

USAID/COMFISH Project
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in Senegal

Annual work plan
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LIST OF ABBREVIATIONS AND ACRONYMS

AOR	Agreement Officer’s Representative (USAID)
APTE	Sanitation, Fisheries, Tourism, and Environment
ANACIM	National Agency of Civil Aviation and Meteorology
CCLME	Canary Current Large Marine Ecosystem
CDP	Steering Committee
CL	Local Agreement (Convention Local)
CLPA	Local Councils of Artisanal Fishermen (Conseils Locaux de Pêche Artisanale)
CNCPM	National Consultative Council on Marine Fisheries
CNGPP	Co-Management National Committee of Small Pelagics
COMNACC	National Committee on Adaptation to Climate Change
CONIPAS	Senegal Artisanal Fisheries Stakeholders Council
COPEM	Council of NGOs active in the marine environment
CRC	Coastal Resources Center
CRODT	Oceanographic Research Center Dakar, Thiaroye
CSE	Ecological Monitoring Center
CST	Scientific and Technical Committee
DAMCP	Department of Community Based Marine Protected Areas
DEEC	Department of Environment and Classified Establishments
DITP	Department of Fisheries Processing Industries
DPM	Department of Marine Fisheries
DPN	Department of National Parks
DPSP	Department of Fisheries Protection and Surveillance
FENAGIE	National Federation of Fisheries EIGs
ICC	Coordination and Advisory Committee of the CLPAs
ISRA	Senegalese Institute for Agricultural Research
ITA	Institute of Food Technology
IUPA/UCAD	Institut Universitaire de Pêche et d’Aquaculture - Université Cheikh Anta Diop
LPS	Fisheries and Aquaculture Sector Policy Letter
MPA	Marine Protected Areas
MPEM	Ministry of Fisheries and Maritime Economy
NAPA	National Action Plan for Adaptation to Climate Change
PMP	Performance Management Plan
PRAO	World Bank-funded West Africa Regional Fisheries Program
URI	University of Rhode Island
USAID	United States Agency for International Development
USG	United States Government
V&A	Climate Change Vulnerability Assessment and Adaptation Planning
WWF-WAMPO	World Wildlife Fund – West Africa Marine Ecoregion Program Office

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1. INTRODUCTION

The Collaborative Management for a Sustainable Fisheries Future in Senegal project (*USAID/COMFISH*) is a five-year initiative (February 14, 2011 - September 30, 2016) funded by the United States Agency for International Development (USAID). The project is implemented through a Cooperative Agreement between USAID and the University of Rhode Island (URI). Its implementing partners include government agencies, private sector players, university centers, research institutes, and non-governmental organizations (NGOs) working on marine capture fisheries along the coast of Senegal.

The goal is to support the Government of Senegal's efforts to achieve reform of its fisheries sector and increase the resilience of fishing communities and livelihoods through investments in adaptation to climate change. The project does this by strengthening the enabling conditions necessary for improved governance; improved access to science and analysis for decision making; and, identifying and taking actions that increase climate resilience. Interventions focus on national level climate change planning in the fisheries sector, and sub-national efforts across all fishing communities in the zone of intervention of the project with upward links to national level planning. This document presents activities the *USAID/COMFISH* project will implement in FY15, from October 1, 2014 to September 30, 2015.

This is the last full year of activities in the project. FY16 is the last year, but the budget will be at least 30% reduced and close out reporting and events will begin in mid-FY16. In effect, there are 18 months of time remaining for field interventions, so the emphasis now is to ensure sustainability of project initiatives and to not begin new activities that cannot be sustained beyond the life of the project. The goal is to consolidate what has been achieved and transfer ownership to the Fisheries Department (DPM) and to local partners so that project interventions maintain their impacts beyond COMFISH.

Section one of this Work plan provides background on the fisheries sector in Senegal and also presents project objectives and expected outcomes. Part two gives project results to date. Part three provides a more detailed description of the activities planned for FY15. It also includes activity timelines, yearly indicators and targets, and results by activity.

This work plan also presents the structure of the project's coordination unit, the monitoring and evaluation strategy, and budget summary. Appendix A outlines the Performance Management Plan, with targets and expected outcomes for each performance indicator. Appendix B presents the environmental monitoring plan.

1.1 BACKGROUND ON THE FISHERIES SECTOR AND CLIMATE CHANGE

The fisheries sector plays a key social and economic role in Senegal. It makes diverse and significant contributions to macroeconomic and social measures. The Ministry of Fisheries and Maritime Economy reports that about 440,000 tons of fish, worth 154 billion CFA Francs (about US\$315 million), were landed in Senegal in 2013. Fisheries products make up 12.3% of export earnings and 1.3% of the Gross Domestic Product (National GDP). This does not include post-harvest activities like fish marketing, artisanal and industrial processing, and inland captures. The sector provides direct and indirect employment to about 600,000 persons.

The contributions from the fisheries sector to the national budget come from the sale of fishing rights to national companies (industrial fishing licenses and artisanal fishing permits), annual payments for the commercialization of fisheries products (on the local and export markets), and financial compensation for authorizations given to foreign companies. About 750 million CFA Francs in the national budget in 2013 came from the sale of industrial fishing licenses, while barely 1.80 million CFA Francs came from artisanal fishing permits.

The contributions fisheries make to macroeconomic indicators give the sector an important role in national development strategies and particularly in the National Economic and Social Development Strategy (SNDES) 2013/2017. The fisheries sub-sector continues to be one of the driving forces of economic and social growth in Senegal.

The fisheries sector also makes significant contributions to food security. Some 75% of animal protein in Senegal is from marine fish. Annual per capita fish consumption is 26 Kg. This places Senegal among Africa's biggest fish consumers. As a food insecure country, the role of fish protein is critical.

The important role of marine capture fishery and marine resources in Senegal are threatened in the immediate and long-run by climate change and climate variability. As the COMFISH initiative has developed over the past 3 years, the importance of addressing climate change has grown.

The effects, due to climate change, of environmentally driven changes on the distribution and abundance of small pelagic populations have been a major source of concern for fishery managers in Senegal. A newer and additional difficulty is that global climate change is altering the structure and functioning of upwelling-driven marine ecosystems (such as the Canary Current upwelling system), which in turn will affect the economic and social wellbeing of communities that depend on them.

Climate change threats include coastal erosion and habitat loss, sea level rise (from 0.5 to 1.0 meter in the next 50-to-100 years), changes in seasonality and predictability of precipitation, more frequent and unpredictable storms, saltwater intrusion in coastal aquifers, alteration of wind patterns and strength, stress to marine life, disease, and acidification.

All of these threats combined impact fisheries infrastructure, safety at sea, fish stock migration, spatial and temporal abundance of fish stocks, productivity, and the location of spawning areas. The fishermen who know the sea best in the intervention zones of COMFISH say the "the sea has gone crazy." There is limited scientific evidence to validate such local views; COMFISH is addressing this gap.

A fundamental management problem in fisheries in Senegal is excess capacity and overexploitation. Pressure on fisheries is related to population migration to the coast and to open access marine capture fisheries as interior agriculture fails due to reduced precipitation, desertification, and changes in seasonality in rainfall. It has not been scientifically determined that drying trends are associated with climate change and it would be too great an effort for the *USAID/COMFISH* project to undertake studies on migration linked specifically to climate changes. Nevertheless, growing coastal populations and fishing effort is increasing the need for improved fisheries governance.

Climate change combined with overfishing have significant impacts on fish landings, processing, and seafood supplies. Artisanal processing sites, which are often close to shore, will be lost due to sea level rise and coastal erosion. Consideration needs to be given to how to address poor siting of infrastructure at landing sites that will be adversely affected by rising sea level and erosion.

Climate change also makes monitoring, control and surveillance even more important as traditional knowledge may no longer be as accurate as before, and information on fish migration patterns and fishing areas are necessary to be able to adapt in a proactive and timely way.

The *USAID/COMFISH* project has engaged in research on the status of stocks and the influence of environmental conditions on the distribution and abundance of small pelagics, with CRODT, CSE, ISE, the University of Cheikh Anta Diop, and with the local knowledge of fisheries stakeholders. This science and analysis is fed into adaptation measures in the management plans of key stocks, e.g. sardinella and ethmalose, and in national level consultative bodies, plans and policies.

If proactive adaptations are not realized, climate change impacts will reduce income for stakeholders, adversely affect jobs and reduce contributions to economic and financial growth. Effective adaptation also means confronting underlying sectorial weaknesses such as:

- Fishing overcapacity and overexploitation of key stocks
- Weak stakeholder consultation and participation mechanisms
- Poor marine fisheries monitoring, control and surveillance
- Poor management of fisheries infrastructure
- Weak institutional management frameworks

1.2 USAID/COMFISH PROJECT STRATEGY

Climate change vulnerability and adaptation studies have highlighted several weaknesses in the way climate change considerations are integrated into national policy and strategic decision-making processes. The weaknesses include: (a) the lack of knowledge on the underlying capabilities, resources and practices for community adaptation; (b) the absence of effective tools for providing information on climate change to local institutions, communities, and national agencies; (c) the absence of climate change in the planning and budgeting systems of the central government, local governments and communities; and (d) the lack of scientific knowledge on climate change at the national and local level. The *USAID/COMFISH* project has been working over the past several years to support the Government of Senegal so that it can more effectively integrate climate change in public policies, and to enable coastal communities, through the implementation of adaptation plans, Local Agreements, fishery management plans, and MPAs to have an adequate number of tools necessary for increasing climate change resilience.

To integrate climate change into fisheries, *USAID/COMFISH* works at three levels:

At the local level: develop stakeholder and co-management institutional capacity, and provide efficient and functional frameworks for inclusive consultation, so that the needs at the local level are better addressed in planning and decision-making on fisheries.

At the scientific and technical level: build capacity of fishery technicians, research institutes and university institutions to ensure scientific and technical knowledge are integrated adequately in efforts to prepare and establish collaborative management plans with climate change adaptation considerations. Science and research activities and activities with CLPAs are all being undertaken to inform climate change and fisheries governance processes and to ensure that the people who will be impacted by policies are included in their development.

At the strategic and national policy level: give policy and decision-makers vital scientific and technical knowledge they can use for informed and coherent policy integration, planning, and decision-making. Local and scientific level activities are built to inform and support national level consultation platforms and policy and planning activities. Consultations between the *USAID/COMFISH* project and the national Directors of Fisheries and Environment have shown that the Government of Senegal is becoming more determined to integrate climate change issues in fisheries policy and in environmental policy. The process of integrating consultations of this nature in a broader forum like a fisheries specific sub-group of the National Committee on Adaptation to Climate Change will continue throughout FY15.

At the start of the project, national workshops were organized to select priority species for management planning, governance, scientific analysis, and pilot actions. *Sardinella* is the main priority due to its importance in artisanal fishery and the large total volume of catch. It represents almost 80% of catch and consequently is critical for livelihoods, employment, artisanal processing and sales of dried and smoked fish, and food security. The second fish stock selected is ethmalose (bonga or cobo), which is the second most abundant small pelagic species.

1.3 PROJECT GOALS AND EXPECTED RESULTS

The goal is to increase the resilience of fishing communities and livelihoods through science and analysis, improved climate change adaptation and governance, and piloting innovative adaptation actions on the ground that are fed up to and inform the national level.

The longer term goal (20-30 years) of the *USAID/COMFISH* project is that fisheries in Senegal are no longer overexploited and provide: (1) the nation with a sustainable source of supply in high-quality protein; (2) in a way that contributes to the quality of life of artisanal fishing communities; and (3) maintains the capability of marine and coastal ecosystems to produce useful goods and services that the Senegalese people want.

The *USAID/COMFISH* project contributes to the achievement of the following four major intermediate results:

IR 1: Institutional and stakeholder capacity strengthened at all levels to implement an ecosystem based, co-management approach towards sustainable fisheries, taking into account climate change impacts in the fisheries sector

IR 2: Governance strategies, policies and best practices identified, tested and applied to build ecosystem resilience to threats to biodiversity conservation and climate risk.

IR 3: Vulnerability assessed and national/local institutional capacity strengthened to adapt to the impacts of climate variability and change

IR4: Increased climate change resilience and enhanced social and economic benefits to artisanal fishing communities provide incentives to a continued sustainable fisheries agenda

Programmatically, the program is supported by three USAID initiatives; Feed the Future, Global Climate Change, and Biodiversity. In the first year of the project, most of the resources came from the Biodiversity Direct funding stream, but in the following years, the Climate Change Adaptation Pillar became the major source of project funding. The wording of IR 1, IR 2, and IR 4, were changed to reflect this new reality. IR 3 was the main activity area for climate change initially, but currently climate change is integrated into IR 1, IR 2, and to a lesser degree into IR 4, while the interventions in IR 3 continue. The climate change piece has grown to the point where it is being mainstreamed into the project's scientific studies, and into the governance structures, policies and plans that have been developed, such as CLPAs, Local Agreements, and Fisheries Management Plans.

1.4 DESCRIPTION OF PROJECT INTERVENTION AREA

Initially, the intervention area covered the area under the Cayar CLPA (La Grande Côte) and the CLPAs on La Petite Côte (Joal/Fadiouth, Sindia, Mbour, Yenne/Dialaw, Rufisque/Bargny and Foundiougne). Project interventions were in the regions of Thies, Dakar and Fatick. This zone harbors over 65% of the fishermen in Senegal, and 70 to 80% of small pelagic fish landings. A second initial intervention area is the Sine Saloum Biosphere Reserve where estuarine shrimp fisheries and ethmalose are important fisheries. The administrative map below (fig.1) shows these intervention areas.



Figure 1: Administrative map of initial project intervention sites (source: CSE)

Through a series of consultations with the industry’s stakeholders and the Ministry of Fisheries, COMFISH was tasked to develop two community-based fishery management plans for sardinella and ethmalose. The *USAID/COMFISH* project extended its intervention area to also cover the North and South regions of Senegal (Saint-Louis, Louga, Ziguinchor and Kafountine) to provide coverage of the entire Senegal small pelagic fleet and co-management bodies. The map below shows the new areas (phase 2) and the old areas (phase 1) targeted by the project.

Statistics from DPM show that an important fishery of small pelagics in general, and sardinella in particular, has developed in the new project intervention area. To be consistent with our stock based (ecosystem based) approach, it became critical to include the coastal regions of Saint-Louis and Casamance so as to cover the entire biological area in Senegal of the species targeted for collaborative management planning.

In coordination with the Department of Marine Fisheries (DPM), the *USAID/COMFISH* drafted and will sign an MOU with the Canary Current Large Marine Ecosystem (CCLME) in order to integrate the locally established fisheries management practices into the regional and ecosystem-based fisheries management.

LOCALISATION ZONE D'INTERVENTION DU PROJET COMFISH

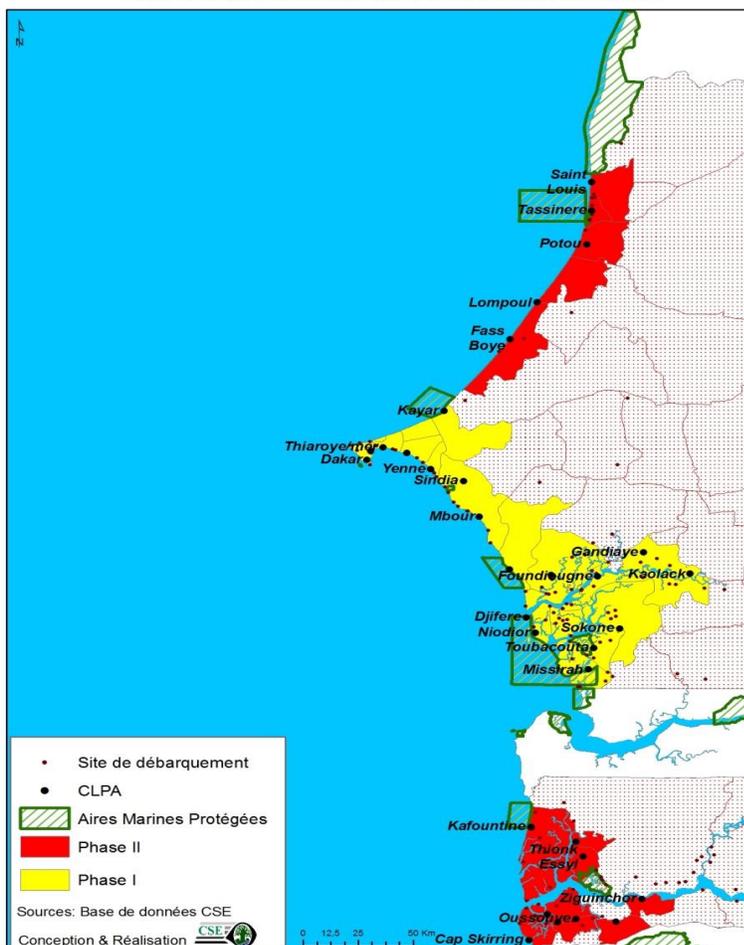


Figure 2: New and old project intervention areas (source: CSE)

Description of the Casamance zone: The Casamance is the area of Senegal south of The Gambia including the Casamance River. It consists of the Ziguinchor area (lower Casamance) and the Kolda and Sédhiou regions (upper Casamance). It has a coastline of about 86 km and a very diverse marine and inland waters network. The rivers and lakes are biologically diverse and the coastline presents a wide continental shelf containing large stocks of pelagic and demersal fish species, crustaceans and cephalopods. The lagoons also contain species such as pike, tilapia, mullet, captain, otoliths, catfish, shrimp, and mangrove oysters.

In the Sédhiou region, the Project activities cover five rural communities and two districts. This includes the rural communities of Djirédji, Bambali, Simbandi Balante, Djibanar, Kaour and the Goudomp and Diattacounda districts. This area is characterized by an important fishery of shrimp and ethmalose.

Description of the Saint-Louis Region: Saint Louis is a coastal area located in the northwest of Senegal close to Mauritanian waters. It is a fishing area with very large landings of pelagic fish, mostly sardinella. Fishing is the main occupation in the region, and a significant source of income.

By virtue of the fishing agreements signed between Senegal and Mauritania, the Senegalese fishermen obtain about 300 licenses annually that grant permission to fish in Mauritanian waters. The landings recorded in the region in 2012 were estimated at 80,000 tons (about 30% of national

sardinella landings), worth about 75 billion CFA Francs. This represents a significant increase in landings compared to 2010.

Description of the species: The *USAID/COMFISH* project is focused on the management of two species; sardinella (Yaboi) and ethmalose (Cobo). The sardinella fisheries in Senegal exploit two different species: the round sardinella (*Sardinella aurita*) and the flat sardinella (*Sardinella maderensis*). Both species are generally caught together but *S. aurita* commands a higher price than *S. maderensis*, although in some seasons fishermen may target *S. maderensis* because of its lower fat content which makes it more suitable for smoking and drying. Ethmalose (*Ethmalosa fimbriata*) is the second most abundant small pelagic species after sardinellas. However, the fisheries are concentrated in the southern areas of Senegal mainly in the Sine Saloum and Casamance.

The table below summarizes important fisheries facts of the two priority species of the *USAID/COMFISH* project for co-management (sardinella and ethmalose) and climate change adaptation.

Table 1: Characteristics of the two priority species targeted by the *USAID/COMFISH* project

Priority stocks/strategies	Fishing context and influencing factors
<p>Species: <i>Sardinella aurita</i> and <i>Sardinella maderensis</i> Local name: Sardinella, Yaboï Family: CLUPEIDES Contribution from <i>USAID/COMFISH</i> project: Developing stock based local collaborative management plans on sardinella at the national level to contribute to the DPM’s national and regional strategies. This will include:</p> <ol style="list-style-type: none"> 1. Providing stakeholders and CLPAs stronger capacity and instituting inter-CLPA consultations based on the Local Agreements to end overfishing 2. Improving the data collection system (IUPA, CRODT, IFAN) 3. Testing and demonstrating simple tools for collaborative stock assessments, identifying climate change impacts, and integrating information and institutional support for planning and dialogue on IUU fishing. 4. Studying the economic value chain 5. Improving fish processing methods and marketing of value added smoked/dried sardinella (Keccax) 	<ul style="list-style-type: none"> • Main species landed by Senegalese artisanal fishermen (75% of total catch). • The stock unit extends between Guinea and Morocco • Abundant, inexpensive, and plays an important role in food security • Scientific evidence (of migratory and reproductive behavior) shows that sardinella are sensitive to climate variations (sea temperature, upwelling, winds, current, etc.) • Critical species for the ecological stability and trophic mass balance of the region’s marine ecosystems • The sardinellas, particularly <i>S. aurita</i>, perform large seasonal migrations that stretch from Guinea to Morocco • The impact of IUU fishing is estimated to be high • The sardinella stocks are considered overfished by the FAO working group, mainly due to uncontrolled expansion of fishing effort

<p>Species: <i>Ethmalosa fimbriata</i> Local name: Bonga, Cobo, ethmalose Family: Clupeidae Contribution from USAID/COMFISH project: Developing a stock based fisheries co-management plan by:</p> <ol style="list-style-type: none"> 1. Strengthening the capacity of the CLPAs that target this fishery (Saloum Delta and Casamance region) 2. Developing frameworks for consultation with CLPAs (Local Agreements) and across CLPAs 3. Improving the stock information and assessment system 4. Assessing stock shared with The Gambia and possible consultations between the two countries 	<ul style="list-style-type: none"> • Primary habitats are estuaries and bays that are sensitive to climate change (precipitation and salinity levels, and temperature). Salinity and temperature strongly affect migration patterns and reproductive cycles of ethmalose • Older individuals migrate to the marine environment • The stock unit extends between the Saloum, Gambia estuaries, and the Casamance • At sea, this species seems to stay very close to the coast where the water is less than 15-25 meters deep • Annual landings are between 9,000 to 10,000 tons in the Saloum and Casamance estuaries • Intense fishing activity in The Gambia and in the Sine Saloum estuaries • Less pressure on the stock located in the coastal and inland riverine areas of the Casamance
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2. SUMMARY OF ACCOMPLISHMENTS

Much attention in the implementation of the USAID/COMFISH project has been directed toward strengthening the enabling conditions necessary to improve local governance in marine fisheries and strengthening capacity to address the ever growing challenges of climate change. The Intermediate Results (IR) achieved are summarized as follows:

2.1 INSTITUTIONAL AND STAKEHOLDER CAPACITY STRENGTHENED AT ALL LEVELS TO IMPLEMENT AN ECOSYSTEM BASED, CO-MANAGEMENT APPROACH TOWARDS SUSTAINABLE FISHERIES, TAKING INTO ACCOUNT CLIMATE CHANGE IMPACTS IN THE FISHERIES SECTOR

National level institutional capacity building: The following summarizes the process initiated by the project to support the country of Senegal in the implementation of fisheries management and climate change adaptation plans:

- Continued development of management plans for sardinella through community based co-management agreements (Convention Locale, in French). The CLs serve as building blocks for the development and implementation of the sardinella National Management Plan of Senegal.
- Continued a process of setting-up a climate change platform for fisheries, through consultations with the sub-committee "Vulnerability/Adaptation" of the National Committee on Climate Change Adaptation (COMNAC). The main goal is to integrate fisheries components into the national strategic plan for climate change policy. This is further described in IR2 accomplishments below.
- Signed a tri-party protocol on roles and responsibilities with the Department of Fisheries Protection and Surveillance (DPSP) and CLPAs to facilitate operations relative to

participatory surveillance. This initiative is an integral part of the overall co-management process, and community engagement.

- Provided support to the secretariat of the “Accelerated Growth Strategy” for the implementation of the action plan of the “Cluster of Marine Products and Aquaculture”. This plan is contributing to the management of fishing capacity and addressing the problems of Illegal, Unreported, and Unregulated (IUU) fishing.
- Supported the National Network of women involved in fisheries in Senegal (REFEPAS) in order to better integrate their participation in the decision-making process.

Local capacity developed for co-management: As noted earlier, the project’s interventions were initially limited to the areas between Dakar and Joal (Petite Côte) and Cayar. In FY14, the project expanded its operations to set up the CLPA in Kafountine (Casamance) with the collaboration of CLPA members from Ziguinchor and Sedhiou. In addition, activities were also expanded to include the CLPA of Saint Louis in the north. In these two new project locations, the initial steps involved training and meetings with the local authorities.

Strengthening the local institutional framework of governance (the CLPAs) was carried out through the training and assignment of local coordinators (relay) in each CLPA. The local coordinators link communication between members of the CLPA and concerned communities. Each coordinator is nominated and elected by members of the CLPAs.

There are also six (6) facilitators hired and assigned throughout the country to oversee field operations of CLPAs, facilitate stakeholder meetings, and train and assist members of the CLPAs in the implementation of management measures. In addition, they also play a crucial role in providing technical assistance to the Department of Fisheries and assist the monitoring and evaluation of the co-management measures.

The role of the coordinators (relay) and facilitators is crucial to manage the tremendous volume of meetings and provide the information needed to create inter-operability and management standards between CLPAs. This process is very much appreciated by the Department of Marine Fisheries (DPM) and all stakeholders.

Training was also focused on purchasing, inventory management, operation and maintenance of CLPA’s equipment. Acquisition of equipment to make CLPAs operational was also made (computer equipment (PC and printer) for the CLPA of Mbour and office furniture and supplies for the CLPA of Sindia Sud).

Five committees were established in each CLPA to strengthen organizational capacity and ensure proper implementation of the Local Agreements. The five committees are:

- Committee for Surveillance and Safety at Sea
- Committee for Awareness, Information, Training and Communication
- Committee for Conflict Regulation and External Relations
- Scientific Committee for Fisheries Research Management, Environment and Collaborative Research
- Committee for Finance and Partnership responsible for Infrastructure Management and Social Action

The restructuring and organization of CLPAs were achieved through a series of meetings between the members of the coordination and advisory board (ICC) in each CLPA.

As a result, the CLPAs are better structured and revitalized to organize meetings between their members and serve as forums where local stakeholders discuss and reflect on sustainable fisheries management problems in these zones. These frameworks for dialogue and consultation were used to

advance Local Agreements, and discuss and formulate a sardinella management plan, promote good fishing practices, and strengthen CLPA governance structures. The number of people that have benefited from training and dialogue is currently 3,357.

Seven Local Agreements approved, 2 others in development: CLPA Local Agreements define the status of marine fisheries overall, and management goals, and actions. They have force of law once they are approved by the CLPA leadership, Divisional and sub-Divisional authorities and State Representative (Prefet). Seven Local Agreements have been approved and are being implemented, and two others will soon be completed for Saint Louis and the Casamance region.

The Local Agreement process involves signing Memoranda of Understanding with the CLPAs, identifying stakeholders, organizing focus groups to set rules of access to fisheries resources, and then developing and getting validation and formal approval for the Agreements from the competent authorities.

The Technical Committee of the CLPA is the body responsible for the control and implementation of the Local Agreement. The project established and made functional nine (9) Technical Committees. In terms of training and support, the focus has been on:

- Participatory surveillance by members of the CLPAs to increase compliance and share responsibility for the implementation of the Local Agreements
- Administrative and financial management practices to provide key members of the CLPA with the necessary tools of fundraising, business and administrative management skills
- Strengthening the capacity of women in organizational skills to allow them to fulfill their role in the CLPA and assume their responsibility in business management

In the case of CLPA in Kafountine (Casamance), the project supports the Department of Marine Fisheries to lead the process of development and approval of the Local Agreement

Baseline on CLPA institutional capacity: To measure the capacity of CLPAs in the zone of the project's interventions a survey was prepared and implemented in the first year and will be re-applied at the start of FY15. This project tailored indicator provides important information on CLPA capacity, critical for long-term sustainability of the efforts of the project.

International training and exchange: The Deputy Director of DPM, the Director of CRODT, the Director of WWF-WAMPO and USAID/COMFISH project staff attended a leadership course organized by the University of Rhode Island's "Fisheries Leadership Institute." For the participants, it was an opportunity to build new partnerships and exchange ideas about tools and practices they could adapt and use to design fisheries policies for sustainable fisheries management in Senegal. In addition, six representatives of key institutions also traveled to the U.S. in June 2014 to learn about fisheries extension programs and approaches in the U.S. and develop a national strategic plan for fisheries extension in Senegal. Also, project and DPM staff went to the United States in 2013 to attend a 3-week training on climate change and impacts on coastal management and population health at the University of Rhode Island.

Fisheries post-graduate education and capacity building in research: USAID/COMFISH supported graduate level and visiting scholar trainings for Senegalese government officers and University researchers in fisheries governance and fisheries stock assessment both in Dakar and at the University of Rhode Island. This exchange contributed to the scientific assessment of fisheries resources and threats to feed into national level fisheries and climate change adaptation planning and policy making for key fish stocks.

The project provided substantial support to help strengthen the fisheries data collection and analysis systems at CRODT, IUPA, IRD/IFAN, ISE and CSE. A software model was developed in collaboration with the University of British Columbia (UBC) and the University of Rhode Island

(URI) to provide managers with a simple stock assessment tool based on routine length measurements. These data and analysis systems are critical for understanding the current status of fish stocks, monitoring future changes to stocks due to climate change and other threats, and to link climate change parameters to fish stock characteristics.

Empowerment of women in the fisheries sector: To give women stronger ability to protect their interests, increase awareness and adaptation to climate change issues, and have a voice in decision-making in the fisheries sector, the project developed a national strategy and a plan of action for the empowerment of women. They were validated by women and submitted to DPM and other partners for implementation.

A local women's empowerment activity is tied to the national strategy and action plan. In Cayar, the project has been supporting a training program on leadership (with DPM's gender unit), literacy, fish product hygiene and quality, packaging, and labeling with a women's sardinella processing group. A modern artisanal processing facility in Cayar was completed and inaugurated by the Minister of Fisheries and the Director of USAID/Senegal in April 2014. In addition, a Code of Conduct for processing was developed and approved by the group. The Code of Conduct includes the agreement not to buy and process juvenile fish as an effective management measure to curb overfishing and rebuild depleted stocks.

2.2 GOVERNANCE STRATEGIES, POLICIES AND BEST PRACTICES IDENTIFIED, TESTED AND APPLIED TO BUILD ECOSYSTEM RESILIENCE TO THREATS TO BIODIVERSITY CONSERVATION AND CLIMATE RISK

The implementation of stock-based management for priority species is being conducted through an inclusive process of preparation of participatory management plans for sardinella and ethmalose. Below is a summary of the results achieved.

Scientific and expert knowledge on stocks and socio-economics to support management plans: The scientific studies conducted by the *USAID/COMFISH* project were often combined with local knowledge so that a simple understanding of the science is effectively introduced in the stock-based co-management of sardinella and ethmalose. This means that all the stakeholders for each stock are fully engaged and receive training so that they can participate actively and effectively in interpreting the outcomes of the research studies.

- i. Biological, ecological, and climatic knowledge has been produced on the two sardinella species (*Sardinella aurita* and *Sardinella maderensis*) from scientific studies lead by CRODT and IUPA. The studies improve understanding of:
 - Bio-ecology and population dynamics of sardinella in Senegal
 - Key environmental and climatic factors influencing population dynamics of sardinella stocks
 - Species migration and time variability of the resource in the North West African marine ecosystems
 - Assessment of fishing capacity and status of fish stocks
 - Socio-economics of the fishery
 - Fishing effort and landings from Senegalese boats fishing outside Senegalese waters
 - Impact of IUU fishing on fish stocks
 - Length-based stock assessment methods (ELEFAN in R) and its application in participatory research models

The report on IUU fishing in Senegal was submitted to the Ministry of Fisheries and consequently a Technical Committee was established for validating the methodology used to estimate the total IUU

catch and develop actions to reduce and/or end the practice of foreign and domestic IUU. As a result the Ministry developed a national strategy and a subsequent five-year action plan to combat IUU. These actions raised the awareness at all levels of Government.

- ii. Biological and socio-economic data has been collected and analyzed for ethmalose using collaborative, inter-agency mechanisms for collecting, sharing and communicating this information. These data are used to determine status of the stock for the development of fisheries co-management plans and the integration of scientific information on climate change. This activity brings together researchers and stakeholders to work together with science and local ecological knowledge creating a partnership among fisheries stakeholders to encourage collaboration on fisheries research to improve fisheries co-management. Among these activities which started in 2014 include: 1) ethmalose gear selectivity study with stakeholders lead by IUPA; 2) GIS mapping of fishing sites and related infrastructure lead by CSE; 3) Bio-ecological and socio-economic study on the stocks of ethmalose by CRODT, and 4) Stock assessment modeling based on length measurements by CRODT, IFAN, and IUPA.
- iii. A database of local knowledge of stock distribution and fishing areas was created and mapped in GIS: The spatial distribution of stocks (sardinella, ethmalose, octopus, thiof (grouper), and cymbium), fishing areas, and coastal infrastructure for fisheries was completed by CSE in a participatory process with stakeholders throughout the country. This data is extremely useful to understand fishermen's perception matched with scientific information regarding the status, abundance and distribution of stocks.

Development of participatory, ecosystem-based co-management plans: Fisheries management planning for sardinella was launched in 2012 in parallel with the formulation of Local Agreements and building on the local and scientific knowledge that had been collected and validated. The process involves a series of consultations, modifications, and approvals with three geographically clustered groups of CLPAs. The plans, approved by the CLPAs were presented and approved by a Technical Working Group of the Department of Marine Fisheries in August 2014. The documents will then be transmitted for approval to the National Committee on Small Pelagics, to an inter-governmental Fisheries Council and finally to the Minister of Fisheries for signature.

In parallel, a similar effort to elaborate a participatory management plan for ethmalose was launched in the Sine Saloum estuarine region through coordination and outreach with key stakeholders and leaders in this fishery.

Fishing capacity management: A Technical Working Group was established by a decree of the Ministry of Fisheries and Maritime Affairs with the support of the *USAID/COMFISH* and worked to develop an action plan on fishing capacity management in Senegal.

Marine Protected Areas: Activities were completed to support the development and approval of the action plan of the National Strategy on MPAs officially adopted in 2014. The purpose of the strategy is to coordinate efforts for effective management and monitoring of MPAs, and create awareness of climate change issues. The MPAs provide a distinct advantage in addressing the impacts of climate change, by providing the resiliency and protection for greater biodiversity and a baseline for monitoring conditions and trends.

2.3 VULNERABILITY ASSESSED AND NATIONAL/LOCAL INSTITUTIONAL CAPACITY STRENGTHENED TO ADAPT TO THE IMPACTS OF CLIMATE VARIABILITY AND CHANGE

Sustainable fisheries development cannot be achieved in Senegal without addressing the impact of climate change and building fisheries stakeholders' resilience. The *USAID/COMFISH* Project has

established a set of activities to strengthen the capacity of institutions and stakeholders to adapt to the impacts of climate change at national and local level. This is a first step in the implementation of the national adaptation strategy at the local level. In this context, accomplishments in this area to date include:

Strengthening cooperation between institutions on climate issues: A national Steering Committee for dialogue on climate change and fisheries was established in May 2013. The membership of the committee includes representatives from the Fisheries Department (DPM), Department of Environment (DEEC), COMNACC (National Committee on Adaptation to Climate Change), CSE, FENAGIE, *USAID/COMFISH*, as well as CRODT, DAMPC (Department of Community Based Marine Protected Areas) and ANACIM (National Agency of Civil Aviation and Meteorology). This platform is a sub-committee on "vulnerability/adaptation in fisheries" under the National Committee on Climate Change Adaptation. COMNACC was established by presidential decree. The goal is to bring climate change into sector-based policies.

The committee conducted a framework assessment of existing advisory panels on climate change applied to fisheries. The results of this study were the subject of a national dialogue with stakeholders (February 2014) and a subsequent approval by COMNACC's Vulnerability and Adaptation Group (July 2014). This work was published and shared with all the structures involved. Subsequently a meeting of the advisory panels on Climate Change and Fisheries was held in September 2014, with a presentation of a process to develop a National Adaptation Plan (PANA) suited to fisheries.

Support for the implementation of the national adaptation strategy to climate change at the local level:

- i. Training and capacity development: The project supported a series of training and informational meetings with stakeholders on climate change benefiting members of the CLPA ICCs (CLPA Coordinating Committees) and other stakeholders from the project's CLPA intervention sites, and Cayar women fish processors. Training has been on the concepts of climate change, how it occurs, how it affects livelihoods, habitats and natural resources, and the identification of sustainable adaptation strategies. A total of 2,400 beneficiaries have attended the training. In addition, staff of the *USAID/COMFISH* project and the DPM travelled to the United States to attend a coastal management course at the University of Rhode Island (URI) on climate change.

Another feature of outreach and extension are radio broadcasts on climate change and good fishing practices. Thirty-three shows were produced and successfully broadcast.

- ii. Coastal community vulnerability to climate change and adaptation strategies: In partnership with the Institute of Environmental Sciences (ISE) at the University of Dakar, vulnerability assessments and adaptation plans in three CLPAs (Joal/Fadiouth, Sindia, and Rufisque/Bargny) were completed. These CLPAs were identified as the most vulnerable sites to climate change. The adaptation plans were validated and approved by the administrative authorities. Subsequently, and during FY14, the project implemented some of the adaptation actions defined in the adaptation plan.
- iii. Marine forecast information to improve safety at sea: A cell phone SMS weather warning system was tested and *USAID/COMFISH* held a dialogue with ANACIM to scale up the system. Over 250 stakeholders participated in the training in the test phase.
- iv. Scientific information on climate change and fish stocks and fishing infrastructure mapping: The sardinella studies have included analysis of the effects of environmental factors (sea water temperature and upwellings) on the distribution and seasonality of the stocks. A regime shift in the marine ecosystem (CCLME) was documented showing a northward shift of the epicenter of the sardinella stocks. This shift was confirmed by fishermen's knowledge and their migration northward demonstrate a need to address the long-term impact of climate

change on fish populations and consequently on coastal populations. Also, the estuarine shrimp and ethmalose studies have documented the effect that water temperature and salinity has on seasonal movement and abundance of these important stocks. Finally, as mentioned earlier, mapping of land use, infrastructure, and land cover, have been studied and documented to facilitate climate change vulnerability assessment and adaptation planning.

2.4 INCREASED CLIMATE CHANGE RESILIENCE AND ENHANCED SOCIAL AND ECONOMIC BENEFITS TO ARTISANAL FISHING COMMUNITIES PROVIDE INCENTIVES TO A CONTINUED SUSTAINABLE FISHERIES AGENDA

Baseline on stakeholders' socio-economic well-being. To measure the project's progress in terms of improved social and economic well-being of people living in the coastal zones, a baseline was developed with indicators to monitor and evaluate perceptions of well-being. In FY15 a mid-project assessment will be conducted using the same methodology and indicators. The indicators of the well-being survey are important to monitor and understand climate change resilience and vulnerability in the fisheries sector.

Artisanal fish processing improvements. The *USAID/COMFISH* project has supported efforts to help women fish processors (mainly the salted, dried, smoked sardinella or "keccax") in Cayar. Assistance has been in training and knowledge transfer, awareness, product quality, local labeling, packaging, and marketing. An artisanal fish processing facility was designed and constructed, which serves as a model for other locations. All the work around the fish processing unit has been conducted with the support and involvement of universities (UCAD), research institutes (ITA) and local and national authorities (DITP, the Department of Environment, Cayar Fisheries Service, the Mayor's Office, etc.). The collaborative approach involving all interested parties facilitated the easy access to permits for the unit by the DITP (Direction des Industries de Transformation de la Pêche), and the business license from the Directorate of Commerce of Thiès. National agency coordination and promotion of the processing facility will continue at all levels, particularly with several administrative services such as ASEPEX (Agence Sénégalaise de Promotion des Exportations) and ADEPME (Agence de Développement et d'Encadrement des Petites et Moyennes Entreprises). A business plan for financial sustainability and growth will be formulated in FY15.

3. ACTIVITIES IN FY15 (Oct 1, 2014 – Sept, 30, 2015)

The *USAID/COMFISH* initiative will continue to strengthen institutional capacity and provide support to stakeholders to adapt to the impacts of climate change at national and local levels. These efforts are founded on scientific knowledge and local stakeholders' knowledge in support of community-based decision-making and implementation processes.

In the project's second to last year, some activities will be winding down (such as MPA conservation activities) and an emphasis will be on ensuring activities are sustainable. Among sustainability priorities are 1) the financial and operational sustainability of CLPA structures and the capacity that has been developed over the past years, and 2) formal approval and demonstrated implementation of the two fisheries management plans prepared with the assistance of *USAID/COMFISH* and that take into account building resilience to climate change. We will avoid expending project funds on activities that will not be sustainable but rather focus on activities that continue to generate benefits after the end of the project.

USAID/COMFISH was recently informed that WWF-WAMPO will not sign a sub-contract in FY15 due to the loss of other funding and project support from other donors. WWF-WAMPO provided considerable support in matching funds in the past, so this will increase the challenge of providing enough matching funds.

3.1. INSTITUTIONAL AND STAKEHOLDER CAPACITY STRENGTHENED AT ALL LEVELS TO IMPLEMENT AN ECOSYSTEM BASED, CO-MANAGEMENT APPROACH TOWARDS SUSTAINABLE FISHERIES, TAKING INTO ACCOUNT CLIMATE CHANGE IMPACTS IN THE FISHERIES SECTOR

This program aims to strengthen the capacity of government structures responsible for fisheries research and management and the capacity of relevant stakeholders as well as foster partnership arrangements between government and stakeholders through CLPA Local Agreements. The Local Agreements have been based on knowledge of the effects of climate change on key marine stocks and ecosystem processes, and their management measures provide for better management of the fisheries and adaptation to climate change. Local Agreements are a co-management tool that links local actors, institutions and stakeholders with national level authorities through a well-defined and ongoing bottom-up process.

3.1.1. Human and institutional capacity development. The capacity development program is designed and implemented for the benefit of stakeholders and government agencies to improve the effectiveness of co-management plans aimed at ending overfishing and maintaining the sustainability of fisheries in Senegal. While more limited than in previous years, in FY15, training and dialogue will continue to benefit local co-management councils (CLPA), professional organizations (Economic Interest Groups-GIE) and the national fisheries co-management institutions such as the National Committee of Small Pelagics (CNGPP) and the National Advisory Council for Marine Fisheries (CNCMPM).

Local institutions: The main capacity building program over the last 3 years was focused to engage and strengthen local fisheries governance capacity through the statutory established local councils and its supporting institutions in order to address challenges of overfishing and climate change. This will be the focus in 7 CLPA project areas, where all the members of these co-management institutions and their government, non-government, local authorities, and research institutions, play an important role in finding answers to the problems in the fisheries sector.

In the newer intervention areas (Ziguinchor, Kafountine and Saint Louis) where COMFISH interventions began in FY2014, work to develop the capacity of stakeholders and the tools for fisheries management (Local Agreements and fisheries management plans) will continue.

Activities for strengthening CLPA capacity will focus on:

- Supporting efforts to continue developing fundraising strategies for CLPA and other management structures in order to ensure a sustainable internal funding mechanism. This effort, deemed essential, will enable stakeholders to maintain their engagement in the process of co-management and fulfill their mandates. One of the strategies for this is to increase the involvement of the local government authority in the financing of CLPAs, and test user fee systems.
- Supporting CLPA representatives themselves to deliver retraining to their members on CLPA organization, the roles and responsibilities of Councils, and how to include climate change in management systems
- Supporting inter-CLPA coordination and networking in each Division through meetings for sardinella stock-based management on common management standards/measures, and on climate change adaption in artisanal marine fisheries
- Developing the capacity of stakeholders to establish a joint system for collaborative fisheries surveillance (CLPA, research institutes, and DPM) to evaluate the impact of co-management plans, Local Agreements, and monitor climate change effects.

The expected results are:

At least two CLPAs complete the renewal of their Coordination and Advisory Committee (ICC). By the rules of CLPAs, they must be renewed every two years.

- An inter-CLPA consultation mechanism is organized in order to develop a co-management framework at the Department level for the coordinated implementation of co-management measures
- A manual for administrative and financial management is developed in consultation with local authorities and adapted to CLPA's needs
- Sources of funding for CLPAs are identified and a system of self-financing is established for at least one CLPA in the area of the project
- Lessons learned for integrating climate change considerations into local level fisheries management feed into national level policy and planning

Partners: CLPA, DPM

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Targeted training to CLPAs where needed and to their members and ICC on CLPA organization, the roles and responsibilities of Committees, and how to include climate change in management systems	X	X	X	X
Work with CLPA and other fisheries co-management partners to develop and implement self-funding mechanisms to maintain CLPA engagement in fisheries co-management	X	X	X	X
Coordinate among CLPAs in improved systems of fisheries pricing	X	X	X	X
Train members of the most recent project assisted CLPAs on techniques of participatory surveillance (Saint Louis, Ziguinchor, and Kafountine Sédhiou)		X	X	

Determine priorities for minor expenditures in equipment and meeting places of CLPAs in the new areas of the project (office equipment for CLPA of Rufisque Yene, St. Louis, Ziguinchor and Kafountine and minor renovation of the small buildings in Kafountine, Yene and Ziguinchor)	X	X	X	X
Coordinate with the Departments of Fisheries to seek government agreements to support CLPAs in minor equipment and supplies	X	X	X	X
Finalize purchase of equipment for fishermen's building in construction by DPM/JICA for the CLPA de Joal/Fadiouth	X	X	X	X
Complete a manual for CLPAs with authorities responsible for fisheries co-management on administrative and financial management and assist in its implementation for one or two targeted CLPAs		X	X	X

Boudié and Balantacounda (Sédhiou Region, Casamance):

- Continue support of community surveillance in controlled fishing areas
- Support the identification of internal sources of funds for the advisory group
- Monitor and evaluate the process of implementation of the management activities of the controlled fishing area

Expected results:

- Internal sources of funding are identified and the implementation of financial management has started
- At least two meetings are held to evaluate implementation progress

Partners: CCP (Fisheries Consultation framework), DPC (Continental Fisheries Directorate)

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Support advisory groups in the implementation of the controlled fishing areas through training and material support	X	X	X	X
Support the identification and implementation of internal sources of funding for the advisory group of the controlled fishing areas.	X	X	X	X
Outreach and education of local fishermen on fisheries and related legislation.	X	X	X	X
Monitor and evaluate the process of implementation (at least one meeting)	X			X

Institutional capacity development in fisheries and climate change research, extension and outreach:

This activity builds on FY14 actions aimed at designing, testing and demonstrating innovative issue-based and strategic approaches and tools in fisheries research, extension and outreach on climate change. This will improve the capacity of institutions engaged in promoting scientific research and training to collaborate better in order to provide effective and useful information systems and share findings for fisheries management with respect to climate change. Activities include:

- Develop a strategic plan for institutional collaboration on fisheries extension
- Assess the means and resources committed to extension education and training, so as to build a partnership between fisheries research on climate change and co-management structures

- Share climate change scientific findings and build cooperative research with fishermen to add value and effectiveness of the science with their local ecological knowledge
- Strengthen the capacity of technical fisheries officers and IUPA students on issues of climate change in fisheries by granting a limited number of training and educational opportunities through scholarships and fellowships

The strategy for strengthening a national fisheries and climate change extension program will feed into national level climate change consultation bodies (especially the sub-group on Vulnerability and Adaptation in Fisheries).

The expected results are:

- A national extension strategy to promote best fishing practices and improve the resilience of coastal communities to climate change is defined and agreed to by stakeholders

Partners: DPM, DPSP, DIPT, CRODT, DEEC, DPN

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Support the Government of Senegal to develop and implement a national strategic plan for fisheries extension in Senegal - Development of the national strategic plan on fisheries extension in Senegal - Review and approval of the national strategic plan document	X	X	X	X

3.2. GOVERNANCE STRATEGIES, POLICIES AND BEST PRACTICES IDENTIFIED, TESTED AND APPLIED TO BUILD ECOSYSTEM RESILIENCE TO THREATS TO BIODIVERSITY CONSERVATION AND CLIMATE RISK

3.2.1. Participatory co-management planning for sardinella and ethmalose. The Program Description of the USAID/COMFISH targets the formulation and approval of two fisheries management plans. As already noted earlier, sardinella and ethmalose were selected by fisheries authorities and stakeholders.

The management planning process is complex in Senegal. This process is particularly complex for species whose population spans multiple, or all, geographic areas of the coast, and other neighboring countries. It involves the following steps:

1. Reactivating the DPM Technical Working Group for Participatory Management of Small Pelagics
2. Consultations with stakeholders of the artisanal and industrial fishery
3. Scientific and local knowledge studies
4. Discussion and analysis of diagnosis documents, specific fishery objectives, and management options; and, validation by the Working Group for Participatory Management of Small Pelagics
5. Reactions and amendments of the diagnostic, objectives, and options for management by CLPA fisheries stakeholders
6. Revision of the participatory management plan document based on stakeholder reactions
7. Consultations with CLPA members and leadership following amendment
8. Amendments to the management plan by industrial fishery stakeholders

9. Scientific and technical validation of the management plan by the National Management Committee of Small Pelagics (CNGPP). CNGPP is a body created by Ministerial decree.
10. Validation of the management plan by the National Consultative Council on Marine Fisheries (CNCMP) and submission to the Minister of Fisheries and Marine Affairs
11. Approval of the management plan by the Minister of Fisheries and Marine Affairs

The co-management legal entry point as defined by the 1998 Fisheries Code is the CLPAs. Article 12 of the Marine Fisheries Code created the CLPAs by Ministerial decree in November 2008. Since sardinella's ecosystem, for example, crosses multiple CLPAs, a national Fisheries Management Plan must span all the relevant CLPAs. The methodology developed by the project is to initiate local management plans for sardinella after the approval of Local Agreements at the level of each CLPA; and to group CLPAs in similar fishing zones for consultations and common agreement on fishing needs, objectives, and challenges. Local Agreement activities in FY15 are described in more detail below in section 3.2.3.

In this way, the approach developed by the project is to formulate, discuss and validate, and submit for approval to the Minister of Fisheries, local sardinella management plans based on Local Agreements prepared at the level of target CLPAs grouped in the same fishing zone for inter-CLPA agreement.

To date, the *USAID/COMFISH* co-management process has facilitated the signing of Local Agreements with 11 CLPAs, representing more than 60 communities and fishing villages throughout the coastal zone of Senegal. The Local Agreements are largely similar, but have some differences in terms of measures, such as no fishing areas and seasonality, size limits, etc. Each CLPA has ownership of its own Local Agreement.

Through a long and iterative process, the CLPAs are now functional with sufficient capacity to perform and deliver in a timely manner stakeholders' input to the national management process. Women processors were made an integral part of the CLPA membership and contribute a great deal of input and contributions into this decision-making process. The project provided technical and administrative support to all the CLPA by providing financial and technical support for dialogue and training, and coordination via the project's CLPA coordinators (relays) and facilitators.

In order to facilitate a network of inter-CLPA co-management consultations on sardinella, zones of CLPAs that exploit the same fishing grounds for sardinella (all with Local Agreements) were formed. These zones are also based on coastal Administrative Departments, of which there are 6 approved by the Department of Fisheries. The Department clusters have 2-4 CLPAs in their geographic boundaries. The zones encompass the following CLPAs:

Zone: North to South	Administrative Department	CLPAs
1.	Departments of Pikine (Grand Mbao, Petit Mbao, Thiaroye, Hann) and Rufisque	Pikine, Hann, Rufisque/ Bargny and Yenne/ Dialaw
2.	Department of Mbour	Sindia Nord and Sud, Mbour, Joal
3.	Department of Dakar, Thiès and Tivaouane	Dakar Ouest (Yoff), Cayar and Fasse Boye
4.	Department of Saint Louis and Louga	Saint Louis and Loumpoul
5.	Department of Foundiougne	Niodior, Bassoul, Missirah, Djrinda and Foundiougne

6.	Department of Ziguinchor and Bignona	Ziguinchor and Bignona
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The management planning approval process at the national level is illustrated in Figure 3. *USAID/COMFISH* has managed to convene two meetings of the National Management Committee of Small Pelagics (CNGPP) to validate the proposed co-management measures already in place and enforced by CLPAs in four of the designated zones. CNGPP is responsible for reviewing the Local Agreements and co-management measures adopted by CLPAs and to provide technical advice to the National Consultative Council on Marine Fisheries (CNCMP), which in turn will complete a review and final recommendation for the Minister of Fisheries. Once all Local Agreements from the six zones have been reviewed and approved, a national sardinella management plan which provides the overall goals, objectives, and minimum fishery protocols and measures will be reviewed along with all 6 zones of local co-management plans as annexes. When validated with recommendations it will be reviewed by the National Fisheries Management Council and submitted to the Minister of Fisheries. The entire process clearly requires substantial effort and facilitation as these fisheries bodies do not meet regularly. The Council has not met in 5 years.

The sooner the management plan is signed and approved by the Minister, the sooner the task of ensuring and monitoring its actual implementation can begin. The strategy of *USAID/COMFISH* to work in developing Local Agreements and inter-CLPA zones speeds implementation, surveillance and enforcement since the Local Agreements are already in implementation with surveillance, except for the North (Saint Louis) and the South (Casamance) where the whole process began only in FY14.

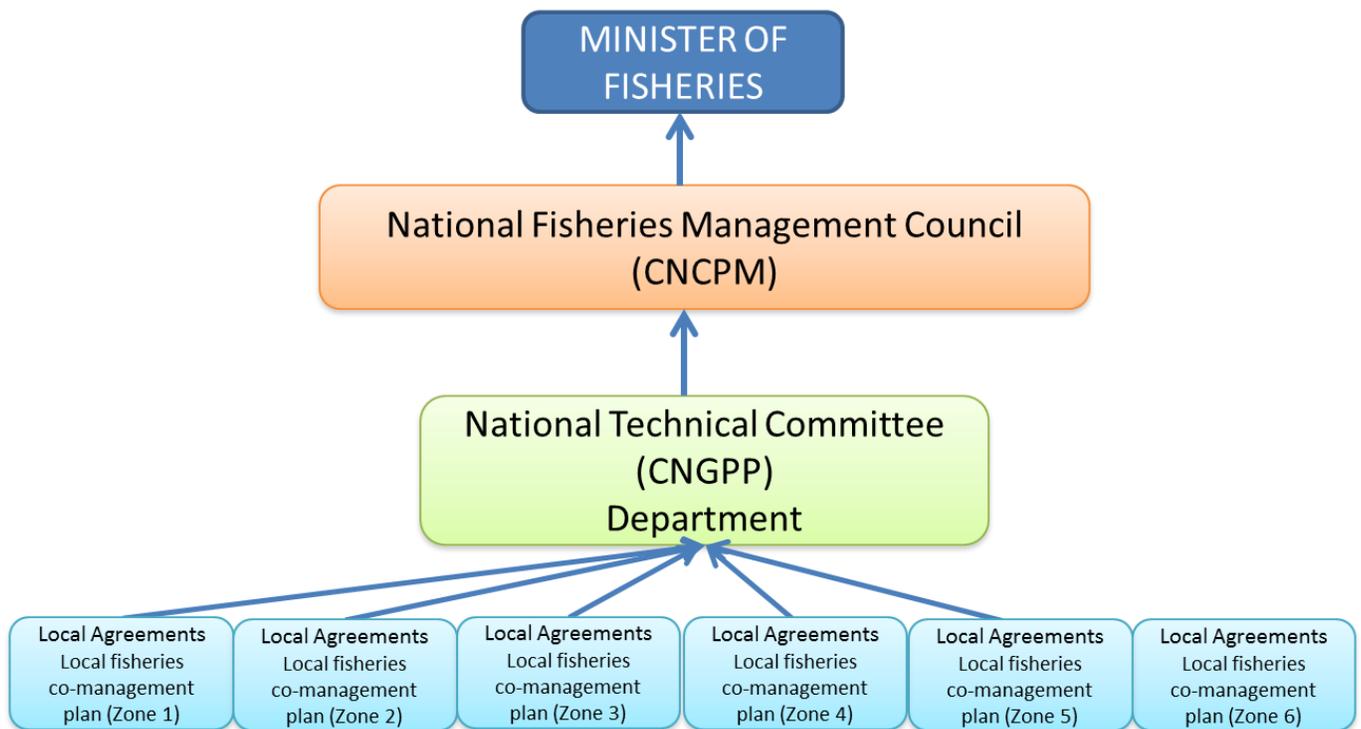


Figure 3. Bottom-up co-management planning of sardinella fisheries in Senegal

In FY15, the process of submitting to the Small Pelagic Technical Committee the groups of CLPA Local Agreements and validating the sardinella management plan among CLPA stakeholders and DPM will continue. The Local Agreements of the North Zone (Saint-Louis) and South Zone

(Casamance) will be validated and approved early in FY15. When all Local Agreements are validated, the Sardinella Management Plan with 6 groupings of CLPAs and their Local Agreements will be reviewed by the CNGPP with recommendation submitted to the Minister of Fisheries and Maritime Economy.

At the same time, *USAID/COMFISH* will continue participating and supporting a process at a regional level lead by the Canary Current Large Marine Ecosystem (FAO) and the Sub-Regional Fisheries Council to develop a regional sardinella management plan. The Senegal national sardinella management plan is an input into this process.

For ethmalose, the development of the plan and the local-national approval process are similar, but there are only two local co-management consultation zones. They are defined below:

	Department	CLPAs
1.	Department of Ziguinchor and Bignona	Kafountine and Ziguinchor
2.	Department of Foundiougne	Niodior, Bassoul, Missirah, Djirnda and Foundiougne

The CLPAs for ethmalose are the same as those for sardinella, so the institutional capacity building has already been taking place in FY14. However, the management plan for ethmalose is different and the formulation, discussion and validation of the management plan will take place separately from sardinella.

Expected results:

- Flexible governance systems for fisheries provide proactive adaptation measures to respond to the uncertainties of a changing climate
- The roles of groups in the implementation of all Local Agreements for sardinella are formally assigned and their operations supported
- All local co-management zones have approved local co-management plans for sardinella and are validated by the National Management Committee of Small Pelagics
- Local Agreements for ethmalose in Sine Saloum and Casamance areas are approved and validated by the National Management Committee of Small Pelagics
- Both ethmalose and sardinella management plans are reviewed by the National Consultative Council on Marine Fisheries (CNCMP), and recommendations submitted to the Minister of Fisheries
- An MOU is signed with CCLME with respect to sardinella research and management planning

Partners: CLPA, DPM, consultants

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Formal assignment of members of the ICC of CLPAs to facilitate the implementation of co-management plans of sardinella in these three areas	X	X		
Support the approval process of the local co-management plans for sardinella in the remaining CLPA zones	X	X		
Support the planning and validation process for ethmalose fisheries management plan	X	X		

Pursue the process of national validation and approval of sardinella and ethmalose management plans: - Technical validation by the National Small Pelagic Committee - Review and recommendations by the National Consultative Council on Marine Fisheries (CNCMP) - Signature by the Minister of Fisheries	X	X	X	X
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3.2.1. Improving scientific data for co-management plans on targeted stocks and climate change threats. This activity aims to gather information to support the development of the National Action Plan for Adaptation (NAPA) on fisheries, co-management plans, and decision making at the strategic level. This information will also contribute to the maintenance of a national database on fishing and climate change. All scientific analysis will be documented, discussed and validated with the national fisheries and climate change consultation platform.

Earlier project supported research demonstrated that climate change has affected the seasonal migration of sardinella and shifted the stocks northward. This is due to ocean warming and the resulting changes in ecological interactions of sardinella in its ecosystem. The shifting of this important resource northward and offshore will continue to have a significant socio-economic impact on coastal communities by reducing access and forcing fishermen to increase their fishing effort to search for fish in Mauritanian waters and sometimes to Morocco. The trans-boundary nature of the sardinella stocks has led the project to work with CCLME in order to consider local co-management consistent with the eco-system and regional considerations.

A central scientific question for fisheries stakeholders and managers is whether the effect of harvesting or changes in the physical environment is responsible for major changes in sardinella stocks. The change in upwelling strength and frequency, sea surface temperature and Multi-decadal Atlantic Oscillation has all been linked to this regime shift. In this context, CRODT and CSE will develop a methodology to develop a time series of the upwelling index based on satellite imagery and explore its predictive capability on stock recruitment and size.

In the past, *USAID/COMFISH* pursued research and monitoring studies on estuarine coastal shrimp (*Penaeus notialis*) in Sine Saloum to support the PRAO program (World Bank) in developing a national management plan. The final report is complete and will be submitted to DPM and the PRAO in FY15.

The project will continue to update basic scientific studies completed with partners in previous years in order to monitor the status of priority stocks and implement adaptive measures to improve sardinella and ethmalose co-management plans. This involves updating catch and effort, status of fishing mortality and stock size, GIS mapping on fish distribution, selectivity of fishing gear, ecological knowledge of stakeholders, and socio-economic data. The project will do this work in collaboration with research institutions such as CRODT, IUPA, and CSE. A special project will be organized by CSE involving a national validation workshop on the technical data generated by CSE since the beginning of the *USAID/COMFISH* project.

The project will support the setup of an annual stock assessment peer review process in which a group of scientists, managers and stakeholders will meet to build a consensus on the status of the stock. This process will be organized by CRODT to provide a forum for consultation and feedback by managers and fishing communities in a transparent manner and allow considerations of science-driven recommendations into the co-management of sardinella and ethmalose.

Considering the extension of activities into the Saint Louis and Casamance, GIS mapping will be completed to cover the fishing areas, fish stocks and fishing infrastructure in these new areas.

With regard to economic studies of sardinella, the project will conduct a study on the value chain of this species with a specific focus on climate change to support the ongoing co-management plan and coordinate efforts with the USAID/Yajeende project and CRODT.

The expected results are:

- Data and analysis on the impacts of climate change on the marine and coastal environment and on the entire sardinella value chain are accessible
- The impacts of climate change on the distribution and migration of sardinella and ethmalose are known
- Improved knowledge of stock status improves formulation of co-management recommendations
- The socio-economic study of shrimp fisheries in the Sine Saloum is shared with partners

Partners: CSE, IUPA, CRODT, IFAN, DPM, DEEC, CLPA

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Coordinate a collaborative research with CRODT and CSE on the spatial and temporal trends of upwelling index using satellite imagery and the correlation with population dynamics of sardinella	X	X	X	X
Mapping with CSE and stakeholders the fishing areas and distribution of key species in Saint Louis and Casamance; validation of mapping results with the ICC of CLPAs	X	X	X	X
Establish a stock assessment peer review process with CRODT	X	X	X	X
Conduct a bio-ecological and socio-economic study on ethmalose fisheries	X	X	X	X

3.2.3. Local Agreements. Local Agreements (Convention Local - CL) are tools that enable artisanal fishers and stakeholders to collectively adopt good fishing practices. They also provide advice on fisheries and climate change issues that CLPAs can use to develop fisheries co-management plans. An inclusive and iterative CL development process is being undertaken to understand how climate change can and cannot be integrated in these Agreements. This knowledge will feed into the sub-group on Vulnerability and Adaptation in Fisheries of the National Committee on Climate Change Adaptation (COMNACC).

To cover the entire stock of sardinella in Senegal, the project prepares Local Agreements for all CLPAs of the major landings sites. Agreements give the stakeholders the basic elements needed to engage in the process of co-management and provides a constant feedback to managers on daily catch/effort and the effects of climate change.

USAID/COMFISH has demonstrated that the CLs are an important part of fisheries co-management in Senegal and a means for maintaining community engagement to end overfishing and improve their socio-economic well-being through consultative frameworks built during the creation process of the CLs. In this context, the following activities will be completed:

Begin the implementation of Local Agreements for CLPA of Kafountine, Ziguinchor and Saint Louis.

Like the other sites, the program will focus on the activities described below to start the implementation of these Local Agreements:

- Inform and educate stakeholders on Local Agreement management rules

- Organize the management committees of CLPAs
- Strengthen the capacity of oversight committees
- Develop a system of administrative and financial management of CLPAs
- Identify income-generating activities for financial sustainability
- Monitor and evaluate the implementation of Local Agreements

Expected results of these activities:

- Stakeholders are informed and made aware of the rules for managing the Local Agreement
- Rules of Local Agreements of the three new CLPAs are disseminated and distributed to internal and external stakeholders
- The management committees of the three CLPAs are functional
- Internal sources of funds for the three CLPAs are identified

Partners: CLPA, DPM, consultants

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Assist and support three CLPAs to prepare and implement three Local Agreements (elect and assign coordinators (relays))	X	X	X	X
Implement Local Agreements: - Organize informational meetings and focus groups for CLPA Gandiol as part of the implementation of the CLPA Local Agreement in St. Louis - Organize a meeting of coordination between the CLPA, and DPSP in Saint Louis - Print and distribute to stakeholders the Local Agreements - Organize informational meetings to disseminate Local Agreements	X	X	X	X
Train the coordinating committees of CLPAs, including the DPM representatives for administration and financial management		X	X	X
Establish a mechanism for monitoring and evaluating the implementation of Local Agreements of the three CLPAs, and apply the mechanism			X	X
Start developing a system of administration and financial management of the three CLPA by organizing a workshop in each CLPA, including discussion on fund raising strategies to finance the CLPAs		X	X	X

Consolidate administration and finance of Local Conventions in Mbour, Joal/Fadiouth, Yene/Dialaw, Rufisque/Bargny, Sindia north and south and Cayar. It is critical to find effective mechanisms to self-finance CLPAs to fund their own activities, particularly the implementation of terms and conditions of the Local Agreements. This needs to be accompanied by the establishment of a system of administrative and financial management to ensure transparent and efficient management of resources mobilized. The activities planned here are:

- Monitor implementation of management rules for the Local Agreements
- Define a system of administrative and financial management
- Identify mechanisms for internal fund raising for the CLPA

Expected results of these activities:

- A manual of administrative and financial management is finalized and approved by fisheries authorities
- Internal sources of fundraising for CLPA are identified and tested in at least one CLPA

Partners: CLPA, DPM, consultants, DPSP

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Monitor the implementation of the Local Agreements	X	X	X	X
Hold monthly coordination meetings and discuss progress reports	X	X	X	X
Train the coordinating committees of the CLPAs of Mbour, Joal and Cayar on administration and financial management				
Complete formulation and documentation of the administrative and financial management systems of the CLPAs: <ul style="list-style-type: none"> - Present and discuss the document to the ICC of each CLPA - Develop action plans of CLPAs in the implementation of administrative and financial systems - Monitor and evaluate implementation 	X	X	X	X

3.2.4. Marine forecast and weather information to improve safety at sea, and artisanal fishing insurance. The fisheries sector is negatively affected by the threat of weather events, climate change, and climate variability. Results of vulnerability assessments of CLPAs of Joal/Fadiouth, Sindia North and South, and Rufisque/Bargny conducted from July 2012 to July 2013, confirm that rising sea levels, increasing frequency of storms at sea and stormy events increase the risk for fishermen and have negative impact on habitats and coastal infrastructure. The increasing variability of the weather owing to climate change is degrading local knowledge of weather and current patterns.

The lack of adequate information or failure to take into account weather forecasts is a primary source of fatalities at sea in artisanal fisheries of Senegal. According to the Integrated Development of Artisanal Fisheries (IDAF) program, about 40% of accidents at sea are caused by bad weather (wind, storm, waves). Overexploitation and climate change have forced fishermen to sail further offshore travelling considerable distances. This constitutes a significant challenge for fishermen sailing without basic safety tools and information.

In order to address this problem, the project has explored cell phone technologies to alert fishermen to storms, heavy seas, and dangerous weather. A dialogue and pilot test was initiated with the National Agency of Civil Aviation and Meteorology (ANACIM) in FY14. COMFISH and ANACIM will proceed with scale up of a weather alert system along the entire Senegal coast in FY15. COMFISH will provide the necessary IT and communications equipment, support to ANACIM for license purchase and training on the meteorological systems needed to provide observation and forecasting, as well as for training in the alert system at the user level. The feasibility and financial sustainability of the system will be carefully considered to avoid an activity at scale that cannot be maintained after the project ends. Challenges including maintaining databases of users, literacy of SMS users and costs of license with cell phone service provider. COMFISH will conduct an organizational capacity assessment of ANACIM to better understand its capacity to sustain the system. The project will work with ANACIM to design a sustainability plan, including dialogue with private sector actors to explore partnership opportunities for sustaining the system.

A second activity to improve the safety and well-being of the artisanal fishing sector will be to review experience, opportunities, and challenges with various types of insurance (for boats, equipment, injury, and lost income due to inclement weather that prevents fishing activity). The DPSP has been working with MANOBI (the technical agency of CNASS) to explore insurance options. The progress has been slow and COMFISH will explore with MANOBI the synergies between the ANACIM work for safety at sea and CLPA participatory surveillance work as a basis to pilot insurance.

Expected results:

- A system of weather alerts to fishermen covering the Senegal coast initiated with equipment in place and majority of users trained. Supply-side training of ANACIM staff and full functionality and coverage of the system will be on-going into FY16.
- Weather alert system sustainability plan developed
- Challenges and opportunities for artisanal fishing insurance reviewed

Partners: CLPA, DPM, ANACIM

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Facilitate development of a sustainability plan for the alert system by ANACIM, including exploration of opportunities with private sector stakeholders		X	X	X
Conduct institutional capacity assessment of ANACIM			X	
Purchase IT and communications equipment and packages	X	X	X	
Train end users	X	X	X	X
Provide financial support to ANACIM for purchase of license and contract for the observation and forecasting system			X	
Provide financial and logistics support for professional training of ANACIM staff on the observation and forecasting system				X
Facilitate a dialogue between the authorities responsible for fisheries, stakeholders and insurance companies on ways to establish fishermen's insurance (this will be done through a Private Public Partnership)		X	X	

3.2.5. IUU fishing and over-fishing capacity. The collapse of marine fisheries resources and the destruction of marine habitats have been caused primarily by IUU fishing and overexploitation (overcapacity). Both have created food insecurity and loss of revenues of the artisanal coastal communities. To address this problem, the *USAID/COMFISH* project assisted the government of Senegal to conduct a study to estimate the annual catch and revenues lost to illegal fishing and discards by foreign vessels. The project established a partnership with the Senegalese Navy, the Office of Protection and Surveillance of Fisheries (DPSP) and the United States Navy (USN) to collect and analyze data on illegal activities and vessels participating in this fishery as well as the impact of this activity on the economy of Senegal.

In addition, the project assisted in the creation of a special Technical Committee by a Ministerial decree to prepare and approve a national strategy and action plan. Both documents were approved and discussed at a recent workshop by the Accelerated Growth Strategy group (SCA). A 5 year action plan was partially launched in 2014. The project will continue to support the Technical Committee to monitor and evaluate the implementation of the action plan and where appropriate assist in the facilitation of meetings of the Technical Committee and SCA group.

A large component of the CLPA Local Agreements is focused on the establishment and support of participatory surveillance by stakeholders. Each CLPA is empowered to conduct its own surveillance and report violations to the authorities (DPM, DPSP, local police and Navy) through the terms of the protocols of the Local Agreement.

Also in FY15, issues, challenges, and opportunities for studying the traceability of selected species from catch to market will be analyzed with the goal of developing a monitoring and assessment effort.

Expected results are:

- Assist in facilitation of meetings of the National Technical Committee for IUU and fishing Capacity
- CLPA member implementation of monitoring, control, and surveillance
- CLPAs are provided fuel to conduct routine surveillance

Partners: CLPA, DPM, Technical Committee, DPSP, SCA

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Facilitate meetings of the Technical Committee and SCA on IUU and overcapacity	X	X	X	X
Provide fuel for CLPAs to conduct effective participatory surveillance	X	X	X	X
Monitor the effectiveness of participatory surveillance	X	X	X	X

3.3. VULNERABILITY ASSESSED AND NATIONAL/LOCAL INSTITUTIONAL CAPACITY STRENGTHENED TO ADAPT TO THE IMPACTS OF CLIMATE VARIABILITY AND CHANGE

Although this Intermediate Result is directed specifically at climate change and fisheries, climate change is mainstreamed into the other IRs as climate change is an integral part of most activities in the project.

3.3.1. Support the implementation of the National Adaptation Plan for fisheries. This activity is a logical extension of the implementation of the ongoing dialogue by the project with fishing communities on climate change and fishing. This work, initiated two years ago, is conducted with close collaboration with the National Committee on Climate Change (COMNAC) and designed to add the issues related to the fisheries sector to the list of sectors affected by climate change through the National Adaptation Planning process. The PANA will help to clarify and plan in a participatory manner the direction and broad guidelines of Senegal in terms of adaptation at the local and national level in the fisheries sector. The different steps of this process are described in the following table:

Expected results are:

- Adaptation plan for the fisheries sector in Senegal is discussed in an inter-sectoral sub-committee and recommendations made to the COMNAC
- A national database on fisheries, climate change and the marine and coastal environment is developed to support decision-making

Partners: COMNACC, DPM, DEEC, DAMPC, CSE, CRODT, CLPA, APTE

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Support the operation of a process for the National Committee on Climate Change (COMNACC) to include fisheries issues and dialogue through a sub-committee on fisheries	X	X	X	X
<ul style="list-style-type: none"> • Establish a Technical Steering Committee on fisheries • Establish criteria for setting priorities for adaptation for fisheries 	X	X	X	X
Public consultations to identify priority national and regional fisheries climate change actions		X	X	
Articulate activities in light of the consultations				X
Support building a national database on climate change, marine fisheries and coastal environment with CSE	X	X	X	X
Support outreach of research findings and achievements in climate change through radio and other outreach tools	X	X	X	X
Initiate partnerships in terms of adaptation to climate change with the DEEC, DMP, development partners and other institutions working in the field	X	X	X	X

3.3.2. Support the implementation at the local level of the climate change National Action Plan for Adaptation. The activities intended here are aimed at improving resilience of fishing communities through the implementation of selected measures from fisheries national adaptation planning. These measures will be identified and adapted to local situations through a participatory process with the fishing communities. It will verify the perceptions of climate change impacts with scientific research.

To date the project has established training to strengthen stakeholders' capacity in vulnerability assessments and developed collaborative adaptation plans for the three CLPAs in Joal/Fadiouth, Sindia North/South Sindia, and Rufisque/Bargny. In FY15, the project will focus on implementing selected adaptation strategies approved by the communities and disseminate results. This will require good communication and the support of all stakeholders at the local level (administrative services, local authorities, development partners, fishermen, buyers, and fish processors). The project will seek synergy and consensus on the adaptation measures implemented on the ground and feed findings and experience achieved to national level consultation frameworks. Adaptation actions are also linked to the approved and implemented Local Agreements and management plans for sardinella.

Selected priority CLPAs in terms of climate vulnerability and impacts will also be identified for early actions in innovative adaptation actions.

Expected results:

- Key activities of three adaptation plans are implemented
- Monitoring and evaluation strategy for the implementation of the adaptation plan is developed and implemented
- Three new vulnerability assessments and adaptation plans are completed and approved
- 300 stakeholders are trained on climate change impacts, vulnerability, and adaptation

Partners: CSE, DPM, DEEC, DAMPC, ANACIM, CLPA, APTE

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Continue the implementation of adaptation plans in collaboration with local communities in the CLPA Rufisque Sindia North Sindia South Joal and other project sites.	X	X	X	X
Support a system of monitoring and evaluation for the implementation of the adaptation plan.	X	X	X	X
Continue strengthening stakeholders's capacity at CLPA levels on the issue of climate change (training target >300 participants)	X	X	X	X
Assess vulnerability and complete adaptation plans in 3 new CLPA locations	X	X	X	X

3.4. INCREASED CLIMATE CHANGE RESILIENCE AND ENHANCED SOCIAL AND ECONOMIC BENEFITS TO ARTISANAL FISHING COMMUNITIES PROVIDE INCENTIVES TO A CONTINUED SUSTAINABLE FISHERIES AGENDA

3.4.1. Sardinella value chain study focused on climate change. A sardinella value chain will be completed and reviewed in FY15 with a special focus on current and future impacts of climate change on product availability and quality, processing, markets and food security. The shortage of fish at the landing sites, due primarily to depleted stocks impacted the processing sector and marketing. This situation is exacerbated by the negative effects of climate change with serious consequences on food security for inland areas of Senegal and neighboring countries, mainly Mali and Burkina Faso. The loss of artisanal processing infrastructure due to sea level rise and coastal erosion has had, and will have in the future, a devastating effect on the socio-economic well-being of women processors who often bear the responsibility of support of their families. The project has received terms of references from CRODT and will initiate this study in early 2015.

Results expected:

- Value chain analysis for sardinella with focus on climate change impacts is completed, approved, and circulated to DPM and partners

3.4.2. Improving artisanal fisheries processing infrastructure siting to adapt to climate change. Climate change is making the marine fishery sector more vulnerable and at risk for a large number of reasons identified earlier in section 1.1. The abundance, availability, and quality of fish for processing is becoming less reliable affecting the livelihoods of women and the resilience of their families. To increase resilience in the processing sector *USAID/COMFISH* has piloted approaches in Cayar for improving the processing value chain in terms of product quality, packaging, labeling and marketing. The activities targeting women in fisheries will be strengthened in FY15 by layering climate change to provide better knowledge on women's adaptive capacity, vulnerability, risk to climate change effects, and adaptation options.

Sea level rise associated with climate change will also have significant effects on the fish processing sector. Processing infrastructure is at risk of being lost. To date, there has been no consideration and planning to adapt to this climate change impact. Information from studies and analysis of predicted sea level rise already conducted by *COMFISH* will be integrated in training and awareness raising at the CLPA, local authority, women's group, and stakeholder level, as well as at the national level with consultative bodies.

The project will also provide a modest level of continuing capacity building support to the Cayar women’s processing group to consolidate achievements over the last 2 years and confirm their sustainability.

A synergy with the USAID project Yajeendé will be explored in support of the marketing of keccax produced by the processing unit of Cayar and to set standards for the fish processing unit.

Obtaining match support for COMFISH from APTE will also be explored based on the “Collaborative governance, shellfish resource development, livelihoods enhancement and poverty reduction for Fadiouth women fish processors” project, which is run by APTE to help reinforce climate change resilience in the communities in Joal/Fadiouth.

Expected results:

- Processing unit of Cayar is fully operational
- Training and outreach on fish processing infrastructure is provided

Partners: CLPA, DPM, consultants, DITP, UCAD, HIDAOA, ITA, CSE

Activities and timeline:

Activities	FY15			
	Q1	Q2	Q3	Q4
Training workshops on climate change effects on processing whose findings feed into the national climate change adaptation committee	X	X	X	X
Prepare a Business Plan for Cayar processing unit				
Support the technical maintenance of Cayar processing unit	X	X	X	X
Organize training sessions for the various management committees of Cayar processing unit (quality, health, equipment, quality control)		X	X	X
Organize training classes in accounting and financial management for staff of Cayar processing unit		X		
Prepare a website for marketing the product of Cayar processing unit		X	X	
Organize training classes in marketing and website maintenance		X		X
Support the Cayar processing unit to show their product at a major national show		X	X	X
Seek synergy opportunities with the USAID project Yajeendé and APTE	X	X	X	X

3.4.3. Octopus pot making and use. Over the past three years the *USAID/COMFISH* project has provided a small amount of assistance (\$2,000/FY) to octopus fishermen in Joal, following a much larger investment by JICA in the octopus fishery. The pots are made locally and provide income to women during the time that the octopus fishery is closed for stock recovery, and when in place in the water they increase the well-being of fishermen and their families. This will be the last year of project support in this area, so consultations and dialogue will be taken to identify mechanisms for local or other donor support to continue the successful octopus sustainable management effort to continue.

3.5. COMMUNICATIONS

The objective of the Communication is to increase public awareness and public support for sustainable fisheries and related impacts of climate change in Senegal. In doing so, the *USAID/COMFISH* project will focus its communication on issues of climate change and its impact on fisheries. It will move hand-in-hand with fishing communities to change perceptions about climate change via community radio, public notices, meetings, and policy communication through various channels including media which also contribute to increase visibility of the project.

In the first three years, the project designed a communication strategy, organized an official launch event, developed communication materials to raise its profile (road signs, flyers, kakemonos, banners, videos, etc.), and disseminated Local Agreements and information on other major issues about fisheries via the community radios in the areas covered by Joal, Mbour and Sindia CLPAs.

Communication activities in FY15 will continue and reinforce communication with stakeholders in order to develop and implement collaborative management plans and climate change adaptation plans, to continue raising public awareness. The project will also continue the periodic tasks of publishing bi-weeklies and success stories, producing audiovisuals on key project activities (videos), and talking about the project's work via Internet-based mediums such as the [usaid.gov](http://www.usaid.gov) project's website, the CRC/URI website, and social networks (e.g. Facebook and YouTube).

Radio talk shows: In order to support the increased resilience of coastal communities to climate change, communication with primary stakeholders will extend its range and scope through ongoing programs with local radio talk shows in the CLPAs of Joal, Mbour, Sindia (North and South), Bargny Rufisque, Yenne Dialaw, and Cayar. This is achieved through renewal of MOUs with each local radio (The Cotière -Joal Dunya-Mbour, Kondafé-Ndayanne/Sindia, Jokko FM -Rufisque Bargny Yenne and Dialaw Cayar FM-Cayar) and signing of new MOUs with local radio stations in St. Louis, Sediou, Kafountine and Sine Saloum. The impact of the radio shows on public awareness will be assessed in FY15.

The use of radio as a means to communicate messages for *USAID/COMFISH* has been perceived to be very positive. It brought stakeholders together to listen to daily talk shows, discussions, and the broadcast of announcements listened to by most fishermen on issues of fisheries management, climate change, best practices, politics and themes.

Disseminating the fisheries sector Women's Declaration: As in year four, the project will work with local community radios and other media outlets to disseminate the Declaration by Women in the fisheries sector. This will help raise awareness of women's interests, concerns and rights in the sector and/or highlight the interplay between women's challenges and problems in the fisheries sector. Together with these partner radios and other media outlets that have wider audiences, the project will organize special programs on the Women's Declaration to let many more people know about it. Every two months, it will bring women leaders into the studio to run their own radio programs. The project plans therefore to involve these women in the training sessions on radio broadcasting techniques that it will organize this year for its facilitators.

Enhancing project visibility: To continue enhancing visibility for its work and ownership by local partners and beneficiaries, the project will endeavor to improve its presence in the Senegalese media, to produce print and audiovisual materials that document its key achievements and successes, and to raise its profile on the Internet and via social networks.

Improving the project's presence in the media: To help achieve this objective, the project plans to sign an agreement with one national television network (RTS/TFM or RDV) to cover major project activities and to produce and broadcast at least three feature reports that will be handed to the project in DVD format. A press trip will also be organized in the third or fourth quarter of FY15 with about twenty journalists from various national and local media outlets in Senegal (radio, TV, print and online media). This press trip will be an opportunity to enhance the project's public profile and highlight the problems it tackles in the fisheries sector. Likewise, media inserts will be published in two popular local newspapers (Le Soleil and L'Observateur) to showcase some key achievements of the project. The project will organize programs not just in community radios but also with other national radio or television networks on major issues such as climate change. It will produce a video report on climate change and at least six radio programs on climate change impacts and adaptation strategies in coastal communities.

Production of Success Stories and posters. Two success stories will be produced to document the major achievements of the project and will construct two (2) posters on key measures of fisheries co-management actions and the impact of climate change through the Local Agreements.

Completion of written reports, video and photographs. As for audiovisual productions, the project will focus on making 2 videos on outcomes, milestones and key issues of the project. A photo albums and photo database of new project areas of project (Saint Louis, Ziguinchor, Sedhiou, Sine Saloum) will be completed and distributed to the USAID mission, DPM and partners. In addition, a written report will also be made available for distribution on the effects of climate change and adaptation measures.

Capacity building in communication. The *USAID/COMFISH* project will provide a small amount of support to further develop the capacity of staff and partners in communications.

Expected results:

- 360 radio shows are produced with a major focus on climate change and links to Local Agreements and management plans
- 4 TV programs are produced and broadcasted with parallel networks
- 4 radio shows on the “Women in Fisheries Declaration”
- 2 success stories
- 2 posters are produced, printed and distributed
- 2 videos are completed and distributed
- 1 photo album and database on activities of the new project areas is completed
- 1 written media coverage is completed for the new areas of the project
- Communication media (calendars, t-shirts, caps) are made

Partners: CLPA DPM, local governments, local radios, GREP, REJOPRAO, GREP, AMARC, DPM, Alliance, radios ISE, IUPA, CSE, FENAGIE

Branding: In compliance with its branding and marking strategy approved by USAID/Senegal, the *USAID/COMFISH* Project will use different mediums to communicate with different audiences. These mediums include different types of publications, including materials for Information, Education and Communication (IEC): brochures, posters, leaflets, factsheets, guidance notes, etc.; PowerPoint presentations, banners, information and awareness meetings, and mass media including community radios. The main target audiences are active participants or local fishing communities, local and national fisheries administrative services, national policy makers, local NGOs and donors.

In accordance with the branding strategy, all the project’s communication mediums will highlight the generous support of the American people through USAID. The partnership with and support of the Ministries of Maritime Affairs and Fisheries, Environment, local services for fisheries, and the agencies and departments involved in various project activities will also be acknowledged. The publications to produce and the type of print format expected are outlined in the following table.

Products	Type of USAID marking	Marking code	Target Audience
Video/film	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
Success-stories	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
Brochures	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience

Press releases published during key project meetings	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
Technical reports	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
Communication workshop reports	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
Banners	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
Web articles	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
Factsheet	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
Posters	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience
DVD	USAID logo (associated with another if necessary)	M	Presentation to a Senegalese and non-Senegalese audience

Marking codes: M = Marking, U=no marking, PE = Presumed exception, W=waiver

4. PROJECT MANAGEMENT

4.1. STRATEGIC PARTNERS AND BENEFICIARIES

The University of Rhode Island (URI) implement all aspects of the *USAID/COMFISH* project and is responsible for the administration, financial and management on behalf of the USAID/Senegal. The project clients are the Ministry of Fisheries and Maritime Affairs and its Departments, research institutions, fishing sector stakeholders, fishing communities, women processors, NGOs, and local governments. The way to ensure the long-term success and sustainability of fishery reforms in Senegal is to ensure that national agencies and their local services acquire the capacity at the end of the project to sustain the commitment and support (political, technical and financial) to implement the reforms and new approaches made throughout the project. The *USAID/COMFISH* project will continue to strengthen these structures and agencies through a learning-by-doing approach. Similarly, the project will work with civil society and the private sector that also form a key link to sustainability. Other regional, national and local organizations will also play a key role in building partnerships for the implementation of project activities. The project's major implementing partners and their roles in the activities planned for year four are described below. Most of these institutions will receive funding as implementing partners of the *USAID/COMFISH* project to enable them to perform a number of activities mentioned in the work plan above.

The Ministry of Fisheries and Maritime Economy (MPEM): The project works with the Ministry of Fisheries and Maritime Affairs (responsible for the management of fisheries resources in Senegal) through its technical departments: particularly the Directorate for Marine Fisheries (DPM) which is responsible for the establishment and implementation of management rules and the local institutions involved in collaborative management. Where necessary, the project works also with the Directorate of Fisheries Processing Industries (UITP), the Directorate of Fisheries Protection and Monitoring (DPSP), and the Studies and Planning Unit (CEP) which occupies a cross-cutting role by virtue of the fact that it is attached directly to the Cabinet.

The Ministry of Environment and Sustainable Development (MESD): The MESD is responsible for the management of protected areas, including some coastal and marine parks (the Department of National Parks), and the coordination of initiatives and responses to climate change through the

Department of Environment and Classified Establishments (DEEC). Their role in this project has been equally important concerning marine conservation and climate change. In the early years of the project, they played a crucial role in finalizing and enabling the formal adoption of the national strategy on MPAs. In year four, this institution will be a key partner in the activities related to climate change and biodiversity conservation. WWF, CSE and APTE will work closely together with the Department on these activities. In addition, the Department of Community Areas (DAMPC) will be involved in many activities for marine and coastal ecosystem management. It is responsible for the development and implementation of state policy in the field of planning, management and development of an integrated and coherent national network of community areas, marine protected areas and artificial reefs.

University Institute for Fisheries and Aquaculture (IUPA): IUPA is a regional training and research institute at the Cheikh Anta Diop University (UCAD), which specializes in fisheries and aquaculture. Their role in the project will be to help implement strategies for human resource development, applied research and technical studies, as well as to develop and pilot an action research initiative. This initiative will include research, the Fisheries Administration, the University, civil society, and other stakeholders. IUPA will be involved in conducting a number of important meetings and in the process of developing collaborative management plans.

Ecological Monitoring Center (CSE): The mission of the Ecological Monitoring Centre (CSE) is to collect, process, analyze and disseminate data and information on the natural resources in a given sector using spatial technology to improve the management of natural resources and the environment. The CSE will be involved in the development of a GIS database and maps for the project and in a certain number of technical studies. These include: the integration of local ecological knowledge in the characterization of selected fisheries during efforts to develop management plans; certain aspects of the vulnerability assessment; planning for adaptation to climate change and the identification of areas or effects of biological significance. CSE plays an important role in the spatial mapping of the country's main stocks as well as in the activities of the different donors engaged in the fisheries sector. Its activities cover the location and jurisdictions of existing CLPAs and the local governance administrations in the project's interventions areas.

Center of Oceanographic Research of Dakar-Thiaroye (CRODT): CRODT is under the supervision of the Institute for Agricultural Research in Senegal (ISRA). CRODT will summarize the literature on the status of fish stocks and related workshops. It will assess fish stock information management and needs, and also be involved in assessing climate change vulnerability of fish stocks in species such as sardinella and demersal. Together with DPM, IUPA, and CSE, CRODT will form a hard core in the implementation of reliable information and management of fishing capacity systems in Senegal, as well as in the establishment of a program on fisheries research partnerships in Senegal to be initiated this year by the project.

National Agency of Civil Aviation and Meteorology (ANACIM): The ANACIM partnership will contribute to the implementation of coastal fishing communities' adaptation plans to address climate change impacts. Activities with ANACIM will be carried out along the entire coast of Senegal and will provide understanding of, access to and extension of meteorological information for safety at sea.

The Fédération Nationale des GIE de Pêche (FENAGIE): Since 1990, FENAGIE works to strengthen organizational capacities and fishery product processing techniques by building infrastructure and production units for women, supporting the creation of credit lines, and improving the living conditions of those who work in the fisheries sector. FENAGIE will take part in training professional organizations in leadership and literacy, and in finding ways to improve the artisanal processing value chain.

Assainissement Pêche Tourisme Environnement (APTE): comprises scientists committed to sustainable development through sanitation, fisheries, tourism and environment, and the

mainstreaming of gender. APTE will help develop sustainable strategies for strengthening the role of women in decision-making. APTE will also take part in developing artisanal fisheries products, stakeholder capacity building, including women in leadership, and in studies on MPA effectiveness in biodiversity conservation and support to the development of eco-tourism in MPAs.

The roles and responsibilities of the various groups mentioned above will be refined progressively as the project activities progress. These roles are also going to evolve according to identified priorities and the effectiveness required to conduct activities. With time other relevant local institutions can be identified and involved as implementing partners. Although the number of partners involved may seem high, a well-coordinated inclusive approach is going to produce better results and provide opportunities for learning and experience sharing.

4.2. OFFICE STRUCTURE, STAFF AND ORGANIZATIONAL CHART

The Program Implementing Unit is located in Dakar and is led by the Chief of Party (CoP). It is a legal entity of the University of Rhode Island (URI). The CoP is responsible for developing and implementing approved Annual Work Plans and achieving performance indicators. The CoP is USAID's main point of contact. The project's main point of contact with the mission is the Agreement Officer's Representative. The CoP is also responsible for elaborating terms of reference for local consultants and partners, and supervising and managing local staff. URI is responsible for the project's financial reporting, provide technical and administrative support, administers sub-contracts that are approved by the University of Rhode Island, and supervises the local team. Dr. James Tobey at the Coastal Resources Center (CRC) is the URI project manager of the project. A local office is based in Joal. The Joal site was chosen for two strategic reasons:

- It is at the center of the project intervention sites (Cayar, petite côte, Foundiougne and Casamance)
- Joal is the location for the regional inspectorate for fisheries in Thies, which makes it possible to collaborate better with the government, fisheries technical services

The project's implementing partners are trained in performance management, on the TRAINET reporting tool, the USAID rules and procedures for branding, and environmental compliance. Under the supervision of the Coastal Resources Center (CRC), the Project Implementing Unit prepares project reports to USAID/Senegal, while URI submits official financial reports. At the request of USAID, the project team also provides expenditure estimates (accumulated) and related budget information.

USAID/Senegal will be invited to work planning sessions to contribute in developing the annual work plan and performance management plan. USAID is invited also to major events and encouraged to take field visits.

The periodic services and reports produced by the project for USAID include:

- Three quarterly activity reports and one quarterly/annual report to the AOR. These reports are submitted first in English and when approved, in French.
- The fourth quarterly/annual report (July-September) includes information about the quarter, as well as a section that summarizes the achievements and challenges of the year. It provides more details on the results achieved in the year of implementation and contains a table on the level of achievement of PMP indicators and targets for the following year.
- Data collected, analyzed and reported to USAID on PMP indicators and targets are included in the Quarterly Reports
- The annual work plan in English is submitted with a end of September deadline. It is submitted submitted first in English and when approved, in French.

- Provision of information for USAID's TRAINET system by producing regular and timely data on all training conducted by the project
- Submission of monthly financial reports by the Financial Officer of the project to the Coastal Resources Center
- Submission of expense reports to USAID by CRC/URI

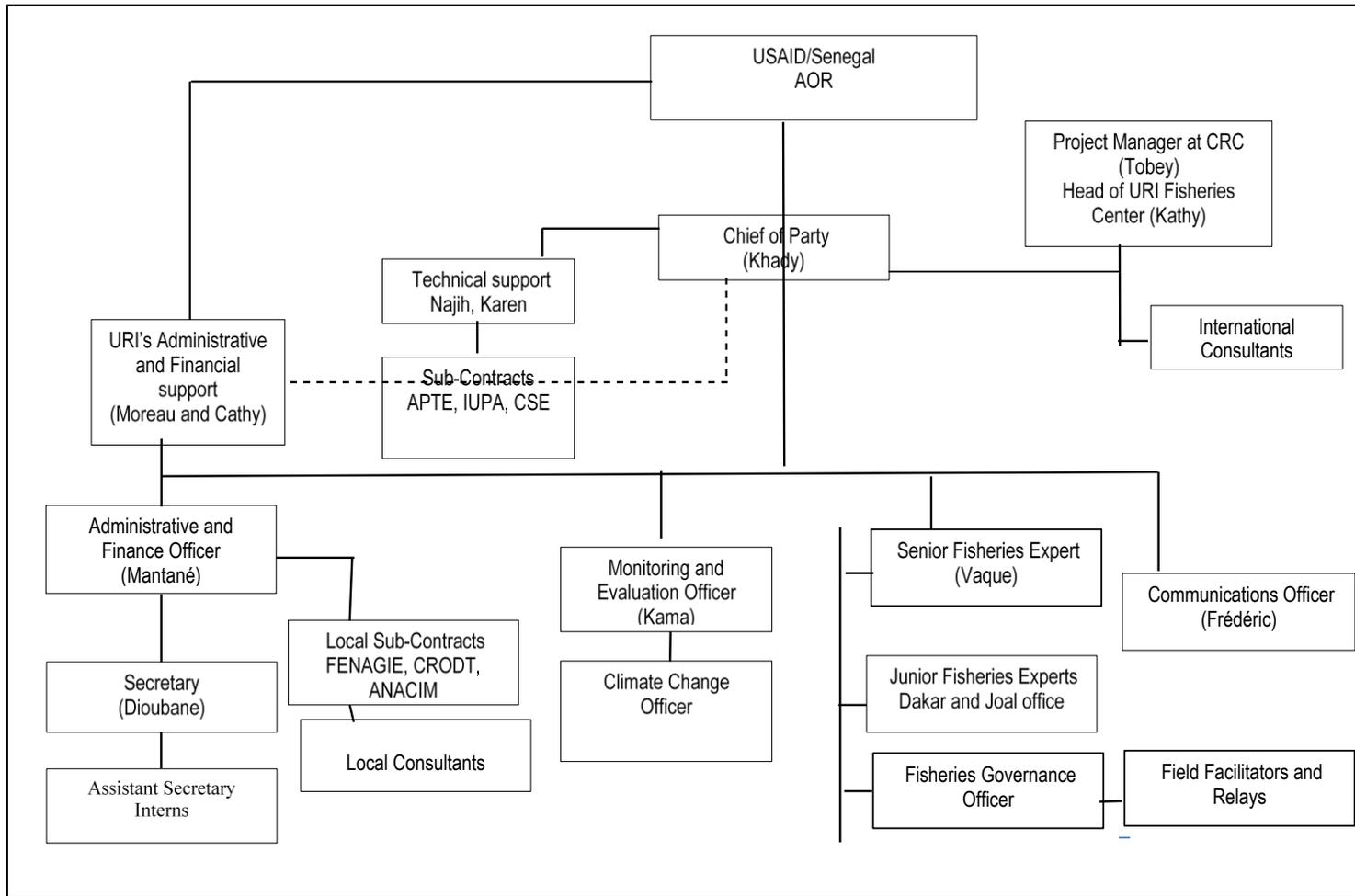


Figure 4: USAID/COMFISH project organizational chart

4.3. ACTIVITY TIMELINE: ROUTINE MANAGEMENT AND ADMINISTRATION

Activities	FY14				Who is responsible
	Q1	Q2	Q3	Q4	
<i>Routine reporting</i>					
Quarterly and annual reports to USAID	Jan.	April	Jul.	Oct.	KS/VN/JT
Entry of training data into USAID's TraiNet system					NK
Preparation and submission of annual work plan to USAID for approval				Sept.	KS/JT/CD
<i>Financial management</i>					
USAID/COMFISH monthly financial reports to CRC					MD
Quarterly expense reports (accumulated) from CRC/URI to USAID					MD/CD
Quarterly financial information from SF 425 to AO and AOR					MD/CD

KS-Khady Sané, NK-Nambaw Kama, MD-Mantané Diop, JT-Jim Tobey (CRC), CD-Cathy Dwyer (CRC)

4.4. INTERNATIONAL TRAVEL SCHEDULE

The following table is illustrative to show dates and purposes for all international travel budgeted by the Project in FY15. Nine (9) international trips are tentatively budgeted for FY15.

Traveler	Purpose of travel
Tobey (1 trip)	Rhode Island to Senegal: Project administration, work planning, and consultation
Lazar (2 trips)	Rhode Island to Senegal: Technical assistance on project activities (fisheries management plans, scientific studies, extension)
Moreau (1 trip)	Rhode Island to Senegal: Workplanning, Administrative and financial oversight
Castro (1 trip)	Rhode Island to Senegal: Technical Assistance and workplanning
Kent (1 trip)	Rhode Island to Senegal: Project management and workplanning
ANACIM (3 staff, 1trip)	Dakar to Toulouse France: 2 weeks training on meteorological observation and forecasting system.

4.5. PERFORMANCE MANAGEMENT

According to the USAID ADS 203 Guide, the project's Results Framework and Performance Management Plan (PMP) must be submitted together with the annual work plan. The objective of the performance management plan is to evaluate effectiveness and measure how closely the activities outlined can contribute to achieve expected results. The PMP provides the basis for ongoing performance management and for adaptive management of project implementation so that there is comprehensive learning on ecosystem-based management and results reporting to USAID. To monitor the level of achievement for some project indicators, such as the effectiveness of CLPA capacity building and increased socio-economic benefits for the communities benefitting from project support,

baselines were established at the beginning of FY12. Taking into account the extension of the project to the new zones in FY14 of Saint-Louis, Ziguinchor and Kafountine, the targets of many indicators were revisited. Review and revision of the Cooperative Agreement Project Description starting in late 2014 also resulted in the revision of some Life of Project indicator targets. All of these revisions are reflected in the PMP in the annex.

Semi-annual partner meetings are held to improve activity coordination. The project also organizes an annual work planning workshop. During these meetings, the partners discuss the main achievements, challenges, and experiences. They also plan activities for the next year. These meetings are good opportunities for players to collect information and assess progress and the level to which results have been accomplished. The CoP supervises the monitoring and evaluation officer. The M&E officer maintains all the records and files/folders of evidence that results have been achieved and tracks performance indicators. She also does quality control and verifies compliance with the procedures.

Monitoring and evaluation timeline:

Activities	FY14				Local partners
	Q1	Q2	Q3	Q4	
Project work annual workshop				X	All
Semi-annual partner meeting, learning retreat and annual activity planning with implementing partners, USAID and a number of donors and other projects		X			All
Mid-term Evaluation		X			All
Quarterly reporting on PMP performance to USAID	X	X	X		All
Partner and project staff training workshops on monitoring and evaluation		X	X	X	All
Define stakeholders and households in project sites in order to set targets accurately	X	X			All
Support staff and stakeholders in the field to conduct monitoring activities properly	X	X	X	X	All
Monitoring the quality of data with partners	X	X	X	X	All
Monitoring work plan activities	X	X	X	X	All
Bring COMFISH staff from the field periodically for consultations on performance	X	X	X	X	All
Organizing facilitators' coordination meetings	X	X	X	X	All
Mid-project study of stakeholder perceptions of well-being and survey of CLPA institutional capacity and effectiveness	X				Consultants

The project results framework and indicators for each result are provided in Annex 1, which also summarizes the performance management plan targets for FY15 and the targets to be met over the life of the project. The specific monitoring outcomes, targets and indicators are reviewed annually to determine whether the targets and/or the project strategy need adjustments based on the experiences and lessons learned during the implementation phase.

4.6. ENVIRONMENTAL MONITORING AND PERFORMANCE

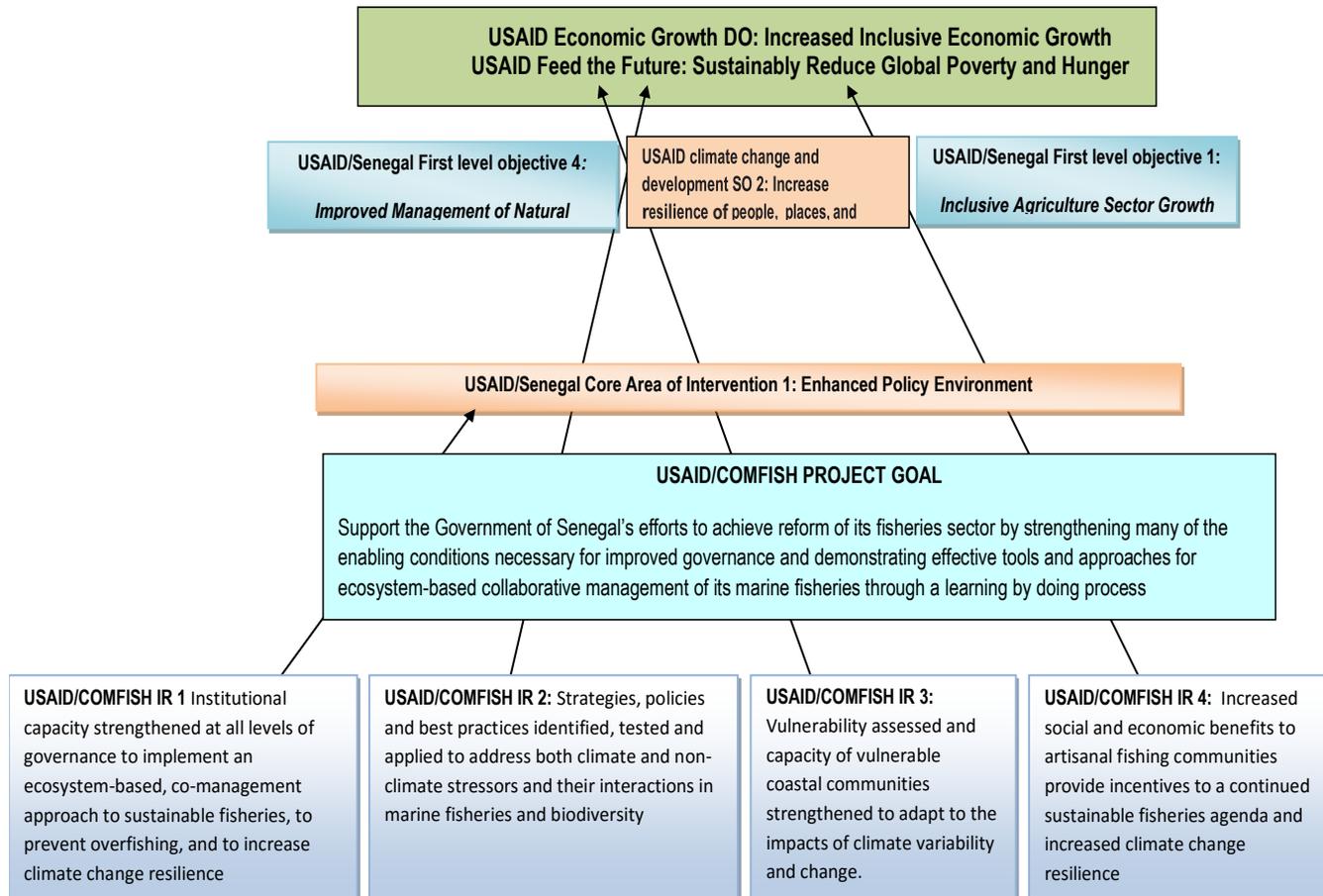
The mission approved the environmental monitoring plan in FY12 (Annex 2). This document includes an environmental monitoring and mitigation plan for project activities. The Plan does not require modification since FY15 will largely continue the ongoing activities from FY14 and similar activities in the new intervention sites of Saint Louis and Casamance. The activities to be conducted at the new sites are limited to those that are determined to be “Categorical Exclusions.” This is noted in the EMMP attached in Annex 2 to indicate that review of the activities to be conducted in the new areas has not raised any concerns that would fall outside of this determination. The quarterly reports and annual report will include an environmental mitigation and monitoring report.

5. BUDGET

FY 15 Budget			
Budget by Program Element	Request	Cost Share	Total
Institutional Capacity Building	\$ 170,381	\$ 140,962	\$ 311,344
Policies and Strategies	\$ 467,988	\$ 139,736	\$ 607,725
Climate Change	\$ 404,221	\$ 115,975	\$ 520,196
Socio-Economic Benefits	\$ 106,237	\$ 295,933	\$ 402,171
Communications	\$ 112,496		\$ 112,496
Project management	\$ 876,878	\$ 48,065	\$ 924,942
Total	\$ 2,138,202	\$ 740,672	\$ 2,878,873
Budget by Object Class Category	Request	Cost Share	Total
URI Personnel	\$ 175,978	\$ 113,721	\$ 289,699
URI Fringe	\$ 101,467	\$ 46,151	\$ 147,618
In country staff and consultants	\$ 727,185		\$ 727,185
Subcontracts	\$ 139,077	\$ 457,034	\$ 596,111
Other direct costs	\$ 189,508		\$ 189,508
Travel	\$ 392,469	\$ 82,199	\$ 474,668
Total Direct Costs	\$ 1,725,684	\$ 699,105	\$ 2,424,789
Indirect	\$ 412,518	\$ 41,567	\$ 454,084
Total	2,138,202	740,672	2,878,873

ANNEX 1: USAID-URI COMFISH RESULTS FRAMEWORK

The Results Framework below shows the overall intersection of *USAID/COMFISH* Intermediate Results (IR) with USAID/Senegal program objectives.



PMP baseline and target values

USAID/COMFISH PMP has fifteen (15) indicators selected from Feed the Future, Global Climate Change and Biodiversity programs of USAID (shaded grey in the table below). In addition, there are ten (10) tailored indicators developed by the *USAID/COMFISH* project (rows not shaded).

Indicator	LOP	FY14 Actual	FY15 Target	FY16 Target	Comments
IR 1: Institutional and stakeholder capacity strengthened at all levels to implement an ecosystem based, co-management approach towards sustainable fisheries, taking into account climate change impacts in the fisheries sector					
1. Increase by 75% of the management effectiveness composite index score of CLPAs in <i>USAID/COMFISH</i> sites by 2016	Increase of 75% (0.07)	n.a.	0.069	0.07	Effectiveness criteria used by PRAO were added to the criteria developed by <i>USAID/COMFISH</i> . The results will be available during FY15.
2. Number of individuals who have received USG supported short-term agricultural sector productivity or food security training (FTF 4.5.2-7)	12,050	4465	3,581	895	Based on the project's extension, the past results and the projected activities, both the target and LOP have been readjusted.
3. Number of written and/or audiovisual productions intended for capacity building of co-management institutions and fisheries stakeholders	261	14	136	100	Since the project has been financing the broadcasting of radio shows on themes regarding climate change, the new LOP is now taking into consideration those programs, so their impact can be reflected in the results framework.
4. Number of research and educational organizations, government agencies, and NGOs who have strengthened their capacity as a result of USG assistance	196	71	58	30	The target is revised based on the trend regarding the past results. The synergies with other institutions cause a lot of NGOs to benefit from trainings.
IR 2: Governance strategies, policies and best practices identified, tested and applied to build ecosystem resilience to threats to biodiversity conservation and climate risk					
5. Number of action plans and/or projects developed to support the process of fisheries management	27	4	12	3	Target based on projected activities in FY15
6. Number of scientific reports contributing to fisheries management plans	45	9	18	5	Target based on projected activities in FY15
7. Number of synergies created in the process of establishing Sustainable Management Units (UGD)	21	6	6	4	Target based on projected activities in FY15

8. Number of policies/regulations/administrative procedures analyzed (FTF 4.5.1-24 stage 1)	68	16	6	2	The program tools have been built using the same referential documents, which is why the target decreases as the years go.
9. Number of policies/regulations/administrative procedures drafted and presented for public/stakeholder consultation (FTF 4.5.1-24 stage 2)	12	2	0	0	New local agreements, adaptation plans and co-management plans, estimation based on planned activities for FY15
10. Number of policies/regulations/administrative procedures presented for legislation/decreed (FTF 4.5.1-24 stage 3)	16	0	3	1	
11. Number of policies/regulations/administrative procedures prepared with USG assistance passed/approved (FTF 4.5.1-24 stage 4)	24	7	4	2	
12. Number of policies/regulations/administrative procedures passed for which implementation has begun (FTF 4.5.1-24 stage 5)	32	11	12	6	
13. Number of new technologies of fisheries management established	17	4	5	1	
14. Number of fisheries stakeholders who have established new concerted rules of fisheries resources management	46,646	12,858	2,792	0	The figures has been reviewed taking into consideration the new CLPAs
15. Number of fishers and others who have applied new technologies or management practices as a result of USG assistance (FTF 4.5.2-5)	42,837	32,360	2,792	0	The figures has been reviewed taking into consideration the new CLPAs
16. Number of hectares of biological significance and/or natural resources under improved natural resource management (Biodiversity indicator 4.8.1-26)	1,109,661 ha	603,714 ha	171,843 ha	0	The figures has been reviewed taking into consideration the new CLPAs
17. Number of hectares in areas of biological significance under improved management as a result of USG assistance	450,656	66,496	342,660	0	The figures has been reviewed taking into consideration the new CLPAs
IR 3: Vulnerability assessed and national/local institutional capacity strengthened to adapt to the impacts of climate variability and change					
18. Number of people receiving training in global climate change as a result of USG assistance	4673	1841	1,325	331	Target based on projected activities in FY15
19. Number of climate change vulnerability assessments conducted as a result of USG assistance	6	NA	3	0	

20. Number of laws, policies, strategies, plans, agreements, or regulations addressing climate change (mitigation or adaptation) and/or biodiversity conservation officially proposed, adopted, or implemented as a result of USG assistance	17	11	3	0	3 adaptation plans implemented 3 adaptation plans proposed
21. Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance	12,705	4465	3,581	895	Beneficiaries of vulnerability assessments and adaptation plans to climate change
Result 4. Increased climate change resilience and enhanced social and economic benefits to artisanal fishing communities provide incentives to a continued sustainable fisheries agenda					
22. Number of institutions who have strengthened their capacity to adapt to the impacts of climate variability and change with the assistance of the USG	362	127	97	40	This is a new indicator requested by USAID since quarter 2 FY15.
23. Number of food security private enterprises (for profit), producers organizations, water users associations, women's groups, trade and business associations, and community-based organizations (CBOs) receiving USG assistance	166	56	39	10	
24. Number of rural households benefiting directly from USG interventions	16,533	7,402	0	0	Households of Mbour, Joal/Fadiouth, Sindia, Rufisque/Bargny and Yenne Dialaw's CLPAs are beneficiaries of Local Agreements. In addition, households of Rufisque / Bargny, Yenne / Dialaw and Sindia's CLPAs are beneficiaries of vulnerability assessments and adaptation plans to climate change The new LOP takes into consideration the households of the new CLPAS
25. Fishery sector stakeholders in the project sites perceive that their welfare is better off due to USG assistance (this is not an FTF indicator, but measures project impact)		NA	The study will be conducted end of FY2015		Baseline survey, mid-term survey, and end of project survey. Baseline in 2011. Mid-term in FY2015

ANNEX 2: EMMP: MITIGATION PLAN

Category of Activity	Describe specific environmental threats	Description of mitigation measures for these activities as required in Section 4 of the IEE	Who is responsible?	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 include discussion of prevention and mitigation of potential negative environmental effects. Note that the activities to be conducted under the project's expansion to the areas of Saint-Louis, Ziguinchor and Kafountine are the same as activities at previous sites in this category.	COP	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 <u>Environmental Procedures Training Manual (EPTM)</u> (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	COP	Construction plans/ designs and photos of all facilities constructed	Review of materials and site inspection	Quarterly

Category of Activity	Describe specific environmental threats	Description of mitigation measures for these activities as required in Section 4 of the IEE	Who is responsible?	Sources of verification	Monitoring method	Frequency of monitoring
	<p>Increased harvests and threat to overfishing due to increased demand from improved quality</p> <p>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</p>	<p>patterns).</p> <ul style="list-style-type: none"> •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. <p>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.</p> <ul style="list-style-type: none"> • 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 <u>Chapter 16: Water Supply and Sanitation</u>. • All construction activities will be conducted following principles for environmentally sound construction, as provided in <u>Chapter 3: Small Scale Construction</u> of the USAID Environmental Guidelines for Small-scale Activities in Africa, which can be found at www.encapafrika.org. <ul style="list-style-type: none"> • 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- 		<p>Mgt. plan, MSC cert. or other evidence of measures to prevent overfishing</p> <p>Construction plans/ designs and photos of all facilities constructed</p>	<p>Review of materials</p> <p>Review of materials and site inspection</p>	

Category of Activity	Describe specific environmental threats	Description of mitigation measures for these activities as required in Section 4 of the IEE	Who is responsible?	Sources of verification	Monitoring method	Frequency of monitoring
	<p>water sources causing increased human health risks</p> <p>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</p>	<p>Saharan Africa” must be followed for potable water.</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> ○ 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, 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: <ul style="list-style-type: none"> ○ Follow best engineering practices with qualified professional 				

Category of Activity	Describe specific environmental threats	Description of mitigation measures for these activities as required in Section 4 of the IEE	Who is responsible?	Sources of verification	Monitoring method	Frequency of monitoring
		<p>expertise; including opportunities for energy and water efficiencies.</p> <ul style="list-style-type: none"> ○ 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) 				
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.	COP	Management plan, MSC certification 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	<i>Activity: beach and dune nourishment, use of hard structures to combat erosion from sea level rise:</i> 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	COP	TBD via env. screening	TBD via env. screening	Quarterly

Category of Activity	Describe specific environmental threats	Description of mitigation measures for these activities as required in Section 4 of the IEE	Who is responsible?	Sources of verification	Monitoring method	Frequency of monitoring
	<p>accelerated erosion of beachfronts from inappropriate construction</p> <p>Natural habitat destruction or degradation, degradation of marginal lands land water; 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</p>	<p>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.</p> <p><i>Activity: small scale agricultural activities that promote and carry out sustainable agriculture activities including tilling, cultivation, fertilization, harvesting, etc.:</i> 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.encapafrika.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:</p> <ul style="list-style-type: none"> • 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 <p><i>Activity: Sub-grants:</i> 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</p>				

Category of Activity	Describe specific environmental threats	Description of mitigation measures for these activities as required in Section 4 of the IEE	Who is responsible?	Sources of verification	Monitoring method	Frequency of monitoring
	To be determined through environmental screening processes	<p>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.</p> <p><u>Environmental Screening Process:</u> 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 <i>Africa Bureau Environmental Report Form Review Process</i>, 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.encapafrika.org/resources.htm (Attached to this IEE as Annex 1). As described there, the screening categories include the following: <i>Very low risk</i> - activities that would normally qualify for a categorical exclusion under Reg. 216; <i>Moderate risk or unknown risk</i> - activities that would normally qualify for a negative determination under Reg. 216; <i>High risk</i> - activities that have a clear potential for undesirable environmental impacts and typically under Reg. 216 require an Environmental Assessment; and <i>High risk – typically not funded</i> - activities that either USAID cannot fund or for which specific findings must be made in an Environmental Assessment prior to funding.</p> <p>Note that the project’s expansion to the areas of Saint-Louis, Ziguinchor and Kafountine does not introduce any new specific environmental threats.</p>				