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SUSTAINABLE FISHERIES MANAGEMENT PROJECT (SFMP) ENVIRONMENTAL MONITORING AND MITIGATION PLAN



DECEMBER 2014



COASTAL
RESOURCES
CENTER

THE
UNIVERSITY
OF RHODE ISLAND
GRADUATE SCHOOL
OF OCEANOGRAPHY

Hen Mpoano



Friends of the Nation

SNV



SSG ADVISORS
Catalyzing Development Through Partnership



Daagift Quality
Foundation



Development
Action Association



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Cover photo: Fishing vessels crowd the harbor in Tema, Ghana, in November 2014. (CREDIT: CRC photo)

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ACRONYMS

A/COR	Agreement/Contracting Officer's Representative
ADS	Automated Directives System
ADVANCE	Agricultural Development and Value Chain Enhancement
ATT	Agriculture Technology Transfer
AUC	Africa Union Commission
BEO	Bureau Environmental Officers
CAADP	Comprehensive Africa Agriculture Development Programmed
CCM	Center for Coastal Management at UCC
CEWEFIA	Central & Western Fish Mongers Improvement Association in Ghana
CR	Central Region
CRC	Coastal Resources Center
DAA	Development Action Association
DFAS	Department of Fisheries and Aquatic Sciences
DPs	Development Partners
ECO	Environmental Compliance Officer
ECOWAP	Economic Community of West African States- Agriculture Policy
ECOWAS	Economic Community of West African States
EG	Economic Growth
EIA	Environmental Impact Assessment
EMMP	Environmental Monitoring and Mitigation Program
EPA	Environmental Protection Agency
EPC	Environmental Protection Council
ER	Environmental Review
ERF	Environmental Review Form
ESDM	Environmentally Sound Design and Management
ESIA	Environmental and Social Impact Assessment
FAO	Food and Agricultural Organization
FAR	Federal Acquisition Regulation
FASDEP	Food and Agriculture Sector Development Policy
FC	Fisheries Commission
FCWCGG	Fisheries Committee for the West Central Gulf of Guinea
FtF	Feed the Future
GCLME	Guinea Current Large Marine Ecosystem
GCLMS	Ghana Child Labor Monitoring System
GDP	Gross Domestic Product
GIFA	Ghana Inshore Fishermen's Alliance
GNADP	Ghana National Development Plan

GNCFC	Ghana National Canoe Fishermen’s Council
GoG	Government of Ghana
GSGDA	Ghana Shared Growth and Development Agenda
ICFG	Integrated Coastal and Fisheries Governance
ICT	Information and Communications Technology
IEE	Initial Environmental Examination
IPs	Implementing Partners
IUU	Illegal, Unregulated and Unreported Fishing
LoP	Life-of-Project
MCS	Monitoring, Control and Surveillance
MEO	Mission Environmental Officer
METASHIP	Medium Term Agriculture Sector Investment Plan
MOFAD	Ministry of Fisheries and Aquaculture Development
MOFI	Ministry of Fisheries
MPAs	Marine Protected Areas
MT	Metric Tons
NDPC	National Development Planning Commission
NEP	National Environmental Policy
NGOS	Non-Governmental Organizations
NRM	National Resource Management
PAPA	Participating Agency Program Agreement
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan
PMI	Project Management Institution
PMP	Pest Management Plans
REA	Rapid Environmental Assessment
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SFMP	Sustainable Fisheries Management Project
SNV	Stichting Nederlandse Vrijwilligers (Foundation of Netherlands Volunteers)
SSG	Strategic Solutions Group
TA	Technical Assistant
UCC	University of Cape Coast
URI	University of Rhode Island
USAID	United States Agency for International Development
USFS	United States Forest Service
USG	United States Gypsum
WARFP	West Africa Regional Fisheries Project
WR	Western Region

1. PROJECT SUMMARY

1.1 Purpose and Need

Awarded on October 22, 2014, the USAID Ghana Sustainable Fisheries Management Project (SFMP) is a five-year effort with an end date of October 31, 2019. The University of Rhode Island's Coastal Resources Center leads a team of core implementing partners Friends of the Nation and Hen Mpoano, as well as SNV Netherlands Development Organization. Supporting partners include the Central & Western Fish Mongers Improvement Association in Ghana/CEWEFIA, and Daasgift Quality Foundation and national women's organization, Development Action Association (DAA). SSG Advisors based in the United States and Spatial Solutions, based in Accra, are technical supporting partners. Government project beneficiaries and partners include the Ministry of Fisheries and Aquaculture Development (MOFAD), the Fisheries Commission (FC), the Department of Town and Country Planning and coastal districts in the Central and Coastal Regions. Working with these partners, the project expects to benefit thousands of fisheries stakeholders: men, women and their families that live along Ghana's southern coastline. The SFMP contributes to USAID's Feed the Future initiative and supports the Government of Ghana's implementation of its Fisheries and Aquaculture Policy and Sector Development Plan.

Ghana's fisheries sector is in crisis—especially with the collapse of the small pelagic fisheries. Over the past decade, more than 100,000MT of high quality low-cost animal protein that was traditionally available to poor and vulnerable coastal and inland households has been lost. Local demand for fish outstrips supply, increasing the pressure on already overexploited fish stocks. With open access fisheries, overcapacity among fishing fleets, and little or no fisheries management controls or effective enforcement of regulations resulting in rampant IUU fishing, individual fishermen and women are losing economic ground while regional and national food insecurity increases. A weak institutional framework limits the ability to implement strong co-management and use rights. Meanwhile, the low added value of fish processed locally keeps fishing households poor, and less likely and less able to change behavior or engage in more sustainable practices. Mangrove ecosystems—essential fish nurseries for demersal fisheries—are threatened by extensive cutting and habitat alteration. Endangered, threatened and protected species such as sea turtles, marine mammals and basking sharks are part of the by-catch of many fishermen. Unfortunately, there are no MPAs within Ghana to help preserve this biodiversity and protect endangered species.

High poverty rates among fishing communities lead families to give up their children to child labor, a problem likely to increase as the small pelagic fishery collapses, in particular in the Central Region. Yet, few other options exist. Fishing settlement areas are particularly vulnerable to climate variability and change due to rising sea levels, increased severity of flooding and high uncertainty about the effects of elevated sea surface temperatures and ocean acidification on the productivity of the marine ecosystems, and potential changes in migration patterns of commercially important fish. Add to this that local communities are unable to produce food locally due to land use changes that are virtually wiping out areas available for local food growing on prime soils. The result is severely vulnerable coastal households and communities with weak adaptive capacity, and high exposure to climate impacts.

Still, there are reasons for optimism. Key enabling conditions are reaching thresholds that favor change. The USAID ICFG Project led by CRC and ongoing investments by the World Bank via the West Africa Regional Fisheries Project (WARFP) is making inroads. The ICFG project began building social capital and constituencies among the fishing communities, setting the stage for increasing their resilience. These factors give SFMP firm ground to build upon.

The project is designed to help address many of the issues noted above. The SFMP purpose is to “Rebuild targeted fish stocks through adoption of sustainable practices and exploitation levels.” To achieve sustainable exploitation levels, more responsible fishing practices need to be adopted by the fishing industry and reduced fishing effort must also occur in order to end of overfishing. This, over the longer term, will lead to improved fish stocks, and ultimately, improved fish yields and profitability (household income).

Four intermediate results contribute to the achieving the above objectives:

- IR 1: Strengthened enabling environment for marine resources governance
- IR 2: Science and research applied to policy and management
- IR 3: Creating constituencies and stakeholder engagement
- IR 4: Applied and improved management of marine resources to reduce overexploitation, conserve biodiversity & provide other benefits

1.2 Project Theory of Change and Geographic Scope

The SFMP has identified key intervention approaches and activities at each point in the theory of change (see Figure 1 below) grouped in the results categories mentioned above. The SFMP will develop nested governance arrangements and management plans for fishery management units at three ecosystem scales, utilizing adaptive co-management approaches tailored to each unit. An immediate focus at the national level will be the small pelagic stocks, which are most important to food security and employment and are near collapse. National dialogues will spotlight this crisis and build consensus for quick, early actions such as a closed season or increased mesh sizes of nets to turn around this fishery. With support of fishers and governments, improvements in fish biomass and yields could increase within the life-of-project.

The design and implementation of the process for developing comprehensive management plans for the small pelagics nationally and demersal fisheries in the Western Region (WR) will be done through consultations with stakeholders in partnership with the FC and be based on an adaptive and iterative process that includes the best available science. The demersal ecosystem-based plan will include a nested system of Marine Protected Areas (MPAs)—to protect mangroves as important demersal fishery nursery grounds—and a no-take reserve off of Cape Three Points to protect demersal adult fish spawning stock biomass. Marine spatial planning will support USAID biodiversity conservation objectives as it considers fisheries interactions with threatened and protected species such as marine mammals and sea turtles.

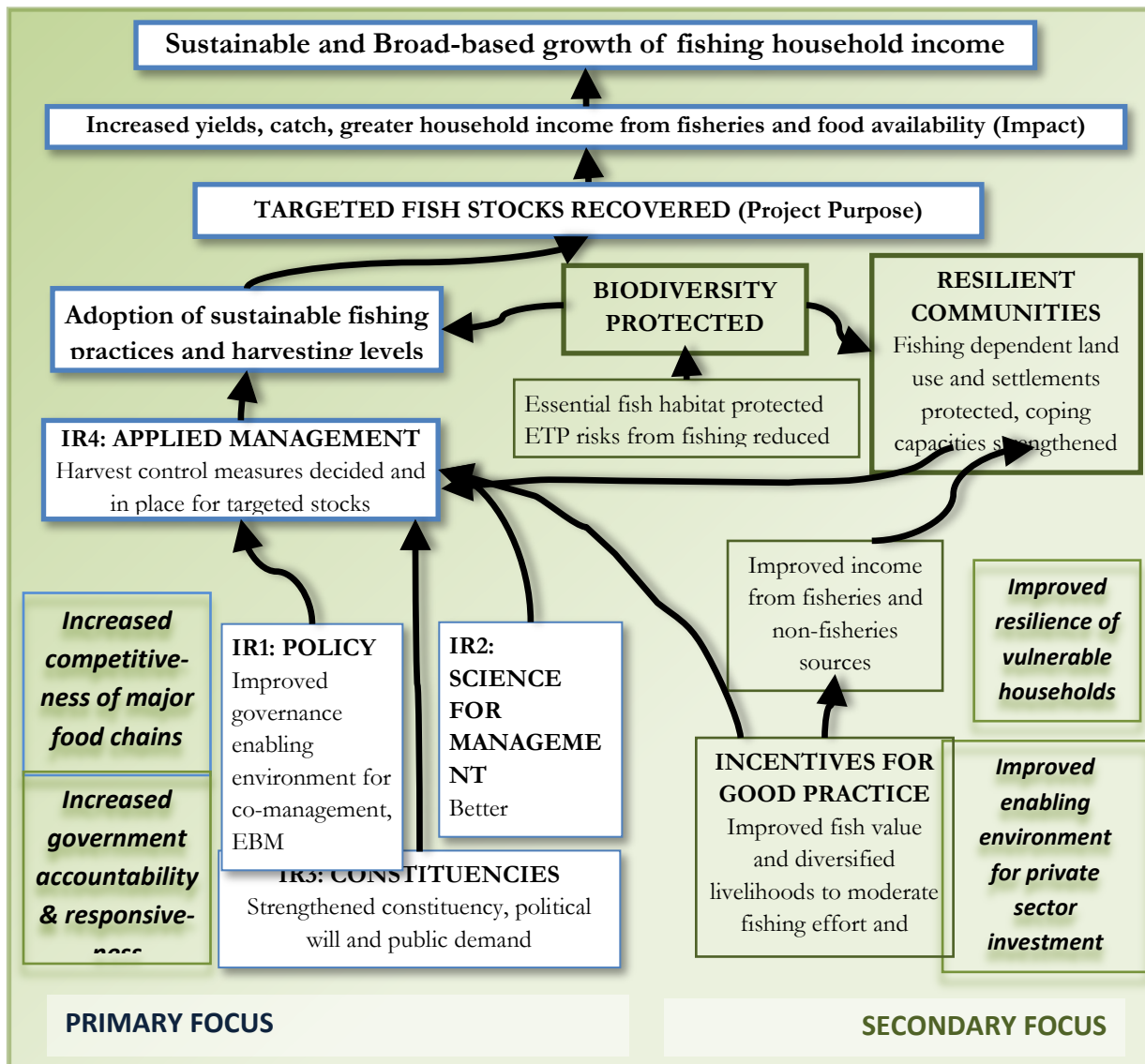


Figure 1: Theory of Change showing causal links, sequences of interventions, intermediate outcomes and impacts, including linkage to USAID FtF and DO2 intermediate results

The SFMP will undertake stakeholder engagement processes that will set new benchmarks for consensus building involving the FC, fishermen, fishmongers and groups such as DAA, CEWEFIA, the Ghana National Canoe Fishermen’s Council/GNCFC, the Ghana Inshore Fishermen’s Alliance/GIFA, and the National Fisheries Alliance.

Communications campaigns will engage resource users directly via mass media, web and cell phone based platforms. The SFMP features local partners that have strong women leaders and the mission to empower women in advocacy, policy dialogue and management decision-making. This includes DAA, which seeks to expand to a national membership base and create a national training center for members.

The SFMP proposes aggressive expansion of ICFG successes in the WR in terms of strengthened law enforcement and voluntary compliance to reduce rampant illegal, unreported and unregulated (IUU) fishing. This includes immediate expansion into the Central Region (CR) and then all coastal regions. Strengthened and more capable fisheries enforcement and Monitoring, Control and Surveillance (MCS) units, and a more effective enforcement-prosecutorial chain will act as deterrents. Also, a carefully designed communications campaign will target behavior change that leads fishermen, fishmongers and the public to support and voluntarily engage in responsible and sustainable fishing practices.

In parallel to fisheries management initiatives that draw on existing powers and laws, the SFMP will work with MOFAD and WARFP on legal reforms that empower co-management groups with decision-making and provide mechanisms for implementing use rights regimes. National policy dialogues will formulate strategies to reduce fleet capacity (number of vessels) and will debate ways the fuel subsidy can be phased out or transformed from a perverse subsidy to one that incentivizes responsible practices or ameliorates the social impacts of fleet reduction plans.

1.3 Ecosystem and Geographic Scale of the SFM Project

The SFMP will develop a nested governance system that meshes several ecosystem scales that encompass the diverse types of fisheries systems found in Ghana. We will focus first on a national effort to end overfishing and rebuild the small but food security-critical small pelagic fishery that generates broadly shared economic benefits to hundreds of thousands of people; and to recoup tens of thousands of metric tons of lost food supply. This complex of species, due to their essential role in the ecosystem and their wide-ranging migration, requires management at a national scale linked to regional Guinea Current Large Marine Ecosystem (GCLME) and Fisheries Committee for the West Central Gulf of Guinea (FCWCGG) initiatives, and public participation that spans all four coastal regions. The SFMP will also address the need for sub-national regional management of demersal fish stocks in an ecologically defined region between two major mangrove estuary habitats in the WR: to the west at the outlet of the Ankobra River along the shared border of Ellembelle and Nzema East Districts, and as far east as the Pra River within Shama District. The SFMP also will pilot community-based approaches to fisheries within the Ankobra River and the Pra River estuaries and associated mangroves that serve as essential fish habitat for demersals. Within these ecosystems are priority fish landing sites such as Axim and Anlo Beach/ Shama town that will be areas of concentration for stakeholder engagement and livelihoods and

value chain improvements. Additional fish landing sites engaging more intensively in the SFMP for child labor, community resilience and diversified livelihood activities in the CR include Elmina, Moree, Apam and Winneba. In discussions with WARFP consultants in country, this multi-tiered governance approach is consistent with and can be coordinated with WARFP’s current community-based fisheries management units.

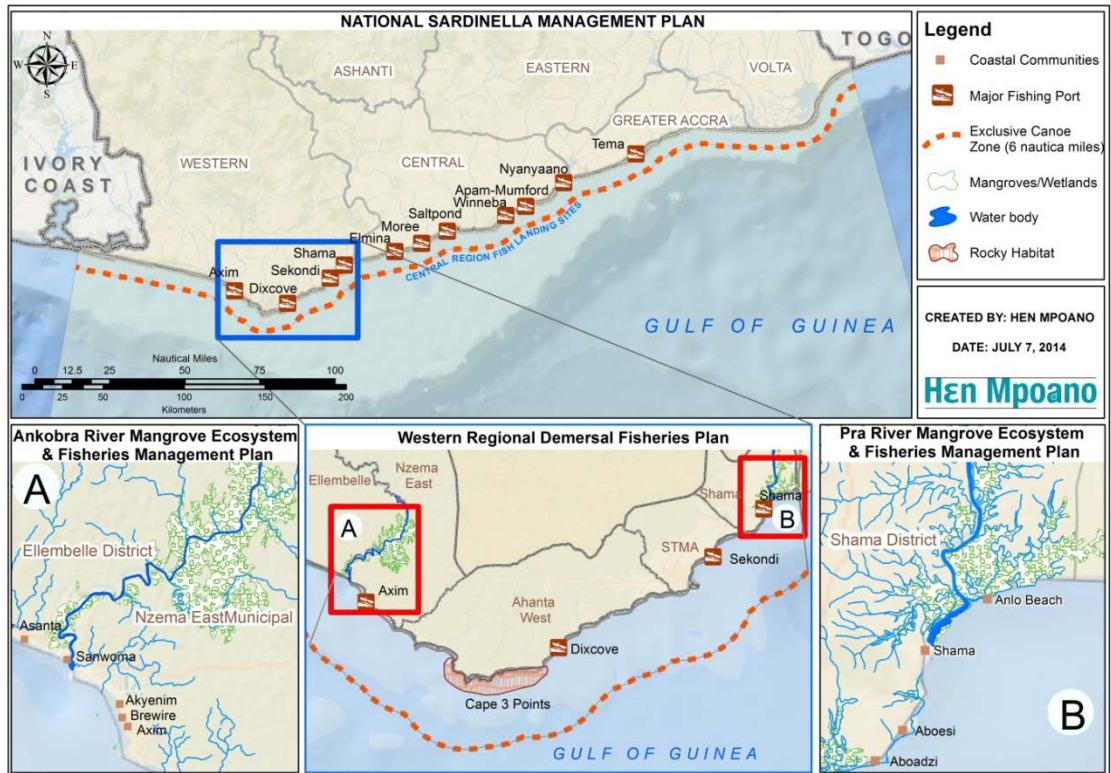


Figure 2. SFMP Target Geography for Applied Management Activities

2. DESCRIPTION OF ACTIVITIES

This section of the report provides information on the activities to be implemented by the SFMP over Life-of-Project (LoP) and the determinations for each used to develop the later section of this report: the Environmental Management and Mitigation Plan. This complies with FAR Regulation 216 and following the guidelines set down in the Initial Environmental Examinations for the USAID Sustainable Economic Growth Sector Portfolio and Feed the Future Initiative in Ghana.

The following table provides a list of the planned LoP activity areas. Each activity has been assigned an environmental impact determination: categorical exclusion or negative determination with conditions. The USAID/Ghana Economic Growth Sector Portfolio Initial Environmental Examination was used as a guide to determine activities that were categorically excluded from the need for additional environmental assessment and those activities that fall under “a negative determination with conditions” that require attention throughout the SMFP implementation. Annex 4 of this report reproduces the specific sections of the IEE that pertain to the SFMP Activities, mainly Section 3.3 Fisheries Extension and Coastal Forests and Section 3.6 Support to Governance and Government Policy and Capacity. In cases where there are negative determinations with conditions for SFMP activities, see Table 3, in Section 6 of this EMMP for conditions/mitigation measures.

Table 1: SFMP Activities and Environmental Impact Determinations

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
<i>IR 1: Strengthened enabling environment for marine resources governance</i>	
1.1 Legislative reform	Section 3.6 Support to Governance and Government Policy and Capacity <u>Negative determination subject to conditions:</u> 6. Natural Resource Management Policy & Policy Implementation Support.
1.2 National Fisheries Dialogues (Policy)	Section 3.6 Support to Governance and Government Policy and Capacity <u>Negative determination subject to conditions:</u> 6. Natural Resource Management Policy & Policy Implementation Support.
1.3 Strengthened Law Enforcement:	
1.3 (a) Training of law enforcement	Section 3.6 Support to Governance and Government

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
officers, judges and prosecutors on improving efficiency of prosecutorial chain, fisheries biology and laws and regulations	<p>Policy and Capacity</p> <p><u>Categorical Exclusion per 22 CFR 216.2 (c)(2)(i) Technical Assistance, Training and Education</u></p> <p>3. Technical assistance to executive and legislative branch bodies to improve data and statistics capability, increase organizational effectiveness, and address other capacity needs</p>
1.3 (b) Refurbishing of the El Mina Fisheries Commission office	<p>Section 3.5 Infrastructure Negative determination subject to conditions:</p> <p><u>Negative determination subject to conditions:</u></p> <p>6.1 Rehabilitation of existing facilities with no complicating factors , construction of new facilities where the total surface area disturbed is 1000 m2 OR LESS and there are no complicating factors</p>
1.4 National level support for small-pelagics management plan	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>3b. Fisheries - Provide technical assistance to GoG extension services supporting fisheries and coastal management</p>
1.5 Harmonizing regional fisheries policies	<p>Section 3.6 Support to Governance and Government Policy and Capacity</p> <p><u>Negative determination subject to conditions:</u></p> <p>6. Natural Resource Management Policy & Policy Implementation Support.</p>
1.6 Mobilizing US government support for policy and legislative reform	<p>Section 3.6 Support to Governance and Government Policy and Capacity</p> <p><u>Categorical Exclusion per 22 CFR 216.2 (c)(2)(i) Technical Assistance, Training and Education</u></p> <p>3. Technical assistance to executive and legislative branch bodies to improve data and statistics capability, increase organizational effectiveness, and address other capacity needs</p>
1.7 Reducing child labor and trafficking in fisheries	<p>Section 3.6 Support to Governance and Government Policy and Capacity</p> <p><u>Categorical Exclusion per 22 CFR 216.2 (c)(2)(i) Technical Assistance, Training and Education</u></p>

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
	3. Technical assistance to executive and legislative branch bodies to improve data and statistics capability, increase organizational effectiveness, and address other capacity needs
IR 2: Science and research applied to policy and management	
2.1 Scientific and Technical Working Group	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>3b. Fisheries - Provi services supporting fisheries and coastal management</p>
2.2 ICT Innovations for Effective Fisheries Management	
2.3 UCC/DFAS/CCM Capacity Development	
2.4 Improving FC Data Systems and Stock Assessment Capacity	
2.5 Understanding Fisheries Supply Chain from Net to Plate	
2.6 Environmental Planning Data Hubs and Capacity Building Center for the Western and Central Regions	
IR 3: Creating constituencies and stakeholder engagement	
3.1 A National Communications Strategy for Fisheries Management	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p>Categorical Exclusion per 22 CFR 216.2 (c) (2) (i) Training, education and technical assistance.</p> <p>4a. Enhance public awareness of ecosystem services for livelihoods through multimedia campaign and site campaigns. -ba</p>
3.2 Executive level communications	
3.3 Contact management and capacity building	
IR 4: Applied and improved management of marine resources to reduce overexploitation, conserve biodiversity & provide other benefits	

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
4.1 Small Pelagic Fisheries Management	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>3b. Fisheries - Provi services supporting fisheries and coastal management</p> <p>4b. Community Resource Management Areas: training & mobilizing members, training in key management models.</p>
4.2 National Marine Protected Area (MPA) Working Group	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>3b. Fisheries - Provi services supporting fisheries and coastal management</p> <p>4b. Community Resource Management Areas: training & mobilizing members, training in key management models.</p>
4.3 Fishing Capacity Assessment and Reduction Strategy	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>3b. Fisheries - Provi services supporting fisheries and coastal management</p> <p>4b. Community Resource Management Areas: training & mobilizing members, training in key management models.</p>

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
4.4 The Western Region Demersal Fisheries Management Initiative	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>3b. Fisheries - Provi services supporting fisheries and coastal management</p> <p>4b. Community Resource Management Areas: training & mobilizing members, training in key management models.</p>
4.5 Integrated Community Fisheries Management and Resilience Plans for the Ankobra River Estuarine and Mangrove Ecosystem	
4.5 (a) Training and TA on reforestation and fisheries management planning	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>1. Evaluation/ Identification of appropriate land restoration/ agroforestry/ reforestation techniques and approaches</p> <p>2. Demonstration, direct extension/training and provision of inputs and other direct “scaling up” support to Agroforestry practices: integrated tree cropping & food crops; reforestation/silviculture; promotion of multi- purpose woodlots, tree plantations (to support construction, fuelwood, charcoal).</p> <p>3a. Institutional strengthening and technical training/TA to strengthen government and 3rd party extension and technical assistance for agroforestry, reforestation/ silviculture, woodlots and tree plantations.</p> <p>3b. Fisheries: Provide technical assistance to GoG extension services supporting fisheries and coastal management</p>
4.5 (b) Community awareness campaigns of fisheries management good practices and benefits of mangroves	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Categorical Exclusion per 22 CFR 216.2 (c) (2) (i) Training, education and technical assistance.</u></p> <p>4a. Enhance public awareness of ecosystem services for livelihoods through multimedia campaign and site- based awareness- raising campaigns.</p>

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
4.5 (c) Management planning for demersal and estuarine fisheries and associated fish mangrove habitat	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>3b. Fisheries: Provide technical assistance to GoG extension services supporting fisheries and coastal management</p> <p>4b. Community Resource Management Areas: training & mobilizing members, training in key management models.</p>
4.5 (d) Mangrove reforestation	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>1. Evaluation/ Identification of appropriate land restoration/ agroforestry/ reforestation techniques and approaches</p> <p>2. Demonstration, direct extension/training and provision of inputs and other direct “scaling up” support to Agroforestry practices: integrated tree cropping & food crops; reforestation/silviculture; promotion of multi - p construction, fuelwood, charcoal).</p> <p>3a. Institutional strengthening and technical training/TA to strengthen government and 3rd -pa agroforestry, reforestation/ silviculture, woodlots and tree plantations.</p>
4.6 Integrated Community Fisheries Management and Resilience Plans for the Pra River Estuarine and Mangrove Ecosystems	

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
4.6 (a) Training and TA on reforestation and fisheries management planning	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>1. Evaluation/ Identification of appropriate land restoration/ agroforestry/ reforestation techniques and approaches</p> <p>2. Demonstration, direct extension/training and provision of inputs and other direct “scaling up” support to Agroforestry practices: integrated tree cropping & food crops; reforestation/silviculture; promotion of multi- purpose woodlots, tree plantations (to support construction, fuelwood, charcoal).</p> <p>3a. Institutional strengthening and technical training/TA to strengthen government and 3rd- party extension and technical assistance for agroforestry, reforestation/ silviculture, woodlots and tree plantations.</p> <p>3b. Fisheries: Provide technical assistance to GoG extension services supporting fisheries and coastal management</p>
4.6 (b) Community awareness campaigns of fisheries management good practices and benefits of mangroves	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Categorical Exclusion per 22 CFR 216.2 (c) (2) (i) Training, education and technical assistance.</u></p> <p>4a. Enhance public awareness of ecosystem services for livelihoods through multimedia campaign and site campaigns. -ba</p>
4.6 (c) Management planning for demersal and estuarine fisheries and associated fish mangrove habitat	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>4b. Community Resource Management Areas: training & mobilizing members, training in key management models.</p>

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
4.6 (d) Mangrove reforestation	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>1. Evaluation/ Identification of appropriate land restoration/ agroforestry/ reforestation techniques and approaches</p> <p>2. Demonstration, direct extension/training and provision of inputs and other direct “scaling up” support to Agroforestry practices: integrated tree cropping & food crops; reforestation/silviculture; promotion of multi - p construction, fuelwood, charcoal).</p> <p>3a. Institutional strengthening and technical training/TA to strengthen government and 3rd - pa agroforestry, reforestation/ silviculture, woodlots and tree plantations.</p> <p>3b. Fisheries: Provide technical assistance to GoG extension services supporting fisheries and coastal management</p>
4.7 Sustainable financing of co-management institutions	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>3b. Fisheries: Provide technical assistance to GoG extension services supporting fisheries and coastal management</p>
4.8 Central and Western Region Fishing Community Livelihood Development Value Chain and Post-harvest Improvements	

Intermediate Result Category and Activity Component	Activity Area and Recommended determination and conditions, if applicable from the IEE
<p>4.8 (a) Smoked fish and fuel wood supply value chain assessments, training and extension activities promoting fuel efficient smokers and land or mangrove-based woodlots</p>	<p>Section 3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach</p> <p><u>Negative determination subject to conditions:</u></p> <p>1. Evaluation/ Identification of appropriate land restoration/ agroforestry/ reforestation techniques and approaches</p> <p>2. Demonstration, direct extension/training and provision of inputs and other direct “scaling up” support to Agroforestry practices: integrated tree cropping & food crops; reforestation/silviculture; promotion of multi construction, fuelwood, charcoal).</p> <p>3a. Institutional strengthening and technical training/TA to strengthen government and 3rd agroforestry, reforestation/ silviculture, woodlots and tree plantations.</p> <p>Section 3.5 Infrastructure: Roads; Irrigation, Renewable and Conventional Energy Infrastructure; General Structures; Agricultural Plots; Nurseries</p> <p>Negative determination subject to conditions:</p> <p>7. Establishment or expansion of agricultural/ agroforestry/ silviculture nurseries/plots seed replication plots or agricultural demonstration plots, woodlots, and land clearance for same</p>
<p>4.8 (b) Construction of drying sheds, smokers and other physical improvements of fish processing facilities</p>	<p>Section 3.5 Infrastructure : Roads; Irrigation, Renewable and Conventional Energy Infrastructure; General Structures; Agricultural Plots; Nurseries</p> <p><u>Negative determination subject to conditions:</u></p> <p>6.1 Rehabilitation of existing facilities with no complicating factors, construction of new facilities where the total surface area disturbed is 1000 m2 OR LESS and there are no complicating factors.</p>

3. ENVIRONMENTAL CONTEXT OF THE MARINE AND COASTAL ECOSYSTEMS IN GHANA

The Ghanaian coast is nourished by the Guinea Current, one of the most productive upwelling systems in the world. Upwelling occurs twice yearly, with a major occurrence in the period June- September, and a minor occurrence in the period February-March. As a result, substantial marine biomass fuels the extremely important fisheries in the Gulf of Guinea. Of great economic and ecological significance is the high abundance of small pelagic species (herring, sardinella, and anchovies), which in turn support the higher value large pelagic species (tunas, marlins, and billfish), and demersal species (snapper, grouper). This rich ecosystem has supported continually increased fishing yields since at least the early 1970s.

The importance of fishing as an economic activity in Ghana cannot be overstated. Ghanaians consume an average 23 kg of fish per person per year; well above the global average of 16 kg per person per year. Fish is a preferred source of protein for most Ghanaians and is therefore critical for food security. In terms of nutritional dependency on fish, Ghana ranks sixth worldwide after Maldives, Cambodia, Vietnam, Thailand and Bangladesh and ranks number one in Africa. 4 The importance of the fisheries sector in Ghana has recently been emphasized by the re-establishment of the Ministry of Fisheries and Aquaculture Development (MOFAD) by the Government of Ghana (GOG).

Ghana's economically significant fishery resources result in annual revenues that in some years exceed US\$1 billion with the sector contributing as much as 4.5% to national GDP and accounting for about 11% of agriculture GDP. 6 The majority of this revenue directly supports the livelihoods of 135,000 fishers in the marine capture sub-sector alone, and another 71,000 inland fishers and 27,000 women involved in fish processing and marketing. The vast majority (about 92%) of those in the marine fishery are artisanal fishers. There is a significant 'job multiplier effect' in the fisheries sector since for every fishing job, an additional seven jobs are created in related activities such as processing, distribution, marketing, selling of inputs and providing services to the industry. It is estimated that the fisheries sector employs up to 20% of the national workforce. Thus, the contribution of the marine fisheries sector to household income in rural coastal districts is far-reaching.

However, typical of the global picture of apparent "wealth" in the fisheries sector, there is presently little or no profitability being generated in Ghana's capture fisheries. The analysis is nicely laid out in the World Bank's Scoping Study (2009) 8 that was completed in preparation for a \$53.8 million loan to GOG for fisheries sector reform (now the Ghana component of the West Africa Regional Fisheries Project - WARFP). Although acknowledging the lack of key data, the Bank's analysis shows that costs related to Ghana's inshore marine fisheries sector have increased and are approaching or exceeding revenues, and that the country is likely experiencing a net drain on national wealth from the sector. The problem is exacerbated by declining fish stocks and by government subsidies that allow more people to participate in the fishery. The Scoping Study lists the following key findings that are worth repeating here:

- The amount of effort applied in Ghana’s marine capture fisheries has increased significantly over the last 10 years;
- There is evidence that key fish stocks are being over-fished and seriously depleted;
- Those involved in the large coastal canoe- based fishery report that their livelihoods and living standards are declining;
- The instances of conflicts between artisanal, industrial and semi-industrial fishers are increasing;
- Regulations governing access and fishing methods are widely and openly flouted;
- Shore-side processing facilities are decaying and declining, with only four processing factories meeting the standards required for export to the European Community; and
- Fishers report they cannot afford to replace or upgrade vessels and equipment due to low profitability”.

Ghana’s marine fishery accounts for some 80% of the country’s total annual fish production, and the marine fishing fleet is made up of inshore or near-shore artisanal canoes (paddle and motorized), semi-industrial and industrial trawlers, and tuna boats. The bulk of the marine fish (80%) that are landed (fish caught and retained) come from the canoe fleet, which is highly dependent on *Sardinella* species. This fleet also targets an array of other pelagic and demersal species. Over the years, the number of boats in all fleets have increased, and this has driven an increase in ‘fishing effort’ with fishers using a variety of techniques such as lights, dynamite, chemicals (poisons), nets with illegal mesh sizes, and larger ice boxes to secure their catches. As a result, Ghana’s marine fisheries are in crisis, and landings of all stocks have declined dramatically over the last decade.

Official national statistics indicate a 30 percent decline from a high of 492,776 metric tons (MT) in 1999 to 333,524MT in 2011.⁹ However, the reality in coastal fishing communities is much worse than these figures indicate. The shrinking harvest is particularly dramatic for small pelagics – sardine-like *Sardinella* species. Catches have declined nearly 66 percent from a high of 252,112 MT (1996) to about 85,000MT in 2011. In the all-important canoe fleet, the drop is even worse. It is now around 20,000 MT (around 14%) of the peak landings of 1992 (approximately 140,000 MT).¹⁰ According to some fisheries researchers, when the yield is less than 10% of its historic maximum the fishery is considered as collapsed. Thus, Ghana’s *Sardinella* fishery was near collapse in 2009 driven by several key factors which persist today: easy access to high demand markets; seafood dependency (in Ghana and neighboring countries); globalized demand and trade; political interference (via subsidies, favoritism, and judicial interference); and an overall lack of control over Ghana’s open-access fishery.

Local demand for fish outstrips supply, increasing the pressure on already overexploited fish stocks. With open access fisheries, overcapacity among fishing fleets, and little or no fisheries management controls or effective enforcement of regulations resulting in rampant IUU fishing, individual fishermen and women are losing economic ground while regional and national food insecurity increases. A weak institutional framework limits the ability to implement strong co-management and use rights.

Meanwhile, the low added value of fish processed locally keeps fishing households poor, and less likely and less able to change behavior or engage in more sustainable practices. Mangrove ecosystems—essential fish nurseries for demersal fisheries—are threatened by extensive cutting and habitat alteration. Endangered, threatened and protected species such as sea turtles, marine mammals and basking sharks are part of the by-catch of many fishermen. Unfortunately, there are no MPAs within Ghana to help preserve this biodiversity and protect endangered species.

High poverty rates among fishing communities lead families to give up their children to child labor, a problem likely to increase as the small pelagic fishery collapses, in particular in the Central Region. Yet, few other options exist. Fishing settlement areas are particularly vulnerable to climate variability and change due to rising sea levels, increased severity of flooding and high uncertainty about the effects of elevated sea surface temperatures and ocean acidification on the productivity of the marine ecosystems, and potential changes in migration patterns of commercially important fish. Add to this that local communities are unable to produce food locally due to land use changes that are virtually wiping out areas available for local food growing on prime soils. The result is severely vulnerable coastal households and communities with weak adaptive capacity, and high exposure to climate impacts.

Still, there are reasons for optimism. Key enabling conditions are reaching thresholds that favor change. The USAID ICFG Project led by CRC and ongoing investments by the World Bank via the West Africa Regional Fisheries Project (WARFP) is making inroads. The ICFG project began building social capital and constituencies among the fishing communities, setting the stage for increasing their resilience. These factors give SFMP firm ground to build upon.

The above challenges and progress factor into the project vision, theory of change and its integrated and coordinated activities.

4. USG AND HOST COUNTRY ENVIRONMENTAL REQUIREMENTS

4.1 Environmental Policies and Regulations of Ghana

The main environmental laws and policies of Ghana and responsible institutions for their implementation were summarized in the IEE of the USAID/Ghana DO2 Economic Growth (EG) Sector Portfolio. These are reproduced below:

Ghana has a relatively well-developed set of environmental, guidelines, and standards. These laws include the Wild Animals Preservation Ordinance (1901), Rivers Ordinance (1903), Mining Rights and Regulations Ordinance (1925), Land Planning and Soil Erosion Ordinance (1953), which were amended upon independence in 1957. In the late 1990s, Ghana passed additional regulations related to the environment, the Environmental Protection Agency Act (1994), the Pesticides Control and Management Act (1996), and the Environmental Assessment Regulation (LI 1652, 1999). The Environmental Protection Agency Act formed Ghana’s EPA in 1994, which broadened the objectives and responsibilities of the agency.

Table 2. Laws & Policies Relevant to USAID/Ghana EG and FtF Activities

Law/Policy	Summary/Relevance
Ghana Aid Policy 2011 – 2015 (2010)	The Ghana Aid Policy and Strategy highlights the importance of aid to Ghana’s development efforts and outlines the policies and strategies needed to improve aid effectiveness in Ghana. It also recognizes the challenges Ghana faces to improve structures and systems for delivery of aid and work more closely with Development Partners (DPs). The document’s main premise is that aid programs should be geared towards supporting Ghana’s objective of attaining the Millennium Development Goals and middle-income status by 2015 and 2020, respectively. To this end, the Ghana Aid Policy and serves as a guide to Governments, Development Partners, Civil Society Organizations and other stakeholders in the managing external aid in Ghana.
Food and Agriculture Sector Development Policy (FASDEP) 2002, 2007	The first Food and Agriculture Sector Development Policy (FASDEP) was developed in 2002 as a framework for the implementation of strategies to modernize the agricultural sector. The strategies in that policy were based on the Accelerated Agricultural Growth and Development Strategy (prepared in 1996). FASDEP was revised in 2007 to reflect lessons learned and to respond to the changing needs of the sector. FASDEP II emphasizes the sustainable utilization of all resources and commercialization of activities in the sector with market-driven growth in mind. Enhancement of productivity of the commodity value chain, through the application of science and technology, is also emphasized. It however targets fewer commodities for food security and income diversification, especially of resource poor farmers.

National Environmental Policy (NEP), 1992, 2010	The first National Environmental Policy was adopted in 1992 to provide the broad framework for the implementation of the National Environmental Action Plan. The 1992 Policy Identified a restructured lead agency (The Environmental Protection Agency, EPA) to drive the process towards sustainable development. It sought to ensure reconciliation between economic development and natural resource conservation, to make a high quality environment a key element supporting the country's economic and social development. In 2010, a new National Environmental Policy was developed to reflect challenges confronting environmental management as well as to effectively ensure enforcement. The new policy attempts to restructure and redirect the implementation strategy to achieve desired results.
L.I 1815 Energy Efficiency Standards and Labeling Regulations, 2005	L.I 1815 – Energy Efficiency Standards and Labelling Regulations – is implemented by the Energy Commission, established by the Energy Commission Act of 1997, to encourage energy efficiency standards for buildings and appliances.
EPA Act 1994 (Act 490)	It grants the Ghana Environmental Protection Agency enforcement and standards-setting powers and to ensure compliance with such standards and guidelines. It also gives it the mandate to co-manage, protect and enhance the country's environment, in particular, as well as seek common solutions to global environmental problems.
Environmental Assessment Regulation	Provides guidance and ensure adequate consideration of biodiversity and related sensitive resources for Environmental
1999 (LI 1652) and Environmental Assessment (Amendment) Regulations, 2002 (LI 1703)	Impact Assessments in Ghana. It combines both an environmental assessment and environmental management systems.
Water Resources Commission (WRC) Act 522, 1996	Provides for the preparation of comprehensive plans for the regulation, utilization, conservation, development and improvement of water resources and develops policy framework for water resources management in the country. This Act also grants rights to exploit water resources
National Water Policy	Provides a framework for the development of Ghana's water resources. The aim is to "achieve sustainable development, management and use of Ghana's water resources to improve health and livelihoods, reduce vulnerability while assuring good governance for present and future generations".
National Land Policy	Seeks to protect a variety of habitat types, and states that all lands declared as forest reserves, strict game reserves, national parks, wildlife reserves, and similar land categories are fully protected for ecosystem maintenance and biodiversity conservation.

<p>Pesticides Control and Management Act 1996, Act 528)</p>	<p>Seeks to regulate the use and management of pesticide, insecticide, weedicide, herbicide and other related chemicals in Ghana. The Act makes the EPA of Ghana the lead agency responsible for a comprehensive pesticides regulatory program. In that capacity, the EPA has the sole authority and responsibility to register all pesticides imported, manufactured, distributed, advertised, sold or used in Ghana.</p>
<p>National Development Planning Act, 1994 Act 479</p>	<p>This Act ensures the effective implementation of approved national development plans and strategies and coordinates economic and social activities country wide in a manner that will ensure accelerated and sustainable development of the country and improvement in the standard of living for all Ghanaians.</p>
<p>National Action Plan to Combat Drought and Desertification, 2002</p>	<p>The objective is to emphasize environmentally sound and sustainable integrated local development programs for drought prone semi-arid and arid areas, based on participatory mechanisms, an integration of strategies for poverty alleviation and other sector programs including forestry, agriculture, health, industry and water supply into efforts to combat the effects of drought.</p>
<p>Local Government Act 1993, Act 462, Act 2003, Act 656</p>	<p>It enjoins the District Assemblies to be responsible for the development, improvement and maintenance of human settlements and environment in the district and local levels.</p>
<p>Biosafety Law 2011</p>	<p>The Ghanaian Parliament approved a Biosafety Bill, which creates a favorable enabling environment for the development and commercialization of biotech seeds and crops in Ghana. Ghana's biosafety legislation is considered user friendly, in that it does not contain any labeling requirements for biotech or genetically modified food products, or strict liability provisions (instead adopting a simple negligence standard of liability for biotech products). Observers believe the bill will shortly be signed by the President, paving the way for a number of biotech seeds or crops to be developed for the Ghanaian market over the next few years, including biotech varieties of cotton, sweet potato, cowpea, corn, soy, and rice. The successful conclusion to the years-long effort to establish enabling legislation for agricultural biotechnology in Ghana was thanks in part to USG technical assistance and outreach efforts, and should help the country respond to the challenges of food security and climate change . USAID/Ghana will explore opportunities to partner with international agricultural research organizations, Ghanaian agricultural research institutions and/or other public and private organizations to help build an enabling environment that facilitates biotechnology development and transfer.</p>

Fisheries Act 625, 2002	<p>Seeks to establish priorities for the utilization of fishery resources and ensure the proper conservation of the fishery resources through the prevention of overfishing by:</p> <ul style="list-style-type: none"> • Minimize fishery gear conflict among users as well as ensure the monitoring, control and surveillance of the fishery waters; • Promoting co-operation among local fishermen and advice on development of artisanal fishing; • <input type="checkbox"/> Correlating fisheries with other water uses and environmental protection particularly with respect to the fish resources and food chain in the rivers, lagoons, lakes and the continental shelf along the coast of the country; • Supporting District Assemblies and fishing communities to ensure the enforcement of the fishery laws including bye-laws made by the relevant District Assemblies.
Fisheries Regulations of 2010	<p>The Fisheries Regulation LI (1968) was passed in the year 2010 to support the Fisheries Act 625 of 2002. It provides detailed instructions for prohibited fishing and gives directives on a number of issues including licensing of fishing vessels, importation of fish, fishing in foreign waters, markings on fishing gears and many others. The regulation has eight major components that correspond to different aspects of fisheries. The first part gives directive for the preparation of fisheries plans, licensing, registration and marking of fishing vessels. The second part prescribes the use of fishing nets, prohibition of fishing methods and fishing gears. The third part prescribes the kind of fishing equipment required in the Ghanaian waters. The fourth part deals with processes for fishing licenses. The fifth part looks at compliance measures. The sixth part prescribes monitoring mechanisms. The seventh part provides detailed regulations for aquaculture operation. Finally, the eighth part makes provisions for miscellaneous matters including sanitary conditions of fish landing sites.</p>

<p>National Fisheries and Aquaculture Policy of 2008</p>	<p>The National Fisheries and Aquaculture policy framework was developed to enable the then Ministry of Fisheries (MOFI) to fulfil its mandate of arresting the slow growth in the fisheries sector and stimulating accelerated growth. The policy framework is a first step in improving fisheries management and accelerating development of fisheries and aquaculture and proposes four objectives to realize this vision. The objectives are:</p> <ul style="list-style-type: none"> • The management of fisheries, conservation of aquatic resources and protection of their natural environment; • The promotion of value addition in the fisheries sector and the improvement of livelihood in the fisheries communities; • The sustainable development of aquaculture; and • The improvement of services provided to the sector by the Ministry of Fisheries and other supporting institutions. <p>Furthermore, the National Fisheries and Aquaculture policy framework establishes a series of principles designed to guide future decisions underlying the policy framework.</p>
<p>Ghana National Aquaculture Development Plan of 2012</p>	<p>The Ghana National Aquaculture Development Plan (GNADP) follows upon the nation's aquaculture strategic framework of 2006. The plan which was meant to facilitate the promotion of aquaculture as a business had two basic underpinning principles:</p> <ul style="list-style-type: none"> • The best investments come from matching the appropriate aquaculture system and the prerequisite bio-physical and socio-economic requirements; and • Support mechanisms or services for these aquaculture businesses should be private sector led thereby requiring a shift in Government's roles and responsibilities more to one of facilitation, monitoring and control. <p>The purpose of the GNADP is to flesh out the updated strategic framework and structure it appropriately in order to facilitate its effective implementation. The plan aims at contributing significantly to improvements in production, marketing, environmental sustainability and social acceptability of Ghana's commercial fish farm enterprises and related aqua value chain.</p>

Environmental Policy and Key Institutions

Environmental Protection Agency

Ghana established the Environmental Protection Council (EPC) in 1974 by the Environmental Protection Council Decree, 1974 (NRCD 239). This was based on recommendations from the Stockholm Conference on Human Environment organized by the United Nations in June 1972.

The EPC was however changed to the Environmental Protection Agency on December 31, 1994 by the Environmental Protection Agency Act, 1994 (Act 490). The act mandates the EPA to regulate the environment and ensure the implementation of government policies on the environment. The EPA also seeks, under the law, to dedicate itself to continuously improve and preserve the country's environment, while seeking solutions to global environmental issues.

The objectives of EPA include:

- Creating awareness to mainstream environment into the development process at the national, regional, district and community levels;
- Ensuring that the implementation of environmental policy and planning are integrated and consistent with the country's desire for effective, long-term maintenance of environmental quality;
- Ensuring environmentally sound and efficient use of both renewable and non-renewable resources in the process of national development;
- Guiding development to prevent, reduce, and as far as possible, eliminate pollution and actions that lower the quality of life; and
- Applying the legal processes in a fair, equitable manner to ensure responsible environmental behavior in the country.

Environmental Assessment

The Environmental Assessment Regulation (LI 1652) requires new and existing industries to consistently report on their environmental assessments to the EPA. The Environmental Assessment Regulation established procedures to evaluate the environmental impact of certain classes of activities, including agricultural activities, fishing and trapping, logging and forestry, forestry services, mining, crude oil and natural gas, quarries and sand pits, manufacturing (i.e., food, beverages, rubber, plastics, leather and allied products, textiles, wood, paper and allied products, etc.), primary metals, fabricated metal products, transportation equipment, non-metallic mineral products, including refined petroleum products, other manufacturing, construction, highways, utilities, etc. An EIA is mandatory under Ghanaian law for the following types of projects: airports, drainage and irrigation projects, land reclamation, fisheries, forestry, housing, industry, infrastructure, ports, mining, petroleum, power generation and transmission, resort and recreational development, waste treatment and disposal, water supply, and activities impacting environmental conservation and management.

EIA Procedures in Ghana

The Environmental Impact Assessment (EIA) is a systematic process to identify, predict and evaluate environmental effects of proposed actions and projects. It is a planning tool and is required by law under Section 12 (1) of the EPA Act, 1994, Act 490. The purpose of EIA is to provide information for decision-making on the environmental consequences of proposed projects and promote environmentally

sound and sustainable development through the identification of appropriate enhancement and mitigation measures.

The formal procedures contain a logical stepwise assessment system with provisions for:

- Registration or the submission of application;
- Screening;
- Scoping;
- Baseline survey (Environmental and Social Impact Assessment-ESIA);
- Review & Public Hearing;
- Appeals;
- Timelines for decision-making;
- Public Participation at all levels of the process; and
- Follow up Audits

Subject to the provisions of these Regulations an application for an environmental permit under these Regulations shall be finalized and communicated to the applicant by the Agency within a period of not more than 90 days from the date of receipt of the completed application form. Where an environmental permit is granted to an applicant, the permit shall be valid for a period of 18 months effective from the date of the issue of the permit. Failure to commence operation of the undertaking within the 18 months shall render the permit invalid after the period.

4.2 Environmental Requirements Stipulated in the URI Cooperative Agreement

The URI Cooperative Agreement stipulates conditions for environmental compliance with USAID and USG legal requirements, which are described in Section A.12.3 Environmental Compliance of the agreement and detailed below.

- 1a) The Foreign Assistance Act of 1961, as amended, Section 117 requires that the impact of USAID's activities on the environment be considered and that USAID include environmental sustainability as a central consideration in designing and carrying out its development programs. This mandate is codified in Federal Regulations (22 CFR 216) and in USAID's Automated Directives System (ADS) Parts 201.5.10g and 204 (<http://www.usaid.gov/policy/ADS/200/>), which in part require that the potential environmental impacts of USAID-financed activities are identified prior to a final decision to proceed and that appropriate environmental safeguards are adopted for all activities. The Recipient of this Cooperative Agreement will take note of the following:

- 1b) The Recipient must comply with host country environmental regulations unless otherwise directed in writing by USAID. In case of conflict between host country and USAID regulations, the latter shall govern.
- 1c) No activity funded under this Cooperative Agreement will be implemented unless an environmental threshold determination, as defined by 22 CFR 216, has been reached for that activity, as documented in an Initial Environmental Examination (IEE), or Environmental Assessment (EA) duly signed by the Bureau Environmental Officer (BEO). (Hereinafter, such documents are described as “approved Regulation 216 environmental documentation.”). On December 06, 2011, the Africa Bureau Environmental Officer approved the IEE [<http://gemini.info.usaid.gov/egat/envcomp/document.php/>] for USAID/Ghana’s Feed the Future Program. That IEE covers activities expected to be implemented under this cooperative agreement for the Fisheries Project. USAID has determined that a **Negative Determination with** Conditions applies to one or more activities envisioned under the Fisheries Project. This indicates that if these activities are implemented subject to the specified conditions, they are expected to have no significant adverse effect on the environment.
- 3a) As part of its initial Work Plan, and all Annual Work Plans thereafter, the Recipient, in collaboration with the USAID Agreement Officer’s Representative and the Mission Environmental Officer or Bureau Environmental Officer, as appropriate, shall review all ongoing and planned activities under the Recipient’s work plan to determine if they are within the scope of the approved Regulation 216 environmental documentation.
- 3b) If the Recipient plans any new activities outside the scope of the approved Regulation 216 environmental documentation, the Recipient shall prepare an amendment to the documentation for USAID review and approval. No such new activities shall be undertaken prior to receiving written USAID approval of environmental documentation amendments.
- 3c) Any ongoing activities found to be outside the scope of the approved Regulation 216 environmental documentation shall be halted until an amendment to the documentation is submitted and written approval is received from USAID.
- 4a) The Recipient shall prepare an environmental mitigation and monitoring plan (EMMP) describing how the Recipient will, in specific terms, implement all IEE and/or EA conditions that apply to proposed project activities within the scope of the award. The EMMP Plan shall include monitoring the implementation of the conditions and their effectiveness.
- 4b) The Recipient will integrate a completed EMMP into the initial work plan and to all subsequent annual work plans, making any necessary adjustments to activity implementation to minimize adverse impacts to the environment.
- 5a) A provision for sub-grants is included under this award. Therefore, the Recipient will be required to use an Environmental Review Form (ERF) or Environmental Review (ER) checklist using impact assessment tools to screen grant proposals to ensure the funded proposals will result in no adverse environmental impact, to develop mitigation measures, as necessary, and to

specify monitoring and reporting. Use of the ERF or ER checklist is called for when the nature of the grant proposals to be funded is not well enough known to make an informed decision about their potential environmental impacts, yet due to the type and extent of activities to be funded, any adverse impacts are expected to be easily mitigated. Implementation of sub-grant activities cannot go forward until the ERF or ER checklist is completed and approved by USAID. Recipient is responsible for ensuring that mitigation measures specified by the ERF or ER checklist process are implemented.

5b) The Recipient will be responsible for periodic reporting to the USAID AOR, as specified in the Schedule/Program Description of this solicitation/award.

4.3 USAID Environmental Regulations

Title 22 of the United States Code of Federal Regulations Part 216 (Regulation 216) and Automated Directives System 204 (ADS 204) require USAID to provide necessary assessment of environmental impacts and documentation. The aim is to ensure that the environmental compliance requirements are established and program activity implementation occurs in accordance with established USAID Environmental Procedures and Policies. According to Regulation 216, all USAID activities are subject to analysis and evaluation via – at minimum – an Initial Environmental Examination (IEE), and – at maximum – an Environmental Assessment.

The USAID/Ghana completed an Initial Environmental Examination (IEE) for the Sustainable Economic Growth sector portfolio on April 22, 2014 with revisions made June 28, 2014 which provided recommended threshold decisions and mitigation and monitoring activities requirements. The IEE provided both decisions of categorical exclusion and several with a negative determination with conditions. Other relevant documentation includes the following

- USAID/Ghana Feed the Future IEE (6 Dec 2011)
- http://gemini.info.usaid.gov/egat/envcomp/document.php?doc_id=38018
- USAID-USFS Interagency Agreement (PAPA) IEE, as amended (9 Feb 2011).
- http://gemini.info.usaid.gov/egat/envcomp/document.php?doc_id=37376
- Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP), for the USAID/Ghana Feed the Future Program, Agriculture Technology Transfer (ATT), approved 4/14/2014
- PERSUAP for Feed the Future ADVANCE project, approved 7/18/2012
- <http://gemini.info.usaid.gov/egat/envcomp/repository/pdf/38543.pdf>
- There are several important provisions of the IEE that deserve special mention and are noted below that are related to the SFMP project activities and have specific environmental management implications:

Pesticides Use:

1. SFMP implementing partners need to be aware of the decision that USAID funds are not to be expended on pesticide support, as defined in the PERSUAP noted above.
2. Activities that have a major part of their primary purpose to recommend, sell, and/or apply pesticides will not be funded by the project.

Construction Activities:

All construction activities listed in the URI Cooperative Agreement (Section M22. LIMITING CONSTRUCTION ACTIVITIES) need to undergo environmental review and approval before any construction work can begin. These are:

- Elmina Fisheries Office Annex
- Central and Western Region fisher folk drying sheds with racks
- Central and Western Region fisher women processing sheds with storage facilities
- Central Region fisher women beach landing kiosks

No other construction activities are approved and any proposed additional construction activities not explicitly mentioned in the URI Cooperative Agreement must be approved by USAID first and any new construction activities will also need to undergo environmental review and approval as well before any construction work can begin.

5. SUB-GRANTEE AND SUB-CONTRACTOR CAPACITY AND COMPLIANCE

CRC/URI will ensure that all project staff, sub-grantees and subcontractors have the capacity to comply with the provisions laid out in the IEE and this EMMP. In coordination with USAID/Ghana, CRC/URI will conduct training and orientation activities during the project start up period for all local direct hire project staff, partner sub-grantees and subcontractors that will implement activities under the SFMP that have relevant environmental review, monitoring and mitigation requirements as per the IEE and included in this EMMP. The training will cover the environmental compliance responsibilities and policies and procedures to conduct environmentally sound design and management (ESDM) of their activities. These procedures are detailed in Annex 1 with supporting forms shown in Annex 2 and 3. Ongoing training as needed and follow-up environmental field audits will take place regularly. Sub-award agreements will also include specific provisions concerning environmental review, approvals, monitoring and mitigation requirements as per the EMMP.

6. ENVIRONMENTAL MITIGATION AND MONITORING PLAN

The following table lists those activities that do not fall under a categorical exclusion of the IEE and where a negative determination with conditions has been noted in Table 1 above. Mitigation measures and monitoring details are also provided. While CRC/URI has overall responsibility for ensuring these actions are carried out, specific individuals (e.g. The SFMP Environmental Compliance Officer –SFMP ECO) and/or sub-grantees are also listed where they are responsible for activity implementation and compliance with this EMMP and subsequent reporting.

Table 3: EMMP

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
1.1 Legislative reform	<p>Activities focusing on the possible reforms of legislations necessary for fisheries co-management are intended to strengthen natural resource and ecosystem management in Ghana, and as such, are specifically to be environmentally beneficial. However, poorly conceived or poorly informed NRM policies or policy implementation can in their failure make things worse rather than better. This activity, by implication does not have direct environmental impacts. However, the following potential impacts should be considered:</p> <ul style="list-style-type: none"> - Policy change can reduce community access to coastal and fisheries resources that their livelihoods depend upon. - It could impact the processes that provide for environmental protection -The consultation process could exclude resource users and prominent key stakeholders 	<p>Section 3.6 Support to Governance and Policy/6. NRM Policy:</p> <ol style="list-style-type: none"> 1. TAs to support development /reform, review and advocacy of fisheries policies and management, coastal land use policy and management, climate change policy and REDD+ readiness, must be cognizant of relevant NRM policies to embody and strongly advocate measures to, <ul style="list-style-type: none"> • Fully embody the principles of sustainable fisheries and coastal zone management. • Address adverse economic consequences on local communities, including from loss of usual and customary use of resources • Integrate significant stakeholder consultation, including customary users of resources • Fully integrate the principles of adaptive management 2. Support for implementation, monitoring and enforcement is a required complementary activity following policy development 3. Advocacy activities should be screened to assure they do not impact processes that provide for environmental protections. 4. Advocacy for changes to environmental and natural resource protections, including but not limited to resource-use permitting, or licenses and permits must be reviewed and approved through an IEE amendment prior to implementation. 5. Identify key environmental impacts of policies and legislative reforms through a screening and scoping 	Review and screening of all policy documents, advocacy materials, to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	As documents are produced	SFMP Env. Comp. Officer

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
		exercise.			
1.2 National Dialogues	Same as above	Same as above	<ul style="list-style-type: none"> • Same as above 	<ul style="list-style-type: none"> • Same as above 	SFMP Env. Comp. Officer
1.3 (b) Refurbishing of the Elmina Fisheries Commission office	<p>If refurbishment activity is not well planned:</p> <ul style="list-style-type: none"> • The transportation of construction materials to the site could pose a threat to public • Improper handling of construction materials and equipment could result in injury to workers. • Discharge of untreated or insufficiently treated sewage can Contaminate drinking water (ground and surface), <p>The construction process can lead to:</p> <ul style="list-style-type: none"> • Unsustainable use of 	<p>Section 3.5 Infrastructure/6.1 Construction /Rehabilitation of existing facilities with no complicating factors, with total surface area disturbed 1000 m2 OR LESS</p> <ol style="list-style-type: none"> 1. Environmental review must be conducted for all construction activities using the environmental screening form in Annex 4 and approved by USAID prior to start of any construction work. 2. During construction, IPs must ensure that contractors: <ul style="list-style-type: none"> • Desist from extracting fill, sand or gravel from waterways or ecologically sensitive areas • Identify and implement any feasible measures to increase the probability that forest products like timber are procured from legal, well-managed sources. • Minimize the use of heavy machines • Construction must be managed so that no standing water on the site persists more than 4 days; • Prevent dumping of hazardous materials. Burn waste materials that are not reusable/readily recyclable, do not contain heavy metals and are flammable 3. No lead-based paint shall be used, when lead-free paint is used, it will be stored properly so as to avoid accidental spills or consumption by children; empty cans will be disposed of in an environmentally safe manner away from areas where contamination of water sources might occur; 	<p>Completed review and screening form to ensure that they construction is environmentally sound and follow the points outlined in the mitigation measures in the IEE/EMMP</p> <p>Approval memo by USAID to proceed with construction based on ER documentation provided.</p> <p>Field reports of physical inspection during and after rehabilitation by</p>	<p>Env review form for El Mina building construction/re furbishing.</p> <p>Field Reports during and immediately following construction</p>	SFMP Env Comp. Officer, FC.

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
<p>1.3 (b) Refurbishing of the Elmina Fisheries Commission office (Continue)</p>	<p>renewable natural resources</p> <ul style="list-style-type: none"> • Possibility of harvesting wetland plant materials • Over-harvesting of valuable forest species <p>Painting materials and processes can have harmful effects on the environment, including those from the use of lead and other additives.</p> <p>Safety and health risks are expected during the construction period. This is particularly true in relation to the construction workers who will be present at the site.</p> <ul style="list-style-type: none"> • Workers will be exposed to asbestos, dust, high noise levels, sun exposure, and dehydration potential hazards associated with the use of construction machinery. • Localized air quality can be adversely affected by emissions from machinery and combustion of fuels 	<p>and the empty cans will be broken or punctured so that they cannot be reused as drinking or food containers.</p> <ol style="list-style-type: none"> 4. Waste handling equipment and infrastructure. USAID intervention must result in the facilities' possessing adequate provision for handling the wastes they may generate; including human wastes. 5. If the presence of asbestos is suspected in a facility to be renovated, the facility must be tested for asbestos before rehabilitation works begin. Should asbestos be present, then the work must be carried out in conformity with the requirements of Ghana, and in conformity with guidance to be provided by the MEO, in consultation with the REA and BEO. All results of the testing for asbestos shall be communicated to the C/AOR. 6. In terms of safety and health risks; <ul style="list-style-type: none"> • The contractor that will be responsible for the rehabilitation works will be required to have a Health & Safety Plan. • The contractor will train the construction staff on the Health & Safety Plan. • The contractor will be required to provide training on proper use of equipment. • The contractor will provide personal safety equipment to all workers (i.e. hard hats, goggles, steel-toed boots, gloves, dust masks). • The contractor will provide firefighting equipment/measures. • The contractor will ensure proper storage of building materials. • The contractor provides medical services (access to a first aid kit). • Prevent access to site at all times by unauthorized persons 	<p>the Env. Comp. Officer</p>		

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
	in backup generators.				
1.4 National level support for small-pelagics management plan (training and study tours)	These training programs and study tours are aimed at building the capacity of TAs and other stakeholders and increasing their awareness of best management practices. They do not have direct environmental impacts. However, if the activities are not well planned, the main objective of a national level fisheries management plan may not be realized.	<p>Section 3.3 Fisheries Extension/ 3b-Fisheries:</p> <p>A primary intent of building the capacity of 3rd party (Government, private, civil society) extension services is to increase the scale, scope and effectiveness of their efforts to promote Natural Resource Management and Fisheries Management practices. The soundness and health/safety risk of practices being promoted by extension activities matters significantly and therefore;</p> <ul style="list-style-type: none"> In training TAs and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm). 	Review and screening of all policy documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
1.5 Harmonizing regional fisheries policies	The coordination of regional fisheries policies aims at strengthening natural resource and ecosystem management in Ghana, and as such, are specifically to be environmentally beneficial. However, poorly conceived or poorly informed NRM policies or policy implementation can in their failure make things worse rather than better. This activity, by implication does not have direct environmental impacts. However, the consultation process could exclude resource users and prominent key stakeholders	<p>Section 3.6 Support to Governance and Policy/6. NRM Policy:</p> <ol style="list-style-type: none"> 1. TAs and national institutions to support the harmonization of fisheries policies must be cognizant of relevant NRM policies to embody and strongly advocate measures to, <ul style="list-style-type: none"> • Fully embody the principles of sustainable fisheries and coastal zone management. • Address adverse economic consequences on local communities, including from loss of usual and customary use of resources • Integrate significant stakeholder consultation, including customary users of resources • Fully integrate the principles of adaptive management 2. Support for implementation, monitoring and enforcement is a required complementary activity following policy development 3. Integrate significant stakeholder consultation, including customary users of resources 	Review and screening of all policy documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,
2.1 Scientific and Technical Working Group	No environmental impacts anticipated as a result of these activities	<p>Section 3.3 Fisheries Extension/ 3b-Fisheries:</p> <ul style="list-style-type: none"> • In training members of the working group and otherwise building their capacity, training and, as appropriate, this capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector 	Review and screening of all policy documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation	Quarterly	SFMP Env Comp. Officer,

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
		Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm).	measures		
2.2 ICT Innovations for Effective Fisheries Management	No environmental impacts anticipated as a result of these activities	Section 3.3 Fisheries Extension/ 3b-Fisheries: In training TAs and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID's Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm).	Same as above	Same as above	SFMP Env. Comp. Officer
2.3 UCC/ DFAS/CCM Capacity Development	Same as above	Same as above	Same as above	Same as above	SFMP Env. Comp. Officer
2.4 Improving FC Data Systems and Stock Assessment Capacity	Same as above	Same as above	Same as above	Same as above	SFMP Env. Comp. Officer
2.5 Understanding Fisheries Supply Chain from Net to Plate	Same as above	Same as above	Same as above	Same as above	SFMP Env. Comp. Officer

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
2.6 Environmental Planning Data Hubs and Capacity Building Center for the Western and Central Regions	Same as above	Same as above	Same as above	Same as above	SFMP Env. Comp. Officer
4.1 Small Pelagic Fisheries Management	<p>The intent of increasing the role of communities in management and governance of natural resources is to better implement and assure the sustainability of natural resource use plans. When the plans are sound and sustainable, and increased community management is accompanied by increased monitoring and oversight, results will be strongly beneficial.</p> <p>Experience shows however that failure to achieve these co-conditions however, can easily lead to a set of significant adverse impacts including rent seeking “policy capture” by non-accountable local authorities</p>	<p>Section 3.3 Fisheries Extension/ 3b-Fisheries:</p> <ul style="list-style-type: none"> In training data collectors and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm). <p>Section 3.3 Fisheries Extension/ 4b. Community Resource Mgt areas: training and mobilizing members, training in key management models.</p> <ol style="list-style-type: none"> USAID support to community management of natural resources management/governance in any specific context is predicated on the underlying fisheries management plan Support to community natural resources management/governance in any specific context must be accompanied by strengthened monitoring of fisheries management, and reporting to central governmental authorities and, preferably, the public. 	Review and screening of all policy documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
4.2 National Marine Protected Area (MPA) Working Group		<p>Section 3.3 Fisheries Extension/ 3b-Fisheries:</p> <p>In training members of the working group and otherwise building their capacity, training and, as appropriate, this capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm).</p>	Review and screening of all policy documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,
4.3 Fishing Capacity Assessment and Reduction Strategy	No environmental impacts anticipated as a result of these activities	<p>Section 3.3 Fisheries Extension/ 3b-Fisheries:</p> <ul style="list-style-type: none"> In training TAs and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm). 	Review and screening of all policy documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,
4.4 The Western Region Demersal Fisheries Management	This activity involves substantial amount of research of demersal species. Research activities may have potential	<p>Section 3.3 Fisheries Extension/ 3b-Fisheries:</p> <ul style="list-style-type: none"> In training TAs and otherwise building the capacity of extension organizations, training and, as appropriate, 	Review and screening of all policy documents,	Quarterly	SFMP Env Comp. Officer,

Activity	Identified Environmental Impacts	Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
Initiative	effect on the physical and natural environment depending on the nature and scope of the study	<p>organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID's Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm).</p> <p>Section 3.3 Fisheries Extension/ 4b. Community Res Mgt areas</p> <ol style="list-style-type: none"> 1. USAID support to community management of natural resources management/governance in any specific context is predicated on the underlying fisheries management plan substantially conforming to the conditions enumerated for land management plans in IEE section 3.6. 2. Support to community natural resources management/governance in any specific context must be accompanied by strengthened monitoring of fisheries management, and reporting to central governmental authorities and, preferably, the public. <p>The geographical scope should be limited to a manageable extent for proper supervision and control.</p> <p>The research method should also have mechanisms to control the nature of the study</p>	Advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures		

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
4.5 Integrated Community Fisheries Management and Resilience Plans for the Ankobra River Estuarine and Mangrove Ecosystem					
4.5 (a) Training of TAs on reforestation and fisheries management planning	<ul style="list-style-type: none"> • Training/capacity building and promotion of reforestation activities can result in incomplete adoption of good practice: eg., poorly controlled use of pesticides with potential consequent adverse impacts on water quality, aquatic organisms, and human health • Lack of community inclusiveness that leaves out certain segments of society. 	<p>Section 3.3 Fisheries Extension and Coastal Forests: 3a. Institutional strengthening, training/TA /3b. Fisheries Provide TA to GoG</p> <p>In training TAs and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity building will integrate and promote general awareness of the environmental, health and safety risks presented by reforestation and fisheries management planning and appropriate choices and measures to manage these risks, as rooted in appropriate sustainable land management plans. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm).</p> <p>Section 3.3 Fisheries Extension and Coastal Forests:</p> <ol style="list-style-type: none"> 1. During training TA’s should identify appropriate reforestation technique 2. Evaluation must be conducted with full attention to the potential adverse impacts of inappropriate choice of techniques and approaches as outlined in the discussion of “potential adverse impacts,” for “demonstration, direct extension/training.” 3. Field tests are subject to the conditions pertaining to “demonstration,” immediate below. <p>NOTES:</p> <ul style="list-style-type: none"> • Field test activities must not be carried out in protected areas 	Review and screening of all planning documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
		<ul style="list-style-type: none"> • Development of test plots/schemes/woodlots and associated facilities and structures are subject to the requirements of IEE section 3.5. 4. Evaluation/test activities may not use/promote genetically modified cultivars. Such support can only be undertaken in conformity with USAID’s biosafety procedures and requires an associated amendment to this IEE. 5. Promoted species must be endorsed for use by the relevant governmental authority; 6. Seed distribution (if any) and input provision must be consistent with USAID requirements. 7. Treated seed must be dyed and seed distribution must be accompanied by education regarding appropriate handling and non-edibility. 8. Integrate significant stakeholder consultation, including customary users of resources 			
4.5 (b) Community awareness campaigns of fisheries management good practices and benefits of mangroves	No environmental impacts anticipated as a result of these activities	Section 3.3 Fisheries Extension and Coastal Forests: 4a. Enhance public awareness Categorical exclusion N/A			

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
4.5 (c) Management planning for demersal and estuarine fisheries and associated fish mangrove habitat	<p>The intent of increasing the role of communities in management and governance of natural resources is to better implement and assure the sustainability of natural resource use plans. When the plans are sound and sustainable and increased community management is accompanied by increased monitoring and oversight, results will be strongly beneficial.</p> <p>Experience shows however that failure to achieve these co-conditions however, can easily lead to a set of significant adverse impacts including rent seeking “policy capture” by non-accountable local authorities</p>	<p>Section 3.3 Fisheries Extension and Coastal Forests:</p> <p><u>3b. Fisheries - Provide technical assistance to GoG</u></p> <ul style="list-style-type: none"> The management planning process should integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm). <p><u>4b. Community Resource Management Areas:</u></p> <p>Support to community natural resources management/governance must be accompanied by strengthened monitoring of fisheries management, and reporting to central governmental authorities and, preferably, the public.</p>	Review and screening of all planning documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
4.5 (d) Mangrove reforestation	<ul style="list-style-type: none"> • Mangrove Reforestation could alter existing ecosystem or habitat. • Specific mangrove species might dominate the area depending on the species planted. • Nursery operations typically involve the use of pesticides and fertilizers with potential consequent adverse impacts on water quality, aquatic organisms, and human health. • Lack of community inclusiveness that leaves out certain segments of society. 	<p>Section 3.3 Fisheries Extension and Coastal Forests:</p> <ul style="list-style-type: none"> • Identify appropriate reforestation techniques • MUST be monitored to assure that promoted techniques are appropriate to the specific local context. • Evaluation must be conducted with full attention to potential adverse impacts, • Promoted species must be endorsed for use by the relevant governmental authority; • Promoted/utilized biologic agents for soil fertility enhancement (if any) must be approved by the cognizant GoG entity and must be used/ promoted in conformity with the directives and restrictions attached to such approval. • Use pesticides only in conformity with the provisions of a duly approved PERSUAP specifically designated as covering the activity in question. In the absence of such a PERSUAP, pesticide use is NOT permitted. • Seed distribution (if any) and input provision must be consistent with the above requirements. Treated seed must be dyed and seed distribution must be accompanied by education regarding appropriate handling and non-edibility. • Demonstration and extension activities may not use/promote genetically modified cultivars. Such support can only be undertaken in conformity with USAID's biosafety procedures and requires an associated amendment to this IEE. • Integrate significant stakeholder consultation, including customary users of resources 	Review and screening of all planning documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
4.6 Integrated Community Fisheries Management and Resilience Plans for the Pra River Estuarine and Mangrove Ecosystems					
4.6 (a) Training of TAs on reforestation and fisheries management planning	<ul style="list-style-type: none"> • Training/capacity building and promotion of reforestation activities can result in incomplete adoption of good practice: eg., poorly controlled use of pesticides with potential consequent adverse impacts on water quality, aquatic organisms, and human health • Lack of community inclusiveness that leaves out certain segments of society. 	<p>Section 3.3 Fisheries Extension and Coastal Forests: 3a. Institutional strengthening, training/TA /3b. Fisheries Provide TA to GoG</p> <p>In training TAs and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity building will integrate and promote general awareness of the environmental, health and safety risks presented by reforestation and fisheries management planning and appropriate choices and measures to manage these risks, as rooted in appropriate sustainable land management plans. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm).</p> <p>Section 3.3 Fisheries Extension and Coastal Forests:</p> <ol style="list-style-type: none"> 1. During training TA’s should identify appropriate reforestation technique 2. Evaluation must be conducted with full attention to the potential adverse impacts of inappropriate choice of techniques and approaches as outlined in the discussion of “potential adverse impacts,” for “demonstration, direct extension/training.” 3. Field tests are subject to the conditions pertaining to “demonstration,” immediate below. <p>NOTES:</p> <ul style="list-style-type: none"> • Field test activities must not be carried out in protected areas 	Review and screening of all planning documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
		<ul style="list-style-type: none"> • Development of test plots/schemes/woodlots and associated facilities and structures are subject to the requirements of IEE section 3.5. 4. Evaluation/test activities may not use/promote genetically modified cultivars. Such support can only be undertaken in conformity with USAID’s biosafety procedures and requires an associated amendment to this IEE. 5. Promoted species must be endorsed for use by the relevant governmental authority; 6. Seed distribution (if any) and input provision must be consistent with USAID requirements. 7. Treated seed must be dyed and seed distribution must be accompanied by education regarding appropriate handling and non-edibility. 8. Integrate significant stakeholder consultation, including customary users of resources 			
4.6 (b) Community awareness campaigns of fisheries management good practices and benefits of mangroves	No environmental impacts anticipated as a result of these activities	Section 3.3 Fisheries Extension and Coastal Forests: 4a. Enhance public awareness Categorical exclusion N/A			
4.6 (c) Management planning for demersal and	The intent of increasing the role of communities in management and governance of natural	Section 3.3 Fisheries Extension and Coastal Forests: <u>3b. Fisheries - Provide technical assistance to GoG</u>	Review and screening of all planning documents, advocacy materials,	Quarterly	SFMP Env Comp. Officer,

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
estuarine fisheries and associated fish mangrove habitat	<p>resources is to better implement and assure the sustainability of natural resource use plans. When the plans are sound and sustainable and increased community management is accompanied by increased monitoring and oversight, results will be strongly beneficial.</p> <p>Experience shows however that failure to achieve these co-conditions however, can easily lead to a set of significant adverse impacts including rent seeking “policy capture” by non-accountable local authorities</p>	<ul style="list-style-type: none"> The management planning process should integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm). <p><u>4b. Community Resource Management Areas:</u></p> <p>Support to community natural resources management/governance must be accompanied by strengthened monitoring of fisheries management, and reporting to central governmental authorities and, preferably, the public.</p>	and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures		
4.6 (d) Mangrove reforestation	<ul style="list-style-type: none"> Mangrove Reforestation could alter existing ecosystem or habitat. Specific mangrove species might dominate the area depending on the species planted. Nursery operations typically involve the use of pesticides and fertilizers with potential consequent adverse impacts on water quality, aquatic organisms, and human health. 	<p>Section 3.3 Fisheries Extension and Coastal Forests:</p> <ul style="list-style-type: none"> Identify appropriate reforestation techniques MUST be monitored to assure that promoted techniques are appropriate to the specific local context. Evaluation must be conducted with full attention to potential adverse impacts, Promoted species must be endorsed for use by the relevant governmental authority; Promoted/utilized biologic agents for soil fertility enhancement (if any) must be approved by the cognizant GoG entity and must be used/ promoted in conformity with the directives and restrictions attached to such approval. Use pesticides only in conformity with the provisions of a duly approved PERSUAP specifically designated as 	Review and screening of all planning documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer,

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
	<ul style="list-style-type: none"> Lack of community inclusiveness that leaves out certain segments of society. 	<p>covering the activity in question. In the absence of such a PERSUAP, pesticide use is NOT permitted.</p> <ul style="list-style-type: none"> Seed distribution (if any) and input provision must be consistent with the above requirements. Treated seed must be dyed and seed distribution must be accompanied by education regarding appropriate handling and non-edibility. Demonstration and extension activities may not use/promote genetically modified cultivars. Such support can only be undertaken in conformity with USAID’s biosafety procedures and requires an associated amendment to this IEE. Integrate significant stakeholder consultation, including customary users of resources 			
4.7 Sustainable financing of co-management institutions	No environmental impacts anticipated as a result of these activities	<p>Section 3.3 Fisheries Extension/ 3b-Fisheries:</p> <p>In training extension agents and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm).</p>	Review and screening of all documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer, SNV, Daasgift, CEWEFIA, DAA.

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
4.8 Central and Western Region Fishing Community Livelihood Development Value Chain and Post-harvest Improvements					
4.8 (a) Smoked fish and fuel wood supply value chain assessments, training and extension activities promoting fuel efficient smokers and land or mangrove-based woodlots	<ul style="list-style-type: none"> • Training and extension activities promoting fuel efficient smokers and land or mangrove-based woodlots may result in: unsustainable use of renewable natural resources, possibility of harvesting wetland plant materials, over-harvesting of valuable forest species, if message is poorly conceived and conveyed 	<p>Section 3.3 Fisheries Extension/ 3b-Fisheries:</p> <p>In training TAs and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID’s Sector Environmental Guidelines (http://www.usaidgems.org/sectorGuidelines.htm).</p> <p>TA/IP shall create awareness among users on the environmental damage of unsustainable use of grown woodlots</p>	Review and screening of all Documents, advocacy materials, and training curricula to ensure that they are environmentally sound and follow the points outlined in the mitigation measures	Quarterly	SFMP Env Comp. Officer, SNV, Daasgift, CEWEFIA, DAA.
4.8.(b) Construction and renovation of drying sheds and smokers	<ul style="list-style-type: none"> • Sites selected for the construction of smokers may: <ul style="list-style-type: none"> - destroy habitat for important ecosystems, animals or plant - be a wetland or abuts body of water or prone to flooding - Possible increase in soil erosion as a result of clearing of vegetation 	<p>Section 3.5 Infrastructure: Agricultural plots and nurseries/ 6.1 rehabilitation or new facilities less than 1000M²</p> <ul style="list-style-type: none"> • Rehabilitation will be undertaken of existing facilities where there are no complicating factors, or construction of new facilities where the total surface area disturbed is 1000 m² OR LESS and there are no complicating factors • The site should not be within 30m of a permanent or seasonal stream or water body, will NOT involve displacement of existing settlement/inhabitants, has an average slope of 	<ul style="list-style-type: none"> • Field reports during and after construction by the Env. Com. Officer Approved permits from the District Assemblies 	Field Reports during and immediately following construction	SFMP Env Comp. Officer, SNV, Daasgift, CEWEFIA, DAA.

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
	<p>and soil excavation</p> <ul style="list-style-type: none"> - Loss of productive topsoil resulting from soil excavation • The construction process can lead to: <ul style="list-style-type: none"> - Unsustainable use of renewable natural resources - Possibility of harvesting wetland plant materials - Over-harvesting of valuable forest species • Safety and health risks are expected during the construction period. This is particularly true in relation to the construction workers who will undertake the site preparation - Workers will be exposed to dust, sun exposure, and dehydration potential hazards associated with construction of smokers 	<p>less than 5% and is not heavily forested, in an otherwise undisturbed local ecosystem, or in a protected area.</p> <ul style="list-style-type: none"> • Construction will be undertaken in a manner generally consistent with the guidance for environmentally sound construction, provided in the Small Scale Construction chapter of the USAID Sector Environmental Guidelines. (http://www.usaidgems.org/sectorGuidelines.htm). At minimum, (1) During construction, IPs must ensure that contractors: <ul style="list-style-type: none"> - Desist from extracting fill, sand or gravel from waterways or ecologically sensitive areas - Identify and implement any feasible measures to increase the probability that forest products like timber are procured from legal, well-managed sources (2) Construction must be managed so that no standing water on the site persists more than 4 days; • Minimize the use of heavy machines • Waste handling equipment and infrastructure. USAID intervention must result in the facilities' possessing adequate provision for handling the wastes they may generate, including human wastes. • The project will follow Government of Ghana guidelines on Construction • The contractor will: <ul style="list-style-type: none"> - Identify the most environmentally sound source of materials within budget. - Obtain materials from approved sources 			

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
	<ul style="list-style-type: none"> • Exploration of illegal source of construction materials may lead to: <ul style="list-style-type: none"> - Damage ecosystems through erosion and siltation - Harm terrestrial ecosystems via harvesting of timber or other natural products • Sanitation issues <ul style="list-style-type: none"> - Workers' sanitation on site poses a serious impact on the neighborhood. - Waste generated from renovation activities will have a negative impact on surrounding areas if not disposed of properly and regularly. - In addition, the process of transporting all construction debris may also disturb neighboring areas and constitute a nuisance • Dust pollution/ air quality deterioration <ul style="list-style-type: none"> - Localized air quality 	<ul style="list-style-type: none"> - Be required to have a Health & Safety Plan. - Be required to train the construction staff on the Health & Safety Plan. - Provide training on proper use of equipment. - Provide personal safety equipment to all workers (i.e. hard hats, goggles, steel-toed boots, gloves, dust masks). - Provide firefighting equipment/measures. - Ensure proper storage of building materials. - Provide medical services (access to a first aid kit). 			

Activity		Mitigation Measure(s)	Monitoring Indicator(s)	Monitoring and Reporting Frequency	Responsible Parties
	<p>can be adversely affected by emissions from machinery and combustion of fuels in backup generators.</p> <p>Excavation and construction-related activities will generate dust that will have a negative impact on surrounding areas or even beyond.</p>				

7. PESTICIDE SAFER USE ACTION PLAN & COMPLIANCE TRACKER

Must be submitted to AOR by [insert date] and annually updated thereafter.

BASIC INFORMATION		SUBMISSION DATES:	
Prime Contractor		Initial submission	
Project		Annual Update #1	
Pesticide Compliance Lead & Contact Information	:	Annual Update #2	
Summary of Pest Management Needs on Project		Annual Update #3	

Note: Pesticide “support” = use of USAID funds to: purchase pesticides; directly fund the application of pesticides; recommend pesticides for use; enable the application or purchase of pesticides via provision of application equipment, credit support, etc.

Required Compliance (Mitigation) Measure	Initial Compliance Status (if not known or not applicable, so indicate)	Actions planned to achieve & maintain compliance <small>(w/ deadlines & responsible party)</small>	Status of compliance actions
SUPPORT ONLY THE PESTICIDES AUTHORIZED BY THE 2012 USAID/SOUTH SUDAN AG SECTOR PERSUAP			
Immediately			
Inventory Pesticides being supported and ensure NO SUPPORT for alachlor, aldicarb, aluminum phosphide, atrazine, chlordane, carbosulfan, disulfoton, endosulfan, methamidophos, monocrotophos		(insert extra rows if needed)	

terbufos,& paraquat			
Distribute copies of the list of allowed AIs with matching commercial product names to all project field extension staff & advise regarding the Insert date deadline for compliance (below)			
As soon as possible but not later than Insert date			
Assure that USAID-funded pesticide support is limited to ONLY PESTICIDES APPROVED BY PERSUAP. Continue verification throughout life-of-project			
Pesticide technical assistance and use must be governed by a set of locally adapted, crop-and-pest specific IPM-based pest management plans and observe enumerated use restrictions.			
By Insert date			
Starting from the information in PERSUAP Annex 1 and drawing on PERSUAP Annex 7, adopt/develop crop- and pest-specific IPM-based pest management plans (PMPs). <i>Note: sharing/collaboration among projects is encouraged.</i>			
Translate PMPs into crop-specific field reference guides or posters for farmers to anticipate and			

manage pests.			
By Insert date			
Provide first-time training to appropriate project staff, partners and beneficiaries in PMPs; Provide refresher training annually.			
From Insert date			
Require and enforce PMP implementation in situations where the project has direct control over pesticide use			
Require and enforce that field extension under direct project control be PMP-based.			
Where project control over extension or agricultural practice on the ground is less than complete, promote and support to PMPs to the greatest practicable extent.			
Ongoing over Life of Project (LOP)			
Modify PMPs over LoP based on ground-truthing/field experience.			
Appropriate project staff & beneficiaries must be trained in safer pesticide use & pesticide first aid.			
Develop a Training Plan for Pesticide Safe Practices and IPM for project staff and beneficiaries,			

including at least annual refresher training.*			
Develop or source curricula conforming to required training elements*.			
Implement training plan, providing first-time training to all relevant staff and beneficiaries within 6 months.			
To the greatest degree practicable, projects must require use & maintenance of appropriate PPE – as well as safe pesticide purchase, handling, storage and disposal practices.			
If carbamate or organophosphate-class pesticides are used extensively, follow procedures for baseline testing for cholinesterase inhibition, and establish a periodic cholinesterase-monitoring schedule when necessary.			
Implement/observe core risk mitigation measures (PPE and other precautions) identified in the summary section of each extended pesticide profile. Where control is less complete, take all practicable measures to support and promote			

implementation of these measures.			
Whenever providing, supporting or recommending pesticides for use, assure that appropriate personal protective equipment is available and, to the degree possible, require its use.			
Whenever directly using, procuring or supplying pesticides, assure that quality application equipment is available and local capacity for its available and maintained.			
To the greatest degree practicable, enforce good disposal and clean-up practice			
For directly supported pesticide stores, assure that FAO Best Management Practices are met. (See Annex C). For directly supported pesticide transport, assure that minimum practices specified in Annex C are met.			
Projects must be systematic in their pesticide related record keeping and monitoring.			
pesticide efficacy in demonstration plots must be evaluated			

Any evidence of pesticide resistance development must be tracked and reported.			
Flow-down requirements			
Prime contractors must write pesticide compliance requirements as set out above into each grant or sub-contract that will involve support for pesticide use.			

ANNEX 1: ENVIRONMENTAL COMPLIANCE FOR ACTIVITIES NOT COVERED UNDER THE IEE OR IN THIS EMMP

The following process will be used for implementing environmental screening, analysis, mitigation and monitoring procedures for those activities not covered under the IEE or this EMMP.

Step 1: Screening

All activities not covered by the IEE will require a review and approval process that screens these activities for potential environmental impacts. Screening will be carried out for all construction activities and approved by the ECO, Chief of Party and USAID before any construction work begins. Construction work carried out by any implementing partner without approval will not be eligible for reimbursement.

Technical staff and the project's Environmental Compliance Officer (ECO) will work with the local partners and relevant stakeholders to review the proposed activity and make a determination as to the activity's environmental impact. The principle actors and stakeholders in the case of the following activities are provided in Annex 2 (monitoring) and Annex 3 (screening).

Step 2: Analysis

Activities receiving a negative determination with conditions will undergo further activity analysis and the creation of an activity environmental mitigation and monitoring plan (EMMP).

Step 3: Mitigation and Monitoring

Mitigation and monitoring actions will be taken by those responsible according to the EMMP without significant variance (determined by the ECO). It is strongly recommended that prior to any cash disbursements that all environmental compliance forms, reports, and reporting are provided unless waived by the Chief of Party or his/her designate. Any change orders, amendments, and or extensions that may affect the original environmental impact determination are also subject to review by technical staff, the ECO, and approved by the Chief of Party or his designate. Local partners are responsible for submitting quarterly and final environmental monitoring reports. Reporting requirements will be detailed in each grant agreement and are subject to the findings of the EMMP and technical staff recommendations. Finally, once project activities are 90 percent complete, grantees are responsible for submitting the final environmental report, especially if physical measures were taken during construction or at other times to mitigate environmental impacts of a SFMP financed activity.

ANNEX 2: ENVIRONMENTAL COMPLIANCE MONITORING FORM

Mitigation Measure	Responsible Party	Monitoring Scheme			Estimated cost	Monitoring Log		
		Indicators	Data source/ method	How often		Date	Result	Follow-up
1.								
2.								
3.								
4.								
5.								
6.								
7.								
8.								

ANNEX 3: ENVIRONMENTAL SCREENING FORM

The form below will be used to screen proposed project actions not covered already by the IEE or EMMP. It will help ascertain whether these proposed activities should be categorized as “very low risk:”

- If the answers to ALL the questions that follow are “NO,” then the proposed natural resource-based activity is considered “very low risk.”
- If the answer to ANY question is “YES,” the activity CANNOT be considered “very low risk.”

Screening criteria

Will the activities...	YES	NO
Natural Resources		
Accelerate erosion by water or wind?		
Reduce soil fertility and/or permeability?		
Alter existing stream flow, reduce seasonal availability of water resources?		
Potentially contaminate surface water and groundwater supplies?		
Involve the extraction of renewable natural resources?		
Lead to unsustainable use of renewable natural resources such as forest products?		
Involve the extraction of non-renewable natural resources?		
Restrict customary access to natural resources?		
Reduce local air quality through generating dust, burning of wastes or using fossil fuels and other materials in improperly ventilated areas?		
Affect dry-season grazing areas and/or lead to restricted access to a common resource?		
Lead to unsustainable or unnecessarily high water extraction and/or wasteful use?		
Ecosystems and Biodiversity		
Drain wetlands, or be sited on floodplains?		
Harvest wetland plant materials or utilize sediments of bodies of water?		
Lead to the clearing of forestlands for agriculture, the over-harvesting of valuable forest species?		
Lead to increased hunting, or the collection of animals or plant materials?		
Increase the risks to endangered or threatened species?		
Introduce new exotic species of plants or animals to the area?		
Lead to road construction or rehabilitation, or otherwise facilitate access to fragile areas		

Will the activities...	YES	NO
(natural woodlands, wetlands, erosion-prone areas)?		
Cause disruption of wildlife migratory routes?		
Agricultural and Forestry Production		
Have an impact on existing or traditional agricultural production systems by reducing seed availability or reallocating land for other purposes?		
Lead to forest plantation harvesting without replanting, the burning of pastureland, or a reduction in fallow periods?		
Affect existing food storage capacities by reducing food inventories or encouraging the incidence of pests?		
Affect domestic livestock by reducing grazing areas, or creating conditions where livestock disease problems could be exacerbated?		
Involve the use of insecticides, herbicides and/or other pesticides?		
Community and Social Issues		
Have a negative impact on potable water supplies?		
Encourage domestic animal migration through natural areas?		
Change the existing land tenure system?		
Have a negative impact on culturally important sites in the community?		
Increase in-migration to the area?		
Create conditions that lead to a reduction in community health standards?		
Lead to the generation of non-biodegradable waste?		
Involve the relocation of the local community?		
Potentially cause or aggravate land-use conflicts?		

ANNEX 4: SUMMARY OF RELEVANT PROVISIONS OF THE IEE FOR THE USAID/GHANA ECONOMIC GROWTH SECTOR PORTFOLIO

3.3 Fisheries Extension and Coastal Forests: Agroforestry, Silviculture, and Reforestation: Inputs, Extension, Demonstration & Related Community Outreach

Activities focused on coastal lands/coastal-forests management in this intervention category will be focused on six coastal districts in Ghana's Western Region which critical coastal resources (forests and fisheries) are under significant environmental pressure. A key focus is restoring "off-reserve" degraded lands; i.e. those outside protected areas.

Fisheries interventions are limited to support for GoG extension services.

Entailed activities

Specifically, this EG intervention category consists of the following activities:

1. Evaluation/identification of appropriate land restoration/agroforestry/reforestation techniques and approaches (may include field tests)

2. Demonstration, direct extension/training and provision of inputs and other direct "scaling up" support* to (*May include, e.g. support to out-grower schemes) :

- Agroforestry practices: integrated tree cropping & food crops b. Reforestation/silviculture
- Promotion of multi-purpose woodlots, tree plantations (to support construction, fuelwood, charcoal),
- Nursery operations in support of a, b & c.

3. Promote/strengthen government and 3rd party extension and technical assistance

- Land Restoration/Agroforestry/Reforestation: Institutional strengthening and technical training/TA to strengthen government and 3rd-party extension and technical assistance for agroforestry, reforestation/silviculture, woodlots and tree plantations.
- **Fisheries** Provide technical assistance to GoG extension services supporting fisheries and coastal management

4. Community Participation in Governance & Community Outreach

- Enhance public awareness of ecosystem services for livelihoods through multimedia campaign and site-based awareness-raising campaigns
- Community Resource Management Areas: training & mobilizing members, training in key management models

NOTE that:

- This IEE does NOT address or cover any activities conducted in protected areas/
- ESTABLISHMENT of tree nurseries for agroforestry and other purposes is covered under section 3.5.
- Development of land use plans and support to government NRM policy development and implementation support is covered under section 3.6.

Potential Adverse Impacts and Considerations Regarding Recommended Determinations

1. Evaluation/identification of appropriate land restoration/agroforestry/reforestation techniques and approaches (may include field tests). This activity is intended to determine the techniques and approaches to be promoted and supported under activities 2 & 3, below. As such, evaluation and testing that fails to consider the environmental, health and safety risks described under activity 2, below, substantially increases these risks.

2. Demonstration, direct extension/training and provision of inputs and other direct “scaling up” support to Agroforestry practices: integrated tree cropping & food crops; reforestation/silviculture; promotion of multi-purpose woodlots, tree plantations (to support construction, fuelwood, charcoal).

The set of practices to be promoted are intended to be more economically and environmentally sustainable than those common in the intervention areas, with the aim of restoring productivity and eco-system services in off-reserve degraded lands. However, physical interventions in ecologically important areas, even when focused on restoration of ecosystem integrity and services present environmental risks and demand careful design:

- Unconsidered introduction of tree species and agroforestry cultivars to a given ecological zone presents risks that the species will be disruptive or invasive. Even beyond species choice, many agroforestry and silviculture practices are highly context-specific: what is environmentally beneficial in one area may be adverse in another.

NOTE: USAID/Ghana asserts that Ghana possesses effective, robust systems to consider and approve new crop varieties and cultivars.

- Training/capacity building and promotion of agroforestry/silviculture/woodlots and plantations may inadvertently lead to/stimulate clearance of natural forest for agroforestry, plantations or woodlots, with potential consequent adverse impacts on water quality, aquatic organisms and human health. This is particularly true if agroforestry/woodlot/plantation schemes are provide strong economic returns. (Plantations, woodlots, and agroforestry schemes,, while economically productive and providing most of the soil-conservation and runoff-control benefits of forests, are not bio-diverse habitats and do not substitute for natural forests in this way. It is NOT appropriate for USAID to support conversion of natural forest to plantation for this reason. Similarly, species

selection for afforestation or reforestation of natural forests is critical to preserving and restoring ecosystem balance.)

- Similarly, training/capacity-building and promotion can result in incomplete adoption of good practice: e.g., poorly controlled use of pesticides and fertilizers with potential consequent adverse impacts on water quality, aquatic organisms, and human health.
- Schemes that promote single or a very limited number of tree species over a sustained period present risks of heightened vulnerability to unforeseen disease outbreaks, and loss of diversity necessary for ecosystem functions.
- Agroforestry, silviculture, and plantation schemes may entail the use of pesticides and fertilizers, even where pest management interventions are IPM-based. While IPM is intended to result in the minimum necessary use of least toxic pesticides, any use of pesticides poses risks, particularly in an environment such as Ghana where farmer—and particularly smallholder knowledge of pesticides and safer use principles is poor and appropriate equipment often lacking. (See section 3.1 for general discussion, for detail regarding the Ghanaian context, Ghana’s ADVANCE & ATT PERSUAPs.)
- Use of fertilizers presents risks to surface and groundwater quality, which can accelerate soil acidification, lead to build-up of heavy metals, and have adverse effects on soil biology. (See the AFR Fertilizer Factsheet 18. Water quality effects are described in section 3.1, as well as the necessary complementary extension and technical assistance.
- Nursery operations typically entail the use of pesticides, fertilizers and irrigation. The scale is smaller than the acreage involved in agroforestry or reforestation schemes themselves, but the use of inputs may be concentrated. This presents a set of concerns outlined in section 3.1. Irrigation presents a set of risks, including over-extraction of water, salination/permanent degradation of irrigated soils, and, contamination of surface and groundwater with agro-chemicals.
- In general, if successful, these agricultural interventions may result in the expansion and intensification of agriculture—including increased land under cultivation and/or intensified smallholder production, likely with increased use of inputs. The effects of this are described in the general introduction to this section, as are the necessary complementary extension and technical assistance.

3. Promote/strengthen government and 3rd-party extension and technical assistance. A primary intent of building the capacity of 3rd-party (government, private, civil society) extension services is to increase the scale, scope and effectiveness of their efforts to promote specific NRM/agroforestry/silviculture practices and fisheries management practices. As discussed in this section for NRM/agroforestry/silviculture, and in section 3.5 for fisheries, the environmental soundness and health/safety risks of practices being promoted by extension activities matters significantly.

USAID is expected to have very little if any control over the actions of government or (in the case of agriculture) 3rd-party extension agents on the ground. However, in training

extension agents and otherwise building the capacity of extension organizations, USAID does have a responsibility to assure that training and, as appropriate, organizational capacity-building integrate and promote a fundamental environmental and health/safety sensibility. More specifically:

- In the case of NRM/agroforestry/silviculture, the mitigation and management measures that are required when USAID directly undertakes such extension should be integrated and/or promoted in capacity-building for extension services. These measures follow from the discussion above and are set out in the “recommended determinations” section, below.

In the case of fisheries and coastal management, this sensibility must be grounded in the principles of sustainable fisheries and coastal zone management, reflecting the same underlying principles incorporated in USAID policy support

4. Community Governance Participation & Outreach

- *Enhance public awareness of ecosystem services for livelihoods through multimedia campaign and site-based awareness-raising campaigns.* This sub-activity is intended to raise public awareness of the economic value of sound natural resources management. There is thus no contra-indication to the categorical exclusion as an education activity.
- *Community Resource Management Areas: training & mobilizing members, training in key management models.* The intent of increasing the role of communities in management and governance of local natural/forest resources is to better implement and better assure the sustainability of land and forest use plans. Assuming these plans are sound and sustainable, and increased community management is accompanied by increased monitoring and oversight, results should be strongly beneficial. Experience shows, however, that failure to achieve these co-conditions, however, can easily lead to a set of significant adverse impacts, including rent-seeking “policy capture” by non-accountable local authorities.

Recommended Determinations

Pursuant to the analysis above, the activities in this category are recommended for the following determinations:

Fisheries Extension and Coastal Forests Activities	Recommended Determination
<p>1. Evaluation/ Identification of appropriate land restoration/ agroforestry/ reforestation techniques and approaches (may include field tests):</p>	<p><u>Negative determination subject to the following conditions</u></p> <p>1. Evaluation must be conducted with full attention to (a) the potential adverse impacts of inappropriate choice of techniques and approaches as outlined in the discussion of “potential adverse impacts,” above and (b) the conditions specified immediately below for “demonstration, direct extension/training. . .”</p> <p>2. Field tests are subject to the conditions pertaining to “demonstration,” immediate below.</p> <p>NOTES</p> <p>:</p> <ol style="list-style-type: none"> 1. Field test activities must not be carried out in protected areas 2. Development of test plots/schemes/woodlots and associated facilities and structures are subject to the requirements of section 3.5. 3. Evaluation/test activities may not use/promote genetically modified cultivars. Such support can only be undertaken in conformity with USAID’s biosafety procedures and requires an associated amendment to this IEE.
<p>2. Demonstration, direct extension/training and provision of inputs and other direct “scaling up” support to Agroforestry practices: integrated tree cropping & food crops; reforestation/silviculture; promotion of multi-purpose woodlots, tree plantations (to support construction, fuelwood, charcoal).</p>	<p><u>Negative determination subject to the following conditions :</u></p> <ol style="list-style-type: none"> 1. Promoted tree and agroforestry species must be endorsed for use by the relevant governmental authority; 2. Promoted/utilized biologic agents for soil fertility enhancement (if any) must be approved for use in Ghana by the cognizant GoG entity and must be used/promoted in conformity with the directives and restrictions attached to such approval. 3. Directly operated demonstration activities must: <ul style="list-style-type: none"> • <input type="checkbox"/> Conform to fertilizer good environmental practices as per the USAID/AFR Fertilizer Factsheet (available at www.encapafrika.org/egssaa/AFR_Fertilizer Factsheet_Jun04.pdf) • Substantially conform to good agricultural and irrigation practices as set out USAID’s Sector Environmental Guidance for Irrigation and Agriculture • (http://www.usaidgems.org/sectorGuidelines.htm). • Use pesticides only in conformity with the provisions of a duly approved PERSUAP specifically designated as covering the activity in question. In the absence of such a PERSUAP, pesticide use is NOT permitted. 4. Extension activities: <ul style="list-style-type: none"> • Must promote fertilizer good environmental practices as per the USAID/AFR Fertilizer Factsheet (available at www.encapafrika.org/egssaa/AFR_Fertilizer Factsheet_Jun04.pdf) • (http://www.usaidgems.org/sectorGuidelines.htm).

Fisheries Extension and Coastal Forests Activities	Recommended Determination
<p>2. Demonstration, direct extension/training and provision of inputs (continued)</p>	<ul style="list-style-type: none"> • Must incorporate and promote to good agricultural and irrigation practices as set out in USAID’s Sector Environmental Guidance for Irrigation and Agriculture MUST be monitored to assure that promoted techniques are appropriate to the specific local context. (i.e., do not contribute to destruction or degradation of natural habitat, including deforestation, land degradation and drainage of wetlands; lead to loss of biodiversity; erosion or loss of soil fertility, siltation of water bodies or reduction in water quality; or spread disease.) • Must NOT support or reward new land conversion, or extensive monoculture plantations. • May only provide, recommend or otherwise support pesticide use in conformity with the provisions of a duly approved PERSUAP specifically designated as covering the activity in question. In the absence of such a PERSUAP, pesticide provision or support is NOT permitted. NOTE this includes the use of pesticides and fumigants for crop storage. <p>May NOT be carried out in protected areas. Seed distribution (if any) and input provision must be consistent with the above requirements. Treated seed must be dyed and seed distribution must be accompanied by education regarding appropriate handling and non-edibility.</p> <p>NOTES:</p> <ol style="list-style-type: none"> 1. Development of demonstration plots/schemes/woodlots and associated facilities and structures are subject to the requirements of section 3.5. <p>Demonstration and extension activities may not use/promote genetically modified cultivars. Such support can only be undertaken in conformity with USAID’s biosafety procedures and requires an associated amendment to this IEE.</p>
<p>3a. Institutional strengthening and technical training/TA to strengthen government and 3rd-party extension and technical assistance for agroforestry, reforestation/ silviculture, woodlots and tree plantations.</p>	<p><u>Negative determination</u> subject to the following conditions:</p> <ul style="list-style-type: none"> • In training extension agents and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by agroforestry, reforestation/ silviculture, woodlots and tree plantations, and appropriate choices and measures to manage these risks, as rooted in appropriate sustainable land management plans. This shall be generally consistent with, and wherever practicable, promote the specific measures required above for extension directly undertaken by USAID.

Fisheries Extension and Coastal Forests Activities	Recommended Determination
<p>3b. Fisheries - Provide technical assistance to GoG extension services supporting fisheries and coastal management</p>	<p><u>Negative determination</u> subject to the following conditions: In training extension agents and otherwise building the capacity of extension organizations, training and, as appropriate, organizational capacity-building will integrate and promote general awareness of the environmental, health and safety risks presented by fishing and coastal economic activities, and appropriate choices and measures to manage these risks. This shall be generally consistent with the principles of sustainable fishery and coastal management, as set out, inter alia, in the fisheries chapter of USAID's Sector Environmental Guidelines</p>
<p>4a. Enhance public awareness of ecosystem services for livelihoods through multimedia campaign and site-based awareness-raising campaigns.</p>	<p><u>Categorical Exclusion</u> per 22 CFR 216.2 (c) (2) (i) Training, education and technical assistance.</p>
<p>4b. Community Resource Management Areas: training & mobilizing members, training in key management models.</p>	<p><u>Negative Determination</u> subject to the following conditions:</p> <ol style="list-style-type: none"> 1. USAID support to community management of natural resources management/governance in any specific context is predicated on the underlying land/forest management plan substantially conforming to the conditions enumerated for land management plans in section 3.6. 2. Support to community natural resources management/governance in any specific context must be accompanied by strengthened monitoring of forest/land management, and reporting to central governmental authorities and, preferably, the public

3.6 Support to Governance and Government Policy and Capacity (Excluding Extension Services); Data and Studies

Entailed activities

This EG activity category consists of the following activities:

1. Studies and monitoring:

- Support to GoG pilot activities on the Ghana Child Labor Monitoring System (GCLMS);
- Conduct a biodiversity assessment to prioritize sites for intervention on bio-diverse areas and those vulnerability to extreme climate variability;
- Coastal wetlands/mangrove assessments & data collection;
- Land surveys; Develop land cover & geospatial database including trend analysis of land cover (for targeted coastal forest districts, or more broadly.);
- Needs assessment for extension & enforcement services for PA management;

Project performance monitoring not involving physical sampling; e.g. studies to monitor the incomes of both men and women in intervention areas to ensure that individual smallholders, regardless of their gender, benefit from interventions;

2. Short and long-term technical and organizational training to support the GoG Medium-Term Agricultural Sector Investment Plan (METASIP). Support will include scholarships for university programs, training for scientists, data collection and analysis, and policy analysis.

(Ghana's Ministry of Food and Agriculture describes METASIP as follows: "The Government of Ghana has developed the Medium Term Agriculture Sector Investment Plan (METASIP) to implement the Food and Agriculture Sector Development Policy (FASDEP II) over the medium term 2011-2015. It is the framework of interventions for the agriculture sector to play its role in the national economy in the context of the Ghana Shared Growth and Development Agenda (GSGDA) which is the national programme of economic and social development policies coordinated by the National Development Planning Commission (NDPC). METASIP is also in fulfillment of Ghana's participation in agriculture related initiatives of the Economic Community of West African States (ECOWAS) and the Africa Union Commission (AUC) under the framework of the ECOWAS Agriculture Policy (ECOWAP) and the Comprehensive Africa Agriculture Development Programmed (CAADP)."

"Sustainable management of land and environment" is one of the six METASIP programs.

http://mofa.gov.gh/site/?page_id=2754 accessed 8 Sept 2013.

3. Technical assistance to executive and legislative branch bodies to improve data and statistics capability, increase organizational effectiveness, and address other capacity needs. Includes but is not limited to:

- Enhancing the capacity of national fisheries statistics system;
- Improving GoG capacity to generate, maintain, and use coastal terrestrial ecosystem, biophysical, and socioeconomic data;

4. Technical support to and coordination with GoG to enable a coordinated (regional- and district government, NGOs, private sector) GoG-led approach to improved nutrition and resiliency.

5. Energy Sector Technical and Policy Support: [N/A]

6. Natural Resource Management Policy & Policy Implementation Support

TA and training to strengthen capacity for spatial and land use planning and management at the regional and district levels;

- Provide GoG capacity building for improved governance of coastal forests and wetlands landscapes, including improved pollution monitoring and control measures. May include:
- TA to support development of legal and operational policy framework.
- Support to improved GoG interagency coordination (e.g. facilitated meetings)
- Analysis and TA to support policy reform in the areas of improved land & tree tenure, and land access & security;
- TA to support enhanced public participation in NRM policy-making, reform, implementation and governance. (may include, e.g. study tours that demonstrate application of good NRM practices; establish dialogue platforms and consultations/presentations with successful thought leaders and advisory groups.);
- Provide technical assistance to the GoG in sustainable management of coastal ecosystems and fisheries (general);
- Development of land use plans/strategies for specific areas;
- Support GoG improvements in national climate change policy and strategies to incorporate coastal ecosystem concerns, particularly mangroves;
- Support GoG in policy, law and institution strengthening to create an enabling environment for fisheries and coastal governance;
- Capacity building & TA focused on protected area enforcement and monitoring, extension via project staff, stakeholders (NGOs, GoG institutions);
- REDD+ implementation readiness support.

NOTE: support to GoG fisheries and coastal management extension is addressed under section 3.2.

Potential Adverse Impacts and Considerations Regarding Recommended Determinations

1. Studies and monitoring. These activities present no foreseeable adverse impacts. Thus, there is no contraindication to these activities being categorically excluded as data and studies.

2. Short and long-term technical and organizational training to support the GoG Medium-Term Agricultural Sector Investment Plan (METASIP). Training and policy assistance in support of agricultural policy presents concerns if they do not integrate a sustainable agriculture sensibility and specific techniques and approaches suitable for the local context. In this case, however, “Sustainable Management of Land and Environment” is a core METASIP program, and METASIP itself is the result of a significant consultative process

responsive to the core environmental mandates in the ECOWAP and the CAADP. Thus, there is no contraindication to these activities being categorically excluded as training and TA.

3. *Technical assistance to executive and legislative branch bodies to improve data and statistics capability, increase organizational effectiveness, and address other capacity needs.*

These activities present no foreseeable adverse impacts. Thus, there is no contraindication to these activities being categorically excluded as training and TA. .

4. *Technical support to and coordination with GoG to enable a coordinated (regional- and district-government, NGOs, private sector) GoG-led approach to improved nutrition and resiliency.* Per section 3.2, nutrition and resiliency interventions do have potential adverse impacts. However, this activity is simply intended to improve coordination among various actors in the nutrition area; there is thus no contraindication to a categorical exclusion for this technical assistance activity.

5. *Energy Sector Technical and Policy Support: [NA to SFMP]*

6. *Natural Resource Management Policy & Policy Implementation Support.* These activities are intended to strengthen natural resource and ecosystem management in Ghana, and as such, are specifically intended to be environmentally beneficial. However, poorly conceived or poorly informed NRM policies or policy implementation can, in their failure, make things worse rather than better. Examples include fisheries policy based on incorrect assumptions regarding fish stocks, or failure to anticipate and address the adverse social impacts on communities that can result when policy changes reduce community access to coastal and fisheries resources that are their livelihoods. For these reasons, these policy activities are ineligible for the categorical exclusion for technical assistance activities (22CFR216.2(c)(2)(i). The final content of national policy, including NRM and water policy, is the responsibility and determination of the government of Ghana. However, USAID’s responsibility reasonably extends to assuring that TA for policy development or reform seeks to avoid or mitigate the known, typical “failure modes” for such policy, including:

- Failure to consult community stakeholders, and to address the adverse social impacts that result from loss of access to resources
- Failure to adequately support implementation, including TA, monitoring and enforcement. (For example, a policy reform might promote aquaculture as an alternative to fishing –but
- Aquaculture has a set of adverse impacts which, if not addressed by extension TA, could worsen environmental problems in coastal zones. (Note that aquaculture support is NOT covered by this IEE.)
- Failure to put in place mechanisms to address data gaps and adjust policy in response to new data.
- Failure to appropriately value the ecosystem services and reduced vulnerability provided by species diversity --- for example, while economically productive and providing many of the soil-conservation and runoff-control benefits of natural forests, plantations are not bio-diverse habitats and do not substitute for natural forests in this way.

With specific respect *to formulation of land use management plans/strategies for specific areas*: Land use management plans are intended to conserve soils, the economic productivity of land, including forests, and the ecosystem services that forests and other land cover types provide. The principle risk is that they fail in fact to be fully based on principles of sustainable use, or do not address the adverse social impacts on communities that can result when strengthened management of forests reduces community access to forest resources.

Recommended Determinations

Support to Governance Activities	Categorical Exclusion or Recommended Determination
1. Studies and monitoring	Categorical Exclusion per 22 CFR 216.2 (c)(2)(iii) Analyses, studies, academic or research workshops and meetings; and/or 22 CFR 216.2 (c)(2)(i) Technical Assistance, Training and Education
2. Short and long-term technical and organizational training to support the GoG Medium-Term Agricultural Sector Investment Plan (METASIP).	Categorical Exclusion per 22 CFR 216.2 (c)(2)(i) Technical Assistance, Training and Education
3. Technical assistance to executive and legislative branch bodies to improve data and statistics capability, increase organizational effectiveness, and address other capacity needs	Categorical Exclusion per 22 CFR 216.2 (c)(2)(i) Technical Assistance, Training and Education
4. Technical support to and coordination with GoG to enable a coordinated (regional- and district-government, NGOs, private GoG-led approach to improved nutrition and resiliency.	Categorical Exclusion per 22 CFR 216.2 (c)(2)(i) Technical Assistance, Training and Education and/or 22 CFR 216.2 (c)(2) (viii) Programs involving nutrition, health care or population and family planning services except to the extent designed to include) activities directly affecting the environment (such as construction of facilities, water supply systems, waste water treatment, etc.)

<p>6. Natural Resource Management Policy & Policy Implementation Support.</p>	<p>Negative determination subject to the following conditions:</p> <p>1. TA for development /reform, review and advocacy of fisheries policies and management, coastal land use policy and management, climate change policy and REDD+ readiness, must be cognizant of and embody and strongly advocate measures to, as relevant:</p> <ul style="list-style-type: none"> • Avoid potential adverse impacts of the use of non-native species for afforestation or other purposes. Beyond this, assure careful selection of species for reforestation/afforestation to maintain/restore ecosystem balance and sustain biodiversity • Prevent conversion of relatively intact natural forest to plantations • Prevent use of agrochemicals in forest areas except as consistent with principles of safer use. (See www.usaidgems.org/sectorguidelines.htm.) • Fully embody the principles of sustainable fisheries and coastal zone management; see e.g. the Fisheries chapter of USAID’s Sector Environmental Guidelines. www.usaidgems.org/sectorguidelines.htm • Address adverse economic consequences on local communities, including from loss of usual and customary use of resources • Integrate significant stakeholder consultation, including customary users of resources • Fully integrate the principles of adaptive management <p>2. Support for implementation, monitoring and enforcement is a required complementary activity following policy development.</p>
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Pursuant to the analysis above, the activities in this category are recommended for the following determinations: