. The data entry backlog was reduced from about 8-9 months to 3 months.

The SFMP worked with the FSSD to develop a cooperative research project for an industry-based trawl survey to monitor the performance of the fisheries management measures set to begin in November 2016 with a three-month closed fishing season for industrial trawlers. The project involves fishing one selected industry vessel which will be equipped with scientific sampling equipment and electronics to monitor fisheries resources twice per year in the absence of a dedicated research vessel. The project was well received by FC and the fishing industry representatives from GITA. The WARFP accepted the project and is providing appropriate funds to support the design and implementation. A first collaborative survey is set to begin in February 2017.

2.5 Fishing Capacity Assessment

SFMP in collaboration with FCWC, UCC, FC, GITA and UBC have completed the concept note to organize a regional workshop on fishing capacity assessment. The objective of the workshop to share experiences on fisheries capacity assessment systems as it applies to the current proposed effort reduction schemes proposed by the national fisheries management plan developed by the FC. The workshop is expected to produce an action plan relative to fishing effort reduction scheme commensurate with sustainable fishing mortality rate in a phased in approach so to alleviate the socio-economic losses. Due to scheduling conflicts and availability of key staff of the FC and FCWC, the workshop originally scheduled in Year 2 was postponed to late November 2016.

2.6 Environmental Planning and GIS Data Hub

During Year 2, refurbishment of the training facility at the central region TCPD office was initiated and completed. The refurbishment works included fixing of new doors, burglar proof systems, new lighting, air condition systems and floor tiles. A LAN system was also installed. The refurbished GIS Data Hub was inaugurated in September with representatives from USAID and the TCPD Headquarters in Accra.

The first training of planners on the use of GIS-based technologies for coastal resilience building and planning was carried out in September, 2016 by Spatial Solutions who organized two trainings for twenty Officers from the nine Coastal Districts of the Central region. These trainings form part of SFMP's effort to build the capacity of the Central Regional Town and Country Planning Department (TCPD) through a state-of-art GIS hub and regular trainings aimed at fostering coastal spatial planning for development. The modules included in this series of GIS training included an introduction to GIS and general

file management; vector data handling – data format conversions, symbology, queries, and labeling; raster data handling and geo-referencing & digitizing of scanned maps and sector layouts. Other modules were coordinates conversion and on-screen digitizing of vector data. The trainees were also introduced to the use of handheld GPS devices and on use UAVs for capturing imagery for coastal spatial planning.



Figure 6. GIS Training for Town and Country Planning Department Personnel in the Western Region

Christopher Damon of the URI Environmental Data Center completed a detailed report on initial flights of a small unmanned aircraft in Axim, Sanwoma and Iture: “Small Unmanned Aircraft (SUA) Pilot Project”. Flood inundation patterns for Sanwoma were estimated based on elevation information captured by the SUA. The helicopter UAV has been placed in the SFMP inventory and training of local persons on piloting and processing of images continued in Q4 in Old Shama and Anlo Beach to support the Pra River estuary planning.

In addition Upper Axim, Sawoma and Asana were flown to test post-storm event impacts. New requested areas included Awaine Lagoon in Half Assini in support of UCC, and Dix Cove located in Ahanta West District. Both Supomu Dunkwa and Beposo along the Pra River in Shama District were flown at the request of Shama planners to demonstrate the value in street naming / cadatral survey work which is a precursor to revenue generation from land uses. The success of tests using an unmanned aerial vehicle to



Figure 7 Training in UAV operations and piloting at the University of Cape Coast

generate high quality color imagery as well as digital elevation information has generated considerable demand for image acquisition and processing among the three partners in the

USAID/Ghana Fisheries and Coastal Management portfolio and external partners in the Western and Central Regions.

SFMP are working on a plan to invest in a larger scale fixed wing model and associated training to be able to extend the range and scale of the mapping that can be accomplished. The fixed wing SUA would be made available for all USAID coastal program implementing partners (UCC and CSLP) over the life of the project. The long term aim is to transfer this equipment to UCC and develop their capacity to operate and process imagery to improve GIS mapping and coastal planning capacity of the Center for Coastal Management and the Department of Fisheries and Aquatic Sciences.

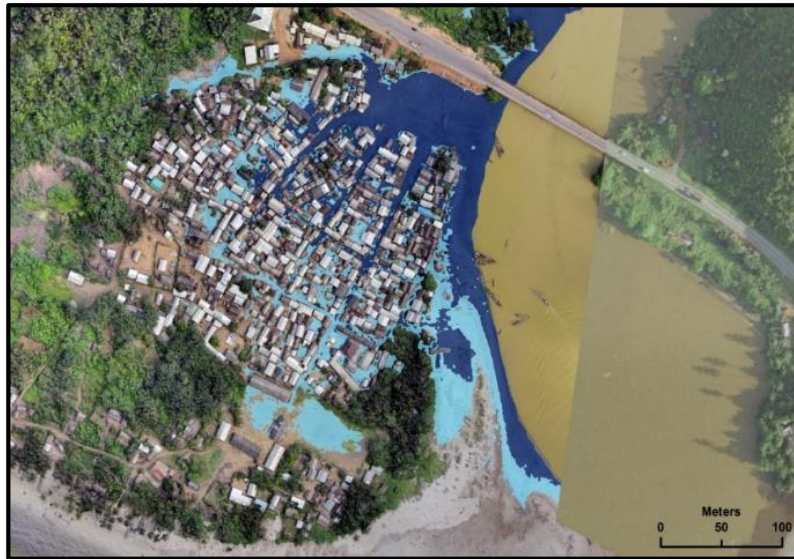


Figure 8 UAV imagery showing flooding inundation areas of Sanwoma Village located at the mouth of the Ankobra Estuary

IR 3: Creating Constituencies and Stakeholder Engagement

In Year 2, the SFMP made commendable progress in building constituencies and the political will to support the project goal of rebuilding stocks. Significant stakeholder groups now understand the need to rebuild the stocks and are ready for change in the next 3 – 6 months. Major communications campaign strategies have yielded good results of gathering support to combat IUU, Child Labor and Trafficking and to promote Healthy Fish.

Fisheries reports in the media shot up 90 percent in Year 2 compared to Year 1 (see Table 2 below). With a motivated Network of Journalists for Sustainable Fisheries, discussions and articles in the media relative to fisheries have shot up considerably, creating more awareness on the need to implement, as a matter of urgency, management measures required to rebuild stocks. To move to the next BCC level, (as shown in the graph below) where an action is taken or a specific management measure is implemented, SFMP will intensify outreach on management measures and develop scale-up strategies for reaching out to diverse target audiences, including policy makers. Planned Fisherman to Fisherman (F₂F) Dialogues with the Canoe Council, the NAFPTA and GIFA to arrive at concrete decisions for operationalizing the NMFMP will be conducted and presented to MOFAD/FC for negotiations and approval.

Table 2 Trend in fisheries reporting in Ghanaian Press

TREND OF FISHERIES REPORTAGE									
Year One					Year Two				
Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
N/A	N/A	9	7	16	33	26	45	52	158

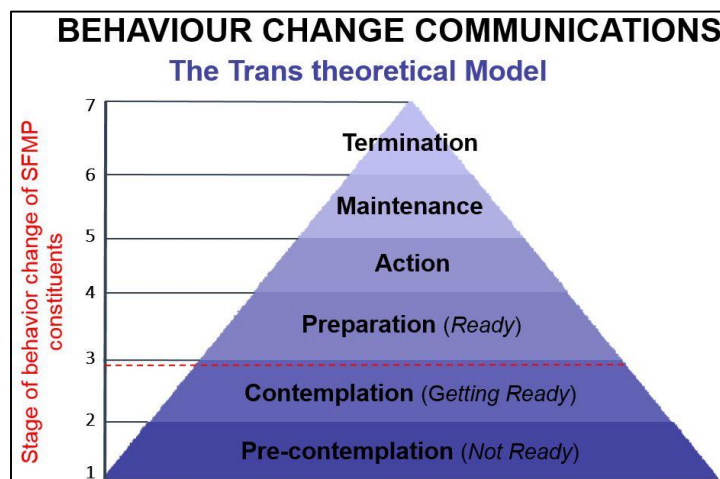


Figure 9 Behavior change communications theory

The diagram in Figure 10 indicates progress made with constituents relative to changes in behavior; major stakeholder groups are ready for change and preparing to implement management measures between the next 6 months (Stage 2) and the next month (Stage 3).

Strategic Communications Campaigns in support of MOFAD/FC policy initiatives for the small pelagic fisheries

Communications Outreach Program on NMFMP & IUU. A series of communications campaigns to create awareness on the NMFMP and modalities for implementation, were conducted in Year 2 following the development of a communications outreach strategy on IUU and the NMFMP, to support MOFAD/FC in this regard. About 600 stakeholders from 28 fish landing sites benefited from the outreach program. This was conducted jointly with MOFAD/FC staff using the Ministry's mobile communications vans donated by WARFP. The use of entertainment-education media such as drama and audio-visuals proved very effective in this regard. Currently, relevant user groups have shifted from a behavior change status of ignorance about the declining stocks to the reality and are now pushing for the implementation of management measures. Some fish processors have declared readiness to advocate for implementation of contents of the NMFMP during outreach on the Plan.

“Implementation of the Management Plan is a good initiative. The closed season for trawlers must be extended to canoe fishers as well. We women sponsor the men to go on fishing trips; their loss is our loss and we must advocate for a closed season. In fact, I am ready and willing to mobilize some fish processors as advocates to spread this good news of the contents of the Fisheries Management Plan.”

**Mad. Gertrude Impraim
Enyidado Fishmongers
Association
Winneba, Central Region**

Figure 10 Excerpts of proceedings from a forum on the NFMP in July 2016 at Winneba.

Healthy Fish BCC Campaign. The Healthy Fish Campaign which seeks to use mostly fish processors (women) to advocate against bad fishing practices, yielded significant results of building more constituencies for the project, in Year 2. Women in Moree (Central Region) have now begun rejecting unwholesome fish landed by fishermen and sometimes sold in the form of frozen pallets (these are popularly referred to as *Krocdoso* in fishing communities along the coast). After several sensitization workshops, the women realize that processing wholesome fish, fetches more money than the juvenile stocks or fish caught with chemicals, which usually have low shelf life. The outcome of one such campaign in Ahanta West

We the Chiefs, Chief Fishermen Market Queens and fish processors/traders of Ahanta West (Dixcove, Damtse, Agona, Axim & Ankobra) unanimously resolve and do hereby adopt the bye-laws as follows:

1. We will neither practice nor trade in fish caught with light or other unapproved methods in our jurisdiction.
2. A Committee will be formed to inspect canoes for illegal gear before fishing trips.
3. We will not allow migrant fishers to practice illegal fishing at our beaches.
4. Market Leaders at Agona and Dixcove will call for the arrest of any fish trader who brings proven unwholesome fish to the market for sale.

District, was the signing of a resolution and adoption of 8 byelaws by traditional leaders and fisher folk stakeholders who attended the event. In Year 3, SFMP will employ mass media and other multi-media tools such as edutainment drama, etc. for such campaigns because of their effectiveness of generating high mobilization rates of stakeholders and making learning an enjoyable experience.

Figure 11 Excerpts of Resolution signed by fisher folk stakeholders during a Healthy Fish Campaign event.

Child Labor and Trafficking BCC Campaign. Three children have been rescued from neighboring Liberia and Ivory Coast – during the Year under review, due to advocacy efforts of the project, using child labor victims to tell their story. Kojo and Kweku (both from Moree, Central Region), who were trafficked to Monrovia – Liberia but fortunately escaped to Ghana, after going through life threatening experiences, are now advocates under SFMP. Experience is obviously the best teacher. SFMP prioritized the child labor campaign in mid-Year 2 due to Ghana’s status as a Tier 2 Watch List Country, according to the 2016 Trafficking in Persons Report, released by the US Government in July 2016. This ranking makes it the second time in a row for Ghana. Audio-visuals, community rural drama, and



Figure 12 Rural drama on CLaT performed in Moree: Two trafficked teenage girls suffer pregnancy and blindness; effects of abuse, maltreatment and hazardous labor. **Photo Credit:** Jennifer Yost

other IEC on CLaT were produced and disseminated in communities, mostly in the Central Region, where the issue is prevalent. These are compelling communications material that generated a lot of emotions from participants of the outreach and served as a wake-up call for others who had unsuspectingly, given away their children to strangers who presented deceitful but attractive offers to such parents.

Other child labor activities conducted in the year included a

visit by the US Ambassador to Ghana – Robert Jackson and a team to the CEWEFIA fish processing site to see at first hand, some project interventions on CLaT and fisheries value chain.

“As it is with fish, so it is with children. Big is Good; Small is Bad! Just as we should not harvest the juvenile fish, so must we leave children in their home environment with their families to enjoy education, and so on; so they can develop well instead of sending them away into child labor.”

Ambassador Robert P. Jackson



Figure 13 Ambassador Jackson (in the hat and blue long sleeves shirt) and delegation, interacting with project staff including CEWEFIA, and some fisher folk leaders during the visit

Events. The project has instituted a Best Fisheries Practices Awards (BFPA) Scheme and constituted an external committee to preside over judging of the awards. 7 categories will be awarded. A concept note, marking scheme and application forms have been developed. The awards scheme has been moved to January instead of November 21, to take place during the World Fisheries Day. Other events that drew support for the project in Year 2 were a colorful

Elmina Festival in July 2016 – which won for the project support of policy makers and fisher folk present due to the fisheries management messages disseminated at the event– and World Day against Child Labor 2016.

Media Engagements. Three media persons received grants from the project to facilitate coverage of news items on fisheries issues in communities. Mid-way through the grant period, a total of six stories have been generated so far. SFMP has had discussions with executives of the Ghana Journalist Association on the introduction of a Best Fisheries Journalist Award which was scheduled for August 2016. The event has now been rescheduled to Year 3 to allow for effective mainstreaming with the Ghana Journalist Awards scheme. The media engagements have contributed to SFMP’s significant milestones causing a drastic rise in number of reports generated in the media.

Executive Level Communications

In Year 2, SFMP improved on first year engagements with high level stakeholders including policy makers, fisheries authorities and US Government officials.

In late July, 2016, SFMP met with the Parliamentary Select Committee on Food, Agriculture and Cocoa Affairs (also responsible for fisheries) to deliberate on critical issues in the fishery sector, and the path to recovery for depleted fish stocks through the implementation of management measures in the NMFMP as approved by Parliament in 2015. The legislators had their technical knowledge on current fisheries sector issues deepened and are now well positioned to participate more effectively on imminent legal reforms in the fisheries sector. Consequently, some of the parliamentarians have been in communications with SFMP for further information on fisheries so that they can better engage their constituents on fisheries issues.

SFMP also prepared and shared briefing packets with relevant US Government officials who visited the project in the course of the year. These visits include that of the US EPA Administrator, Gina McCarthy on October 10, 2016. The visit to the CEWEFIA Fish



Figure 14 Administrator Gina McCarthy (in green shirt) observing the project’s Ahotor (Comfort) fish demonstration stove and interacting with fish processors and project staff

Processing site in Elmina was part of a series of tours in Ghana, to foster greater collaboration and commitment between the US and Ghana Governments relative to climate change. Jointly organized by the SFMP and Alliance for Clean Cookstoves, Administrator McCarthy observed new fuel efficient and low PAH fish smoker technologies.

Corporate Communications

In the year under review, diverse communications material and documents were produced; some circulated and others uploaded on the USAID DECS website. Below is a list of IEC materials produced in the year that contribute to project M&E results.

Table 3. Number of IEC materials produced

IND # 6: NUMBER OF IEC MATERIALS PRODUCED AND DISSEMINATED (Custom Indicator) Quarter 4		
No. Produced	IEC Type	Title
3	Success Stories	Child Labor Victims Speak out Community with access to little else, now food secure (VSLAs) Fish processors finally access Loans for improved smokers
6	Radio Talk Shows	On Citizen's Watch, IUU, Healthy Fish Campaign and Child Labor activities on Ada Radio, GTV, TV3, Shama Radio, Radio 360, Radio Peace-Winneba
2	Press Releases	Commissioning of TCPD GIS Data Hub, URI Deans visit to UCC
5	News items	On TV, Radio, newspaper, Online (influenced by SFMP)
3	Community drama	On CLaT, NMFMP, Healthy Fish Campaign
1	Fact sheets	On DAA Fisheries Training Centre
21	Total number of IEC Materials Produced	

IR 4: Applied Management

4.1 Small Pelagic Fisheries Management

Accomplishments to date include a stock assessment of the small pelagic fishery and a brief profile on the fishery. This information has been presented to stakeholders [steps 1 & 2 on the policy indicator]. A major development in Year 2 was the adoption of the national fisheries management plan which also covers the small pelagic fisheries. The project cannot take credit for this development under the policy process indicator however. In addition, a key point of note is that it is no longer necessary or desirable for stand-alone small pelagic and demersal plans to be developed as originally proposed in the project design. The SFMP can take credit for conducting assessments and stakeholder consultation on the small pelagic and demersal fish stocks [*steps 1 and 2 in a policy process*]. Ghana has now moved past step 3 [*formal adoption*]. In Year 3 and beyond, SFMP will adjust targets to produce results at step 4 – [*full and effective implementation of the plan*] when a Fisheries Management Operational Committee (FMOC) has been established and additional management measures are implemented; e.g. additional fishing holiday for the canoe fleet, closed season or effective cap on new registrations that substantially cap or reduce fishing effort.

For promoting good fishing practices, campaigns against IUU fishing and informational meetings on fisheries management and leadership training events started to show results - a movement towards voluntary compliance in coastal communities. In Axim, Winneba and Prampram, community leaders initiated a campaign of voluntary compliance and banned all illegal fishing practices such as light fishing and use of chemicals and dynamite. The GNCFC has endorsed the initiative and is working with the FC to achieve a zero light fishing in Ghana. Engagement of the communities will continue in year 3 with the support of SFMP and WARFP to establish fisheries co-management practices with shared responsibilities for all stakeholders.

Implementation of the National Marine Fisheries Management Plan: The SFMP and the FC established an interim FMOC in anticipation of the formal nominations of membership by the Minister of MO FAD. An interim committee was nominated by the Director of the FC. SFMP's senior fisheries advisor is a member of the committee who is currently drafting a monitoring and evaluation plan and provide guidance and recommendations on the implementation schedule. The formal FMOC will be established in Year 3.

The STWG prepared and presented a recommendation for a closed season strategy on small pelagic species for all fisheries. This measure is not contained in the management plan but the scientific consensus is that it is needed to rebuild stocks. However, the Minister and FC has not acted on this recommendation to date, likely due to potential socio-economic impacts and political ramifications during this year's presidential election.

Local Ecological Knowledge on the Small Pelagic Fishery: With assistance from Dr. Kathy Castro of URI, Hen Mpoano completed protocol for mapping fishers' local ecological knowledge on sardinella fisheries. Fishermen from Moree in the Central Region and Half Assini in the Western Region assisted in mapping their fishing ground and spawning areas of the small pelagic fishes with the aid of nautical charts. Focus group discussions elicited information on the biology of small pelagic species (Sardinella, Mackerel and Anchovy). The outcome of the local ecological knowledge will be used to fill existing gaps in knowledge within the fisheries to compliment the available scientific information and is a good opportunity and starting point for communicating the Fisheries Management Plan and to build consensus along the beach for its effective implementation.

4.2 The Western Region Demersal Fisheries Management Initiative

Data collection for the baseline stock assessment was concluded during the year. The final report was under preparation and will be validated by the STWG before submission to the FC and other stakeholders. The preliminary results showed that the majority of fish stocks are overfished with some demersal species having disappeared from the Ghanaian fishery waters. Catches of cephalopods (octopus and cuttlefish) were increasing while the average size was declining, a sign of heavy exploitation by the industrial trawlers

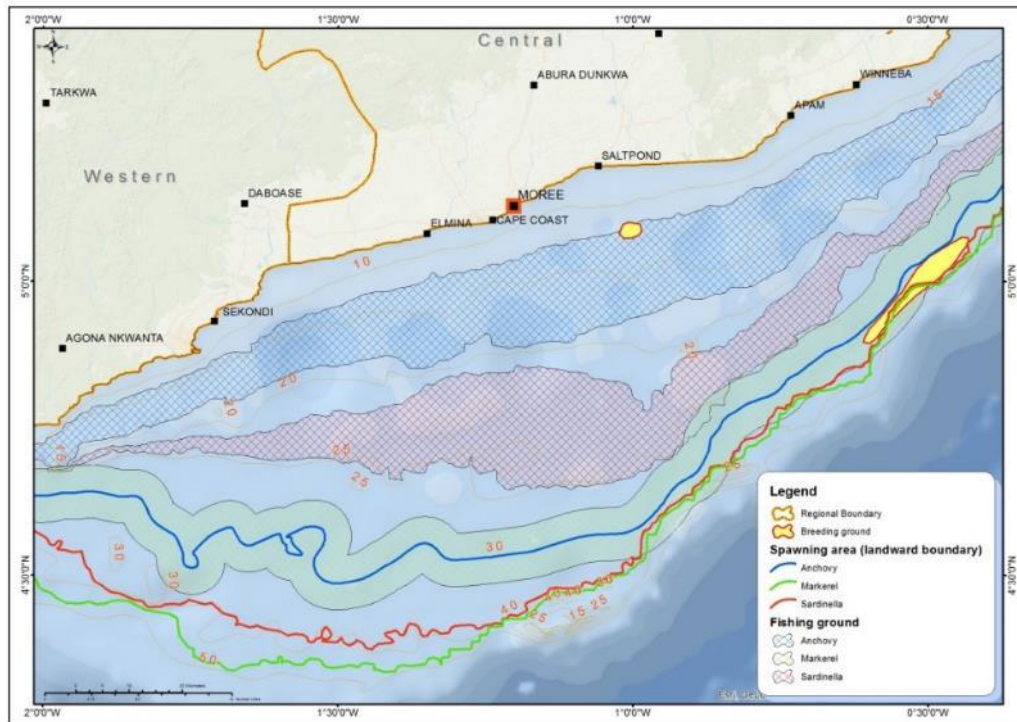


Figure 15 Fishers' knowledge on past and present fishing grounds

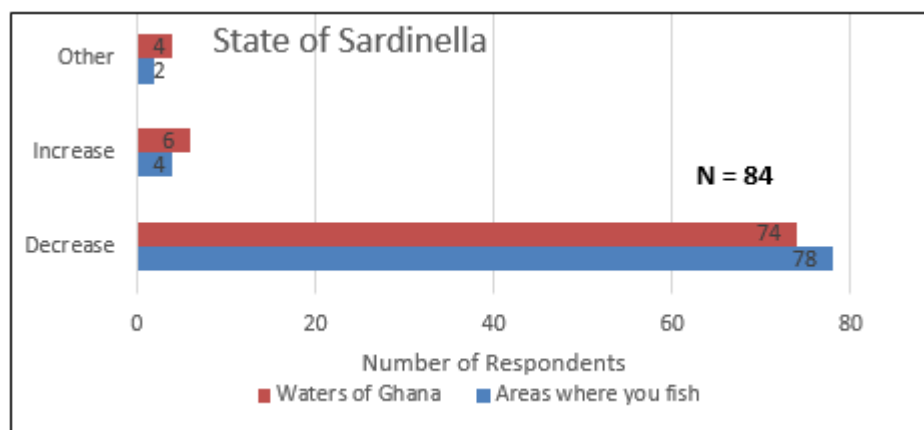


Figure 16 Fishers view of state of sardinella stock

Two UCC research assistants with the support of SFMP carried out a baseline survey of the demersal stocks at selected landing sites for 18 months. The study also involved training fishermen and women processors on simple techniques for identifying the species and collect basic biological information on them.

The Plan to develop a demersal fisheries management plan as an example of a smaller scaled ecosystem based management in the Western region between the Pra – Ankobra River could not be realized as the Fisheries Commission raised concerns for their preference for a coast-wide approach to fish stock management. Thus work anticipated to be undertaken on the demersal fisheries management will change in Year 3 and will impact “*Hectares under improved management*” for the demersal fishery in the Western Region. Additional work on cuttlefish fish will focus on documentation of local ecological knowledge and conducting cooperative studies with UCC, FSSD and the Ghana Industrial Trawlers Association.

4.3 Integrated Fisheries Management and Resilience Plan for Ankobra Estuary

Highlights of accomplishments in FY 16 in the Ankobra estuary include the following:

- Ankobra estuary management and planning committee: first of its kind joint development management committee established by Ellembelle, Nzema East, local stakeholders and national authorities
- Improved stakeholder participation in participation in fisheries resource management
- Innovative coastal resilience building
- Fisherman knowledge collated and informing policy
- Vulnerable communities empowered to better manage coastal resources in Pra and Ankobra areas

Environmental characterizations of the Ankobra estuary focus on their role as nursery grounds to demersal fish stocks and estuarine fisheries.

Hen Mpoano led a collaborative research for the collection of data in physical, socio-economic, livelihood and climate related vulnerability in 5 river communities. Seven data collectors including district planners, technical officers, and community leaders were trained and engaged in resource mapping and vulnerability assessment. Preliminary information gathered revealed heavy dependence on mangroves, forests, and the local fishery for subsistence, and climate-related impacts including frequent river and coastal flooding, and extensive coastal erosion were evident and threaten both livelihoods and biodiversity. Road access to most of the communities were poor or nonexistent. Until now, there have been few interventions by the District Assemblies or community-based organizations in the area.

Also, HM characterized Ankobra estuarine resource users and their utilization patterns and inventoried key estuarine fish species of commercial and subsistence value. These assessments have laid the foundation for piloting community based estuarine fishery management approaches in Year 3.

As part of the vulnerability assessment Spatial Solutions also conducted field surveys in selected villages with the collaboration of planning and technical staff of Ellembelle and Nzema East Districts. Maps, reports, satellites imagery, and demographics were generated and data analysis completed. The fish landing site in Ankobra (Sawoma) and five landing sites in Axim are facing major tidal and coastal erosion threats. Climate change impacts pose risks to fish processing infrastructures along the coast. Poor waste water and sanitation facilities has led to unhygienic fishing handling and processing conditions.

The contributions of partners has been important to the Ankobra ecosystem based management effort. DQF carried out extensive contact and communication with Sawoma and Axim, identified and trained a large number of micro, small and medium sized enterprises in preparation for fisheries value chain improvement projects and adoption of improve fish smoking technology.

SNV also included the Ankobra in its coast wide analysis of the wood supply value chain for fish smoking.

The Coastal Sustainable Landscapes Project (one of the USAID coastal projects) began work on mangrove conservation and restoration within the lower watershed/mangrove system area.

Improving local governance of the Ankobra ecosystem: A joint committee comprising key stakeholders traditional authorities, district assemblies - Ellembele and Nzema districts plan was prepared through consultative process. The management plan will be finalized in Year 3 and mainstreamed into existing activities of districts and regional authorities to be consistent with existing co-management policies adopted by MOFAD/FC. HM also organized a study tour for 11 participants (5 women and 6 men) mainly from the Ankobra estuarine communities to the Volta estuary to expose them to good practices for mangrove restoration to meet livelihood and conservation objectives.

Improving livelihoods: Village savings and loan associations were successfully formed in two Ankobra riverine communities, Adelekazo and Eshiem with 45 members in total. Follow-up activities to monitor the progress of the associations and trained on loan disbursement procedures. A total of 14 members took loans from the association during the period to invest in their various livelihood activities including farming and petty trading. Additionally, DAASGIFT established the associations in two other communities (Kukwaville and Ezioime). A small boat with an outboard engine has been procured by SFMP to facilitate work of partners as well as improve resilience of the estuarine communities by providing better access to markets and land transportation.

Mangrove reforestation. More than 130 community inhabitants, including opinion leaders and the Chief of Sanwoma were involved in a 2–day mangrove replanting event at the Ankobra estuary. In total 5,150 mangrove seedlings, comprising white (*Avicennia germinans*) and red (*Rhizophora mangle*) mangroves have been replanted. This represents a total of 11 hectares of degraded mangrove sites restored.

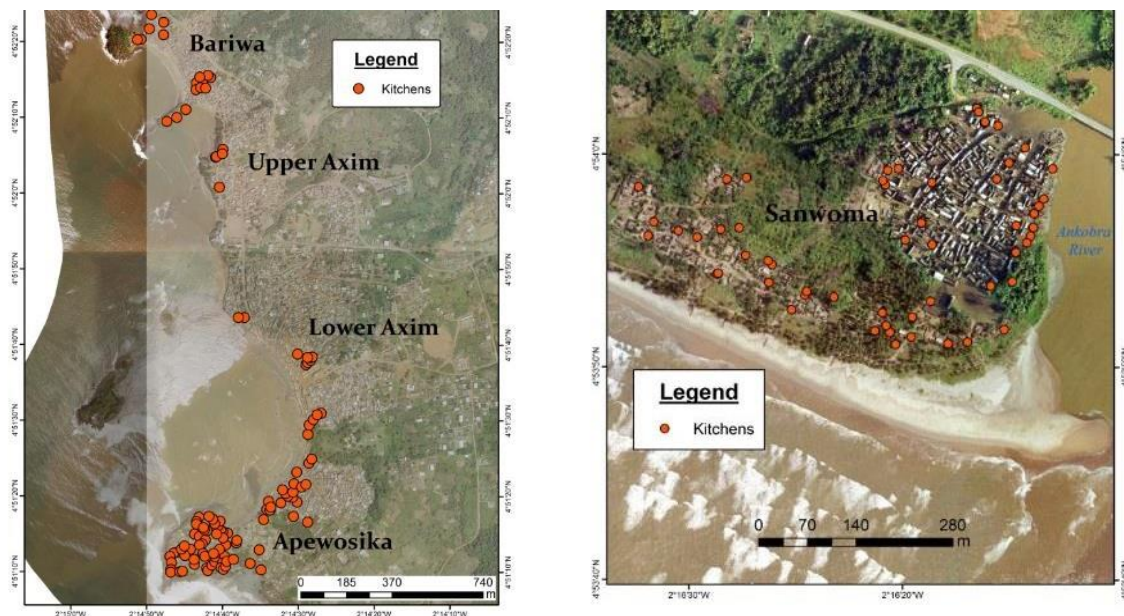


Figure 17 Distribution of fish processing kitchens in Axim and Sanwoma

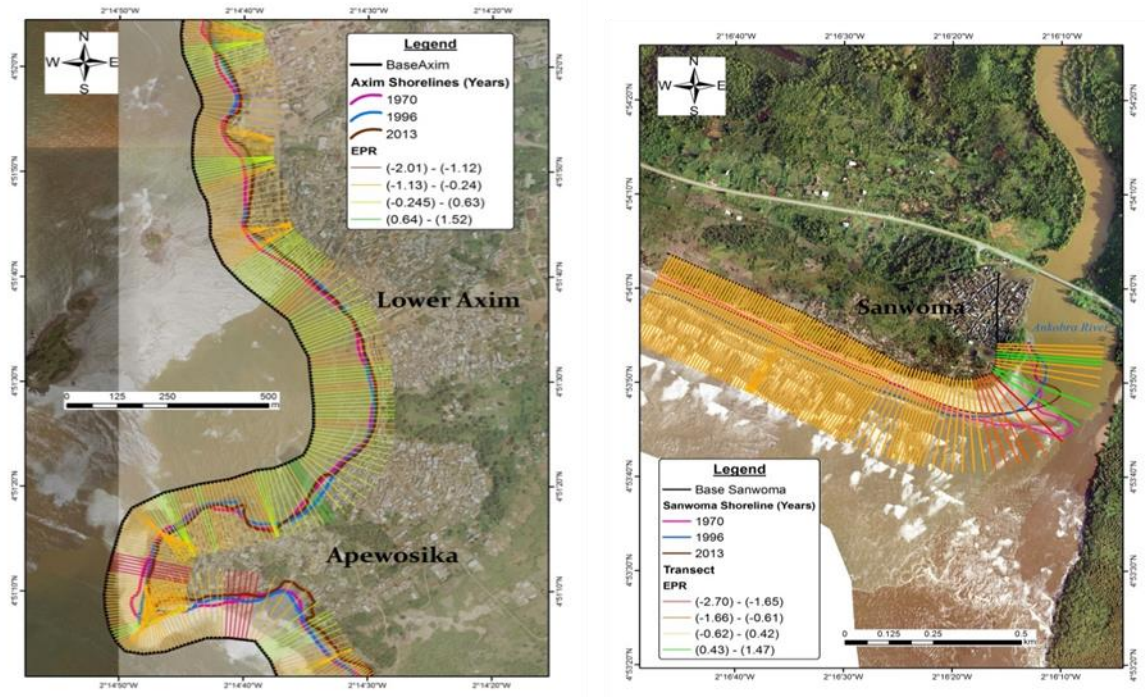


Figure 18 Shoreline change in Axim and Sanwoma

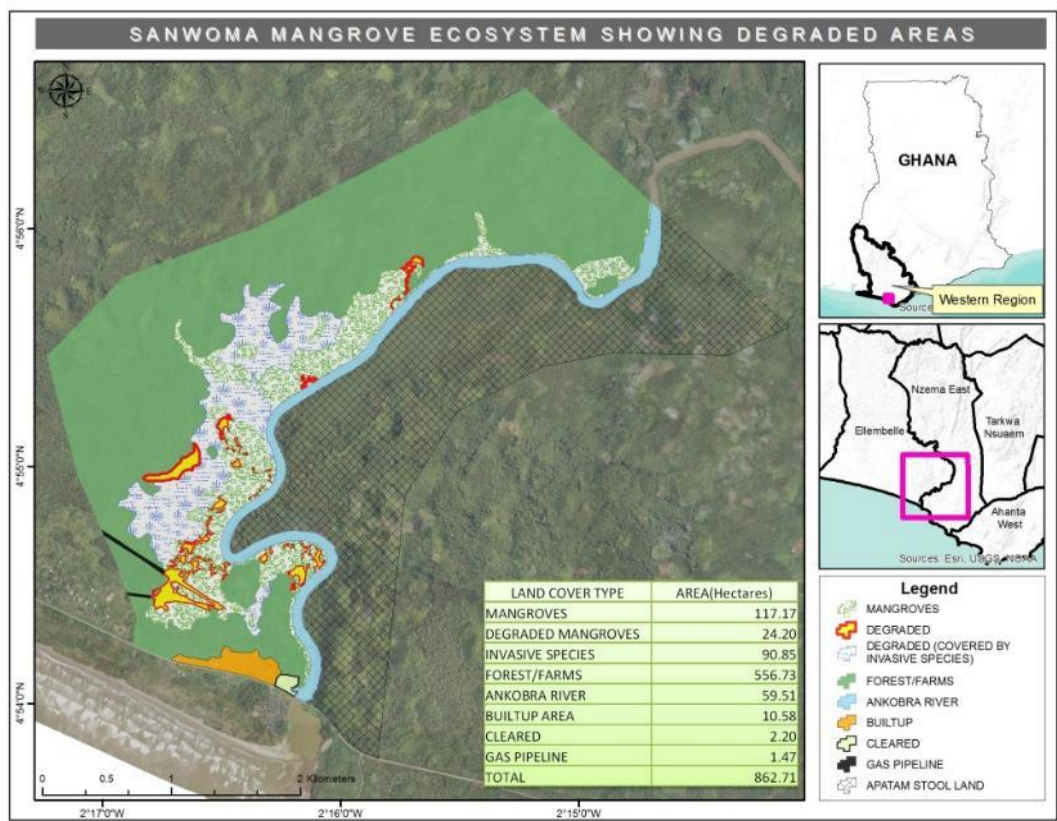


Figure 19 Sanwoma Mangrove Ecosystem and Degraded Areas



Figure 20 Mangrove reforestation work in Sanwoma



Figure 21 Boat to Increase Access to Ankobra River Communities

4.4 Integrated Community Fisheries Management and Resilience Plans for the Pra River Estuarine and Mangrove Ecosystems.

Issue profile for the estuary:

Social-ecological profiling of the Pra River Estuary and Mangrove Ecosystems commenced and incorporated substantial work had already been done in the Pra River, including the work of the USAID ICFG Project and IUCN. A detailed ecological assessment of the Lower Pra River completed by Dr. Okyere of UCC also provides key ecological information including biological data for the area, also NADMO's current Community Resilience through Early Warning (CREW) project for the area is being conducted to understand the flooding hazard risk in the area and enhance capacities for disaster risk reduction with early flood warning systems.

Governance mechanisms with Shama District:

Actions to promote ecosystem-based fisheries management and community resilience planning were initiated in the Pra river estuarine area in Year 2 by Friends of the Nation. For instance, an estuary resilience planning and lessons learning workshop was held that provided the platform for sharing of

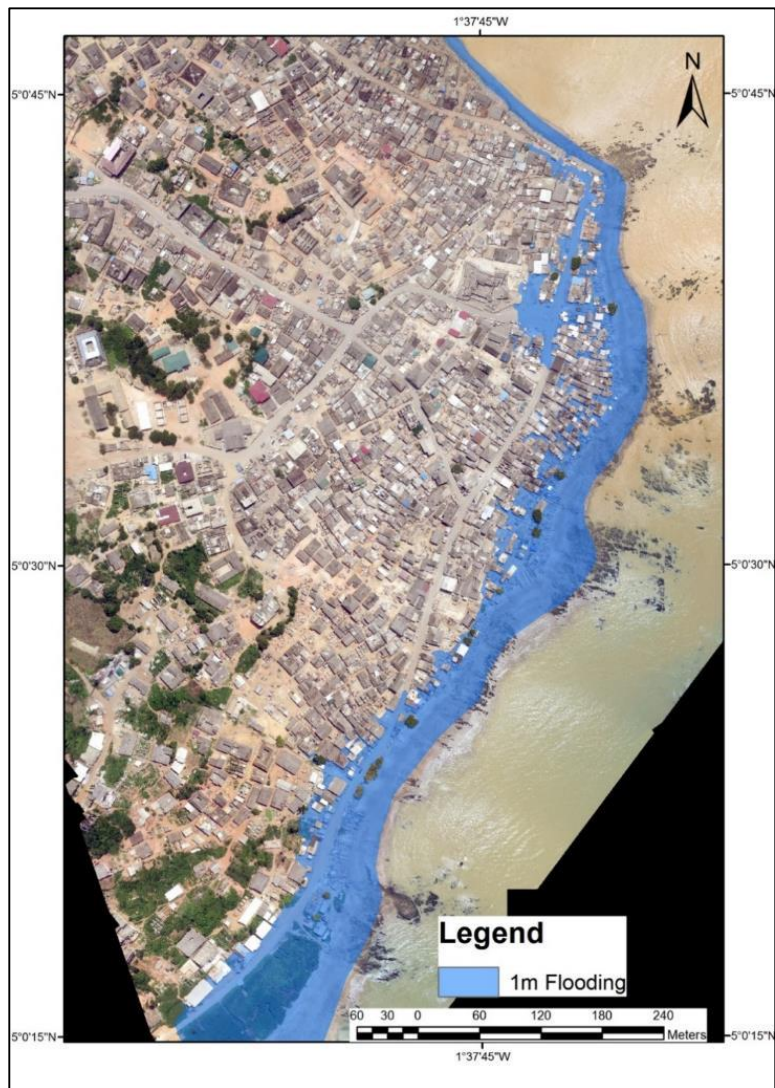


Figure 22 Projected flooding from 1 meter rise in sea level along Shama's coast

the initial findings of the literature review and the lessons from the Ankobra river resilience planning process carried out by Spatial Solutions. Participants recommended that there was the need for flood hazard mapping and simulations for the lower Pra River area to inform planning. Other recommendations included strengthening of local institutions to facilitate the design and implementation of resilience actions at the District and community levels.

Spatial Solutions completed desktop studies to review relevant literature, compile existing data for the Pra area. SpS found that a sea level rise of about 1m would lead to the inundation of the entire beach and houses within 100m distance from the current shoreline of Old Shama (Figure 23). The mapped area indicates an area of approximately 7000 m² will be inundated. Landing areas for fishing boats will be completely submerged along with sections of the road network running along the shoreline. Shore protection efforts will also be compromised and fish processing facilities will be lost. On the side of Anlo Beach, with a 1m rise in sea level, the entire Pra estuary system will be inundated and over 50% of the community lost. The mapped area indicates a total area of about 1,317,670 m² will be lost.

The governance mechanism within the Shama District is crucial for the sustained conservation of the Pra River Estuary. SFMP is strengthening the governance mechanisms in the District utilizing the existing District Coastal Management Committees, Anlo Beach mangrove committee, existing bye-laws, town and country planning program and GIS capability within the Shama District Assembly. The various roles and responsibilities of the committees and the planning units have been outlined and a strategy developed to coordinate their activities.

Livelihoods: Youth Start Acacia Woodlot Plantation to Reduce Over Dependency and Depletion of Mangrove Forest in Anlo. To reduce over dependency and depletion of mangrove forest at Anlo beach in the Shama District a 10 hectare parcel of land has been acquired at Anlo Beach. Training was conducted to enable the youth to carry out hands-on activities on the appropriate ways of planting and managing acacia. In addition, a drama was organized with the aim of creating awareness on the need to conserve mangroves and the rationale behind the adoption of the improved stoves to increase the income levels of the processors in the target communities. An MOU was signed between the land owner and CEWEFIA before the clearing and planting could begin. Nana Teni II of Krobo who released the land for the plantation, informed the youth and women of Anlo that he is in full support of the project since it seeks to address livelihood issues of the communities.

An assessment by FON of community members concerning alternative livelihoods showed a preference for livelihoods directly linked to fishing, such as improved fish smoking and fish value addition. Follow-up meetings focused on livelihood options specifically for the women in the area.

4.5 Central and Western Region Fishing Community Livelihood Development Value Chain and Post-harvest Improvements

There have been some adjustments in the SFMP approach to assistance provided to MSMEs in the fishery sector. Performance targets on Post Harvest Value Chain Improvements in Year 2 were achieved (985 persons, 81% women), but the emphasis on how those targets can be achieved has changed. Initially the project assumed existing improved fish processing technologies (fuel efficient stoves) could be quickly scaled up. However Year 1 studies showed that the selected technological innovation, the Morrison smoker design, showed high levels of PAH (a carcinogen found in food and resulting from the smoking process). In addition, there were some concerns about acceptance of the Morrison design by fish processors based on the reaction to demonstration stoves built in Year 1 and early in Year 2.

Efforts to scale up these particular stoves therefore were curtailed in Year 2 to a number well below what was initially anticipated.

SFMP implementing partners redirected resources to benefit MSMEs from stove technology to other business development and improvement services. Training on improved fish handling and packaging was emphasized as a means of improving product quality and value. In the Western Region, micro-financial services were provided to households engaged in fishing businesses. By the end of Year 2, modifications and new stove designs were emerging having both a reasonable cost and lower PAH levels. Rollout of the new designs started at the end of Year 2 and will continue in Year 3.

Year 2 also saw the development of a stove scale-up strategy that relies on a private sector approach, which is likely to be more sustainable beyond life of project than a fully subsidized approach. Stove financing will be provided mainly via local private loan institutions and small businesses dedicated to marketing the improved smoking technologies. MSMEs benefiting from the SFMP can take advantage of investments in improved smoking technologies as well as handling and packaging for value addition to their products. If the new stove technologies prove to be popular and private sector loan institutions also start to scale up financing, we anticipate an accelerated pace of scale-up of the new stoves beyond Year 2.

Post Harvesting Processing Knowledge Development, Dissemination and Consensus Building: An Extension Strategy for Widespread scale up of improved smoker technologies coast-wide

Strategy, business model and tools development with training for SFMP partners: Partners agreed to use the SETH (Socio-cultural, Economic, Time, and Health) and ADKAR (Awareness, Desire, Knowledge, Ability, Reinforcement) promotion models for building community level awareness on improved fish smoking stoves. Penetration pricing was agreed as suitable for determining the price of the stoves. The dealer-financing model was selected for financing the stoves.

Focused research and technology development: The evaluation of 50 improved Morrison Stoves constructed in Year 1 was completed. This activity was carried out in the Central region. The activity involved the administration of questionnaires to 35 respondents whose stoves have been built; two focus group discussions with beneficiaries at Apam and Senya Bereku; and an evaluation meeting with the two stove companies and the micro-finance institution. The customer satisfaction survey concluded that stove usage is high. Some benefits that respondents stated include reduction of fuelwood cost, production of quality fish and reduction of insect infestation when smoked fish are stored in the Morrison trays as compared to storing fish in the Chorkor trays.

An energy audit was carried out on three stoves (Chorkor clay, Morrison clay cemented and Morrison brick) to evaluate their energy efficiencies. Results indicated that the Chorkor stove uses twice as much wood as compared to the Morrison stove per smoking session.

The smoking and drying techniques of the Chorkor stove have limitations that deserve greater attention in order to significantly improve livelihoods of small-scale fishers and respond effectively to product safety challenges – especially linked to controlling contamination by polycyclic aromatic hydrocarbons (PAH), a public health hazard. PAH are carcinogenic, fat soluble, nonvolatile and extremely persistent, and develop especially during the incomplete combustion of organic materials. Recent SFMP analyses have shown that smoked fish contains PAH levels that are well above those recommended for human health, with the Chorkor stove 7-10 times the EU standard and the Morrison stove, an earlier improved stove type, 9-15 times higher depending on the indicator used.

The high PAH levels present in Ghanaian smoked fish present an alarming issue with the impact on population health at the macro level as yet unknown. However, with smoking serving multiple purposes - preserving, flavoring and coloring - the practice will continue as these are an important part of what the consumer values in the product. To address the health issue, new types of low-PAH fish smoking stoves will need to be developed that are energy-efficient, low cost and made with local materials and manufacturing processes.



Figure 23 A Chorkor Stove in use. The same basic design is now used throughout West Africa



Figure 24 The improved Morrison stove adds a number of energy efficient features

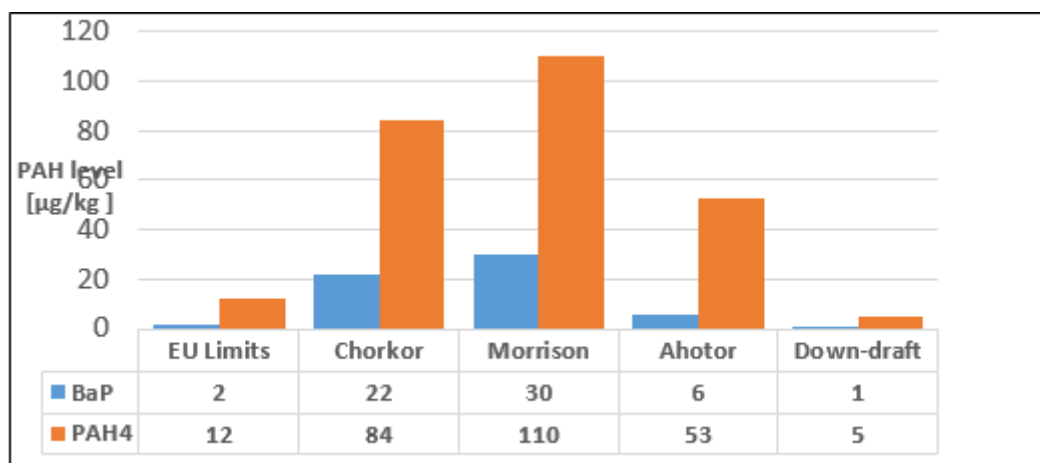


Figure 25 The impact of stove type on PAH levels in soft-smoked fish

A series of low-PAH stove models were developed by a team of consultants in collaboration with the Food Research Institute and the Fisheries Commission, and with testing support from the Ghana Standards Authority and the Institute of Industrial Research of CSIR.

One key element of this process was the development of a fired-brick combustion chamber that allows for the use of a smaller but efficient fire, the combustion gases from which are then pre-mixed with a larger flow of clean air, to give a faster flowing but cooler gas stream at an optimal temperature. This is used to smoke/dry the fish in conditions that prevent the formation of high PAH levels.

The Ahotor or Comfort stove is comprised of this combustion chamber fitted centrally to a Chorkor or Morrison-like outer shell, with fish processing trays above as in normal operation. It can be either a retrofit or a new-build, with the latter made from sandcrete blocks and cement, and also as a single or double unit. Above the combustion chamber, a fat collecting tray is fitted that allows the hot gases to flow up through to the fish while preventing any fat from falling down onto the fire. A PAH analysis showed that the Ahotor stove (Figure 27)

achieved 6 µg/kg and 53 µg/kg for BaP and PAH4 respectively, considerably lower than the Chorkor. In addition the stove was 32% more fuel efficient than the Chorkor.

In addition, a down-draft stove was designed that utilizes the same combustion chamber but that is side-mounted onto a smoking chamber into which the trays of fish are placed. The design provides for very clean combustion, with resultant smoke levels and gas temperatures that produce very low PAH levels. Initial prototype tests gave PAH4 and BaP levels below that of the EU limit, remarkable given that the stove is burning wood, but more development and testing is needed in order to prove performance.



Figure 26 A double-unit Ahotor stove, offering lower-PAH levels and an improved energy efficiency

Financial resources for stove installation: A sustainable scale-up strategy has been developed for the promotion of the improved stoves, comprising a business/financial model and awareness creation for a healthy fish market. The model focuses on linking stove construction companies with local financial institutions, to provide small loans to fish smoking women to buy an improved stove, and with a Project involvement that phases out over time. The project is providing a 30% incentive for the first 150 early adopters of an improved stove. The strategy provides options for beneficiaries to acquire the oven by accessing small loans from designated Rural Banks or acquiring the oven directly from Project-approved stove construction companies. Nine stove construction companies have been identified and trained and will work with the Project to ensure quality control and continued product development. To date, three financial institutions have agreed to partner with SFMP on implementing the scheme - Microfin Rural Bank, SHACCU Credit Union and GN Bank. Final discussions are ongoing towards developing an MOU for the partnership.

DQF-led Fisheries Value Chain Improvements and Livelihoods in Ankobra Estuary, and Shama Old Town landing site

MSME groups seek assistance in setting up fish market after receiving trainings: 100 new MSMEs in the Western region completed an 8 week business development and management training during the year and have since been monitored to ensure the adoption of practices received during the trainings. An 8 week technical training was also conducted for 100 existing MSMEs from Sharma, Axim and Ankobra. These trainings were successful as the women fish processors trained are now proactively seeking assistance to set up a Hygienic Fish Market where neatly packaged fish will be sold. MSME groups were taken through a three day comprehensive branding training facilitated by officers from Ghana Standards Authority. Improved packaging and branding is expected to raise prices received for better branded products and raise incomes of women who adopt these practices.

Microfinance Recovery Rate Proves Credit Worthiness and Growth of MSMEs: The provision of micro-credit services to 150 established MSMEs is aimed at enabling them to expand their businesses and improve their livelihoods. The MSMEs have benefited from the micro credit facility with the majority making full repayment. Out of the total loan amount of 23,982.75 Cedis to the three communities namely, Shama, Ankobra and Axim, the summary recovery rate is 99% covering a repayment of 23,782.75 and an outstanding 1% covering 200.00 to be repaid.

Solar Phone Charging Businesses Support Livelihood Improvement: Eleven (11) entrepreneurs from eight (8) communities are managing the installed facilities. This is a highly profitable income generating activity as many of the individuals in the areas where facilities were established have poor service or lack access to electricity.



Figure 27 Solar Installation at Eshiem



Figure 28 Training on fish packaging

Traditional Leaders Resolve to Fight against IUU Fishing and Unhygienic Fish Handling Practices in Ahanta-West District: An awareness creation event themed: The Hygienic Fish handling Campaign was organized in August, 2016. This event, a fourth of its kind took place at Agona-Nowata a main fish market in the Western Region. The event had in participation various stakeholders including the chiefs of Agona, Dame and Dixcove, representatives of the Ahanta-West District Assembly, Assembly men, Chief fishermen, Fish trader queens from Ankobra, Axim, Shama and Dixcove, Agona fish market queen, Zoom lion, NAFPTA, and Media. The participants were enthused for change because great deal of knowledge sharing went on between fisher folks, traditional leaders, the assembly and media. The program started off with a placard walk through the streets of neighboring towns, finishing off at the durbar grounds where presentations were made by various speakers and a skit which attracted the attention of the general public. A detailed draft resolution was drawn at the end of the program against IUU fishing.



Figure 29 Market and fishmonger queens from various towns

CEWEFIA-led Fisheries Value Chain Improvements and Livelihoods in Pra River Estuary (Anlo) and Elmina and Moree, Central Region

CEWEFIA has continued to monitor the construction of the improved smoking ovens which were being built by Morrison Energy Ltd, Association of Women in Environmental

Preservation (AWEP) in Elmina, Moree and Shama Anlo Beach. CEWEFIA completed construction of the demonstration ovens in Elmina, Moree and Anlo. In all, three ovens have been built in each targeted community making a total of nine.

A community study tour on Post -Harvest Improvements in the fisheries value chain was organized in Elmina by CEWEFIA, Daasgift and DAA in collaboration with the Fisheries Commission, Food and Drugs Authority and Food Research Institute. The purpose of the tour was to identify hygienic fish processing and packaging sites to serve as Demonstration Sites under the SFMP project. The tour was also to gather information to help in the design of standardized handling, processing and packaging of fish. The team visited the Family Tradition and CEWEFIA fish processing sites to observe fish handling, processing and packaging processes.

As part of empowering the women in the two targeted communities, CEWEFIA organized awareness creation activities in Elmina and Moree on relevance of savings and Hygienic Fish Handling. The women formed groups of ten each, and opened group account with GN Bank for them to contribute money into the account every month, this will enable them to gather money to diversify into other businesses and also have the capacity to reject juvenile fish.

CEWEFIA trained a total of 145 participants from Moree, Elmina and Anlo in Business Development Services. The training was aimed at developing the capacity of the enterprises to better plan and to manage their business operations and improve their technical expertise. The training also helped participants identify and establish new markets for Small Enterprise (SE) products. MSMEs were taught how to develop new products and produce them to buyer specifications.

DAA-led Fisheries value chain improvements and livelihoods in Apam and Winneba, Central Region assisted by SNV

Annual Meeting with The Minister of Fisheries: On 3rd May 2016, DAA led fish processors from Apam, Winneba, Elmina, and Ankobra to meet with the Minister of Fisheries and Aquaculture, Madam Sherry Ayithey at the Fisheries Commission conference room. The meeting provided a platform for the Women fish processors to get first-hand information on policies affecting their work and also to express their expectations regarding the support they need for their work from the Ministry.

Training MSMEs in business skills and advocacy: Women owned businesses continue to battle with achieving proper organization and management of their businesses/ resources to make most of their efforts and experience growth and expansion of the enterprise. Before undertaking a business development training program, DAA met with the selected participants and discussed the training needs. The meeting helps to discuss with the trainees the specific knowledge gaps. Among other things, the training needed to deliver a wide range of subject areas such as: Understanding enterprise Environment, Systematic business Planning (PDSA), Cost and cost categorization, Working Capital Management, Basic record/book keeping, Profit & Loss Analysis (crown exercise), Savings/Banking, basic budgeting and customer care. Field monitoring visits revealed that some MSMEs who benefited from the business skills training are applying them in their business especially in areas of basic book keeping. Some of them have found ingenious ways of keeping records such as writing records on walls of processing areas. Though this practice is not the best, the zeal to practice what they were taught during the training cannot be underestimated.



Figure 30 The excitement is on, amazing Educational training session



Figure 31 Madam Mary Arhin of Apam displaying how she keeps her basic book keeping

Targeting Vulnerable Households for Improved Fish Smoking Stoves: To support vulnerable households in Apam and Winneba from falling victims to child labor and trafficking, DAA under the SFMP identified and screened ten households who will benefit from an improved fish smoking stove for the production of healthy fish. The rationale is to provide a means of livelihood to these household to make them resilient to pull and push forces of child labor and trafficking. Working in close collaboration with SNV and other partners, DAA used the selection tools developed by partners to screen and select these household. DAA reports that all ten selected are now proud recipient of a newly constructed single unit “Ahotor” oven.

Training of fish smokers on healthy fish protocols: DAA trained a total of 201 MSMEs in hygienic and healthy fish protocols in Apam and Winneba. Out of this group, 99 MSMEs are new business entities. The one day training enhanced their practical knowledge of what cause fish spoilage, how to identify freshness in fish, how to maintain personal hygiene and good customer care. The training employed a lot of practical teaching aids to facilitate the training.

As a follow up, DAA embarked on monitoring to assess how this activity was achieving its outcome of improving fish handling until final fish is processed and ready for consumption. Through observation and random interviews DAA verified that the poor practice of using cement paper for wrapping fish and using sea water for washing fish had been substantially reduced. In Year 3, DAA will continue to engage these MSMEs to fully comply with healthy fish protocols and ensure there is an increase in value of fish processed.

The case of Madam Stella Kortey is exemplary. She is a representative of an MSME in the Boafo Yena fish processors group, who had to discard off large stock pile of cement papers which she had secured from a nearby construction site, after learning of the unwholesome use of cement paper for packaging.

Madam Judith Ayithey a local fish processor in Winneba, led a tour and narrated the history of the Landing Beach of Winneba and problems facing the beach and the fisher folks at Winneba. Key among lessons learned from the Winneba tour was the dirty landing site and lack of appropriate fish market for the women. She however mentioned that, they are still keen on the promise made by the Municipal Chief Executive of Efutu of a befitting fish market when they met during a post-World Rural Women’s Day forum with the Assembly.



It was a difficult decision but the training showed me a better way of packaging to the market by not using cement paper, I am happy I did and I know it will increase my profit soon because of this decision.”
 – Stella Kortey of Winneba

Figure 32 Madam Stella Kortey, a beneficiary of hygienic fish handling training.



Figure 33 Madam Grace Dadzie of Apam proudly demonstrates the raised drying rack with before and after pictures

As a follow up on this activity, DAA embarked on monitoring of beneficiaries of the raised drying racks for the drying of salted/fermented fish in Apam and training in Hygienic fish

handling. Feedback received during monitoring of beneficiaries showed evidence of the trainings being put to use as shown by a quote from one beneficiary Madam Adwoa Moba of Onyame Nstedee Odasanyi Fish Processors group in Apam.



“when we dry our fish on the bare ground, the sand contaminates them but now that we dry the fish on the raised drying racks there is no sand contamination and because of that when we send our product to the market, they buy it quicker. It has also reduced the amount of time we use to spend turning and removing any unwanted substances during drying. Now that we dry on the raised racks, it makes our fish very attractive and because of this I can say for sure that, people like our produces and even some increases in the prices of our product though it’s not as high as we are expecting. Even with that I am suspecting it’s because it is a bumper season”

Figure 34 Madam Adwoa Moba showing her Raised fish drying rack

DAA has produced a video documentary on the production of hygienic and healthy salted/fermented fish in Apam using the drying raised racks. DAA will continue to engage and monitor beneficiaries of raised racks and hygienic fish handling to ensure there is an increase in value of fish processed and sold on the market.

DAA Training Center

The interim center was launched on the 21st of June 2016. The Minister of Fisheries and Aquaculture Development, Madam Sherry Ayittey graced the event and opened the Center. As part of the launch, 30 fish processors (all female) were trained in fisheries governance and hygienic handling of fish. The interim center is completely refurbished and well equipped.



Figure 35 Front view of the interim DAA Fisheries Training Center



Figure 36 The Minister of Fisheries and Aquaculture development, Hon. Sherry Ayittey officially launching the interim DAA Fisheries Training Center

The staff initiated the registration of the Center with the Council for Technical, Vocational Education, and Training (COTVET) for the Center’s accreditation processes. In an orientation workshop facilitated by the COTVET technical team, they indicated that the establishment of syllabus for the training center will have to bring together major stakeholders in the fisheries industry since it will be the first of its kind in West Africa.

The DAA fisheries training center will be constructed in Year 3 at the site and parcel of land acquired by DAA. SNV is securing all local permits required prior to construction actually

takes place. The scope of work and budget for construction of the DAA Fisheries Training Center (DFTC) was incorporated into a separate amendment to SNV's sub-grant agreement; and will be implemented as per that scope of work prepared and added to their sub-agreement in Year 2. Additional training modules will also be developed and training conducted.

IR 5: Gender Equality and Empowerment

The SFMP works to mainstream gender across all intermediate results. The end goal is to transform the attitudes of fisheries stakeholders, including women and men, about the role of women as leaders and decision makers. By the end of the project, we expect to see an institutionalization of practices that increase women's participation in fisheries leadership roles – and showcase that women can play an important and powerful role in sustainable fisheries management, fisheries livelihoods and value chain improvements beyond their traditional post-harvest processing activities.

In the first half of Year 2, the SFMP gender team finalized a training manual on how to mainstream gender into fisheries management and implemented two gender mainstreaming trainings. During the workshops, the participants learned about how to mainstream gender in fisheries management. They discussed the SFMP project's plans to mainstream gender and analyze the gender dimensions of their own work. This led to the development of a gender mainstreaming plan of action for the project. During the trainings, the team also collected input to the development of gender mainstreaming communications messages. Building upon the input collected, the gender team developed two communications messages, which will be field tested and finalized in the first quarter of Year 3.

- *Far Mpuntu: Ogyina Bayin na Basia nkabom do:* Development of sustainable fisheries: Depends on collaboration of both male & female.
- *Far Mpuntu: Basia ne nsusui pa so hia:* Development of sustainable fisheries: The woman's decision is also required/ important

The SFMP engaged in a number of workshops and events that meant to highlight the importance of gender mainstreaming. Examples include:

- Organizing an event during the World Rural Women's Day in October, 2015. This event was attended by 500 persons and was followed by a series of meetings with the Municipal and District Assemblies in Winneba and Apam. This in turn led to the institution of an annual forum with the Effutu Municipal Assembly in Winneba.



Figure 37 World Rural Women's Day, October 15, 2015

- Organizing a gender fisheries policy advocacy workshop for women leaders and project partners in advocating against illegal fishing in the fisheries sector. The women leaders who participated recommended further advocacy training and expansion of the training to

other groups including the fishermen’s council to increase understanding of the need for women participation and involvement as co-managers of the fisheries.

- Implementing a gender program called the Hownam dialogue. This is a unique training program designed by SNV under SFMP to help women and women groups understand and develop leadership skills. “Hownam” is a Fante word, which means fish smoking. The Hownam Dialogue allows the participants to experience group dynamics and to understand how they as individuals operate within a group, experience unspoken attitudes, personalities, leadership, authority, conflicts etc. The understanding and learning from the group process is supposed to lead to the understanding of leadership, power, and authority.

The gender team also completed a baseline survey to gauge women’s leadership in the fisheries sector. The survey found that most of the leaders in male dominated groups did not see the value of increasing female participation in their groups. They stated that it is a cultural norm for women and men to have separate associations and thus separate leadership. One lesson learned from the survey was that to improve women’s involvement in fisheries management beyond the processor association level, we need to engage both women and men. This should include working directly with the Fisheries Commission as well as other male dominated stakeholder groups and leaders. Following that lesson learned, the project has identified the following entry points to broaden the gender engagement:

- Provide gender training to men involved in fisheries management to help them understand the importance of including the voices of both men and women in the management process.
- Create awareness related to gender inclusive management for the Fisheries Commission.
- Engage the FC staff members that support the fish landing beaches and invite them to participate in SFMP gender trainings and events.
- Prepare a gender mainstreaming action plan in collaboration with the FC to include women in the management of landing beaches.

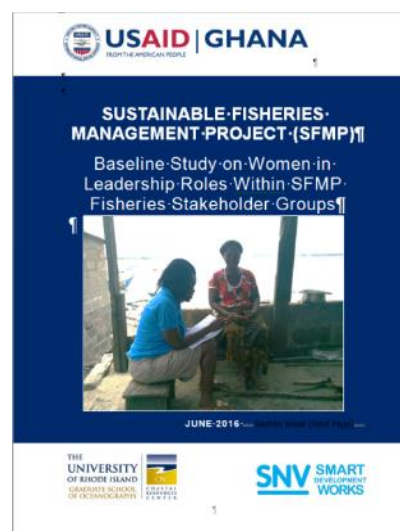


Figure 38 Baseline Study on Women in Leadership Roles

Realizing that it is not enough to mainstream fisheries into the gender ministry, but that gender also needs to be mainstreamed into the fisheries sector, the SFMP gender team started collaborating with the FC to prepare a gender mainstreaming strategy and action plan for the Commission. This work will be completed in Year 3.

The cumulative number of new participants involved with SFMP events (N= 2347), November, 2014 through April 2016, and proportion by gender where data was available, by event (N=1891) is shown in the Figure below. In the early months of the project, men dominated in participation in SFMP events. Once livelihoods training and implementation began, the proportion of women involved increased substantially. Slightly more than half of all new individuals involved in the SFMP are women. Looking forward, this information will be used to track whether the engagement of women in fisheries management related events shows an increase.

The first year of SFMP focused on understanding the gender landscape in the Ghanaian fisheries sector. In Year 2, the team used that understanding to train partners and develop

communications messages. One lesson learned from Year 2 is that it is easy to get stuck in a cycle of assessments and capacity development – putting off implementation for yet another assessment. Hence, as we move into the third year, the project has to transition from the issue analysis, action planning, and capacity development phase into implementation.

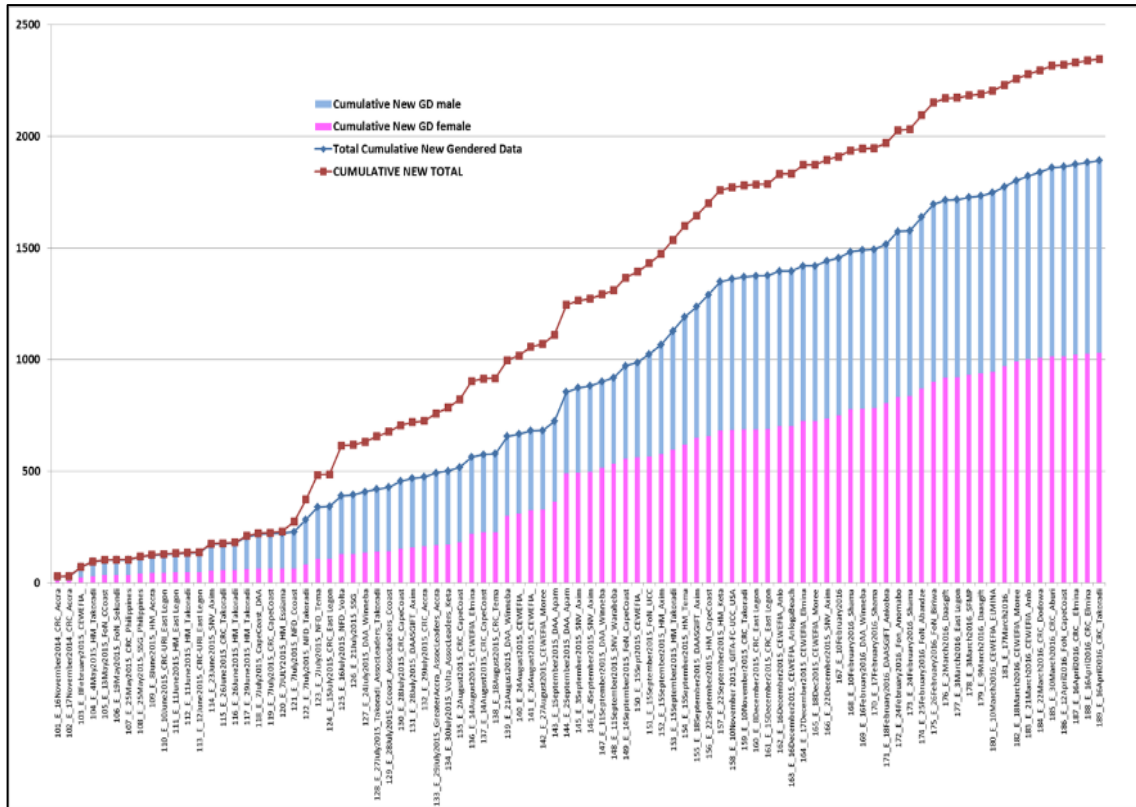


Figure 39 The cumulative number of new participants involved with SFMP events

IR 6: Public Private Partnership Development

SFMP worked on two partnership initiatives in FY 16. The first is the concept of a fishers' tele-communications network or phone club. Tigo is a new ICT partner to pilot the Fishers' Network with brand name '**Tigo Fishers' Network**'. This is a suite of mobile services, alerts on best fishing practices, marine weather information and mobile money offerings for fisherfolk to help in fisheries management. Tigo came on board after negotiation with Vodafone in Year 2 stalled due to unforeseen demands from the company towards the partnership. Although Vodafone redrew from the negotiation, SSG indicated their willingness to consider and embrace them should another partnership arises. Vodafone in conjunction with SSG has since been exploring (on low key) other partnership opportunities in the fisheries sector that align with their resources and capabilities.

Tigo considered the pitch from SFMP because they saw the need to bring their expertise on board to support the SFMP fisheries management effort. Tigo has successfully implemented such ICT innovations in Tanzania¹, where farmers receive agronomic tips including weather on ten major crops to help them undertake sustainable agricultural production and improve food security. VOTO Mobile would be considered where appropriate as the content provider for the initiative. VOTO Mobile has demonstrated this content experience and also sees the value in partnering with Tigo and SFMP to bring socio-economic development to such segment of society – a key vision of the ICT company. This means the partnership will involve; SFMP, MOFAD, Tigo and VOTO Mobile. SSG has since conducted Due Diligence on Tigo and VOTO mobile, and developed a Strategic Partnership Concept Paper outlining the partnership model vis-à-vis resource contribution from partners. In addition, SSG has developed and submitted to Tigo a detailed Marketing Plan for Year 1 of the partnership. The Marketing Plan explains how the product would be marketed, demand projections, price point of the product and other marketing metrics. The Marketing Plan is being reviewed by management of Tigo after which it will be finalized to serve as a blue-print for the marketing campaign for the partnership. A draft Letter of Collaboration (LOC) outlining partners roles and contribution towards the partnership has also been drafted. All partners have reviewed and are now in final negotiations before signing the LOC (in the place of an MOU).

In Year 2, SFMP worked on a second partnership initiative with Millennium Insurance and UT Life Insurance that also brought participants from the insurance firms, fisherfolk and MOFAD/FC to co-design the fisherfolk micro-insurance product which is a demand-driven initiative from the fisherfolk. The fisherfolk during the National Dialogue in November, 2015 called on stakeholders to design and implement an insurance scheme to aid their fishing business and make them resilient to unanticipated natural shocks while providing income when a proposed closed-season is enforced – the product anticipates to include a pay-out to fisherfolk during the closed season so they adhere to this policy and help rebuild the depleted marine fish stocks.

The Minister of Fisheries and Aquaculture Development has been consistently briefed through meetings and letters on every progress made towards the insurance partnership. This is to acquaint with her with developments towards the insurance initiative and solicit her inputs and concerns, if any, to help in the design of the initiative. The sector Minister's concerns and suggestions have been reviewed and incorporated in the insurance partnership design. SSG has also led the private sector firms, i.e., Millennium Insurance and UT Life Insurance to meet with the sector minister and briefed her of their intentions of partnering

¹ In Tanzania, the product is known as 'Tigo Kilimo' and commenced in December 2012, and by December 2014, almost 400,000 farmers have been rolled onto the Kilimo platform.

with SFMP to design and roll-out tailored microinsurance for the fisherfolk. Overall, the fishers' microinsurance partnership, when initiated, will complement MOFAD's existing effort of providing much needed insurance to fisherfolk.



Figure 40 Participants at the insurance partnership forum

Further, SSG developed and commenced negotiation on Letter of Collaboration (in the place of MOU) with Tigo and Millennium/UT Life Insurance. Also, SSG conducted due diligence (technical and financial) on Tigo, Vodafone and Millennium/UT Life Insurance to unravel any questionable activities or character that may pose reputational risk to USAID and SFMP in partnering with these private sector firms. Reports on Vodafone, Tigo and Millennium/UT Life Insurance per due diligence findings has been developed for the respective firms. All the reports have been signed-off (i.e. no reputational risk) by SFMP Chief of Party paving the way for USAID/SFMP to partner with these private sector firms.

In Year 3, SSG will complete negotiation on the Letter of Collaboration (LOC), sign and commence implementation of activities under the (LOC) for the Millennium/ UT Life Insurance partnership. The insurance partnership will serve as a social safety net to fishers while introducing and promoting digital finance to rural fisherfolk, and a culture of savings.

IR 7: Local Capacity Development

7.1 GoG Capacity Development

As part of efforts to strengthen local GoG partner organizational capacity to effectively implement sustainable fisheries initiatives, and to improve the quality and sustainability of services they provide to their constituencies, URI in Year 1 undertook a baseline organizational capacity assessment for nine participating GoG and research university units, as follows:

1. Monitoring, Control and Surveillance unit of the Fisheries Commission (MCS/FC)
2. Fisheries Scientific Survey Division of the Fisheries Commission (FSSD/FC)
3. The Post-Harvest unit of the Fisheries Commission
4. The Marine Fisheries Management Division of the Fisheries Commission (MFMD/FC)
5. The Univ. of Cape Coast/Center for Coastal Management (UCC/CCM)
6. The Univ. of Cape Coast/Department of Fisheries and Aquatic Science (UCC/DFAS)
7. The Western Region Regional Coordinating Council
8. The Central Region Coordinating Council
9. The Fisheries Enforcement Unit (FEU), an interagency body.

Based on the findings and recommendations of the initial assessments and the annual work planning process with partners in Year 2, the GoG units benefitted from a number of interventions. These include: 4 vehicles, computers, a LAN system and central server, refurbishing of training facilities, laboratory equipment, leadership courses, stock assessment training, degree training, and technical assistance for gender, CLaT and Post-harvest strategy development for the FC among others.

Graduate degree training for FC and UCC: The PhD student sponsored by SFMP, Evans Arizi, completed his first semester at the University of Rhode Island. He completed an advanced class in fish population dynamics, a class in ecosystem science and a seminar with a grade point average of 3.7. He is currently preparing his dissertation proposal and participating in the fieldwork on board commercial vessels with fishermen in RI to gain at-sea experience and observe the local fishing operations. He will continue these tasks throughout the summer semester (May-August).

Two additional individuals from UCC started Master's degree training at URI in September 2016. Ivy Gyimah is studying Marine Affairs (policy) and Evelyn Takyi is enrolled in the Biological and Environmental Sciences program, concentrating on Fish Genetics. In addition, Evelyn Takyi completed a 6 week-internship with Professor Michael Osei-Atweneboana from the Water Research Institute of Ghana prior to her departure to RI. The internship allowed the student to familiarize herself with fish genetic techniques and equipment used in Ghana and help her to establish guidance for her research proposal. These students join Evans Arizi, continuing his study at URI at the PhD level in environmental sciences. Two candidates from the Fisheries Commission also started Master's degrees at URI; Rosina Cobbina and Vida Osei

7.2 CSO Capacity Development

The seven CSOs originally targeted under the capacity development component include the 5 local partner sub-awardees of SFMP, HM, DAA, DQF, CEWEFIA and FON as well as two additional local civil society membership organizations, the Ghana National Canoe

Fishermen's Council (GNCFC) and the Fisheries Alliance (FA). An eighth organization, the National Fish Processors and Traders Association (NAFPTA) benefitted from capacity assessment in Year 2 with a focus on its regional branches as the FC and WARFP are expected to focus on the national level

As membership organizations representing resource users, NAFPTA and the GNCFC are critical organizations that need to increase their ability to engage at the national level in management decision making concerning the key marine fisheries stocks and in active dialogues with other national stakeholder groups such as GITA and GIFA. In terms of life of project targets, numbers of processor and producer groups assisted will not change. NAFPTA, given its potential to increase women's national participation in management decision-making processes were added to those assisted. The Fisheries Alliance was dropped in Year 2 as the initial assessment showed this organization as not very effective or influential. Local partners are also developing the capacity of community scale producers associations and developing community savings groups, so this target on number of groups (and the associated target on number of members of these groups) may be adjusted upwards at a later date.

In Year 2, CSOs benefitted from development of plans for a fish processing and training center managed by DAA, that will conduct certified courses on leadership training, public, private partnership training, and gender mainstreaming, CLaT and post-harvest processing training activities. SFMP provided technical and financial support and training for selected process and systems improvements identified as crosscutting needs among the CSO partner organizations. These included financial, administrative, organizational development, board development and M&E systems. SFMP provided software licenses and trained financial staff of local CSO implementing partners (HM, FoN, CEWEFIA, DQF, DAA) on QuickBooks to improve reporting and accounting of project funds provided via sub-recipient agreements from URI. SFMP supported DQF to revise its Standard Operating Procedures (SOPs) and SOP Manual. SNV finalized and validated with CSO partners an Organizational Development Manual covering each of the areas assessed in the OCA process. As part of the capacity building intervention, SNV organized a two day training workshop in September for the Boards of Directors of SFMP's local CSO partner organizations. The workshop trained the BODs on issues such as governance and the legal and financial implications of Board decisions. The resource personnel also took time to coach partners on factors leading to organizational effectiveness. Thirty two Board members (19 males and 13 females) attended the training program.

Peer to peer learning West Africa-wide on women's empowerment in fisheries

management and post-harvest improvements in the value chain:

In Year 2, SFMP organized a study tour to Senegal and The Gambia, to expose women-led and oriented CSOs to peer organizations with similar missions that have developed successful community-based strategies for sustainable fisheries management and value chain improvements with support from USAID project investments over the last five years. Participants included members of NAFPTA, DAA, CEWEFIA, DQF and the FC Post Harvest Unit head and FC Gender focal point. A major lesson learned from the tour was the leading role that women's membership CSOs can play in mobilizing women and other stakeholders in the sector to identify, promote and institutionalize best practices in fisheries management at their level, while proactively engaging government actors at all levels when their support is most needed in the process. One example that study tour participants saw was the risk of women processors losing their livelihood to male processors in a situation where there is uncontrolled competition and lack of an enforceable framework for sustainable best practices. This suggests that government's

intervention in safeguarding the women’s role while encouraging healthy competition may be an important step in promoting sustainable Value Chain Improvements in the fisheries sector.

A video covering highlights of the tour was completed and used to facilitate numerous local discussions and early applications of lessons learned over the course of the year. The Study Tour is also featured in a Senegal case study as part of USAID’s recent publication, “Learning from Feed the Future Programs about Gender Integration and Women’s Empowerment: Compiled Case Submissions, April 2016.”

https://agrilinks.org/sites/default/files/resource/files/Compiled%20WEE%20Case%20Studies_Final%20508%20Compliant.pdf

Peer to peer study tours among the regions within Ghana has proven to be an effective mechanism for knowledge exchange among community members engaged in fish processing. For instance, DAA organized study tours for 316 (mostly women) processors to Ankobra, Elmina & Moree, Winneba & Apam and Tsokomey. The tours aimed to present a platform for processors to interact, learn and share ideas on appropriate smoking methods as well as to build skills and knowledge on strategies to reduce post-harvest loss and establish healthy fish protocols. The destinations were chosen in consultation with CEWEFIA and DQF because processors in these communities had adopted best practices on a wide scale. Mumford was a highlight of the tour, where the environmental conditions under which fish were processed presented an opportunity for the participants to adequately learn about the need to incorporate hygienic fish handling into fish processing.



Figure 41 A cross-section of participants at the DAA Review Meeting

In another example of peer to peer learning, DAA members shared the lessons they learned from The Gambia and Senegal tour at a review meeting held in June. The Onyame Ntsedee Odasanyi fish processors group eagerly expressed their desire to follow some of the hygienic fish drying methods practiced in these two countries, in particular the practice of using dry racks rather than drying on the bare ground. Other participants expressed their desire for fishermen in Ghana to follow some of the fishery management practices observed in The Gambia and Senegal.

2.2 Implementation Challenges

With more than a year of field implementation experience among the partners, the following points highlight some of the implementation challenges experienced on the ground.

- Amidst the numerous financial problems, and low catch, fisher folks go to extremes in finding all possible means to get fish for sale in order to survive the economic hardships they face. These fishing activities rather intensifies the problems of reduced fish stocks. It makes it exceedingly difficult in these circumstances it takes a longer time sensitize fisherfolks and convince them that stopping illegal fishing practices will be beneficial to them in the long term.
- Strong Belief Systems of the fisher folks hinder behavior change. For instance, most fisher folks believe that fish are rained into water bodies during the rainy season, and this determines abundance of fish, not excessive fishing effort.
- Scheduling of activity implementation sometimes coincided with the market and fishing days of the fisher folks and more consideration to their schedules is needed when trainings and meetings are planned.
- Following the suspension on campaign on Morrison stove promotion, partners suspended all activities relating to promoting this stove. SNV (lead on this activity) finished developing a new optimal smoker (AHOTOR) in late August 2016 which prevented any additional promotion of fuel efficient smokers in FY 16. It is anticipated that this activity will gain momentum in year 3 of SFMP implementation for large scale adoption by fish processors as the new design solved the PAH issues found with the previous design. This may impact the overall level of adoption of the fuel efficient smokers over life of project and an internal target of trying to reach a critical mass of several thousand fuel efficient smokers in use by project end.

2.3 M&E Plan & Implementation Update

During the year under review, the M&E team of SFMP conducted a series of activities to help track and validate progress of the project.

Revised M&E Plan. At the beginning of FY 16, the M&E plan was revised and submitted to USAID. Targets for indicator 5, 6, 10, 12 and 17 were revised to reflect changes made in the year 2-work plan.

Baseline Report. The baseline assessment was completed, and some of the selected findings are provided below.

Fishing households experiencing moderate to severe hunger during the interview period were 21 percent, which is considerably lower compared to the PBS results (39%). Household Hunger Rank was statistically significantly related to literacy with those unable to read or write more likely to experience moderate to severe hunger.

Hunger Level	SFMP (N=716)	PBS
No Hunger	78.7%	60.6%
Moderate to Severe Hunger	21.3%	39.4%

PBS (Population Based Survey) SOURCE: Zereyesus et al. 2014

Comparing the women's dietary diversity index, a strikingly low number of women of reproductive age in fishing households have a high dietary diversity of only 1.6 percent compared to women in farming households of 17 percent. Fishing respondents had a much

higher percentage with a low dietary diversity (62%) compared to farming household respondents (41%). Over 85 percent of fishing household respondents reported eating fish in the past 24 hours, whereas only 7 percent reported eating dark green leafy vegetables. High rates of landlessness (80% own no agricultural land) and poverty among fishing households may contribute to these findings.

Dietary Diversity Rank	SFMP (N=253)	PBS
High Dietary Diversity	1.6%	17.4%
Medium Dietary Diversity	36.4%	42.1%
Low Dietary Diversity	62.0%	40.5%

PBS (Population Based Survey) SOURCE: Zereyesus et al. 2014

On child labor and trafficking, the conventional wisdom is that this is mainly a problem in the Central Region only. However, the baseline results of respondents' perceptions suggest it is also a significant problem in the Western Region.

Perceptions on Trafficking Children in Fishing Communities (N=716)					
Response	Region (% of respondents)				
	Central	Greater Accra	Volta	Western	Total
No one ever	45.5	78.9	68.8	41.6	57.3
Only a few	42.1	15.7	28.6	54.7	36.2
Many	12.4	5.4	2.6	3.7	6.6

Project beneficiary monitoring. In line with conducting a routine monitoring strategy of SFMP, the team conducted a 5-day visit to project target areas to verify information sent to the Accra office by partners, assess the intensity of programming and how these are meeting project outcomes and directly establish linkage with SFMP beneficiaries to share experiences on the project. A sample of 10% were randomly selected from all activities between October 2015 and April 2016. Using beneficiaries' contact provided by partners, a consistent checklist of questions were asked. A total of 109 beneficiaries were reached in 9 SFMP communities including communities in the Ankobra estuarine communities. Findings reached revealed that partners need to incorporate a deliberate monitoring strategy towards ensuring project activities respond directly to outcomes and impacts. This insinuates that a direct budget line needs to be allocated in partner budgets for monitoring and supervising field activities.



Figure 42 Verifying project information

Formative Survey on the Morrison fuel efficient stove. The M&E team collaborated with Fisheries Commission to conduct informative survey on Morrison stove across the coastal regions of Ghana. The findings indicate that in all the target regions except for Greater Accra, where a majority (71%) of the fish processors prefer to use the Morrison stove to others. In Volta and Brong Ahafo where the Morrison stove has been in use for a longer period of time, the preference rates are much higher (95 and 100 percent, respectively). The reasons for their

preference is less consumption of fuelwood, less smoke emission and better quality products, with specific mention to color, aroma and value. Future stove purchase decisions were also overwhelmingly in favor of the Morrison stove (66%).

Methods of acquiring a Morrison stove vary by region and source. There is no one single financing mechanism being used, rather, a combination of means is seen. The primary types of fish processed vary by region, size and market value. In Greater Accra and Volta, anchovies were identified as the primary type of fish being processed, whereas in the Central region, tuna and sardinella dominate. In Volta, mudfish along with other types of fish not included in the questionnaire are processed. Differences between the regions in size and weight of fish might explain why respondents encountered challenges with stove components, such as the mesh net size, depth of trays and interlocking feature of the Morrison stove's trays. Respondents stated that different net sizes should accommodate different types of fish species.

Support to M&E Division of Fisheries Commission and Implementing Partners. In the course of the year, the M&E Assistant of SFMP provided technical support to government counterparts FC M&E unit in electronic data collection (using Kobotoolbox), and four (4) of the core M&E team members were trained on its usage. The M&E unit of the Fisheries Commission has adopted this new technology and invested in purchasing tablets for subsequent M&E surveys, and has established a hub for storing collected data for analysis on the cloud.

SNV was also trained and now uses paperless systems for most surveys. For instance, a market segmentation study of the fish processing sector was undertaken using paperless surveys.

M&E training. Three capacity building programs were organized for partners in every quarter of the year at Accra and Takoradi. Among several modules treated, partners were particularly exposed to fundamentals of monitoring and evaluation, the USAID program cycle (focus on results framework) and acceptable M&E reporting including Data Quality issues. These programs intended to build the capacity of M&E officers in the field of monitoring.

3. INTEGRATION OF CROSSCUTTING ISSUES AND USAID FORWARD PRIORITIES

3.1 Gender Equality and Female Empowerment

Please see IR5 for information on activities directly related to this issue.

3.2 Sustainability Mechanisms

Emphasis is placed on:

- Involvement of relevant government officials in project planning and implementation to ensure continuity.
- Continued capacity building and development of local stakeholders and partners to greatly assist project sustainability.

3.3 Environmental Compliance

Environmental monitoring and mitigation as per the approved USAID IEE and project Environmental Monitoring and Mitigation Plan were undertaken and with full compliance with conditions contained therein. Areas of particular concern are construction activities of fish smokers and refurbished drying sheds although refurbishment of a government data center and a training center office space were also reviewed for environmental compliance. The annual environmental monitoring and mitigation report was submitted to the AOR and is available online

3.4 Global Climate Change

Please see section IR4.5 Pra and Ankobra Resilience plans for information on activities directly related to this issue

3.5 Policy and Governance support

Please see section IR1 which describes SFMP's substantial policy and governance support initiatives.

3.6 Local Capacity Development

See section IR7 for capacity development activities of government, producer, processor and CSO groups.

3.7 Public Private Partnerships

See section IR 6 for information on activities directly related to this issue.

3.8 Science, Technology, and Innovation

Please see section IR2 for descriptions of activities of the science and technical working group on fisheries, collaborative research undertaken with UCC, and development of an ICT strategy for the project. Of particular note is the adoption of paperless surveys (using tablets and cloud data storage) have been adopted by the M&E unit of the Fisheries Commission and some of our implementing partners. In addition, of particular note is SNV's interest in promoting improved cook stoves that produce a healthy food product. With this in mind, and the recent discovery of high PAH levels in the most fuel efficient design, the Project invested resources to develop a modified design which produces much less PAH in the smoked fish than the original fuel efficient Morrison design and almost to EU import standards. A second stove with what preliminary assessment has shown to be even lower PAH levels is still under development and slated to be piloted in the field in FY 17.

Lastly, the project has tested the use of small unmanned aerial aircraft to collect high resolution imagery for coastal planning, hazard mapping and environmental monitoring. The pilot activities have demonstrated this as a low cost and useful means of obtaining information otherwise not available and demand for such imagery is high. SFMP is working on a sustainability plan to acquire a fixed wing aircraft in Year 3 that can cover larger areas than the current helicopter model. Training of local pilots in flying the unmanned aircraft started in the later part of FY 16 and image processing and additional flight training will continue in Year3 (FY 17). An aim is to build the capability of using this technology at the University of Cape Coast with a handover of the equipment slated for FY 17.



4. STAKEHOLDERS PARTICIPATION AND INVOLVEMENT

Stakeholder participation and involvement is a key pillar of the SFMP approach and a central means to achieving intermediate result 3; building constituencies and political will for policy and legal reform, as well as behavior changes needed to restore Ghana's marine fisheries to a healthy and sustainable state. Examples of the participatory approach and stakeholder involvement is described throughout the report.

5. MANAGEMENT AND ADMINISTRATIVE ISSUES

As the project has swung into full implementation in Year2 with eight implementing partners, we have realized that the resources needed for proper supervision and oversight of these arrangements requires additional personnel. At the end of Year2, hiring processes were initiated to put on board two local fisheries specialists with technical expertise in post-harvest technology and fisheries policy and management. This is primarily to assist the Chief of Party with contract management but also to increase the number of local hires with direct fisheries technical expertise in consideration of the fact that the current CoP and the senior fisheries advisor will be moving back to Rhode Island in Year 3 (FY 17), reducing in-country technical capacity to some degree.

The management burdens also apply to the financial review and administration of partner contracts and especially the local partners that do not have as robust financial and administrative management systems as the project's international partners. Hence, a significant amount of effort has gone into building their financial management capacity to ensure adequate compliance as well as improved accuracy and timely reporting on expenses. QuickBooks is now being used by all project partners as well as by the SFMP in-country office of URI. The number of partners (8) makes the process of compiling progress reports, PMP data and workplans time consuming and complex, making it difficult to meet reporting deadlines and produce quality insightful reports in spite of early deadlines for submission of reports. The SFMP management team is working to ensure better timeliness of partner reporting and quality of reports submitted, making report preparation easier and of higher quality. New budget templates in Excel were designed and standardized across all partners that is then used as the template for QuickBooks reporting. This is making budgetary reporting for work planning, progress reports, accrual reporting and management review much more efficient in FY 17.

6. LESSONS LEARNED

The following represent a few noted lessons learned over this past year:

- In building an enabling environment to promote private sector investment, decision making bodies such as government officials, district assemblies, traditional heads, EPA, forestry commission etc. responded to the call to provide necessary support, upon being educated and trained on the need to protect the biodiversity by reducing over exploitation of wood plantations. It is, however, up to implementing partners to follow up with decision makers. For instance, because of the training held in Anlo beach, a representative from the Environmental Protection Agency, Mr Amoako expressed his enthusiasm for being part of the training. He indicated his readiness to support anyone as far as woodlot plantation is concerned.
- From the Senegal/Gambia study tour, it was noticed that group fish processing facilities provided to the women of Cayar to work together to serve a special market worked well while they maintained their individual stoves. In other places, women abandoned the group stoves and were working with their individual stoves. In the fish processing facilities to be provided under the SFMP, characteristics of the associations and communities should be taken into consideration when providing group-owned interventions. For instance, in communities where fish processors migrate to process fish, group-owned processing facilities could work since they could be rented out to the migrating processors. Developing a segregated market for higher quality fish could also encourage the use of group-owned processing facilities.
- To realize the inclusion of women in fishery management, data on the number and importance of women should be used to provide concrete evidence to propel gender equity in co-management.
- Effective stakeholder engagements through one-on-one discussions and focus group discussions promotes high participation. Adopting a participatory approach in meetings sustains the interest of participants. For instance, the use of ice breakers and songs during meetings has shown as an effective tool for active participation. Collaboration with community facilitators also enhances community participation.
- Effective stakeholder engagements through communication (peer to peer discussion, study tour, focus group discussions) enhance behavioral change communication. Fish processors are motivated to adopt or put into practice a training skill when they see other processors whether in their own community or in other communities benefiting from applying the skills acquired during the training. Peer to peer learning by using early adopters and model processors to influence other fish processors is the best approach.
- Ownership is key to project success even it means delaying implementation of some activities. This was clearly seen in the adaptation of raised fish drying racks by salted/fermented fish processors in Apam. Key stakeholder and group consultation took nearly two (2) months before demonstration drying racks were installed. Taking time to build trust with fisher folks especially women fish processors can be a challenge but yields smooth project acceptance if it is properly executed.

Annex 1. Summary Results to Date

This summary includes all standard USAID indicators as show as well in Section 1.2 as well as two additional custom indicator the project uses.

InD No	Standard and SFMP custom Indicators	Baseline FY 2015	FY 15 Results	FY 16 Target	Results FY 16	Annual Performance Achieved to the End of Reporting Period (%)	Cumulative Results (FY15+FY 16)	LoP Target	On Target Y/N
Goal: Rebuild marine fisheries stocks and catches through adoption of responsible fishing practices									
1	Number of hectares in areas of biological significance and/or natural resource showing improved biophysical conditions as a result of USG assistance (EG 4.8.1-1)	(declining : + trend) (declining : - trend)	N/A	N/A	N/A	N/A	N/A	610,900 marine	
2	Number of indirect project beneficiaries (project custom indicator)	0	N/A	N/A	N/A	N/A	N/A		
IR 1:POLICY:Strengthened enabling environment for marine resources governance									
3	Number of agricultural and nutritional enabling environment policies completing the following processes/steps of development as a result of USG assistance in each case (FTF 4.5.1(24)): 1. Analysis 2. Stakeholder consultation 3. Drafting or revision 4. Approval 5. Full implementation	0	1 Small pelagic	4 Fish analysis Small pelagic consult Child labor analysis Demersal fisheries analysis	5 Small pelagics consult Fish Act analysis Demersal stock assessment Anti-CLaT strategy fisheries sector Gender strategy for FC	125%	5	6	Y

InD No	Standard and SFMP custom Indicators	Baseline FY 2015	FY 15 Results	FY 16 Target	Results FY 16	Annual Performance Achieved to the End of Reporting Period (%)	Cumulative Results (FY15+FY 16)	LoP Target	On Target Y/N
IR2:SCIENCE & RESEARCH :Increased use of science and applied research to inform decision-making and the implementation of management plans									
<i>See cross cutting Indicators</i>									
IR3:CONSTITUENCIES :Constituencies and political will for policy reform & implementation built, demanding sustainable use and conservation									
6	Number of information products disseminated in local media reports, radio shows, conference papers, and research studies (Project indicator).	0	20	18	21	117%	41	98	Y (quarterly results were review to eliminate double counting)
IR 4:APPLIED MANAGEMENT :Improved management of marine resources to conserve bio-diversity & provide other benefits									
7	Number of hectares of biological significance and/or natural resources under improved natural resource management as a result of USG assistance (EG 4.8.1-26)	0	N/A	0	N/A	N/A	N/A	735,241	
8	Number of DAs supported with USG Assistance (Ghana CDCS, IR 2.3 indicator)	0	N/A	4	4	100%	4	4	Y

InD No	Standard and SFMP custom Indicators	Baseline FY 2015	FY 15 Results	FY 16 Target	Results FY 16	Annual Performance Achieved to the End of Reporting Period (%)	Cumulative Results (FY15+FY 16)	LoP Target	On Target Y/N
9	Improvement in fisheries enforcement and prosecutorial chain to counter IUU fishing (increase/decrease in prosecutions and percent that lead to conviction) (Project Indicator)	0	N/A	Baseline established	Decreasing	N/A	N/A	Increasing	Y
10	Number of climate vulnerability assessments conducted as a result of USG Assistance (EG 4.5.1)	0	1	3	2	100%	3	3	Y
11	Number farmers and others who have applied new technologies or management practices as a result of USG assistance (FtF 4.5.2)	0	N/A	N/A	N/A	N/A	N/A	111,000	
12	Number of micro, small and medium enterprises (MSMEs), including farmers, receiving business development services from USG assisted sources (FtF 4.5.2)	0	751 M-36 F-715	751	985 M-186 F-799	131%	1,736 (40%) M-222 (13%) F-1514 (87%)	4,324	Y
IR 5 Gender									
<i>See crosscutting indicators</i>									

InD No	Standard and SFMP custom Indicators	Baseline FY 2015	FY 15 Results	FY 16 Target	Results FY 16	Annual Performance Achieved to the End of Reporting Period (%)	Cumulative Results (FY15+FY 16)	LoP Target	On Target Y/N
IR 6: Public Private Partnerships									
13	Value of new private sector investments in select value chains (FTF 4.5.2-38)	0	N/A	Target estimated after STEP process have completed	N/A	N/A	N/A	Tracked, No target	Y
14	Number of public-private partnerships formed as a result of Feed the Future assistance (S) (FTF 4.5.2(12))	0	0	1	1	100%	1	2	Y
IR7 Capacity Development									
4	Number of institutions with improved capacity to develop and implement managed access fisheries management plans	0	N/A	Ongoing ,No new groups	N/A	N/A	N/A	16	Y
14	Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations(CBOs) receiving USG assistance (RiA) (WOG) (FTF 4.5.2(11))	0	2	3	3	100%	3	3	Y

InD No	Standard and SFMP custom Indicators	Baseline FY 2015	FY 15 Results	FY 16 Target	Results FY 16	Annual Performance Achieved to the End of Reporting Period (%)	Cumulative Results (FY15+FY 16)	LoP Target	On Target Y/N
15	Number of members of producer organizations and community based organizations receiving USG assistance (S) (FTF 4.5.2(27))	0	164	1144Same on going	1144 on going	100%	1144	TBD	Y
Cross Cutting Indicators (summarized for all IRs)									
5	Number of days of USG funded technical assistance in NRM and/or biodiversity provided to counterparts or stakeholders (EG 4.8.1-28)	0	806	956	1,019	107%	1825 (50%)	3,634	Y
17	Number of people receiving USG supported training in natural resources management and/or biodiversity conservation, and climate change, disaggregated by gender (EG 4.8.1-27/ 4.8.2-6)	0	890 M-621 F-269	826	1,047 M-496 F-551	127%	1,937 (38%) M-1117(58%) F-820(42%)	5126	Y
18	Number of person hours of training in natural resources management and/or biodiversity conservation supported by USG assistance (4.8.1-29)	0	9832	16080	18,846	117%	28,678(49%)	59,080	Y

- Target for Number of climate vulnerability assessments conducted as a result of USG Assistance (EG 4.5.1) was updated from 2 to 3.

* Number of information products disseminated in local media reports, radio shows, conference papers, and research studies (Project indicator) results was revise to capture data according to indicator definition to eliminate double counting.

EXPLANATION OF INDICATORS

Number of agricultural and nutritional enabling environment policies completing the following processes/steps of development as a result of USG assistance in each case:

There have been some changing circumstances in the fishery sector that have resulted in changing targets and results for this indicator. In FY 16 a national marine fisheries management plan was adopted that covers all stocks and all fishing fleets. In this context, original targets of developing a small pelagic management plan and demersal plan will no longer be pursued as there is no need or desire to do that anymore. In subsequent years, the project will support implementation of the marine fisheries management plan and its implementation is set as the new target. Stakeholder consultation (steps 1&2 in the policy process) for the small pelagics fishery will be claimed however this year as planned as significant effort has gone into these processes including meetings that have involved over 6000 persons. This marine plan also means there is no need for a demersal fishery plan but an analysis of the fish stock has been done (step1) and therefore will be claimed as meeting our target.

Drafting of the fisheries act (collaborative management sections) was targeted for Year 2 but the legislative drafting committee was not established until the last quarter of this reporting year. Therefore the project has not contributed directly to drafting the new legislation yet and this is now scheduled for FY 17. However, the project did work with the Ministry of Fisheries and Aquaculture Development to draft a co-management policy, which was recommended as a first step by the Ministry's legal consultant, prior to drafting the legislative provisions. This policy is in final draft and likely to be adopted in FY 17 and sets the foundation then for legislative changes needed to implement the policy.

Also in FY 16 a draft gender strategy for the Ministry and an Anti-Child Labor and Trafficking inter-ministerial strategy have also been drafted with significant public consultation. Both of these strategies are expected to be formally adopted in FY 17.

Number of days of USG funded technical assistance in NRM and/or biodiversity provided to counterparts or stakeholders (EG 4.8.1-28)

Technical/program experts from URI and SSG spent 1,825 days providing assistance to the project in the past two years. For the year under review 1,019 days were spent by Technical Experts assisting on implementation of various workshops and training events and technical advisory services. The number for the current reporting year was slightly over target (107%).

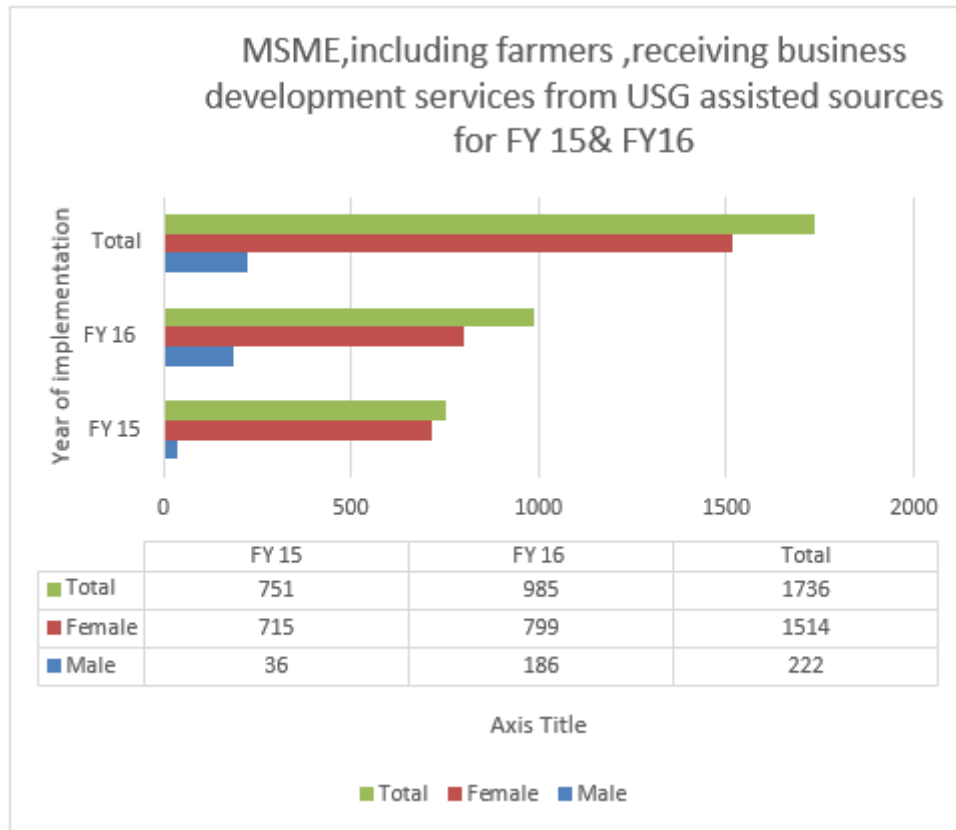
Number of climate vulnerability assessments conducted as a result of USG Assistance (EG 4.5.1)

During the period under review two assessments for Axim and Pra were conducted and completed. Reports for these assessments have been finalized. The project has now achieved the Life of Project target of three assessments. While no additional assessments will be done in subsequent years, the project will provide a minimal amount of effort in mainstreaming findings into district development plans and fisheries management plans under development.

Number of micro, small and medium enterprises (MSMEs), including farmers, receiving business development services from USG assisted sources (FtF 4.5.2)

At the end of year 2, a cumulative total of 1,736 MSMEs obtaining 40% of the life of project target of 4,324 received various business development services. For Year 2 results, the project exceeded the proposed target of 751 by 131% (985) constituting 81% (799) females and 19% (186) males. Year 2 business development services targeted additional fisher folks

in target communities who could not benefit from Year 1 activities and others trained in Year 1 received additional business support services through a well-designed curriculum to improve on the knowledge and skills of these beneficiaries. A number of these beneficiaries also received support other than training, including access to micro-credit and savings schemes or subsidies to adopt more fuel efficient and profitable fish smoker stoves.



The target was exceeded as partners identified additional qualified beneficiaries and were able to include more persons in each training with the budget provided and conducted more trainings as the business development support was provided than originally planned. The number of persons that were targeted to receive subsidized fish smokers could not be met as there was an issue with high PAH (carcinogen) levels from the initial improved smoker design that was discovered early in FY 16. The Project stopped providing subsidized smokers and instead partners were asked to re-program those funds to other business support services (e.g. training).

Number of public-private partnerships formed as a result of Feed the Future assistance (S) (FTF 4.5.2(12))

In year 2 of project implementation, partners reached agreement about the goals, roles, and activities defined in the Strategic Partnership Concept Paper, SSG prepared a draft MOU, which served as the foundational document for the partnership. On Oct 10, 2016, the ceremony partnership agreement (micro-insurance partnership) was officially signed between UT Life Insurance, Millennium Insurance, BIMA and Vodafone Ghana. While the partnership document was signed after the FY 16 year, the agreement was negotiated and ready for signature before the end of the reporting year and it was a scheduling issues that resulted in the actual signing being delayed for two weeks from September to October 2016. Hence we have counted the partnership in the FY 16

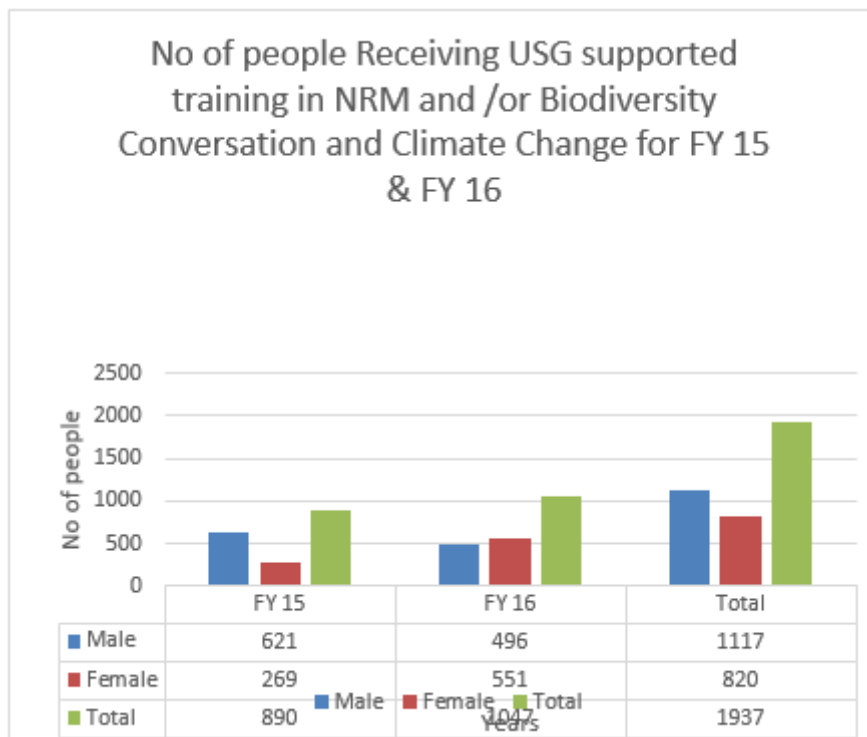
reporting year. This special micro-insurance product has the potential to benefit hundreds of thousands of fisherfolks in the upcoming years and provides for a death and permanent disability benefit as well as a savings like payout of funds when the policy comes to term. Of special note is the policy allows withdrawal after one year of up to 30% of the annual payments if needed and if a closed fishing season is declared. This provision provides an income support benefit for the closed season which is a major concern of fisherfolks and mitigates short term economic impacts of the closed season.

Number of people receiving USG supported training in natural resources management and/or biodiversity conservation, and climate change, disaggregated by gender (EG 4.8.1-27/ 4.8.2-6)

For the year under review, 1,047 (Male-496 & Female-551) targeted groups benefitted from various forms of capacity building activities ranging from series of trainings, the results exceeds the target of 826 by 127%.

In terms of cumulative results, 1,736 people received USG supported training in natural resources management and or biodiversity conservation and climate change, representing 38% of the Life-of-Project target.

The graph below shows the detailed results disaggregated by sex. It should be noted that the number of female participants exceed males in this reporting year, in contrast to FY 15 where these trainings were dominated by males. Extra effort to insure more equitable participation of women in these events has so far succeeded.



Annex 2. TraiNet Report

This report includes trainings that count towards two indicators: Number of micro, small and medium enterprises (MSMEs), including farmers, receiving business development services from USG assisted sources (FtF 4.5.2), and Number of people receiving USG supported training in natural resources management and/or biodiversity conservation, and climate change, disaggregated by gender (EG 4.8.1-27/4.8.2-6). For indicator reporting they are included in one or the other of these result areas based on the type of training provided, but not double counted in any cases for both indicators

Program Name	Start Date	End Date	Budget	Actual	Males	Females	Total Participants	USAID Budget per participant
<i>In-country training</i>								
Business Development and Management Training Shama, Axim and Ankobra- Y2Q3	3/16/2016	3/31/2016	536	536	1	99	100	5
Gender Fisheries Policy Advocacy Training for women leaders within the fisheries sector Takoradi Y2Q3	6/14/2016	6/15/2016	3478	3478	0	21	21	166
UAV Aerial Training in Elmina Y2Q4-CRC	9/13/2016	9/21/2016	67	67	4	0	4	17
FWC Volunteer Training Design Workshop Y2Q4- SSG	8/10/2016	8/11/2016	8813	8813	25	1	26	339
Hygienic Fish Handling Elmina-Y2Q3	4/30/2016	4/30/2016	574	574	18	35	53	11
Business Management Training Elmina Y2Q3	6/16/2016	6/20/2016	3087	3087	13	36	49	63
Training for Anlo Beach Women Groups and other on Fuelwood Value Chain Y2Q2	1/13/2016	1/14/2016	1678	1678	33	39	72	23
Anti CLaT Advocates Training- Y2Q2	2/16/2016	2/17/2016	1108	1108	6	8	14	79
Village Savings and Loans Association in Kukwaville, Kukwaville- Y2Q3	3/22/2016	4/19/2016	1234	1234	28	22	50	25
Fuelwood value chain training on Mangroves- Y2Q2	12/22/2015	12/22/2015	1845	1845	21	19	40	46

Program Name	Start Date	End Date	Budget	Actual	Males	Females	Total Participants	USAID Budget per participant
Gender Main-streaming Workshop	2/29/2016	3/1/2016	3862	3862	14	13	27	143
Business Skills Development Winneba- Y2Q3	5/24/2016	5/25/2016	4910	4910	0	37	37	133
Hygienic Fish Handling and Preservation Training Elmina Y2Q4-CEWEFIA	8/15/2016	8/15/2016	470	470	5	23	28	17
Business Skills Development Winneba- Y2Q3	5/26/2016	5/27/2016	3928	3928	2	25	27	145
Village Savings and Loans Association at Kukwaville, Eziome and Ekpoazo- Y2Q3	4/26/2016	5/17/2016	478	478	57	33	90	5
Hygienic Fish Handling and Preservation Training Anlo Y2Q4-CEWEFIA	8/16/2016	8/16/2016	624	624	6	40	46	14
SFMP Partners Finance staff capacity building training workshop	10/19/2015	10/20/2015	1252	0	5	7	12	104
Success Stories and communication workshop-YEAR 2 Q1	12/14/2015	12/15/2015	95	0	5	4	9	11
Use and maintenance of improved smoking ovens- Moree -Year2 Q1	12/16/2015	12/18/2015	3718	3718	0	48	48	77
Hygienic Fish Handling and Preservation Training Capecoast GNAT hall Y2Q4- CEWEFIA	8/18/2016	8/18/2016	1621	1621	43	21	64	25
Anti-Child Labor and Trafficking Advocates Training- Year 2 Quarter 2	2/16/2016	2/17/2016	996	1102	6	8	14	71
Business Development/Fire and Safety Y2Q2	2/10/2016	2/25/2016	2039	2039	0	27	27	76
Child Protection Workshop for CLATS Advocate and CCPC CapeCoast-Y2Q3	6/2/2016	6/4/2016	1632	1632	46	23	69	24

Program Name	Start Date	End Date	Budget	Actual	Males	Females	Total Participants	USAID Budget per participant
Training on Household at Risk Tool Cape Coast- Y2Q3	3/23/2016	3/23/2016	867	867	12	8	20	43
Hygienic Fish Handling and Preservation Training Moree Y2Q4-CEWEFIA	8/17/2016	8/17/2016	538	538	2	43	45	12
Use and maintenance of improved smoking ovens-Moree-Year2 Q1	12/16/2015	12/18/2015	3253	3253	0	62	62	52
Study Tour To The Volta Region Y2Q2	3/21/2016	3/23/2016	3317	3317	6	5	11	302
Hygienic Fish Handling Workshop in Anlo- Y2Q2	3/21/2016	3/21/2016	863	863	18	33	51	17
Micro-Credit to 150 Beneficiaries in Shama, Ankobra and Axim- Y2Q3	4/20/2016	5/19/2016	6272	6272	1	153	154	41
TOT for CEWEFIA Staff on Business Development	4/18/2016	4/20/2016	1463	1463	4	6	10	146
Anti CLaT Advocates Training Winneba- Y2Q3	2/16/2016	2/17/2016	1826	1826	6	8	14	130
Training on fuelwood Value Chain With Special Attention on the role of mangroves Y2Q2	12/22/2015	12/22/2015	2227	2227	21	19	40	56
Training on Village Savings and Loan Modules and follow ups Adelekadzo and Ajomoro Eshiem- Y2Q3	5/27/2016	6/10/2016	322	322	27	18	45	7
Training of Field Data Collectors on GPS data gathering for the Pra resilience planning process Sekondi/Adiembra- Y2Q3	4/11/2016	4/11/2016	503	503	19	6	25	20
Refresher Training For Western Region TCPD Officers Y2Q2	2/25/2016	2/26/2016	2027	2027	20	4	24	84
Gender Advocacy Workshop (Elmina)- Y2Q2	3/10/2016	3/10/2016	1207	1207	11	9	20	60

Program Name	Start Date	End Date	Budget	Actual	Males	Females	Total Participants	USAID Budget per participant
Quick books Training for Partners	11/11/2015	11/16/2015	4618	4618	8	8	16	289
Hygienic Fish Handling Apam Y2Q4-DAA	9/20/2016	9/23/2016	1798	1798	2	95	97	19
Hygienic Fish Handling Workshop in Moree- Y2Q2	3/18/2016	3/18/2016	785	785	12	42	54	15
Training on Marine Police and FEU Officers on Fisheries Enforcement Tema- Y2Q3	6/15/2016	6/17/2016	6294	6294	37	7	44	143
Village Savings and Loans Association in Kukwaville, Kukwaville- Y2Q3	3/22/2016	4/19/2016	1234	1234	28	22	50	25
Gender Advocacy Workshop (Anlo)- Y2Q2	3/10/2016	3/10/2016	1010	1010	10	21	31	33
FC Data Collection and Processing Workshop Y2Q2	3/21/2016	3/26/2016	16559	16559	14	10	24	690
Microfinance/ Loan Selection Shama, Axim and Ankobra -Y2Q3	4/22/2016	4/22/2016	91	91	1	149	150	1
Business Management Training Anlo Shama- Y2Q3	6/16/2016	6/20/2016	3012	3012	3	41	44	68
Gender Advocacy Workshop (Moree)- Y2Q2	3/14/2016	3/14/2016	960	960	9	26	35	27
Construction of Improved fish smoking stove Y2Q2	12/24/2015	12/29/2015	695	695	2	4	6	116
Study Tour on Packaging and Branding Standards Elmina Y2Q3	4/14/2016	4/14/2016	213	213	2	8	10	21
Study Tour To The Volta Region	3/21/2016	3/23/2016	3317	3317	6	5	11	302
Fisheries Management Leadership Training in Takoradi Y2Q4- CRC	7/15/2016	7/15/2016	2713	2713	31	5	36	75
Hygienic Fish Handling Shama, Axim and Ankobra- Y2Q3	3/16/2016	3/31/2016	575	575	1	99	100	6

Program Name	Start Date	End Date	Budget	Actual	Males	Females	Total Participants	USAID Budget per participant
FC Data Collection and Processing Meeting Y2Q2	2/15/2016	2/19/2016	5641	5641	16	10	26	217
FC Mobile Survey Workshop	12/8/2015	12/8/2015	95	95	3	1	4	24
Training of Youth for woodlot plantation- Y2Q3	6/23/2016	6/24/2016	1649	1649	25	28	53	31
Training of Collectors for the Ankobra Resource Users and use Patterns Profile Y2Q2	2/11/2016	2/11/2016	288	288	6	1	7	41
Training of Marine Police and FEU Officers on Fisheries Enforcement Sekondi/Adiembra- Y2Q3	5/19/2016	5/21/2016	6294	6294	43	6	49	128
Training of Data Collectors on the use of GPS Ellembelle/Sanwoma- Y2Q3	4/13/2016	4/13/2016	223	223	10	4	14	16
TOT for CEWEFIA Staff on Business Development KEEA Assembly Hall- Y2Q3	4/18/2016	4/20/2016	1463	1463	2	4	6	244
Business Management Training Moree- Y2Q3	6/16/2016	6/20/2016	3158	3158	6	46	52	61
Business Skills Development Winneba-Y2Q3	5/19/2016	5/20/2016	4910	4910	3	34	37	133
Use and maintenance of improved smoking ovens-Anlo-Year2 Q1	12/18/2015	12/18/2015	3303	3303	0	68	68	49
Mangrove Plantation Establishment and Management Training Y2Q2	3/9/2016	3/10/2016	2306	2306	35	13	48	48
M & E Officers Training East Legon- Y2Q3	6/16/2016	6/17/2016	545	545	9	3	12	45
TOTAL					810	1732	2542	

Program Name	Start Date	End Date	Budget	Actual	Males	Females	Total Participants	USAID Budget per participant
Third Country (Regional) Training								
Regional Study Tour (Senegal and Gambia) on women empowerment and post-harvest improvements	1/27/2016	2/6/2016	55308	55308	1	9	10	5531
Study Tour of Ghana Industrial Trawlers Association	10/26/2015	11/6/2015	64826		6	1	7	9261
TOTAL					7	10	17	
US Based Training								
PhD Biological and Environmental Science Program University of Rhode Island	1/26/2016	5/18/2019	120872	0	1	0	1	120,872
Masters of Marine Affairs at University of Rhode Island	9/7/2016	8/31/2018	76898	0	0	1	1	76,898
Masters of Biological and Environmental Science	9/7/2016	8/31/2018	76898	0	0	1	1	76,898
Masters of Marine Affairs at University of Rhode Island	9/7/2016	8/31/2018	76898	0	0	1	1	76,898
Masters of Biological and Environmental Science	9/7/2016	8/31/2018	76898	0	0	1	1	76,898
TOTAL					1	4	5	

Annex 3. Selected List of Publications Prepared in Year 2

IR 1 Strengthening Enabling Environment for Governance

Adeborna, D. (2015), **Child Labor Curriculum Design**. The USAID/Ghana Sustainable Fisheries Management Project (SFMP). Narragansett, RI: Coastal Resources Center, Graduate School of Oceanography, University of Rhode Island and SNV Netherlands Development Organization. GH2014_POL026_SNV. 32 pp.

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IR 3 Creating Constituencies and Stakeholder Engagement

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IR 5 Gender

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