INITIAL ENVIRONMENTAL EXAMINATION
USAID/SENEGAL

USAID-URI Collaborative Management for a Sustainable Fisheries Future in Senegal (USAID/COMFISH)

Program Activity: AAG N° 685 011
Program Number: LWA: EPP-A-00-04-00014-00
Associate award no. 685-A-00-11-00059-00
Country/Region: USAID Senegal

Program/Project Title: USAID-URI Collaborative Management for a Sustainable Fisheries Future in Senegal (COMFISH)

USG Foreign Assistance Framework:

Functional Objective 4: Economic Growth

Program Area 4.5: Agriculture
Program Element 4.5.2: Agricultural Sector Capacity

Program Area 4.8: Environment
Program Element: 4.8.1: Natural Resources and Biodiversity
Program Element: 4.8.2: Clean Productive Environment (Adaptation)

Funding Begin: FY11 Funding End: FY16 LOP Amount: $11,499,709

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Current Date: August 01, 2011

IEE Amendment (Y/N): NO

IEE Expiration Date: December 31, 2016

ENVIRONMENTAL ACTION RECOMMENDED: (place X where applicable)
Categorical Exclusion: X Negative Determination: X
Positive Determination: Deferral _ __

ADDITIONAL ELEMENTS:
EMMP : X CONDITIONS : X PVO/NGO :

The Increased Economic Growth IEE was amended and approved on April 29, 2010 to include FtF activities of which the COMFISH project is a component.

SUMMARY OF FINDINGS AND RECOMMENDED THRESHOLD DECISION:

The following environmental determinations are recommended for activities anticipated to be carried out under the USAID/COMFISH project (A detailed list of illustrative activities is provided in the full text).

Categorical Exclusions are recommended for numerous activities pursuant to 22 CFR 216.2(c)(2) (i) [education, T.A., training], (iii) [analyses, studies, workshops], (v) [document and information transfers], and (xiv) [Studies, projects or programs intended to develop the capability of recipient countries to engage in development planning]. These activities have no direct effects on the environment. These include activities in the areas of:

- Education, technical assistance, and training
- Technical studies, research and analyses
- Awareness and outreach
- Study tours and peer to peer exchanges
- Governance strengthening

Negative Determination with Conditions is recommended for the following types of activities pursuant to 22 CFR 216.3 (a)(2)(iii). (A detailed list of illustrative activities in each of these categories is provided in the full IEE document).

- Reduce post-harvest losses and improve product quality
- Enhance fisheries value chains
- Improve fishing community resilience to climate change

Required mitigation actions include at a minimum those summarized in Section 4.2 of the full IEE document, and described in the USAID Environmental Guidelines for Small-scale Activities in Africa, which can be found at http://www.encapafrica.org/egssaa.htm.

Conditions for fisheries management plans including managing access and gear

Fisheries management activities must be conducted in full conformity with Points 1-5 of the fisheries management activity description contained in Section 4.2 (p25) of this IEE. Further, fisheries management plans will be submitted to the AOTR and Mission Environmental Officer for review prior to implementation. Specific AOTR approval of these plans is required prior to implementation.

Conditions for value chain assessments and improvements

Value chain improvements must be implemented as complements to fishery management plans to ensure sustainability of fish stock harvests. A formal management plan does not have to be officially adopted prior to initiating work on value chain improvements, but a process must be underway that is working towards formal adoption of such plans. To ensure value chain improvements contribute to or promote sustainable fisheries, they should aim at obtaining international certification (e.g. Marine Stewardship Council certification/eco-labeling) for export products.

Conditions for establishing Marine Protected Areas (MPAs)

This activity will be conducted:

i) Following principles contained in EGSSAA Chapter 2: Community-Based Natural Resource Management (CBNRM). Of course, not all principles found in that chapter are relevant to the establishment of MPAs. But many are, particularly when the MPA is being developed within frameworks of CBNRM and/or other types of co-management with formal Protected Area authorities. In addition to 'principles', the chapter contains a Supplemental Environmental Screening Form. This form is oriented around major resource/issue clusters and asks "leading questions" to help guide a systematic review of potential environmental impacts affecting CBNRM, protected area management and other nature-based interventions associated with MPAs. If a question could justify a "yes" answer, then, an environmental review report will be developed to explain and describe the intended activity, as well as the mitigation steps that are planned; and

ii) In compliance with Senegalese environmental statutes/regulations.

Conditions for enterprise development training – micro credit, loans and micro-enterprises

Activities relating to the expansion of micro-finance and or micro-enterprises shall be subjected to environmental review. The COMFISH project will assure that in any support for micro-lending, financial intermediaries (FIs) fully implement an environmental due diligence process which:

- enables 'Environmentally Sensitive Activities', as defined below, to be identified in loan applications;
- bars funding to activities which are prohibited under the Sections 118 & 119 of the Foreign Assistance Act;
- bars funding for "classes of action normally having a significant effect on the environment (per 22 CFR 216.2.d) pending an Environmental Assessment acceptable to USAID and USAID's approval of that assessment; and
- ascertains compliance with Senegalese environmental statutes/regulations as a condition for loan-making.

However, if one or more of the participating FIs have environmental due diligence procedures that depart in some measure from these requirements, project staff will consult the MEO for a determination whether the existing procedures substantially satisfy the intent of this condition and are acceptable.

Environmentally Sensitive Activities are defined as:

a. Activities listed in 22 CFR 216.2.d "Classes of actions normally having a significant effect on the environment";

b. Activities prohibited or limited by Sections 118 and 119 of the Foreign Assistance Act; or

c. Activities identified by host country environmental regulations as requiring environmental review, licensing or permits.

(For a list of activities under a & b, see the ENCAP factsheet on environmental compliance for DCA activities: www.encapafrica.org/ documents/ENCAP_AFR_DCA_ Factsheet_3 Feb 2010.doc).

If the project undertakes other activities to enhance availability of credit and financial services, it shall assure that where appropriate, environmental due diligence procedures (see above) are either (i) implemented (where USAID has direct control over provision of credit and financial services); or (ii) promoted and advanced to the degree feasible (where USAID does not have direct control).

In cases where COMFISH has direct control over the provision of credit and financial services, the project will ensure that the Environmental Screening Form (ESF) in the Environmental Guidelines for Small-Scale Activities in Africa (EGSSAA) Part III, "Guidelines for Micro and Small enterprises" (tailored as needed) will be used to assist in identifying potential environmental impacts that are likely to occur as a result of such micro-enterprise activities. When screening identifies moderate and high risk categories, mitigation measures will be described using Environmental Review Reports (ERRs). In addition, the URI-appointed Project Manager for COMFISH will visit all projects for which ERRs exist to ensure they are not causing any adverse environmental impacts, with a view to correcting and or initiating additional mitigation measures as needed.

See also general restrictions, Section 5.0

Conditions for small-scale infrastructure

For the rehabilitation of existing facilities, and for construction of facilities in which the total surface area disturbed is less than 10,000 square feet (1,000 sq meters), and where no protected or other sensitive environmental areas could be affected, the condition is that these activities will be conducted following principles for environmentally sound construction as provided in the Chapter 3: Small Scale Construction of EGSSAA http://www.encapafrica.org/EGSSAA/Word_English/construction.doc.

For the construction of any facilities in which the total surface area disturbed exceeds 10,000 square feet (1,000 square meters), the program shall conduct a supplemental environmental review according to guidance in Annex G (www.encapafrica.org/EPTM/Annex G EPTM_Mar2005b.pdf) of the Africa Bureau Environmental Procedures Training Manual (EPTM) (http://www.encapafrica.org/eptm.htm). Construction will not begin until such a review is completed and approved by the Mission Environmental Officer.

Conditions for WASH

- All water supply and sanitation activities will be conducted in a manner consistent with the good design and implementation practices described in EGSSAA Chapter 16: Water Supply and Sanitation.
- All construction activities will be conducted following principles for environmentally sound construction, as provided in EGSSAA Chapter 3: Small Scale Construction
- Aquifer protection measures and proper design and maintenance will be undertaken to minimize microbiological contamination of improved wells and springs.
- Water quality testing is the responsibility of the COMFISH project for interventions that provide potable water. This includes arsenic testing adhering to "Guidance Cable State 98 108651". In addition, the standards and testing procedures described in "Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs

in Sub-Saharan Africa" must be followed. The project will also build capacities and responsibilities that provide reasonable assurance that on-going water quality monitoring occurs.

• The standards for initial and on-going testing will follow local laws, regulations and policies. Furthermore, a response protocol will be established in the event that water quality testing detects contamination.

• Latrines will be sited far away from shallow wells, cisterns, spring sources, boreholes and wetlands. Latrine pits will be dug in the unsaturated zone above the water table, and latrine pits will be protected against flooding and overflow due to intense rainfall. COMFISH will establish and train community water and sanitation (WAT/SAN) committees to manage, repair and maintain all water points. Also, general concepts of watershed management will be explained to WAT/SAN committees.

• COMFISH will provide training and education in sanitation and hygiene to local water and sanitation committees and to participating communities with the aims of :

- Ensuring community mobilization and public awareness of human health risks associated with water-borne disease vectors;
- Encouraging the development of community responses that are environmentally sound, cost effective and safe; and
- Ensuring control over the management of the facilities and operations through local community rules and best practices. Verification through site visits and photos will be done to assure practices are in accordance with local community rules and best practices.

• COMFISH will:

- Follow best engineering practices with qualified professional expertise including energy and water efficiencies;
- Identify and mitigate any direct impacts on the existing physical environment or surrounding socio-economic environment caused by the construction of and presence of the water or sanitation system. These impacts relate to resource use, earthmoving and construction, soil compaction and impacts on neighboring populations.

• When feasible, the majority of materials used will be of local origin and will not contain any hazardous materials (e.g. asbestos or lead)

<u>Conditions for Climate Change adaptation measures</u>

Use of hard structures or beach or dune nourishment to combat sea level rise will not be approved without additional screening prior to implementation. Institutions proposing hard structures and beach nourishment should be encouraged to identify alternative options including 'soft' engineering solutions including abandonment of built structures that are at risk or retreat/movement landward of those that can be moved. Soft solutions, which include restoration of natural vegetation for erosion control and promotion of green coastal barriers to combat erosion or stabilize beaches, are allowed without further screening.

Conditions for small scale agricultural activities that promote and carry out sustainable agriculture activities including tilling, cultivation, fertilization, harvesting, etc.

All agricultural activities will be conducted according to the following principles:

(a) emphasize and fully integrate environmentally sound practices substantially consistent with ESGGAA Chapter 1: Small Scale Agriculture; Chapter 11: Livestock; and Chapter 12: Integrated Pest Management (www.encapafrica.org/egssaa.htm) and the Africa Bureau Fertilizer Factsheet http://www.encapafrica.org/docs.htm#specificagriculture). This shall be an ongoing effort, and it is expected that COMFISH guidelines and practices will be refined over time in response to field monitoring.

"Environmentally Sound Practices" include basic good hygiene/animal waste management/biosafety practices as a part of animal husbandry TA/training (if applicable), and cleaner production approaches, as appropriate, for agro-processing.

If direct assistance to specific processing operations is undertaken, the project must ensure that the operations employ (or will employ, as a result of the assistance) adequate environmental management techniques. These techniques must, at a minimum, satisfy obligations under local law or policy. Where no such requirements exist, the enterprise must employ appropriate, common-sense practices to safely dispose of waste, minimize pollution of surface or groundwater and safely store inputs and commodities.

(b) Include the fundamentals of pesticide safer use if it becomes apparent that beneficiaries are using pesticides in the agricultural production activities enabled by project-funded inputs, training or extension. If such use is observed, the project must take all feasible steps to discourage the use of Class I and Class II pesticides by beneficiaries. Refer to Section 5.1: General restrictions-pesticides.

(c) Promote intensification of agriculture, while undertaking all feasible measures to discourage the expansion of beneficiary agricultural production into non-degraded habitat or important ecological areas (e.g., mangroves, undisturbed wetlands, primary forest, etc.). If such expansion is observed, the project shall immediately notify the AOTR and MEO.

See others Conditions in Section 4.2

Conditions for sub-grants:

- Must incorporate provisions that the activities to be undertaken will comply with the environmental determinations and recommendations of this IEE.

- The AFR Environmental Review Form (ERF) and process, including supplemental NRM checklist, will be used for all COMFISH small grants made after the effective date of this IEE. The form is available at www.encapafrica.org/documents/AFR-EnvReviewForm-20Dec 2010.doc.

Note: The full process as described on page 1 of the ERF must be implemented, and activities funded by the grant may not commence until the submitted form and associated environmental review report, if any, is approved by the AOTR and REA. The COMFISH project is responsible for assuring, and grant activities may only commence, after grantees demonstrate their ability to undertake indicated mitigation and monitoring.

General Restrictions, Implementation and Monitoring

- **Pesticides**

No support for pesticide use is permitted with USAID funds unless a Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) satisfying all elements of analysis required by 22CFR216.3 (b) is approved by USAID.

- **Project Implementation and Monitoring Requirements**

In addition to the specific conditions enumerated above, the negative determinations recommended in this IEE are contingent on full implementation of the following general monitoring and implementation requirements:

1. Implementing partner (IP) Briefings on Environmental Compliance Responsibilities. The AOTR shall provide the COMFISH Chief of Party (COP) with a copy of this IEE and brief him/her on its requirements and on COMFISH environmental compliance responsibilities. The COMFISH COP will assure that each COMFISH sub-grantee or sub-contractor receives this IEE and is briefed on their environmental compliance responsibilities.
2. Development of EMMP. This IEE sets out conditions in Section 4.1.2. URI as the prime IP will develop and provide for AOTR review and approval an Environmental Mitigation and Monitoring Plan (EMMP) that documents how URI will implement and monitor all IEE conditions that apply to project activities. If sub-grantees/sub-contractors implement activities that are subject to conditions, URI will ensure they adhere to conditions and the procedures of the EMMP. In the case of large sub-grants or subcontracts, URI may elect to require that sub-grantees/sub-contractors develop their own EMMPs.

(Note: sample EMMP formats are available at www.encapafrica.org/meoEntry.htm.)

3. Integration and implementation of EMMP. URI and any sub-grantees/sub-contractors shall integrate EMMPs into their work plan and budgets, implement the EMMPs and report on their implementation as an element of regular project performance reporting.
4. Integration of compliance responsibilities in prime and sub-contracts and grant agreements.

a. The AOTR shall assure that any contracts or agreements for implementation of the project, and/or significant modifications to current contracts/agreements shall reference and require compliance with the conditions set out in this IEE, as required by ADS 204.3.4.a.6 and ADS 303.3.6.3.e.

b. URI will assure that sub-contracts and sub- agreements, and/or significant modifications to existing agreements, will reference and require compliance with relevant elements of these conditions.

5. Assurance of sub-grantee and sub-contractor capacity and compliance. URI will assure that any sub-grantees/subcontractors have the capability to implement the relevant requirements of this IEE. URI will, as and if appropriate, provide training to sub-grantees sub-contractors in

their environmental compliance responsibilities and in environmentally sound design and management (ESDM) of their activities.

6. AOTR monitoring responsibility. As required by ADS 204.5.4, the AOTR will actively monitor and evaluate whether the conditions of this IEE are being implemented effectively and whether there are new or unforeseen consequences arising during implementation that were not identified and reviewed in this IEE. If new or unforeseen consequences arise during implementation, the AOTR will suspend the activity and initiate appropriate, further review in accordance with 22 CFR 216. USAID Monitoring shall include regular site visits.

7. New or modified activities. As part of year 1 Work Plan, and all Annual Work Plans thereafter, URI in collaboration with the AOTR, will review all on-going and planned activities to determine if they are within the scope of this IEE.

If any IP adds new activities or makes substantial modifications to existing activities, an amendment to this IEE addressing these activities shall be prepared for USAID review and approval. No such new activities shall be undertaken prior to formal approval of this amendment.

Any ongoing activities found to be outside the scope of the Regulation 216 environmental documentation approved in this IEE shall be halted until an amendment to the documentation is submitted and written approval is received from USAID.

8. Compliance with host country requirements. Nothing in this IEE substitutes for or supersedes IP, sub-grantee and subcontractor responsibility for compliance with all applicable host country laws and regulations. The IP, sub-grantees and subcontractor must comply with host country environmental regulations unless otherwise directed in writing by USAID. However, in case of conflict between host country and USAID regulations, the latter shall govern.

APPROVAL OF THE RECOMMENDED ENVIRONMENTAL ACTION:

Economic Growth COMFISH Project

CLEARANCE:

Acting Director, USAID/Senegal _____ Date 8/12/11
Alfreda Brewer

CONCURRENCE:

Bureau Environmental Officer _____ Date 8/7/12
Brian Hirsch

Date Approved X

Disapproved _____

File No.

ADDITIONAL CLEARANCES:

Mission Environmental Officer _____ Date _____
Aminata Badiane

AOTR _____ Date 08/01/2011
Oumou Ly

EG Office Director _____ Date 8/9/11
Peter Trenchard

PRM Office Director _____ Date 8/9/11
Christophe Tocco

OPTIONAL CLEARANCE:

Regional Environmental Officer: _____ Date _____

Robert Buzzard

Regional Legal Adviser: _____ Date _____
Jonathan Kamin

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CLEARANCE:

Acting Director, USAID/Senegal _____Date_____
Alfreda Brewer

CONCURRENCE:

Bureau Environmental Officer _____ Date _____
Brian Hirsch

Date Approved_____

Disapproved _____

File No.

ADDITIONAL CLEARANCES:

Mission Environmental Officer_____ Date_____
Aminata Badiane

AOTR_____ Date _____
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EG Office Director_____ Date_____
Peter Trenchard

PRM Office Director_____ Date _____
Christophe Tocco

OPTIONAL CLEARANCE:

Regional Environmental Officer: _____ Date _____

Robert Buzzard

Regional Legal Adviser: _____ Date _____
Jonathan Kamin

INITIAL ENVIRONMENTAL EXAMINATION
FOR THE USAID Collaborative Management for a Sustainable Fisheries Future in Senegal (COMFISH) Project

Program Title: **USAID COMFISH**
Activity Number: LWA Associate Award No. 685-A-00-11-00059-00

1. Background and Activity Description

1.1 Purpose and Scope of IEE

This IEE covers activities carried out under the USAID/Senegal Collaborative Management for a Sustainable Fisheries Future in Senegal (USAID COMFISH) Project. The USAID COMFISH Project is a five-year program. It is implemented through the University of Rhode Island (URI)-USAID cooperative agreement on Sustainable Coastal Communities and Ecosystems (SUCCESS). The focus is on sustainable fisheries management. The purpose of this IEE, in accordance with the US Government's Code of Federal Regulations (22CRF216), is to review the reasonably foreseeable effects on the environment, as well as recommended Threshold Decisions.

1.2 Background

The overarching purpose of COMFISH is to develop and replicate new models for sustainable fisheries that, if successful will assist the sub-region in achieving sustainable management of its artisanal fisheries sector. The goal is to support the Government of Senegal's efforts to achieve reform of its fisheries sector by putting in place and strengthening many of the enabling conditions necessary for improved governance and demonstrating effective tools and approaches for ecosystem-based collaborative management of its marine fisheries. The program will help reverse the trend in Senegal of increased fishing effort and overexploitation of fish stocks with adverse effects on economic growth and food security.

The COMFISH project will contribute to four key result areas:

1. Institutional capacity strengthened at all levels of governance to implement an ecosystem-based, co-management approach to sustainable fisheries, and to prevent overfishing
2. Strategies and policies to overcome unsustainable and destructive marine resource use practices that threaten biodiversity conservation in the West Africa Marine Ecoregion are tested and applied
3. Vulnerability assessed and capacity of vulnerable coastal communities strengthened to adapt to impacts of climate variability and change
4. Increased social and economic benefits to artisanal fishing communities provide incentives to a continued sustainable fisheries agenda

COMFISH will strive for meaningful co-management through strengthened fishing constituencies for good practices, strengthened institutional mechanisms for local and sub-national fisheries management, improved enabling environment for co-management, improved information systems, collaborative research and surveillance, and enhanced value added.

1.3 Description of Activities

1.3.1 Empower fishermen, women and fisheries associations to create constituency for promoting good practices in fishing. The goal is to put fishermen at the core of reform, and to nurture fishing sector buy-in and a sense of ownership of new innovative management approaches. To achieve this, activities will include:

- Fishermen to fishermen discussions and exchanges
- Training to empower women in co-management
- Strengthening of women fish processing associations

1.3.2 CLPA and CLP institutional capacity building. Strengthening the capacity of the CLPAs is critical to the government of Senegal's goal of achieving the policy objectives outlined in the Fisheries Policy Letter. COMFISH will support workshops and training for representatives of CLPAs at the national level and in selected project sites. Training will focus on co-management techniques and the development of manuals and operational guides for co-management.

1.3.3 Fisheries management planning and implementation for key stocks – important economically and for food security. Fisheries management plans for selected artisanal fisheries inside the artisanal fishing zone (6 miles to sea) will be formulated in partnership with DPM and fishery stakeholders. Priority will be given to stocks that are locally manageable, such as demersal species and shrimp. The purpose of a fisheries management plan is to establish short and long term objectives and create implementable and enforceable management actions. Plans should include a description of the fish and fishery, management objectives, reference points and harvest rules, institutional arrangements for co-management and resources needed to carry out implementation. Key activities include:

- Workshop in Year1 to prioritize and identify the specific stocks/areas where the project will work to develop management plans
- Form Co-management Committees for stocks selected
- Develop management objectives
- Conduct stock assessment review and facilitate workshops of stakeholders to draw upon existing knowledge and data
- Assist Committee to develop harvest rules and strategies, define institutional arrangements and resources needed for implementation.
- Assist in formal adoption of the plan

1.3.4 Management of critical fisheries ecosystems. Fisheries management planning must also take into account critical fisheries ecosystems. In support of the government of Senegal's policy of conservation of marine habitat and fishery resources, the project will work at the local and national level. At the national level, effort will be directed at the successful adoption and implementation of the new Marine Protected Area (MPA) policy. At the local level, three selected existing MPAs will be strengthened. The candidate sites are Cayar, Joal, and Bamboung. Activities may include:

- Monitoring and surveys
- Training of staff and local leaders
- Public education
- Demarcation of MPA boundaries
- Preparation and distribution of maps and charts with MPA boundaries and other outreach materials
- Assessment of the impact of artificial reefs placed in MPAs

1.3.5 Information systems for management. It is difficult to get a clear picture of the status of many of the local fish stocks at the present time due to lack of data. Data on stocks is critical to determine levels of

efforts suitable to maintain a sustainable fishery. The project will work with partners to develop a process to identify gaps in data, establish research priorities and develop a collaborative research program with a focus on those fisheries where management plans will be developed. Activities will include:

- Workshops to compile existing data- species specific
- Determine training needs of partners in data collection, stock assessment, ecosystems approaches, risk assessment and decision management
- Engage universities, industrial sector, NGOs, fishermen, and the processing sector for enhanced data collection

1.3.6 Collaborative research, outreach and extension. The highly effective and successful approach to coastal and marine research, outreach, and extension of the US Sea Grant College program will be modeled in Senegal. Activities will include:

- A national workshop on the approach
- Exchange visits between government and university fisheries personnel to Sea Grant programs in the U.S.
- Training in extension and the Sea Grant model
- Competitive small grants for collaborative research and extension
- Applied research and internship support for local graduate students

1.3.7 Reduce post-harvest losses and improve fish product quality and traceability. Poor fish handling, storage and transport practices result in poor fish quality and post-harvest losses that reduce the total value of fish caught. By reducing post-harvest losses the entire fishing sector is better off and there is more fish for local food and for export. Actions will include:

- An assessment of the cold chain, needs and opportunities; on-board quality practices; preservation techniques (gutting, bleeding, insulated ice boxes, smokers, fermenting, etc.); and, water and sanitation conditions at landing and processing sites.
- Other selected actions to reduce post-harvest loss implemented once an evaluation of where post-harvest losses occur at selected land sites is carried out.
- Training in public health and sanitation
- One to two landing sites (including Cayar) selected to test the feasibility of labeling a fish product with clear traceability criteria. Labeling adds value to the fish product when it is known to come from a fish landing site with high standards and good practices in fish product quality from boat to market.
- Small grants for improvements in water, sanitation and hygiene

1.3.8 Enhance artisanal fisheries value chains that provide increased wealth and equity for small scale processors. Value chain analyses have been recently completed for *bonga* and oysters under the leadership of the Wula Nafaa project. A general Senegal fisheries value chain analysis was also completed in 2009. The purpose of value chain analyses is to identify entry points and opportunities for improving wealth and equity along the various steps of equipping for fishing, obtaining credit, fishing, processing, transport, and sales. A special focus is to increase value added to small-scale and traditional women processors in the locations targeted by the project. The project will collaborate with other projects and agencies to:

- Assist in the implementation of recommendations from past value chain analyses, and
- Conduct other assessments on other critical artisanal fish species that are destined for local and African markets, and industrially processed fish for European markets.
- A careful assessment of the gendered aspects of the value chain in order to develop an action plan. Actions may include improving processing methods, equipment, systems of purchasing, packaging, transport and sales.

1.3.9 Protect life and property at sea. Fisheries are an inherently dangerous occupation. As fisheries regulations change, one of the unwanted consequences is an increase in accidents at sea. This may be due to changes made in crew size, fishing method or fishing area (i.e. migration over longer distances) and reduction in vessel maintenance. COMFISH will support in the key fisheries and geographic areas targeted:

- Training on safety at sea
- Grants for life jackets, flares, dye, mirrors and cell phones (via revolving fund)
- Evaluate if existing safety laws are effective and formulate activities for improvement
- Pilot testing of weather forecasting systems and real time delivery to fishermen

1.3.10 Improve fishing community resilience to climate change. Climate change impacts can impinge on the success of co-management and the goal of a prosperous and sustainable artisanal fishery. Activities will include:

- ***Early actions in three rural coastal areas.*** In support of the findings of the National Adaptation Plan of Action (NAPA), early actions will be carried out in 3 coastal areas where high levels of climate change vulnerability to important coastal fishing communities have been identified. They include the Saloum Delta (wetland inundation) and Joal (coastal erosion). Early actions are designed to provide concrete benefits to the fishing sector and build public support for climate change adaptation. They will be demonstrations of an ecosystem-based approach to coastal adaptation. Ecosystem-based approaches help communities deal with climate change impacts by protecting mangroves, estuaries, seagrass beds, dune communities, and other systems on or near shorelines and the benefits they provide. Early actions could include sub-grants to local communities or NGOs for implementation of adaptation measures and/or small scale agricultural activities.
- ***Coastal and marine vulnerability assessment and adaptation planning.*** Parallel with early actions, vulnerability assessments, mapping, and adaptation capacity building will be conducted in the same sites where early actions are carried out. Bundles of adaptation measures that can build upon, and strengthen institutions and policies will be selected and implemented.
- ***National level mainstreaming.*** If Senegal is to adapt successfully to climate change, national policies and strategies must include climate change impacts and adaptive measures. In collaboration with the National Consultative Council for Marine Fishers (CNCPM), DPM, the National Planning Agency, and other artisanal fishing groups, the project will increase awareness and understanding of climate change links to the fishing sector and identify sectoral policy entry points for mainstreaming climate change at the national level.

2. Country and Environmental Information

2.1 Importance of the Artisanal Fisheries Sector

Senegal has a coastline of 700 kilometers and some 172 fish landing sites. Marine fisheries harvested along the coast of Senegal play a critical role in food security, livelihoods, local and national economic growth and well-being. For instance, the industrial and artisanal/traditional fisheries combined, either directly or indirectly, provide an estimated 600,000 jobs, the majority related to the artisanal fishery and accounts for 17 percent of the total labor force and 10 percent of the entire rural population. The fishing sector also provides a major source of dietary protein for the nation's population (47% of total protein and 70% of animal protein). Fisheries products are the nation's most important source of export revenues, contributing close to 37% of the total value of exported goods between 1997 and 2002. In spite of the significant contributions of the fishery sector to the Senegal economy and food supply, approximately one-third of the population still lives below the poverty level and more than two-thirds earn less than US$2 per day). Forty-six percent of households in Senegal are vulnerable to food insecurity, with 20 percent considered as highly vulnerable. Given these facts, it would be hard to overstate the importance of

fisheries resources to sustaining an important food supply for a growing population and its potential to generate increased wealth for Senegal's people.

2.2 Biological Significance of the Marine Ecosystems in Senegal

Senegal's marine zone is part of the West Africa Marine Ecoregion (WAMER), one of the world's most biologically outstanding areas, ranking among one of the World Wide Fund for Nature's Global 200 eco-regions. The remarkable marine biodiversity in this region is sustained by oceanic upwelling as part of the Canary Current Large Marine Ecosystem (CCLME). These powerful oceanic currents create a tremendously productive food chain that supports one of the most diverse and economically important fishing zones in the world. Over 1,000 species of fish have been identified, along with several species of cetaceans including dolphins and whales, as well as five species of endangered marine turtles and the severely threatened West African Manatee. This immense productivity is further enhanced by several major river/estuary/delta complexes that provide additional influx of nutrients and sediments to the marine realm, adding to its biological productivity. Maintaining the health and quality of this highly productive marine ecosystem is critical to maintaining a sustainable supply of goods (e.g. food) and services (e.g. employment) for Senegal's citizens.

The USAID/Senegal biodiversity threats assessment of 2008 identified overfishing and destructive fishing practices as primary direct threats to Senegal's marine biodiversity with particular concern raised about demersal stocks including groupers, shrimp and octopus that comprise a bulk of it's exports. The COMFISH project is also designed to help address these issues as well as minimize the impacts of global climate change on fishing communities. The program will be guided mainly by enabling the Government of Senegal and fisheries stakeholders to implement the significant policy shifts in the management of the coastal fisheries as outlined in the National Fisheries Sector Policy Letter and complement ongoing donor supported initiatives that will put the fisheries on a path to greater sustainability.

2.3 Trends in Fishing Effort, Landings and Status of Fish Stocks

Fisheries resources are shared by artisanal and industrial sectors, each with their unique characteristics and problems. In the past, the industrial sector generally produced products destined for the export market, while the artisanal fleet supplied fish for local consumption and distribution. Fishing effort over the last decade has shifted significantly. The number of registered canoes in the artisanal fleet has risen from 8,488 in 1980 to 16,136 as of the PNI (*Programme National d'Immatriculation*) census of January 2011. Concurrently, nationally registered industrial vessels declined from a high of 176 in 1997 to 119 in 2006. Foreign vessels have also declined from 163 in 1980 to 44 in 2006. As a result, the artisanal fishery now dominates the supply chains for the local and export markets. They produce 94% of the fish, 63% of the molluscs, and 25% of the crustaceans landed in Senegal. Total landings have remained relatively stable at over 300,000 MT annually over the past decade, with growing fishing effort in the artisanal sector taking up the decline in the industrial sector.

This growth in artisanal effort is due in part to the growth in coastal populations, the role of fisheries as a social safety net, and problems in the nation's agriculture sector. As the role of the agricultural sector has declined over time, many inland participants in agriculture have migrated to the coast to practice both fishing and agriculture. In addition, thousands of Senegalese artisanal boats currently fish in neighboring waters and it is estimated that more than 30 percent of the coastal demersal species landed in Senegal by small-scale fishers are caught outside of the country's waters. The decline in the industrial fleet is partially due to the steady decline in economic profits as a result of declining demersal fish stocks, increasing fishing costs (e.g. rising fuel costs), and increasingly stringent export requirements with European markets.

2.4 Government of Senegal Fisheries Policy

The Government of Senegal has developed a strategy whereby communities form legally recognized private associations, under existing commercial law, called Local Fishers' Committees (CLP, for *Comité Local des Pêcheurs*). These CLPs then enter into direct legal agreements with the Ministry of Maritime Economy in order to develop and implement co-management initiatives for targeted fisheries. The Minister legalizes these initiatives (e.g. input controls such as minimum mesh sizes, closed seasons, no-take fishing reserves, etc.) through a Ministerial Decree. At the multi-community and multi-CLP level, the Ministry has created Artisanal Fishing Local Counsels (CLPA, for *Conseil Local de Pêche Artisanale*), to develop management plans for wider coastal fishing areas and to harmonize and aggregate the co-management initiatives taken by the CLPs.

At present, few CLPAs are fully operational and they have not received the promised financing that was to come from a share of vessel registration fees. To be a successful, decentralized, co-management model, there needs to be sustainable financing, and fisheries stakeholders need greater decision-making power. Currently, management measures proposed by Local Fishers' Committees decisions require endorsement by local representatives of the Directorate of Marine Fisheries (DPM, for Direction des Pêches Maritimes). The functioning of co-management structures needs to be more thoroughly analyzed and adjustments made. At a minimum, it is important to identify mechanisms to strengthen the influence that local communities and fisheries stakeholders have on decision-making.

In order to move from open access to managed access, and improved co-management and associated decentralization of some management functions, explicit geographic areas of jurisdiction also needs to be addressed. Mandated geographic areas of jurisdiction would provide greater legitimacy and authority for CLPAs to enforce local regulations not only on local fishers, but fishers coming into their jurisdictions from other areas of the country.

At the same time the government is undertaking institutional measures to manage the fishery more fully it also places high importance on the fisheries sector to continue to drive accelerated economic growth and poverty reduction. The *Poverty Reduction Strategy* mentions fisheries as key driver for wealth creation and the *National Accelerated Growth Strategy* lists fisheries as a pillar for boosting growth, while the *Agriculture Investment Plan* highlights the role of fisheries and aquaculture for food production. The government is also updating the National Fisheries Act of 1997, which has been passed from the DPM to the Ministry of Fisheries and if/when passed as well by the National Ministry, Prime Minister, and National Assembly will provide a renewed and strengthened framework for fisheries management.

In 2004, a government-led fisheries assessment resulted in important policy decisions now embodied in the Fisheries and Aquaculture Sector Policy Letter of 2008 (LPS, for *Lettre de Politique Sectorielle*). The LPS seeks to enhance the consistency of government interventions, projects and programs on the basis of clearly defined and prioritized objectives. It aims to bring together all initiatives by the government, development partners and donors around a consensual reference document. Strategic priorities are to reduce excess capacity and empower fishers. Development strategies in the LPS include:

- Control and manage maritime fishing capacities to meet the allowable catch potentials
- Control access to fishery resources
- Introduce fisheries development plans
- Promote a policy of conservation of marine habitat and fishery resources via integrated management of coastal areas
- Enhance and adapt fisheries research
- Optimize fisheries monitoring, control and surveillance resources

- Reduce post-catch losses

For fisheries to contribute to growth strategies there must be management reforms and sectoral strengthening─ sustaining production and yields and generating increased wealth, while achieving substantial reduction in effort. A goal in the Government Action Plan for the Development of Fisheries and Aquaculture is to retire 3,000 artisanal and 40 industrial fishing boats. Fishermen will need ample incentives and participation in decision making to develop widespread agreement on how this reform can be achieved.

Senegal is also putting in place the elements necessary for an ecosystem based approach to fisheries management with a growing network of marine protected areas (MPAs). A National MPA Strategy is under development, and a memorandum of understanding between the Ministry of Maritime Economy and the Ministry of Environment is being signed to clarify roles and coordinate efforts. Senegal has many organizations with expertise in fisheries. However, new models of engagement may be needed to fully utilize the strengths already in place to accomplish these fisheries reforms, Senegal will need new tools and approaches for governance, empowerment and management.

2.5 National Environmental Policies and Procedures

The COMFISH project will observe and apply national environmental policies and regulations and work with their associated responsible implementing agencies (DPM, DITP, DPSP, DPC), especially the *Direction de l'Environnement et des Etablissements Classes* (DEEC), within the purview of which is environmental law enforcement. Senegal now has a broad legal basis for environment and conservation, yet many of the laws are not yet fully applied and some contradictions remain. Senegal has signed and ratified all the Rio international conventions. A National Environment Action Plan (NEAP) was completed in 1997 that lays the framework for cooperation among all ministries for environmental policy and dialogue. This resulted in the new Environment Code that was established in 2001. A Biodiversity Strategy was adopted in 1998 that lays out priority areas for biodiversity conservation. A National MPA Strategy is under development, and an MOU between the Ministry of Maritime Economy and the Ministry of Environment has been signed to clarify roles and coordinate efforts. The Decentralization Code of 1996 has had considerable impact on how the environment is managed as it transferred jurisdiction for natural resource management to local governments. The Forestry Code, revised in 1998, sets conditions for the transfer of forest management to local governments which included the development of forest management plans. A new Forestry Action Plan was developed in 2005 to improve implementation of the Forestry Code. A revised Forestry Code is currently pending Parliament approval.

3. Evaluation of Project Issues with Respect to Environmental Impact

3.1 Activities Not Likely to Result in Environmental Impact

Empower fishermen and women

- Fishermen to fishermen discussions and exchanges
- Training to empower women in co-management
- Strengthening of women fish processing associations

CLPA and CLP Capacity Building

- workshops and training for representatives of CLPAs

Fisheries Management planning

- Workshop to prioritize and identify the specific stocks/areas where the project will work to develop management plans
- Form Co-management Committees for stocks selected
- Develop management objectives
- Conduct stock assessment review and facilitated workshops of stakeholders to draw upon existing knowledge and data
- Assist Committee to develop harvest rules and strategies, define institutional arrangements and resources needed for implementation.
- Assist in formal adoption of the plan

Management of critical ecosystems

- Monitoring and surveys
- Training of staff and local leaders
- Public education
- Demarcation of MPA boundaries
- Preparation and distribution of maps/charts with MPA boundaries and other outreach materials
- Assessment of the impact of artificial reefs placed in MPAs

Information systems for management

- Workshops to compile existing data- species specific
- Determine training needs of partners in data collection, stock assessment, ecosystems approaches, risk assessment and decision management
- Engage universities, industrial sector, NGOs, fishermen, and the processing sector for enhanced data collection

Collaborative research and outreach

- A national workshop on the approach
- Exchange visits between government and university fisheries personnel to Sea Grant programs in the U.S.
- Training in extension and the Sea Grant model
- Competitive small grants for collaborative research and extension
- Applied research and internship support for local graduate students

Reduce post-harvest losses and improve fish product quality and traceability

- An assessment of the cold chain, needs and opportunities; on-board quality practices; preservation techniques (gutting, bleeding, insulated ice boxes, smokers, fermenting, etc.); and, water and sanitation conditions at landing and processing sites.
- Other selected actions to reduce post-harvest loss implemented once an evaluation of where post-harvest losses occur at selected land sites is carried out.
- Training in public health and sanitation

Enhance artisanal fisheries value chains that provide increased wealth and equity for small scale processors.

- Conduct assessments on critical artisanal fish species that are destined for local and African markets, and industrially processed fish for European markets.
- Assessment of the gendered aspects of the value chain in order to develop an action plan. Actions may include improving processing methods, equipment, systems of purchasing, packaging, transport and sales.

Protect life and property at sea

- Training on safety at sea
- Grants for life jackets, flares, dye, mirrors and cell phones (via revolving fund)
- Evaluate if existing safety laws are effective and formulate activities for improvement
- Pilot testing of weather forecasting systems and real time delivery to fishermen

Improve fishing community resilience to climate change

- Coastal and marine vulnerability assessment and adaptation planning
- National level climate change mainstreaming into policy documents

3.2 Activities with Possible Environmental Impacts

The following activities could potentially have adverse environmental impacts:

Reduce post-harvest losses and improve fish product quality and traceability

Activities:

- Improve small scale landing, processing and product marketing facilities.
- Improved fish quality, reduced post-harvest losses
- Assisting fishing communities in improvements in water and sanitation at landing sites could result in adverse impacts include:
    - Test, pilot and conduct research on low-cost, small-scale technologies for water supply or sanitation service provision
    - Construct or renovate boreholes
    - Install mechanized or manual pump systems
    - Construct or renovate hand dug wells
    - Construct or renovate connections to extensions of networked water supply distribution systems, including installation of tap stands
    - Construct or rehabilitate water storage tanks
    - Construct rainwater harvesting systems
    - Construct or renovate sanitation facilities (latrines or other)
    - Construct or renovate hand washing basins

Potential Impacts: Improved small scale landing, processing and product marketing facilities could result in disturbance to critical resources and sensitive ecosystems, including mangroves.
Small-scale construction at landing sites or processing areas may have potential negative environmental impacts but will depend on local circumstances. Potential impacts include:

- Damage to sensitive or valuable ecosystems from construction of infrastructure, associated temporary worker dwelling, or construction storage units for personnel or equipment
- Removal of vegetation and/or compaction of the soil and grading of the site, altering drainage patterns and water tables, changing access to water by animals, people and vegetation, or degrading water resources
- Sedimentation of surface waters through removal of natural land cover, excavation, extraction of construction materials and other construction-related activities that result in soil erosion
- Contamination of groundwater and surface water supplies through improper disposal of human and other biological wastes during the construction period
- Contamination of ground and surface water supplies through improper disposal or handling of toxic materials used in construction (e.g., solvents, paints, vehicle maintenance fluids (oil, coolant), and diesel fuel)

- Adverse social impacts due to displacement of local inhabitants, influx of outside workers, inequitable distribution of economic benefits of construction, etc.
- Spread of disease through migration of construction workers from other regions or construction of a new road, especially sexually transmitted diseases such as HIV/AIDS
- Damage to aesthetics of site/area
- Improper extraction of construction materials such as wood, stone, gravel, or clay that damages terrestrial ecosystems (e.g., wood may come from relatively intact or natural forests)
- Use of toxic materials during construction.

As the proposed improvements are small scale, significant impacts are not anticipated but some mitigation and monitoring measures need to be implemented to ensure no adverse effects.

Improved fish quality or other actions to reduce post-harvest losses and improve fish quality can increase the value of fish and give incentive to increase fishing effort and contribute to overfishing.

Some environmental issues and impacts are possible with water supply and sanitation interventions, and will depend on the local circumstances. In some cases, it may just be rehabilitation of existing systems or structures which has a lower likelihood of adverse impacts. However, in cases where new wells or latrines or solid waste management facilities will be proposed, more care will need to be taken to minimize risk of potential adverse impacts. Mitigation and monitoring measures will be likely for these activities to ensure no significant environmental impacts occur. Environmental screening will need to be conducted at each site once design recommendations are prepared and individual monitoring and mitigation measures proposed. However, the water supply and sanitary systems proposed are all small scale and therefore, with proper monitoring and mitigation procedures in place, should pose no significant environmental impacts. Potential impacts from water supply activities specifically include:

- Improper siting of facilities that damages or destroys natural ecosystems
- Damage to sensitive or valuable ecosystems from construction of infrastructure
- Depletion of freshwater resources (surface and groundwater)
- Conflict of water resource allocation
- Creation of stagnant (standing) water near water points that could create breeding opportunities for water-borne disease vectors
- Natural or human-caused biological or chemical contamination of water sources causing increased human health risks
- Land use change including site alteration and road access that can lead to soil erosion, degradation of water quality, deforestation and damage to scenic quality and tourism

Potential impacts from sanitation activities include:

- Increased human health risks from contamination of surface water, groundwater, soil, and food by human waste and disease pathogens
- Degradation of estuarine and marine water quality and degradation of land habitats, or negative impacts to surface or groundwater quality due to inappropriate siting or construction of latrines or wastewater collection systems, or release of human waste from facilities
- Removal of vegetation and/or compaction of the soil and grading of the site
- Improper extraction of construction materials such as wood, stone, sand or gravel that damages terrestrial ecosystems
- Defecation around and not in latrines or other sanitation facilities, potentially contaminating surface water and/or shallow groundwater sources, adversely affecting both human and ecosystem health
- Damage to the aesthetics of the sanitation facility site (visual, smell, etc.)

Enhance artisanal fisheries value chains that provide increased wealth and equity for small scale processors.

*Activities***:** fish eco-labeling, and value chain improvements.

Potential Impacts: Eco-labeling and value chain improvements can increase the value of fish and give incentive to increase fishing effort and contribute to overfishing. Similarly, fish product labeling can increase value of fish product and give incentive to increase fishing effort and contribute to overfishing. Finally, value chain assessments and actions to enhance value added could give incentive to increase fishing effort and contribute to overfishing.

Global Climate Change

Activities: Implementation of adaptation measures

Potential Impacts: The implementation of climate change adaptation measures may have environmental issues and impacts depending on the measures and local circumstances. Measures with potential environmental issues and impacts include: coastal development setbacks, beach and dune nourishment, building standards, and structural shoreline stabilization. Potential impacts from these interventions include:

- Damage to sensitive or valuable ecosystems from construction of shoreline stabilization structures
- Adverse social impacts from coastal setbacks due to displacement of local inhabitants or reduced shoreline access
- Adverse economic impacts on businesses and residents from more costly building costs due to stricter building standards

Other activities may include small scale agriculture such as back-yard gardens to improve household resilience, or development small scale water supply and sanitation facilities that are sited in areas less vulnerable to climate change impacts such as shoreline erosion, or salt water intrusion into freshwater aquifers.

No significant environmental impacts are expected for vulnerability assessments and adaptation planning, or from implementation of adaptation measures such as coastal development setbacks, or stricter building standards in coastal zone. Potential adverse impacts are greatest for measures such as structural shoreline stabilization or beach and dune nourishment. Additional screening and environmental screening would need to be required for these activities. However, it is unlikely that the project would fund such measures directly due to the high costs involved and it is recommended that due to potential risks for adverse environmental impacts from these specific activities, that the project not fund any beach nourishment or shoreline stabilization structures.

4. Recommended Threshold Decisions and Mitigation Actions

4.1 Recommended Determinations

The following determinations are recommended:

4.1.1. Pursuant to USAID authority under 22 CFR 216.2(c)(2), **a Categorical exclusion is recommended for the following activities** that include no physical interventions and no direct effects on the environment:

(i) Education, technical assistance, or training programs except to the extent that such programs include activities directly affecting the environment (such as construction of facilities, etc.)

(iii) Analyses, studies, academic or research workshops and meetings

(v) Document and information transfers

(xiv) Studies, projects, or programs intended to develop the capability of recipient countries to engage in development planning, except to the extent designed to result in activities directly affecting the environment (such as construction of facilities, etc.)

For this project, it specifically includes:

Empower fishermen and women

- Fishermen to fishermen discussions and exchanges
- Training to empower women in co-management
- Strengthening of women fish processing associations

CLPA and CLP Capacity Building

- workshops and training for representatives of CLPAs

Fisheries Management planning

- Workshop to prioritize and identify the specific stocks/areas where the project will work to develop management plans
- Form Co-management Committees for stocks selected
- Develop management objectives
- Conduct stock assessment review and facilitate workshops of stakeholders to draw upon existing knowledge and data
- Assist Committee to develop harvest rules and strategies, define institutional arrangements and resources needed for implementation.
- Assist in formal adoption of the plan

Management of critical ecosystems

- Monitoring and surveys
- Training of staff and local leaders
- Public education
- Demarcation of MPA boundaries
- Preparation and distribution of maps/charts with MPA boundaries and other outreach materials
- Assessment of the impact of artificial reefs placed in MPAs

Information systems for management

- Workshops to compile existing data- species specific
- Determine training needs of partners in data collection, stock assessment, ecosystems approaches, risk assessment and decision management

- Engage universities, industrial sector, NGOs, fishermen, and the processing sector for enhanced data collection

Collaborative research and outreach

- A national workshop on the approach
- Exchange visits between government and university fisheries personnel to Sea Grant programs in the U.S.
- Training in extension and the Sea Grant model
- Competitive small grants for collaborative research and extension
- Applied research and internship support for local graduate students

Reduce post-harvest losses and improve fish product quality and traceability

- An assessment of the cold chain, needs and opportunities; on-board quality practices; preservation techniques (gutting, bleeding, insulated ice boxes, smokers, fermenting, etc.); and, water and sanitation conditions at landing and processing sites.
- Other selected actions to reduce post-harvest loss implemented once an evaluation of where post-harvest losses occur at selected land sites is carried out.
- Training in public health and sanitation

Enhance artisanal fisheries value chains that provide increased wealth and equity for small scale processors.

- Conduct assessments on critical artisanal fish species that are destined for local and African markets, and industrially processed fish for European markets.
- Assessment of the gendered aspects of the value chain in order to develop an action plan. Actions may include improving processing methods, equipment, systems of purchasing, packaging, transport and sales.

Protect life and property at sea

- Training on safety at sea
- Grants for life jackets, flares, dye, mirrors and cell phones (via revolving fund)
- Evaluate if existing safety laws are effective and formulate activities for improvement
- Pilot testing of weather forecasting systems and real time delivery to fishermen

Improve fishing community resilience to climate change

- Coastal and marine vulnerability assessment and adaptation planning
- National level climate change mainstreaming into policy documents

4.1.2. A Negative Determination with Conditions is recommended per 22CFR 216.3(a)(2)(iii), for all activities falling within the categories of activities outlined above in Section 3.2:

Reduce post-harvest losses and improve fish product quality and traceability

*Activities***:**

- Improve small scale landing, processing and product marketing facilities.
- Improved fish quality, reduced post-harvest losses
- Assisting fishing communities in improvements in water and sanitation at landing sites could result in adverse impacts include:

- Test, pilot and conduct research on low-cost, small-scale technologies for water supply or sanitation service provision
- Construct or renovate boreholes
- Install mechanized or manual pump systems
- Construct or renovate hand dug wells
- Construct or renovate connections to extensions of networked water supply distribution systems, including installation of tap stands
- Construct or rehabilitate water storage tanks
- Construct rainwater harvesting systems
- Construct or renovate sanitation facilities (latrines or other)
- Construct or renovate hand washing basins

Enhance artisanal fisheries value chains that provide increased wealth and equity for small scale processors.

*Activities***:** fish eco-labeling, and value chain improvements.

Global Climate Change

Activities:

- Implementation of adaptation measures such as coastal development setbacks, beach and dune nourishment, building standards, and structural shoreline stabilization
- Small scale agricultural activities that promote and carry out sustainable agriculture activities including tilling, cultivation, fertilization, harvesting, etc.
- Sub-grants

4.2 Mitigation Actions and Measures for Activities under Negative Determination with Conditions

This IEE specifies a set of measures below to ensure adequate environmental compliance for all USAID-supported activities. This determination is recommended with the explicit commitment and understanding that all measures set out in Section 4.2 constitute binding requirements and will be implemented in full. Beyond these standard mitigation requirements, additional required measures may also be identified during the course of the environmental screening and review process for individual activities. These shall also be considered binding and are expected to be implemented in full. If additional activities are added to this project that are not described in this document, an amended initial environmental examination that describes additional required mitigation must be prepared and approved.

Reduce post-harvest losses and improve fish product quality and traceability

*Activities***:**

- Improve small scale landing, processing and product marketing facilities.
- Improve fish quality, reduce post-harvest losses
- Assist fishing communities in improvements in water and sanitation at landing sites: this activity could result in adverse impacts including:
    - Test, pilot and conduct research on low-cost, small-scale technologies for water supply or sanitation service provision
    - Construct or renovate boreholes

- Install mechanized or manual pump systems
- Construct or renovate hand dug wells
- Construct or renovate connections to extensions of networked water supply distribution systems, including installation of tap stands
- Construct or rehabilitate water storage tanks
- Construct rainwater harvesting systems
- Construct or renovate sanitation facilities (latrines or other)
- Construct or renovate hand washing basins

Conditions: For improved small scale landing, processing and product marketing facilities, including rehabilitation of existing facilities, and for construction of facilities in which the total surface area disturbed is less than 10,000 square feet (1,000 sq meters), and no protected or other sensitive environmental areas could be affected, the condition is that these activities shall be conducted following principles for environmentally sound construction, as provided in the Small Scale Construction chapter of USAID EGSSAA *http://www.encapafrica.org/EGSSAA/Word_English/construction.doc*.

For the construction of any facilities in which the total surface area disturbed exceeds 10,000 square feet (1,000 square meters), the program shall conduct a supplemental environmental review according to guidance in Annex G (www.encapafrica.org/EPTM/AnnexG EPTM_Mar2005b.pdf) of the Africa Bureau Environmental Procedures Training Manual (EPTM) (http://www.encapafrica.org/eptm.htm). Construction will not begin until such a review is completed and approved by the Mission Environmental Officer. An illustrative list of environmentally sound construction principles includes:

- The majority of materials used will be of local origin and will not contain any hazardous materials (e.g., asbestos or lead).
- Investigate and use less toxic alternative products.
- Excess construction material will be recycled wherever possible and disposal of unusable material will be done in an environmentally sound manner.
- Construction will not require the use of heavy equipment, or in the unlikely event it does, proper safeguards will be taken to prevent destruction of vegetation and soil erosion (e.g., runoff from the construction site which may be high in suspended solids or which may cause disruption to local drainage patterns).
- No lead-based paint will 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 a environmentally safe manner away from areas where contamination of water sources might occur; and the empty cans will be broken or punctured so that they cannot be reused as drinking or food containers.

For improved fish quality, reduced post-harvest losses, COMFISH will only support work in these areas on stocks or geographic regions where the COMFISH is also supporting sustainable management actions or where other initiatives are effectively supporting managed access to prevent overfishing.

For small-scale water and sanitation activities:

- All water supply and sanitation activities should be conducted in a manner consistent with the good design and implementation practices described in EGSSAA Chapter 16: Water Supply and Sanitation.
- All construction activities will be conducted following principles for environmentally sound construction, as provided in Chapter 3: Small Scale Construction of the USAID Environmental Guidelines for Small-scale Activities in Africa, which can be found at www.encapafrica.org.
- Microbiological contamination of improved wells can often be prevented by aquifer protection measures and proper well design and maintenance.

- Water quality testing is essential for determining that the water from a constructed water source is safe to drink and to determine a baseline so that any future degradation can be detected. Among the water quality tests which must be performed are tests for the presence of arsenic. Any USAID-supported activity engaged in the provision of potable water must adhere to Guidance Cable State 98 108651, which requires arsenic testing. The standards and testing procedures described in "Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa" must be followed for potable water.
- Initial water quality testing is the responsibility of the COMFISH project to assure. The project should also set in place capacities and responsibilities to provide reasonable assurance that ongoing water quality monitoring occurs.
- The standards for initial and ongoing testing should follow any applicable USAID guidance, as well as local laws, regulations and policies. Furthermore, a response protocol should be established in the event that water quality testing detects contamination.
- Ensure latrines are sited far away from shallow wells, cisterns, spring sources, boreholes and wetlands. Latrine pits will be dug in the unsaturated zone above the water table, and latrine pits are protected against flooding and overflow due to intense rainfall. Establish and train community water and sanitation committees to manage, repair and maintain all water points and the watersheds immediately surrounding the water points, and provide hygiene education to participating communities.
- Training in sanitation and hygiene for local water and sanitation committees is provided to:
  - Ensure community mobilization and public awareness of human health risks associated with water-borne disease vectors
  - To encourage the development of community responses that are environmentally sound, cost effective, and safe
  - To ensure control over the management of the facilities and operations that COMFISH is supporting
- Relevant local community rules and best practices and procedures of promotion of better environmental health are developed and adhered to. Verification through site visits and photos should be done to assure practices are in accordance with local community rules and best practices.
- The implementing parties will be expected to:
  - Follow best engineering practices with qualified professional expertise; including opportunities for energy and water efficiencies.
  - Identify and mitigate any direct impacts on the existing physical environment or surrounding socio-economic environment caused by the construction of and presence of the water or sanitation system. These impacts relate to resource use, earthmoving and construction, soil compaction, and impacts on neighboring populations.
- When feasible, the majority of materials used will be of local origin and will not contain any hazardous materials (e.g. asbestos or lead)

Enhance artisanal fisheries value chains that provide increased wealth and equity for small scale processors.

*Activities***:** fish eco-labeling, and value chain improvements.

Conditions: Value chain improvements must be implemented concurrent with activities that put management measures in place to ensure sustainability of harvests. COMFISH will only support value chain improvements or eco-labeling on stocks or geographic regions where the COMFISH is also supporting sustainable management actions or where other initiatives are effectively supporting development of management measures to prevent overfishing. A formal management plan does not have to be officially adopted prior to work on value chain improvements as long as a process is underway that

is working towards adoption of formal management measures, or whereby rules are being informally implemented with similar sustainability aims. Since increased demand through export promotion of an eco-labeled product could increase harvests to unsustainable levels in the future, a management plan should be moving towards adoption and implementation. For eco-labeled products, to ensure the management plan meets adequate sustainability criteria, it should be geared towards obtaining international certification (e.g. MSC certification). Export promotion should be centered around the fact that the product is eco-labeled and meets international standards of sustainability.

Global Climate Change

Activity: Implementation of adaptation measures such as coastal development setbacks, beach and dune nourishment, building standards, and structural shoreline stabilization

Conditions: Use of hard structures or beach or dune nourishment to combat sea level rise should not be approved without additional screening prior to implementation. Promotion of green coastal barriers to combat erosion or stabilize beaches is allowed without further screening. Institutions proposing hard structures and beach nourishment should be encouraged to identify alternative options including soft engineering solutions including abandonment of built structures at risk or retreat/movement landward of those that can be moved. Soft solutions include restoration of natural vegetation for erosion control.

Activity: Small scale agricultural activities that promote and carry out sustainable agriculture activities including tilling, cultivation, fertilization, harvesting, etc.

Conditions: All agricultural activities will be conducted following principles and provided in Chapter 1: Small Scale Agricultural, Chapter 11: Livestock and Chapter 12: Integrated Pest Management of the USAID environmental guidelines for small-scale activities in Africa, which can be found at www.encapafrica.org. Ensure that sensitive natural resources or ecosystems are protected from conversion to agricultural or livestock land uses in conjunction with productive water management activities. Maximize the promotion and use of water efficient technologies and approaches (e.g. drip irrigation). Maximize the promotion and use of soil and water conservation approaches and methods. Take measures to prevent groundwater or surface water contamination including:

- Collecting agricultural wastewater from intensive livestock operations in holding lagoons
- Implementing minimum setback limits for grazing and agriculture around water sources
- Ensuring that well heads and springs are properly constructed and protected
- Improving training of farmers in input use, especially chemicals
- Revegetating critical watershed areas and applying soil and water conservation measures to upstream areas for better erosion control
- Revegetating degraded and marginal areas to reduce runoff
- Vegetating riparian areas to prevent erosion along stream banks
- Maintaining existing condition of existing wetlands and constructing additional artificial wetlands for wastewater treatment if appropriate

Requirements that apply to all activities falling under the threshold determination of "Negative Determination with Conditions"

The responsibility for implementing activities in accordance with the findings and conditions of this IEE must be incorporated into all contracts and grants that serve to implement activities covered under this IEE

URI, as the main implementing partner for this project funded through USAID/Senegal, will complete an

annual Environmental Mitigation and Monitoring Plan (EMMP) of all activities, using the guidance and forms described in Section 5 and as explained further under "Monitoring, Compliance Assurance and Reporting", below. Provision for completing EMMPs in October of each year should be a part of annual work plans.

5. Monitoring, Compliance Assurance and Reporting

Monitoring and compliance measures are necessary to ensure that no adverse impacts occur after the development program activities are implemented. The USAID/Senegal Economic Growth Team will conduct monitoring to ensure compliance with team responsibilities under ADS 204, for all activities. The aim is to ensure that they remain within the bounds of the Negative Determination with Conditions described here. This will be achieved through review of project progress reports, periodic field visits to assess the environmental status of the Ministry of Maritime Econmy's policies, and by holding discussions with implementing partner on compliance with environmental procedures and policies

EMMP: Mitigation Plan

Category of Activity from Section 4 of EG IEE	Describe specific environmental threats of your organization's activities (based on analysis in Section 4 of EG IEE)	Description of Mitigation Measures for these activities as required in Section 4 of the IEE	Who is responsible for monitoring	Sources of verification	Monitoring Method	Frequency of Monitoring
1. Education, technical assistance, training, etc.	No environmental impacts anticipated as a result of these activities.	Education, technical assistance and training about activities that inherently affect the environment includes discussion of prevention and mitigation of potential negative environmental effects.	Deputy Project Manager	Education, technical assistance, training and other materials and reports	Review of materials	Quarterly
2. Reduce post harvest losses and improve product quality	Improved facilities could result in disturbance to critical resources and sensitive ecosystems, changing access to water by animals, people and vegetation, or degrading water resources, sedimentation of surface waters soil erosion, or contamination of groundwater and surface water	For improved small scale landing, processing and product marketing facilities, including rehabilitation of existing facilities, and for construction of facilities in which the total surface area disturbed is less than 10,000 square feet (1,000 sq meters), and no protected or other sensitive environmental areas could be affected, the condition is that these activities shall be conducted following principles for environmentally sound construction, as provided in the Small Scale Construction chapter of USAID EGSSAA *http://www.encapafrica.org/EGSSAA/Word_English/construction.doc*. For the construction of any facilities in which the total surface area disturbed exceeds 10,000 square feet (1,000 square meters), the program shall conduct a supplemental environmental review according to guidance in Annex G (www.encapafrica.org/EPTM/AnnexG EPTM_Mar2005b.pdf) of the Africa Bureau Environmental Procedures Training Manual (EPTM) (http://www.encapafrica.org/eptm.htm). Construction will not begin until such a review is completed and approved by the Mission Environmental Officer. An illustrative list of environmentally sound construction principles includes: • The majority of materials used will be of local origin and will not contain any hazardous materials (e.g., asbestos or lead). • Investigate and use less toxic alternative products. • Excess construction material will be recycled wherever possible and disposal of unusable material will be done in an environmentally sound manner. • Construction will not require the use of heavy equipment, or in the	Deputy Project Manager	Construction plans/ designs and photos of all facilities constructed	Review of materials and site inspection	Quarterly

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		unlikely event it does, proper safeguards will be taken to prevent destruction of vegetation and soil erosion (e.g., runoff from the construction site which may be high in suspended solids or which may cause disruption to local drainage patterns). • No lead-based paint will 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 a environmentally safe manner away from areas where contamination of water sources might occur; and the empty cans will be broken or punctured so that they cannot be reused as drinking or food containers.				
	Increased harvests and threat to overfishing due to increased demand from improved quality	For improved fish quality, reduced post-harvest losses, COMFISH will only support work in these areas on stocks or geographic regions where the COMFISH is also supporting sustainable management actions or where other initiatives are effectively supporting managed access to prevent overfishing.		Mgt. plan, MSC cert. or other evidence of measures to prevent overfishing	Review of materials	
	Potential impacts of water supply & sanitation activities include damages natural or sensitive ecosystems, depletion of freshwater resources, creation of stagnant water that could create breeding opportunities for water-borne disease vectors, contamination of water sources causing	For small-scale water and sanitation activities: • All water supply and sanitation activities should be conducted in a manner consistent with the good design and implementation practices described in EGSSAA Chapter 16: Water Supply and Sanitation. • All construction activities will be conducted following principles for environmentally sound construction, as provided in Chapter 3: Small Scale Construction of the USAID Environmental Guidelines for Small-scale Activities in Africa, which can be found at www.encapafrica.org. • Microbiological contamination of improved wells can often be prevented by aquifer protection measures and proper well design and maintenance. • Water quality testing is essential for determining that the water from a constructed water source is safe to drink and to determine a baseline so that any future degradation can be detected. Among the water quality tests which must be performed are tests for the presence of arsenic. Any USAID-supported activity engaged in the provision of potable water must adhere to Guidance Cable State 98 108651, which requires arsenic testing. The standards and testing procedures described in "Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa" must be		Construction plans/ designs and photos of all facilities constructed	Review of materials and site inspection	

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	increased human health risks Land use change, degradation of water quality, increased human health risks from contamination of water, soil, and food by human pathogens, degradation of estuarine and marine and surface shallow groundwater water quality adversely affecting both human and ecosystem health	followed for potable water. • Initial water quality testing is the responsibility of the COMFISH project to assure. The project should also set in place capacities and responsibilities to provide reasonable assurance that ongoing water quality monitoring occurs. • The standards for initial and ongoing testing should follow any applicable USAID guidance, as well as local laws, regulations and policies. Furthermore, a response protocol should be established in the event that water quality testing detects contamination. • Ensure latrines are sited far away from shallow wells, cisterns, spring sources, boreholes and wetlands. Latrine pits will be dug in the unsaturated zone above the water table, & latrine pits protected against flooding & overflow due to intense rainfall. Establish & train community water & sanitation committees to manage, repair and maintain all water points and the watersheds immediately surrounding the water points, and provide hygiene education to participating communities. • Training in sanitation and hygiene for local water and sanitation committees is provided to: o Ensure community mobilization and public awareness of human health risks associated with water-borne disease vectors o To encourage the development of community responses that are environmentally sound, cost effective, and safe o To ensure control over the management of the facilities and operations that COMFISH is supporting • Relevant local community rules, best practices & procedures of promotion of better environmental health developed & adhered to. Verification through site visits & photos to assure practices are in accordance with local community rules and best practices. • The implementing parties will be expected to: o Follow best engineering practices with qualified professional expertise; including opportunities for energy and water efficiencies. o Identify and mitigate any direct impacts on the existing physical environment or surrounding socio-economic environment caused by the construction of and presence of the water or sanitation system. These impacts relate to resource use, earthmoving and construction, soil compaction, and impacts on neighboring populations. • When feasible, the majority of materials used will be of local origin and				

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		will not contain any hazardous materials (e.g. asbestos or lead)				
3. Enhance fisheries value chains	Increasing the value of fish and product eco-labeling can give incentive to increase fishing effort and contribute to overfishing.	Value chain improvements must be implemented concurrent with activities that put management measures in place to ensure sustainability of harvests. COMFISH will only support value chain improvements or eco-labeling on stocks or geographic regions where the COMFISH is also supporting sustainable management actions or where other initiatives are effectively supporting development of management measures to prevent overfishing. A formal management plan does not have to be officially adopted prior to work on value chain improvements as long as a process is underway that is working towards adoption of formal management measures, or whereby rules are being informally implemented with similar sustainability aims. Since increased demand through export promotion of an eco-labeled product could increase harvests to unsustainable levels in the future, a management plan should be moving towards adoption and implementation. For eco-labeled products, to ensure the management plan meets adequate sustainability criteria, it should be geared towards obtaining international certification (e.g. MSC certification). Export promotion should be centered around the fact that the product is eco-labeled and meets international standards of sustainability.	Deputy Project Manager	Management plan, MSC certififcation or other evidence that measures are being taken to prevent overfishing	Review of materials	Quarterly
4. Improve fishing community resilience to climate change	Alteration of nearshore sediment patterns resulting in displaced or accelerated erosion of beachfronts from inappropriate construction Natural habitat destruction or degradation, degradation of marginal lands land water;	*Activity: beach and dune nourishment, use of hard structures to combat erosion from sea level rise:* Use of hard structures or beach or dune nourishment to combat sea level rise should not be approved without additional screening prior to implementation. Promotion of green coastal barriers to combat erosion or stabilize beaches is allowed without further screening. Institutions proposing hard structures and beach nourishment should be encouraged to identify alternative options including soft engineering solutions including abandonment of built structures at risk or retreat/movement landward of those that can be moved. Soft solutions include restoration of natural vegetation for erosion control. *Activity: small scale agricultural activities that promote and carry out su agriculture activities including tilling, cultivation, fertilization, harvesting,* agricultural activities will be conducted following principles and provided in 1: Small Scale Agricultural, Chapter 11: Livestock and Chapter 12: Integra Management of the USAID environmental guidelines for small-scale act Africa, which can be found at www.encapafrica.org. Ensure that sensitiv	Project Manager	TBD via env. screening	TBD via env. screening	Quarterly

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	marine pollution from soil erosion or use of agricultural chemicals; reduced water availability from water storage or diversion for irrigation; bio-diversity loss from land fragmentation, conversion to agricultural use, or introduction of exotic species To be determined through environmental screening processes	resources or ecosystems are protected from conversion to agricultural or land uses in conjunction with productive water management activities. Maxi promotion and use of water efficient technologies and approaches (irrigation). Maximize the promotion and use of soil and water cons approaches and methods. Take measures to prevent groundwater or surfa contamination including: • Collecting agricultural wastewater from intensive livestock operations in holding lagoons • Implementing minimum setback limits for grazing and agriculture around water sources • Ensuring that well heads and springs are properly constructed an protected • Improving training of farmers in input use, especially chemicals • Revegitating critical watershed areas and applying soil and water conservation measures to upstream areas for better erosion control • Revegitating degraded and marginal areas to reduce runoff • Vegetating riparian areas to prevent erosion along stream banks • Maintaining existing condition of existing wetlands and constructing additional artificial wetlands for wastewater treatment if appropriate *Activity: Sub-grants:* Any sub-grants to support this project's activities must incorporate provisions that the activities to be undertaken will comply with the environmental determinations and recommendations of this IEE. This includes assurance that the activities conducted with USAID funds fit within those described in the approved IEE or IEE amendment and that any mitigating measures required for those activities be followed. In addition, environmental screening will be required. Environmental Screening Process: Implementing partners will take into consideration potential environmental impacts during the design and implementation process to achieve an environmentally-sound project design and to promote program sustainability. They will screen proposed activities according to the *Africa Bureau Environmental Report Form Review Process*, which is described in the **Bureau's Environmental Procedures Training Manual,** "*Annex G: Umbrella IEEs and Subgrant Environmental Screening*," as well as in the **Africa Bureau Environmental Guidelines, Part III.** Both can be found at http://www.encapafrica.org/resources.htm (Attached to this IEE as Annex				

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		1). As described there, the screening categories include the following: *Very low risk* - activities that would normally qualify for a categorical exclusion under Reg. 216; *Moderate risk or unknown risk* - activities that would normally qualify for a negative determination under Reg. 216; *High risk* - activities that have a clear potential for undesirable environmental impacts and typically under Reg. 216 require an Environmental Assessment; and *High risk – typically not funded* - activities that either USAID cannot fund or for which specific findings must be made in an Environmental Assessment prior to funding.				