USAID/COMFISH Project
PENCOO GEJ
Collaborative Management for a Sustainable Fisheries Future in Senegal

Annual Work Plan
(1 October 2012 - 30 September 2013)

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The University of Rhode Island (URI)

In Partnership with:

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List of Acronyms

AIS	Automatic Identification System
AMLEP	African Maritime Law Enfoncement Partnership
AOR	Agreement Officer's Representative
APTE	Association for Sanitation, Fisheries, Tourism, and Environment
CCLME	Canary Current Large Marine Ecosystem Protection Project
CLP	Local Fisheries Committees
CLPA	Local Councils of Artisanal Fishers
CNCPM	National Consultative Council for Marine Fisheries
COGEPAS	Co-Management of Artisanal Fisheries Project in Senegal
COMOPECHE	Sustainable Management of Fish Resources Project, World Bank
CONIPAS	National Fisheries Stakeholder Council
CPUE	Catch per unit effort
CRODT	Oceanographic Research Center- Thiaroye, Dakar
CSE	Ecological Monitoring Center
DPM	Department of Marine Fisheries
DPSP	Department of Fisheries Protection and Surveillance
FENAGIE	National Federation of Fisheries Economic Interest Group
FMP	Fisheries Management Plan
GAIPES	Industrial Fisheries Association
GIS	Geographic Information Systems
GREP	Environment, Research and Media Research Group
ICC	CLPA Advisory and Coordination Body
IFAN	Fundamental Institute for Black Africa
IRD	French Institute Research for Development
IUPA/UCAD	Institute of Fishing and Aquaculture, University Cheikh Anta Diop
IUU	Illegal, Unreported, and Unregulated fishing
JICA	Japanese International Cooperation Agency
LPS	Fisheries and Aquaculture Sector Policy Letter
MPA	Marine Protected Area
PMP	Performance Management Plan
SCA	Accelerated Growth Secretariat
UGD	Sustainable Management Unit
WWF-WAMPO	World Wildlife Fund for Nature – West Africa Marine Program Organization

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1. INTRODUCTION

The collaborative management for a Sustainable Fisheries future in Senegal project (USAID/COMFISH) is a five-year initiative (14 February 2011 - 30 September 2016) funded by the United States Agency for International Development (USAID) and implemented through a Cooperative Agreement between USAID and the University of Rhode Island (URI). The project's main implementing partners are government, the private sector, non-governmental organizations working in coastal areas and in the fisheries sector, universities (UCAD and IUPA), and research institutes (CRODT, IRD/IFAN).

The goal of the USAID/COMFISH project is to support the Government of Senegal in reforming the fisheries sector, as provided in the Fisheries and Aquaculture Sector Policy Letter, by strengthening good governance and promoting effective management tools and approaches for social, institutional and biological sustainability. By virtue of the Fisheries Code of 1998 and the creation of Local Fishing Committees (CLPs) and Local Artisanal Fishing Councils (CLPAs), Senegal now has local governance organisms in place. However, research on the biological sustainability of some fish stocks is still not integrated fully in collaborative management plans. Hence, the local mechanisms for collaborative management are not compliant with the sustainability requirements of the Fisheries Sector Policy Letter.

This document describes USAID/COMFISH project activities for the third fiscal year that began on 1 October 2012 and will end on 31 September 2013.

The Work Plan has five sections. The first describes the context of fisheries in Senegal and the objectives and key results expected at the end of the project. The second presents the results of the first two years of USAID/COMFISH project activities. The third gives a detailed description of the activities to be implemented during the third year of the project. The work plan also includes an activity timeline, indicators, annual targets and outcomes by type of activity. For each type of activity, the project staff and partners in charge are defined.

The work plan also presents the project's budget, coordination structure, monitoring and evaluation strategy, and reporting and performance management framework. Appendix A describes the project's performance monitoring plan, which sets out the targets and expected results for each performance indicator.

1.1 Background

The fisheries sector's importance in the domestic economy and food security:
Senegal's marine fisheries play a vital role in food security, improved livelihoods, national and local economic growth, and social well-being in communities. The fisheries sector (industrial and artisanal/traditional fisheries combined) provides approximately 600,000 direct and indirect jobs, or about 17% of the workforce. It produces 47% of Senegal's total protein intake and covers 70% of the nation's animal protein requirements. Fishery exports covered about 37% of total exports between 1997 and 2002. This illustrates the importance of fisheries in nutrition, food security and in the creation of wealth in Senegal.

Fishing capacity exceeds the fish population replenishment rate:
There is wide agreement in Senegal that the fish harvesting capacity and the fishing effort each year far outmatch nature's ability to replenish mature fish populations. This creates a strategic imbalance with fish harvests exceeding the natural ability of fish stocks to replenish themselves through growth and reproduction. Senegal is yet to finalize its action plan for the management of fishing capacity that all FAO member countries committed to develop before 2005[1]. For the Ministry of Fisheries to implement an effective and consistent fisheries policy, it needs a well-developed action plan based on an

[1] Only Indonesia, Namibia and the United States have a plan for capacity management.

analysis of the changes in fishing power and fleet over the last 20 years. Such a plan would also provide accurate and quantitative information to reduce fishing capacity to sustainable levels in all fisheries.

Inconsistent fisheries survey data on fish captures/landings:
The Oceanographic Research Center in Thiaroye, Dakar (CRODT) and the Department of Marine Fisheries (DPM) both have systems for collecting data on the different fisheries. These two data collection systems use different methods and produce data separately. Each set of data covers the landings in the different geographical areas. Because the data collection methods are different, the resulting assessments often are contradictory and sometimes highlight different trends. There have been attempts to compare their sampling systems in order to harmonize the information gathered by CRODT and DPM. However, these attempts are yet to yield concrete results, making it difficult to obtain reliable estimates.

Stock status, fishing effort, and landing trends:
Changes have been observed in the past ten years. The number of registered artisanal boats increased from 8 488 to 13 420 between 1980 and 2006[2], while the number of national industrial vessels decreased from 176 to 119 between 1997 and 2006. The increase observed in the artisanal fishing effort may be due to the increase in coastal populations, the role of fishing as an alternative, and the difficulties in the agriculture sector. The number of foreign vessels decreased from 163 to 44 between 1980 and 2006. Change was seen also in fish landings. Total landings in the last decade stagnated at about 300 000 tons per year. At the same time, artisanal fishery landings increased to dominate the stocks in domestic and foreign market supply chains , providing 94% of fish, 63% of molluscs, and 25% of crustaceans on the landing sites in Senegal.

With the regular fish landings in Senegal from intensifying fishing efffort, it is hard to notice immediately that most fish stocks in the country are in a critical state. But behind this screen of regular landings, all the multi-species tropical fisheries affected by excessive harvesting are in an alarming state. No less than ten important demersal species are over-harvested in Senegal. Such excessive fishing of important species will eventually cause a sharp fall in landings. This may be the reason why landings in Senegal fell from 430 000 tons to 340 000 tons between 2004 and 2006 (i.e. a decrease of 20% in two years). The lack of reliable and updated data on landings has been a cause for concern, because it shows there is no objective means of assessing or analyzing the current state of fisheries in Senegal. If the dwindling trend in catches between 2004 and 2006 were to continue, this might pose a threat to the main source of protein for the Senegalese people.

Sustainable fisheries management in Senegal:
The majority of fish stocks are fully exploited. Some have even exceeded their optimal level of exploitation. The problems caused by poverty and food security in local communities often undermine the efforts made to improve fisheries management. Overfishing reduces catches and sources of food supply for local communities. If the fishing effort on Senegal's inshore stocks continues to increase and the ecosystems on which they depend are degraded increasingly by pollution, unsustainable fishing practices and climate change, the pressure on stocks will increase.

[2] Since then, PRAO and DPM have implemented (2011) a comprehensive project comprising over 17 000 artisanal boats. Recent estimates were between 18000 and 19000 artisanal boats. The project used CRODT data for 2006 that target only the number of active artisanal fishing boats (which is necessary for evaluating stocks), while the PRAO project did target all artisanal boats (in order to increase revenue from registration fees). PRAO data seems to cover (i) Senegalese-owned artisanal boats operating outside Senegalese waters; (ii) foreigners' artisanal boats fishing in Senegalese waters (even if just on an occasional basis); and (iii) the artisanal boats parked on beaches or elsewhere, but not used for fishing. Therefore, the real increase in artisanal fisheries capacity and effort impacting stocks can range between these two estimates. The USAID/COMFISH project will address this issue during the first quarter of FY2013 in its activities to develop a plan of action for the management of fishing capacity. Another key step will be to review fisheries sector capacity.

Lack of synergy in research and stock evaluation efforts:
The Department of Marine Fisheries (DPM), the Studies and Planning Unit (CEP), the Oceanographic Research Center in Thiaroye, Dakar (CRODT) and the Institute of Fisheries and Aquaculture (IUPA) all have different roles in fisheries research, but they unfortunately do not cover all the areas of research. To ensure that the Ministry of Fisheries addresses the challenges identified in the LPS, there has to be a balanced approach to the different types of research, including:

- Fundamental or pure research that deals with new problems without immediate solutions;
- Applied research in which government chooses the target and scientists select the methods to use according to the budget they have;
- Participatory research with researchers working on dissemination and on targets identified by fishers. These findings are later presented to the fishers for participatory review. Such research is often financed by fishers' organizations in partnership with the government. Together with the USAID/COMFISH project, IUPA is going to pilot test some participatory research and extension.

To maximize the benefits of these different research strategies, Senegal needs a well-integrated research sector. One challenge it needs to overcome in fisheries management is the lack of participatory management plans based on scientific evidence. The participatory management plans that exist are based mostly on the knowledge of fishermen and lack detailed scientific evidence to establish biological sustainability. Research efforts lack synergy due to the absence of strong institutional structures, adequate budget allocations and a coherent human resource policy for the fishing sector.

The key role of climate change in fisheries management

Climate change affects fishing in two ways:

Direct impacts of climate change on fishing communities: When the USAID/COMFISH project was being designed, the main objective of the climate change component was to increase the resilience of coastal communities to the physical threats of climate change. These threats include: coastal erosion and loss of habitat, rise in sea level (0.5 to 1.0 meters in the next 50 to 100 years), increasingly frequent sea storms, saltwater intrusion in coastal aquifers, etc. Given their importance, these physical threats to coastal communities induced by climate change are addressed in years 2 and 3 of the USAID/COMFISH project.

However, it is now clear that the threats climate change poses to Senegal may be more far-reaching than what was projected during the development phase. This may include direct threats to national food security, as seen already in the falling fish production trends which are likely going to progress in the coming two decades.

Direct impacts of climate change on landings: Senegal, like all other countries, is becoming increasingly aware of the direct impacts of climate change on fish stocks. There is wide consensus today in the international community that climate change, and global warming in particular, are a threat to fish stocks because of the impacts they have on the growth, reproduction, recruitment and migration of these stocks. FAO has published an important document that identifies climate change impacts on food security in a broader context. Indeed, it is now clear that climate change may lead to the reduction of fish catches at landing sites.

Climate change impacts on fish landings also affect communities involved in fish processing, marketing, distribution and supply of processing industries, fishing gear manufacturers, carpenters and other related fishing activities.

The reductions seen today in the quantity of landings are attributed to the intensity and overcapacity of the fishing effort. But let us not forget that the combined effects of increasing fishing effort and climate change were already affecting the productivity and distribution of fish stocks as far back as the mid-1990s. The potential impacts of this phenomenon on landings and food security are as follows:

- Increases (no matter how small) in water temperature can significantly affect the composition, species distribution and populations of fish stocks. Temperature influences the geographic distribution of stocks. It has a direct effect on the location and period of spawning, which ultimately affects the growth and survival of high-value fish species;
- In an extremely hot environment, tropical fish species may experience an ecosystem regime shift and migrate towards the poles. The species that are harvested currently in Senegal may move northward into Mauritanian and Moroccan waters, which can reduce the productivity of fisheries in Senegal. There is tangible evidence that Senegalese fishermen have been migrating to other fishing areas since 1995. This migration, attributed often to the excessive level of the fishing effort in Senegal, may be caused by climate change as well as overfishing;
- Climate change may deepen the uncertainties in fish captures and supply;
- Climate change may affect seasonality in ways that will have unpredictable consequences for the livelihoods of fishermen in Senegal;
- The rising water temperatures and increasing salinity that are resulting from climate change create favorable conditions for the spread of pathogens. Changes in temperature generally expose the most vulnerable marine species to stress and disease, especially if they occur during critical periods in the life cycle of the species.

Strategy for managing the direct impacts of climate change on fish stocks: To assist Senegal in developing an effective information and awareness strategy for sustainable fisheries management, while paying due attention to adaptation to climate change, the USAID/COMFISH project is going to be addressing fishing capacity in a crosscutting manner. Efforts to deal with stock productivity (ability to produce fish) will include climate change, for it can affect stock productivity. This requires a drastic reduction in the fishing effort to ensure that stocks are protected from overfishing. The USAID/COMFISH project has identified a tool[3] that can be used to analyze the different effects that overcapacity, the fishing effort and climate change can have on stocks. With these results, the project can embark on the Senegalese authorities' awareness creation process to ensure that climate change issues are better addressed in policies on fisheries. Senegalese scientists need also to provide those in charge of fisheries management with information that will enable them to understand how climate change affects productivity in the case of significant stocks. For, this will enable Senegal to implement policies that adapt the fishing capacity and effort to climate change. In that respect, the USAID/COMFISH project proposes to undertake initiatives together with MPAM, through its technical departments (especially DPM, DSPS, etc..), Research Institutes and universities (CRODT, IUPA, ISE), and the Ministry of the Environment (with DEEC and CSE). The results obtained will be shared with fishing communities and CLPAs through collaborative management plans. This activity was scheduled for implementation in 2012 with CRODT, which has the necessary data. Owing to delays in finalizing the contract with CRODT, the activity will be implemented this year (FY2013).

GoS Response to challenges in the fisheries sector: The Ministry has established community-based Local Councils of Artisanal Fishers (CLPAs) to develop more comprehensive inshore fisheries management plans, and to pool together and harmonize the collaborative management initiatives taken by the CLPAs. However, the CLPAs do not cover areas large enough to match unit stocks, which is crucial for the management of stocks within biological limits.

The Government of Senegal earlier commissioned an assessment of the fisheries sector. It used the findings of said assessment to take important management measures that are in the Fisheries and Aquaculture Policy Letter of 2008 (LPS). The Letter is aimed at harmonizing Government initiatives, projects and programs based on core objectives set by the government. It seeks to pull together all the initiatives undertaken by the Government, development partners and technical and financial partners in a consensual reference document.

[3] Described in the first quarterly report for FY2012.

For the fisheries sector to be able to contribute to economic growth strategies, there is need to reform fisheries management and strengthen the sector (to maintain production yields and generate more wealth, while working towards a substantial reduction in the fishing effort). Senegal has organizations with proven expertise in fisheries. But new models of engagement are needed to ensure that these reforms are implemented efficiently and effectively by all the stakeholders. Efforts have to be made to establish prerequisites for successful delivery of the Fisheries and Aquaculture Sector Policy Letter 2008. Senegal will also need new governance tools and approaches, and stakeholder training and institutional capacity building on how to manage for results. ***All these are the prerequisites that the USAID/COMFISH project proposes to put in place for effective collaborative ecosystem management that can bring about sustainable improvements in fisheries governance in Senegal.***

1.2 The USAID/COMFISH project strategy

Establishing Sustainable Management Units: When the project first made contact with the Ministry of Fisheries and Maritime Affairs through the Department of Marine Fisheries (DPM) in April 2011, the two parties looked into the reasons why the local collaborative management organs (CLP and CLPA) were not functioning. These reasons were primarily:

- The lack of geographic correspondence between (i) Senegal's harvesting systems and local governance units (CLPs and CLPAs), which, when supported properly, can implement control measures); and (ii) the stocks that fishers exploit in the CLPs and CLPAs;
- The absence of a system at the local level for evaluating stocks and developing scientifically based collaborative management plans;

It is in this respect that DPM accepted to let the USAID/COMFISH project implement a coherent local governance strategy for sustainability by introducing collaborative management plans centered around the CLPAs and using local knowledge for stock assessments within biological limits. The project's suggestion was to use an old idea from the USAID/IUCN Sine Saloum Project (2002-2005) in the activities of DPM and the USAID/COMFISH project: the concept of Sustainable Management Units (UGD). A UGD is made up of all the fishermen who harvest fish from a given unit stock.

In establishing the UGDs, the project would use the existing structures that DPM set up under the Fisheries Code of 1998, meaning that no amendments in legal procedure will be necessary (Fisheries Code 1998).

Legally Binding Agreements (Fr. Conventions locales - CL) were identified as the key tools for establishing UGDs. These are provisions with legal status that are developed by each CLPA in a participatory and concerted manner. The CLs can be implemented by the CLPAs using the procedures set out in the 1998 Fisheries Code. The CLs have the force of law once they are approved by CLPAs, divisional officers (préfets) or sub-divisional officers (sous-préfets).

For the UGDs to work properly, control measures for sustainable fisheries management have to be based on (i) the knowledge of fishermen: (all the knowledge acquired by fishermen since they started plying the fishing trade). If this knowledge is not taken into account when developing the management plans, these plans will not be approved by the fishermen. However, the knowledge of fishermen is mainly anecdotal. It is not easily quantifiable and can therefore not be relied upon for the production of unequivocal management plans. (ii) Scientific knowledge (must be harmonized with the knowledge of fishermen). It must also have a specific objective and quantifiable information that is necessary for sustainability.

Another problem is the lack of adequate funding for research and the use of costly stock assessment tools based on the age considered most reliable. DPM and USAID/COMFISH have agreed to work together in initiating participatory assessments with a simple length-based assessment tool (ELEFAN: published by FAO) that can produce cost-effective and efficient assessments in a period between 12 and 18 months. This tool has been reviewed and updated by the project in collaboration with the

University of British Columbia. It is going to be available before the end of FY 2012. The initial assessments, based on data for a period of six months, may be available before the first quarterly report of FY2013. This work is being done together with IUPA.

In FY 2013, scientific information on sardinella will be shared with the CLPAs and the future UGD. This UGD will be a model that DPM can replicate in other areas and use on other unit stocks.

Project strategies

- Increasing the resilience of fishing communities to climate change through capacity building, management plans and measures, environmental protection and increased socio-economic benefits;
- Prioritizing the sustainable management of key fish stocks;
- Taking a participatory, collaborative management approach that engages fishers, the government and other key local and national stakeholders in decision-making;
- Taking an ecosystem approach to fisheries management, the protection of critical habitats, and the mitigation of the impacts of fishing on endangered marine species;
- Addressing gender issues to secure benefits for men and women, and to enable them to participate in decision-making.

***Climate change**:* Addressing climate change impacts on fish productivity (e.g. unit stocks) is vital to sustainable fishing efforts. The USAID/COMFISH project will assist the Government of Senegal in identifying climate change impacts on the productivity of priority stocks and in developing strategies that deal comprehensively and simultaneously with capacity, overfishing and climate change as part of fishery resource management. This will make it possible to set up sustainable fisheries management mechanisms that are responsive to climate change. The USAID/COMFISH project will also help fishing communities and the fisheries management authorities to conduct participatory vulnerability assessments, plan coping measures, and integrate climate change issues in national policies and strategies.

Establishing the prerequisites for sustainable fisheries management: One of the objectives of USAID Senegal is to support economic growth in Senegal by nurturing and consolidating the capacity and conditions for attracting investments, developing trade and creating wealth through enhanced natural resource management. USAID's "Feed the Future" (FTF) initiative was put in place to support the Government of Senegal's Poverty Reduction Strategy and Agricultural Investment Plan. The USAID/COMFISH project is the FTF Program's "Fisheries Component". It will help take forward the objectives of said program by focusing on the sustainability of marine ecosystem productivity, reducing post-harvest losses, promoting international trade through eco-labeling (local), and making sure that artisanal fisheries play an active role in the value chain by taking a gender-responsive approach that secures a significant increase in the social and economic benefits the artisanal fishers derive from their trade.

Contributing to the conservation of marine and coastal biodiversity: The USAID/COMFISH project will contribute also to the objectives for biodiversity conservation that feature in USAID's 2005 assessment of the threats to biodiversity in Senegal. This assessment suggested that overfishing and unsustainable fishing methods posed direct threats to marine biodiversity in Senegal, and particularly to demersal fish stocks that contribute substantially to exports. It is in this respect that the project is pursuing efforts to identify, test and implement policies and strategies to reduce or eradicate unsustainable fishing practices, and to promote the conservation of marine biodiversity and ecosystems.

1.3 Objectives, Expected Results

The objective of USAID/Senegal is to assist the Government of Senegal in reforming the fisheries sector, as provided in the Fisheries and Aquaculture Sector Policy Letter, so that it continues to provide income and food security to the growing population.

The *USAID/COMFISH* project will support this reform and promote the objectives of biodiversity conservation, including the crosscutting goals of enhancing governance, gender mainstreaming and adaptation to climate change.

The *USAID/COMFISH* project seeks to develop and replicate new sustainable fishing models to help Senegal institute sustainable management of artisanal fisheries. Because most of the fishery resources are shared between Senegal and neighboring countries within the limits of the CCLME zone, activities will be undertaken to support the harmonized governance of artisanal fisheries at the sub-regional level, even though most project activities will focus on Senegal.

The *USAID/COMFISH* project's long-term objective (20-30 years) is to prevent overfishing in Senegal so that the fisheries provide (1) the nation with a sustainable source of high-quality proteins; (2) contribute to the quality of life in artisanal fishing communities; and (3) maintain the capacity of coastal and marine ecosystems to produce goods and services that are useful to and desired by the Senegalese people.

The *USAID/COMFISH* project will contribute in achieving the following four major results:

IR 1: Capacities of institutions and stakeholders strengthened at all levels of governance to implement an ecosystem-based collaborative management system with a view to preventing overfishing and increasing resilience to climate change.

IR 2: Strategies, policies and best practices identified, tested and applied to address both climate and non-climate stressors and their interactions in marine fisheries and biodiversity.

IR 3: Vulnerability assessed and capacity of vulnerable coastal communities strengthened to adapt to impacts of climate variability and change.

IR 4: Increased social and economic benefits to artisanal fishing communities and their resilience to climate change provide incentives to a continued sustainable fisheries agenda.

1.4 Description of the project target area

The administrative map presented below (*fig. 1*) shows the project target area. It demarcates the range for project activities as well as the map zoning the MPAs in Cayar, Joal and the Saloum Biosphere Reserve, which are the protected areas where project activities will take place. As regards the targeted fishing sites, the project considers the CLPA as the administrative entity acting as proxy for the CLPA Chairperson.

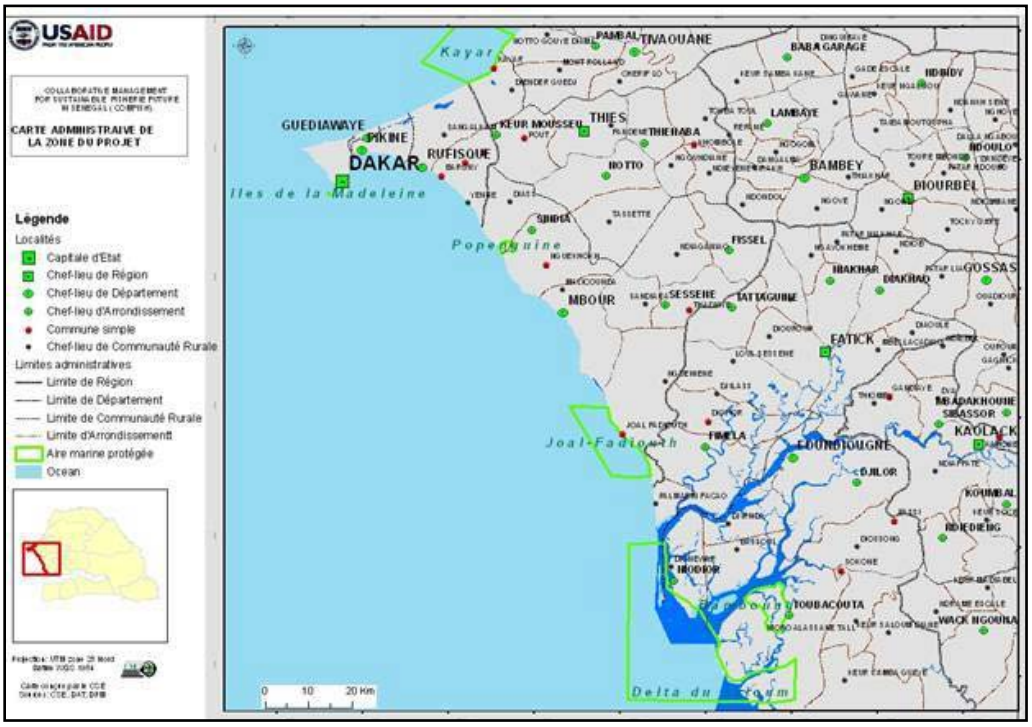


Figure 1. **Administrative map of the project area (source: CSE)**

All the CLPAs covered by the project are located in the regions of Thies, Dakar and Fatick (*fig.2*). This area has over 65% of Senegalese fishermen, about 65% of active fishermen engaged in the fishing effort, and between 70 and 80% of the landings of small pelagics. Considering the priority stocks the project is targeting, any management measures initiated on the stocks in this area could have an impact on 80% of the fishing effort (DPM Statistical Reports). Figure 1 and Figure 3 show that the fishers in three CLPAs aim for catches from the same stock. This makes it easy for them to understand the UGD concept on stock based management.

At the same time, and for the sake of continuity in USAID work, the USAID/COMFISH project will support past USAID initiatives in the Sine Saloum. The USAID/ Wula Nafaa project (2008-2013) and the USAID/IUCN (2002-2005) project worked respectively on the management of shellfish and shrimp stocks (Wula Nafaa focused on *cobo* in Niodior and in Bassoul, Tambacounda, and Missirah Foundiougne, while IUCN worked in the CLPAs in Niodior and in Foundiougne, Kaolack, and Gandiaye Missirah). The *USAID/COMFISH* project uses the same CLPAs that IUCN is using for its activities on shrimps. It will also use the same CLPAs as Wula Nafaa when work begins on *cobo* in FY2014. For the activities planned to begin on shrimps in Casamance by FY2014, the project will rely on the CLPAs and local governance units supported by Wula Nafaa.

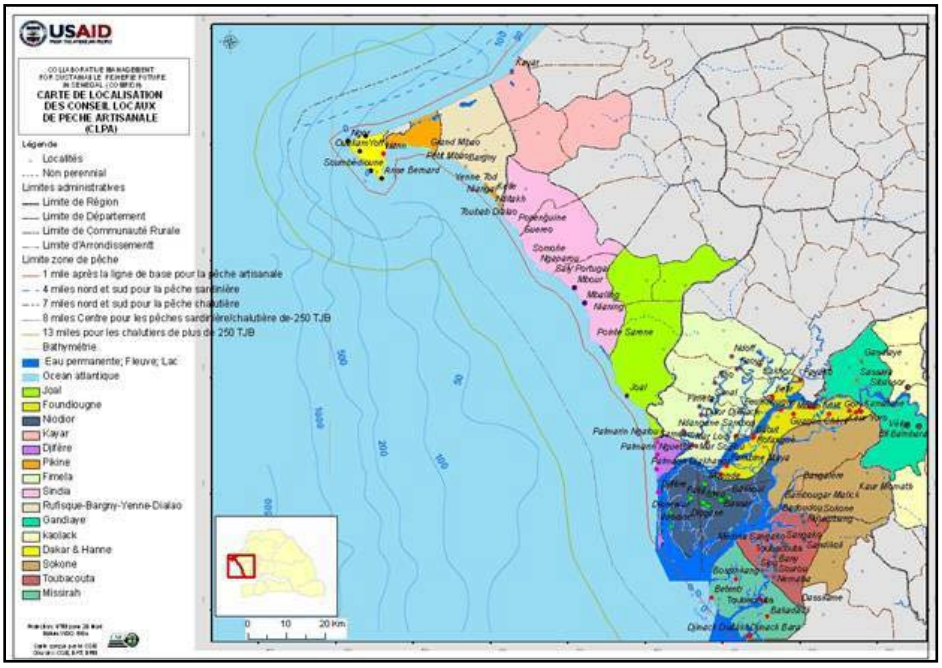


Figure 2. **Location of targeted CLPAs (Source: CSE)**

The map below (*fig. 3*) shows the distribution of targeted resources as well as the fishing sites covered by stakeholders in the project area. Given the scale of fish harvesting in this area, the need for sustainable management rules has been a priority for several donors engaged in the sector, including the *USAID/COMFISH* project.

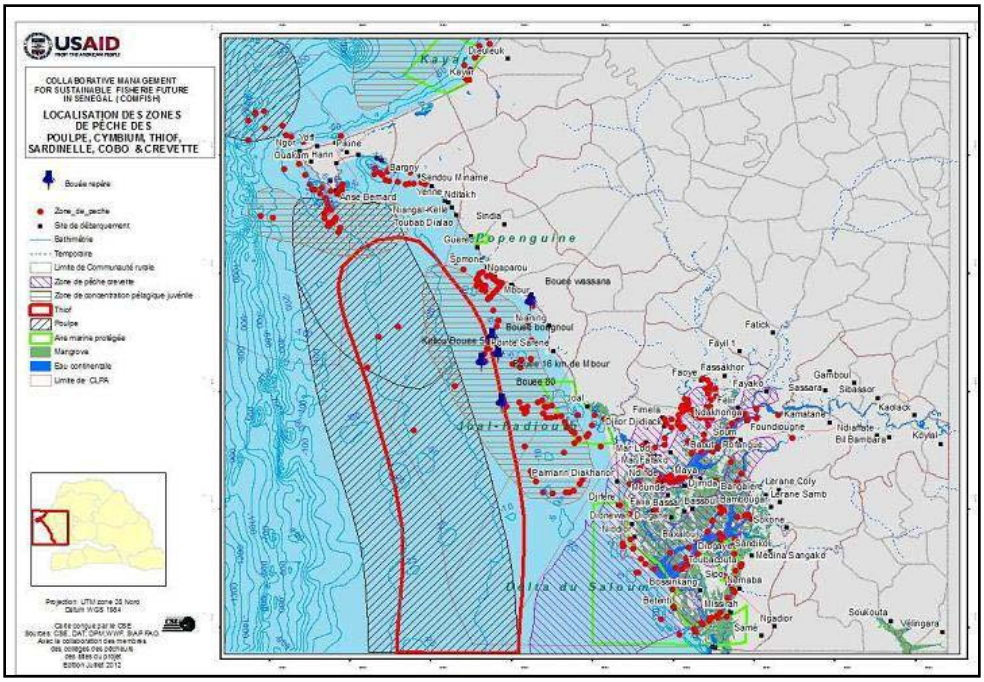


Figure 3. **Map on the distribution of resources and areas covered by fishers**

Regarding the priority species identified in the project areas, the table below summarizes the characteristics of the species involved and the synergies between *USAID/COMFISH* and the other programs/projects in the process of establishing management plans.

Table 1: Characteristics of priority species identified and targeted by the USAID/COMFISH project (source: USAID/COMFISH)

PRIORITY STOCKS / STRATEGIES	Context and factors influencing fishing
- **Species:** ***Sardinella aurita and sardinella maderensis*** - **Local name**: Sardinella, Yaboï - **Family:** CLUPEIDAE - **USAID/COMFISH project contribution**: USAID/COMFISH has taken the initiative to develop this species: Developing a national collaborative management plan by building stakeholder and CLPA capacity, initiating inter-CLPA consultations based on the locally binding agreements; improving the data collection system (IUPA, CRODT), conducting a stock assessment, identifying climate change impacts; supporting the CSRP sub-regional development plan; contributing to stock assessment; Assessing IUU fishing.	- Landings of this species mainly by Senegal's artisanal fishers - Product is accessible and affordable, plays a key role in food security - Fished on a large scale by industrial fisheries - The impact of IUU fishing seems strong and perhaps under-estimated - Sensitive to climate threats (upwelling sea temperature, wind, current, etc.), as evidenced by changing migration and reproduction trends. - Main species for the ecological and trophic balance of the region's ecosystem. Migrates on a large scale each season to areas that may range from Ghana to Morocco.
- **Species:** ***Ethmalosa Fimbriata*** - **Local name**: Bonga, *Cobo* - **Family:** Clupeidae - **USAID/COMFISH project contribution:** Building the capacities of CLPAs targeted by this fishery (Saloum Delta); Developing consultation frameworks inside CLPAs (Conventions locales) and in the UGD (inter-CLPA consultations); Improving the stocks information and assessment system (IUPA); assessing the stock. Where the stock is shared with Gambia, considering pathways for dialogue between the two countries	- Affinity for estuaries and bays. - Older individuals prefer the marine environment - Certainly one population covering the Saloum estuary and Gambia. - At sea, this species seems to stay in near coastal shallow areas less than 15- 25 m deep. - Harvest potential between 9 and 10,000 tons in the Saloum estuaries and Casamance. - Intense fishing activity in Gambia and the Sine Saloum estuaries, - Low pressure observed on part of the stock present in the coastal area.
- **Species:** ***Penaeus notialis*** - **Local name**: coastal shrimp, Sippah - **Family:** PENAEIDAE - **USAID/COMFISH project contribution**: Building CLPA capacity (Saloum Delta); frameworks for consultation inside CLPAs (Conventions locales) and in the UGD (inter-CLPA consultations); socio-economic studies; stock information and assessment system (IUPA); creating frameworks for dialogue to involve the industrial and commercial sector in sustainable fisheries management; development of a value chain for this species; eco-labeling. GIRMAC has the lead role.	- Shrimps of the family Peneidae live in tropical waters and breed at sea. - After fertilization, the eggs are hatched into the water to develop through the different larval stages: - The larvae survive as plankton and are carried away by the water current to estuaries during their post-larval phase. - The shrimp post-larvae stay for a few months in the estuary (3 to 4 months), depending on food availability and environmental conditions, before returning to sea. The time spent in the estuary plays a decisive role in the success of estuarine fisheries. - High-value export species harvested by industrial fisheries

PRIORITY STOCKS / STRATEGIES	Context and factors influencing fishing
- **Species:** ***Epinephelus Aeneus*** - **Local name:** White grouper, *Thiof* - **Family: SERRANIDAE** - **USAID/COMFISH project contribution:** Building capacity for target CLPAs, UGD consultation frameworks, improving the information system on captures and stock assessment (with IUPA, CRODT, and IRD/IFAN), opportunities for certification or eventually for labeling. - JICA/COMFISH: lead	- Lives in areas between 0 and 200 meters deep, but is most abundant in areas below 100 meters (FISHER *et al* 1981). - Protogynous hermaphrodite species (M>F) - There are large populations of non-migratory adults on the Petite Côte. Bathymetric movements seemingly tied to reproduction have been observed in them. Landings are mostly by artisanal fisheries (2/3). - There is little knowledge on how climate affects the stock - Has a pattern of seasonal migration into offshore areas and particularly influences the effects of upwelling.
- **Species:** ***Octopus Vulgaris*** - **Local name:** Octopus, Yaranka - **Group: Cephalopods** - **USAID/COMFISH project contribution:** Improving the information system on stock captures and assessment (IUPA and CRODT); opportunities for certification or labeling eventually. - Lead: JICA	- High-value export species harvested by industrial and artisanal fisheries - Largest landings by artisanal fisheries. Little knowledge on how climate impacts stock - Fished all year round with well-spread seasonal peaks mainly in Mbour and Joal. - Stakeholders on La Petite Côte are implementing a biological recovery plan and a restocking and stock enhancement program for this species through the use of artificial reefs and Marine Protected Areas.

1.5 Legal and institutional framework for collaborative management in Senegal

After a comprehensive review of the disastrous state of the world's fisheries, Senegal, in compliance with international institutions, adopted a participatory approach to sustainable fisheries management that guarantees the involvement of all stakeholders. It is in this regard that Law No. 98-32 of 14 April 1998, enacting the Fisheries Code, and the related Implementation Order No. 98-498 of 10 June 1998, were passed. These provisions serve as a legal and institutional framework for collaborative management in Senegal, the creation of Local Councils of Artisanal Fishers (CLPA), which are the main organs for collaborative management, and the provision of guidelines on their distribution, role, function and membership.

The CLPA is a professional, apolitical and non-profit organization of the artisanal fishers in a given local area. It plays a local governance role, setting and applying rules, and facilitating interrelationships between stakeholders, on one hand, and between state structures, on the other. Its main goal is to bring all the major stakeholders together around the sustainable management of fishery resources. Established in a functional and operational manner, the CLPA is the institution expected to help implement collaborative fisheries management in an effective manner. Indeed, by enabling all the stakeholders involved in the management of fishery resources to participate in decision-making, the CLPA could be in a position to circumvent Article 3 of the Fisheries Code, which establishes the non-transferability of fishery resource management in Senegal. It was precisely to overcome this problem at the community level that the Ministry established Local Councils of Artisanal Fishers (CLPA) to develop more comprehensive coastal fishery management plans, and to harmonize and synergize the collaborative management initiatives taken by the CLPA. However, the CLPAs are not functioning properly (lack of technical, institutional and financial resources), and they often do not cover areas commensurate with biological unit stocks, which is critical for the consistent and sustainable management of fish stocks.

The purpose of the *USAID/COMFISH* project is to establish collaborative fisheries management plans for targeted priority stocks by using CLPAs as an institutional entry point. It seeks especially to transform this legal entity into a Sustainable Management Unit (UGD). This initiative aims to integrate institutional, administrative, socio-economic and environmental aspects into the process of establishing an ecosystem approach to sustainable collaborative fisheries management in Senegal.

In the process of setting up Sustainable Management Units, the USAID/COMFISH project uses the **Convention locale** as a legal instrument for negotiating management rules in local communities and formalizing inter-CLPA relations for the development and implementation of stock-based management plans.

Developing the Convention Locale (CL)

The Convention Locale (CL) can be defined as a formal agreement on natural resource management rules between resource users, based on the laws and regulations in force. The Convention Locale, unlike the code of conduct, has to be adopted officially by the CLPA's Advisory and Coordination Body (ICC) and signed by a local legal authority representing the State, given that fishery resource management is a prerogative of the State.

The CL development process begins after stakeholders put in a request and show their interest in turning away from the poor fishing practices used in their areas. After making this request, they get support (either from the Administration, NGOs and/or a project) to set and apply sustainable management rules on one or more resources. The process of establishing the Convention Locale comprises thirteen (13) stages. The most important ones are outlined below, as follows:

- Inform the local and administrative authorities in the areas covered by the CLPAs concerned;
- Sign cooperation agreements between the *USAID/COMFISH* project and the key players;
- Establish a steering committee under the responsibility of the CLPA;
- Select and train local facilitators who serve as "extension workers", appointed by the CLPA for the Convention Locale;
- Review the state of fishery resource management and develop a scoping paper (fishing potential, stakeholder identification, artisanal fishing units and processing techniques, etc.) by the extension workers;
- Update the elements involved in mapping fisheries (mapping of stocks and fishing sites) and coastal areas through participatory mapping;
- Establish rules for access to resources based on the constraints identified during the review exercise in villages or zones (management rules, coordination committee, surveillance organs, etc.);
- Harmonize and validate the rules of the Convention Locale;
- Deliberation and approval of the Convention Locale document by the CLPA Advisory and Coordination Body, and then by the Ministry of Fisheries;
- Disseminate the Convention Locale;
- Develop management plans on the priority stocks with the CLPAs concerned in order to establish the UGD.

After the Convention Locale is approved by the competent authority, and the priority stocks management plan is developed, the stakeholders can begin to implement the management rules from the Convention Locale. The implementation process also comprises several steps. The most important ones are:

- **Establishing a coordination committee in the CLPA** composed of "local" fishers whose role is to coordinate compliance with the Convention Locale;
- **Establishing surveillance organs** to monitor implementation of the Convention Locale and settle disputes;
- **Creating the Finance Committee** to collect, pay and distribute community taxes and/or fines. The income earned through the application of the Convention Locale comes from the taxes and fines levied for non-compliance with the Convention Locale. However, these taxes and fines have to be levied in conformity with the fishing code, given that fisheries compliance provisions are not decentralized.
- **Organizing the annual assessment meetings** (technical and organizational) of the Convention Locale by the CLPA Advisory and Coordination Body together with resource persons and partners.

Looking at the process of establishing and developing the Convention Locale, management plan development is a step in the Convention Locale, which consists in identifying coherent activities for each CLPA as well as for all the CLPAs (covering the surface area of a given biological unit stock) to ensure sustainable management of that stock. This is done by analyzing the **advantages and challenges** of the fisheries in the target CLPAs, using key scientific evidence from studies conducted by the supporting institution (*USAID/COMFISH* in this case) and partner scientific institutions. **The management plan therefore is a document based on the Conventions Locales and covering the target stock.**

Management plan development is the final step in the process of establishing the CL. The proceedings in this last stage (development of the management plan) vary and can be complex, depending on the case under review:

- For a CL on CLPA stock management of a sedentary species, the last stage of the CL, which includes the establishment of management rules for the stock concerned, is the management plan for that stock;
- Where it is shared stock, the implementation of the management plan must follow a number of steps:

    1. Consider the overall geographic and biological data on the spawning areas, the stock range and the various interactions in the environment (the socio-economic and environmental considerations, the interactions between the elements in the environment (including humans) and the site;
    2. Establish management rules in each CLPA, mindful of the points considered above;
    3. Harmonize common management rules between the CLPAs covering the stock range considered (Inter-CLPA Consultation Framework).

Towards a Sustainable Management Unit (UGD): stock-based management

The USAID/COMFISH project will develop three (3) management plans for the priority species in Table 1: these are two species of sardinella (*Sardinella aurita, Sardinella maderensis*), cobo (*Ethamalosa fimbriata*) and eventually coastal shrimp (*Penaeus notialis*) or thiof (*Epinephelus Aenus*). On the last two species, the GIRMAC project (World Bank) and the COGEPAS project (JICA) seem to be well-advanced in the development of their management plans, according to reports made by the Department of Fisheries at the meetings held with the USAID/ COMFISH project. For synergy, the project will contribute to this ongoing process by providing basic scientific knowledge

and tools to assess and monitor these two resources. The studies conducted during the first two years of the USAID/COMFISH project produced basic scientific and socio-economic data that can be used to begin developing a local management plan on the white shrimp (*Penaeus notialis)*, based on the methodology that USAID and IUCN used in Sine Saloum in 2005.

About establishing the sardinella management plan, each CLPA should, in principle, develop its own management plan once the Convention Locale has been approved, since the plan is part of the process, as we saw earlier. However, considering this is a shared stock (between the project's CLPAs and beyond) and looking at the *USAID/COMFISH* project strategy of establishing UGDs for collaborative management, a stock-based sardinella joint management plan will be developed for the CLPAs. The process initiated through the CL will continue in a participatory manner with the support of scientific and technical partners, using zonal workshops that bring together most of the CLPAs targeting this stock. To ensure the process is legal, legitimate, effective and accepted, the project will progressively establish a three-tier dialogue, approval and adoption framework at: the local level (ICC), the regional level (formalizing the inter-CLPA departmental or regional consultation framework), and the national level (re-dynamizing the National Advisory Council for Marine Fisheries).

The stock-based sardinella management plan development process that the USAID/COMFISH project initiated through the CLs will include the following main steps:

- Preparation (establishing the institutional and legal framework);
- Resource status diagnosis/analysis (data collection, scientific study validation, mapping, stock assessment.);
- Option for strategic development;
- Activity planning;
- Final development/validation of document;
- Periodic revisions (annually or every six months).

Figures 4 and 5 helps us to better visualize the process.

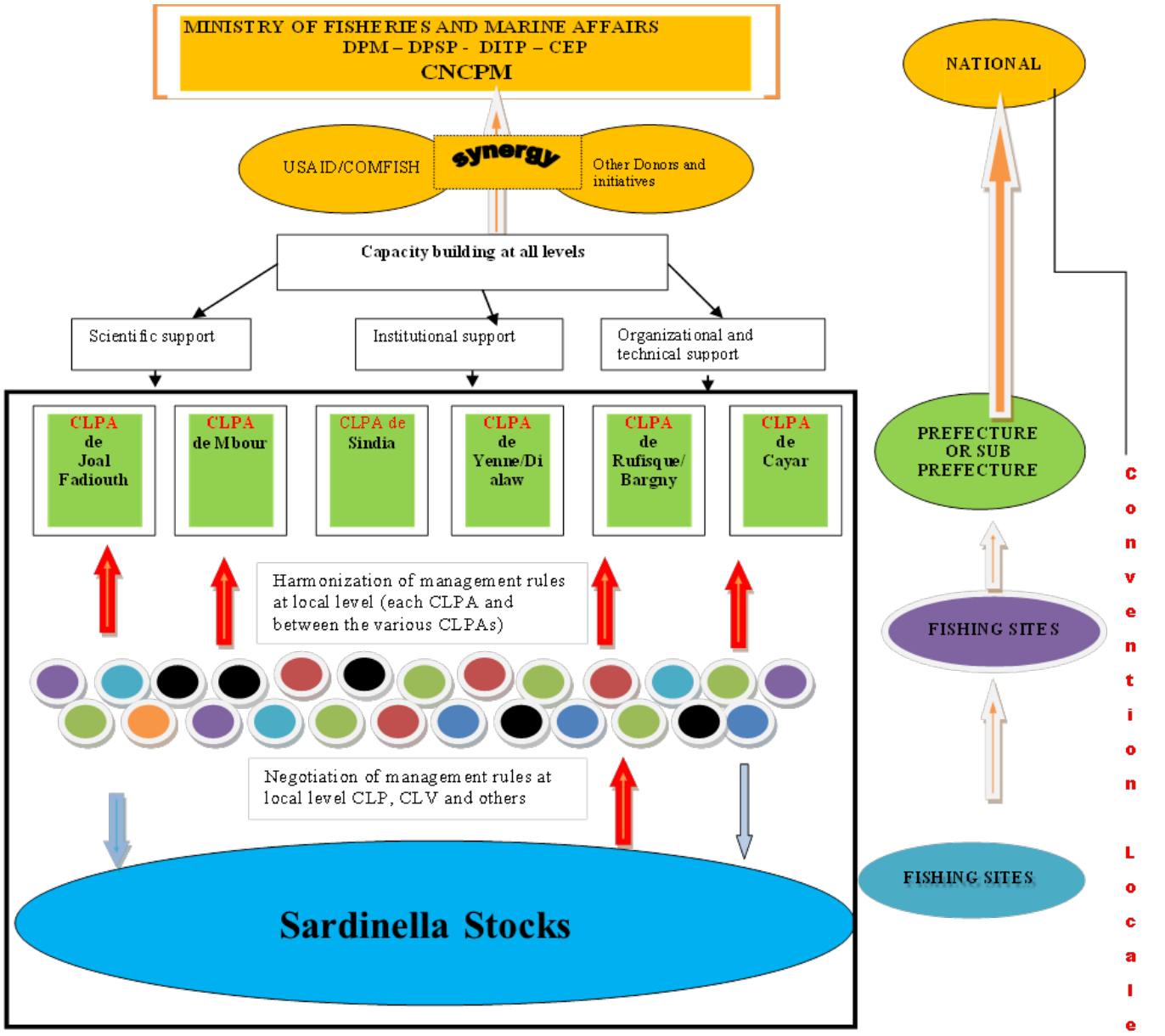


Figure 4. **UGD sardinella plan and linkages to the different levels of governance based on Conventions Locales**

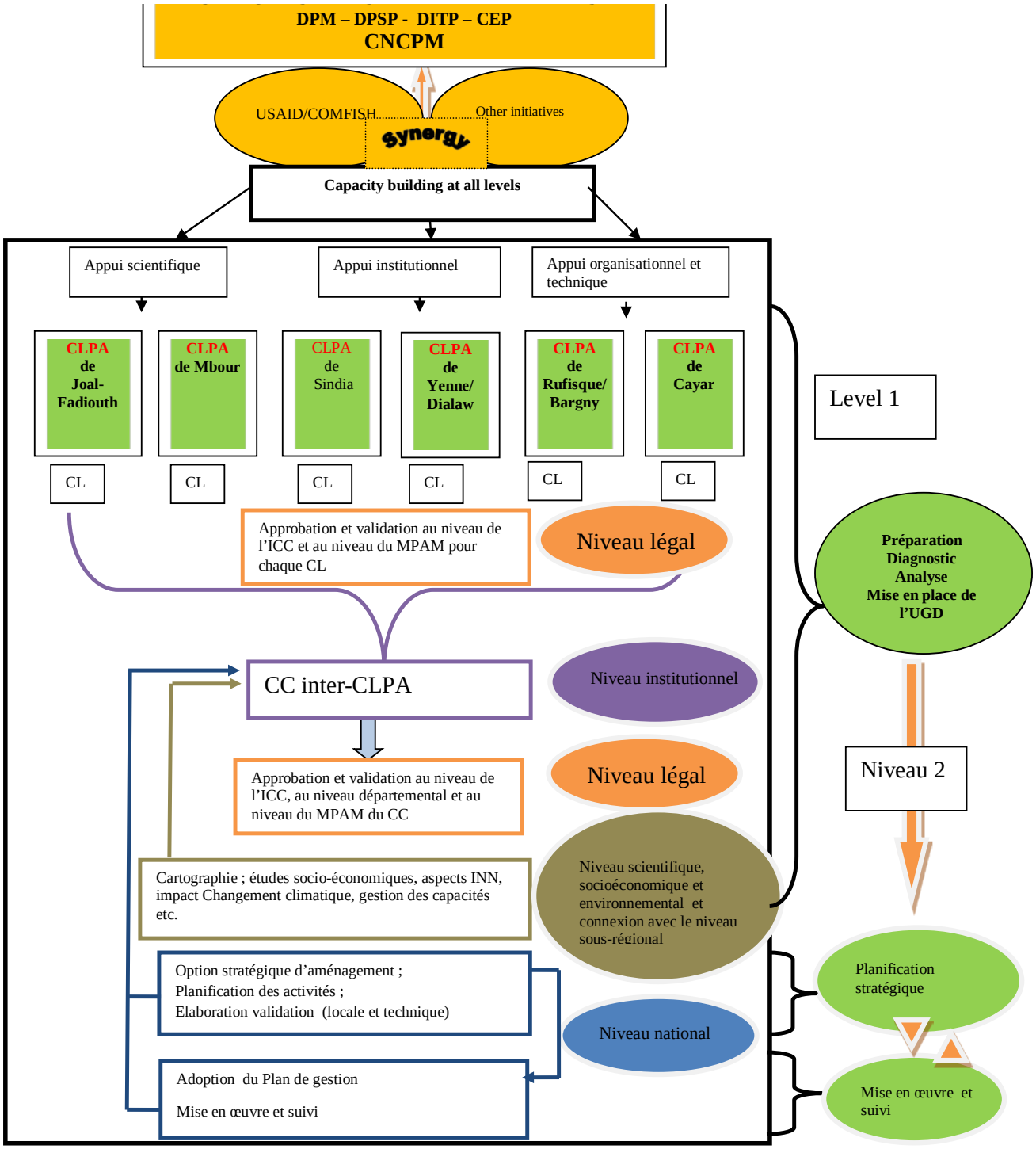


Figure 5. **Description of the process for establishing the UGD sardinella management plan**

2. SUMMARY OF ACCOMPLISHMENTS

Taking all the key first steps simultaneously to improve fisheries governance in Senegal is the approach taken by the *USAID/COMFISH* project to deliver priority fisheries development plans. These **key first steps** include:

1. Building institutional and stakeholder capacity for collaborative management in UGDs and increasing resilience to climate change;

2. Identifying, testing and implementing strategies, good practices and policies for enhancing resilience to climate change and preventing the destructive and unsustainable uses of marine resources that pose a threat to biodiversity conservation;

3. Planning vulnerability assessment and adaptation to climate change;

4. Increasing the social and economic benefits of fishing communities and their resilience to climate change through sustainable fisheries management.

The efforts to meet these first steps are conducted at three levels:

- **The local, community and field level**: by building stakeholder capacity and establishing effective and functional dialogue forums, so that fisheries planning and decision-making needs at the local level are addressed properly;
- **The technical and scientific (intermediate) level**: by helping fisheries technicians, research institutes and universities strengthen their capacities to include scientific and technical knowledge into the planning process.
- **The strategic and policy level**: by providing policy makers with vital scientific and technical knowledge to ensure they make informed and coherent decisions.

The result areas are summarized per project as follows:

IR 1: Capacities of institutions and stakeholders strengthened at all levels of governance to implement an ecosystem-based collaborative management system with a view to preventing overfishing and increasing resilience to climate change:

A CPLA capacity building strategy is developed and presented at a national workshop. This strategy basically involves: (i) promoting good fisheries governance at local level; (ii) developing and operationalizing sustainable management units for priority stocks; (iii) establishing an information system for sustainable management units; (iv) building the capacities of CLPAs to ensure they function properly; (v) building the entrepreneurial skills of the women working in artisanal fisheries; (vi) creating synergy between all stakeholders in the fisheries sector to enhance sustainable fisheries and the implementation of all the attendant measures required.
Efforts to implement the action plan for this strategy are scheduled to begin this year (year three).

Stakeholders have a better understanding of the CLPA's role and mission in collaborative management. Thanks to USAID/COMFISH training activities for extension workers (designated by the CLPA among their members), these workers were able to strengthen the institutional framework for governance and the tools for intervention (schools, local committees, ICC, decision-making and stakeholder participation). These training activities take place during the development of the Conventions Locales. The extension workers this year are ten (10) in number (for the first 3 CLPAs targeted in 2011: Sindia, Mbour and Joal). They will strengthen the intervention capacities of CLPAs by as-

sisting with the development and delivery of management measures initiated by these CLPAs. This was how these community extension workers led the entire process for the Convention Locale by organizing focus groups during CLPA diagnostic studies. At the target CLPAs, project partners (FENAGIE, WWF) also raised the awareness of the ICC and stakeholders and built their capacity on the roles and responsibilities of CLPAs in the sustainable management of fisheries resources.

A forum for consultation and dialogue between the stakeholders in collaborative management is established in the CLPAs in Sindia, Mbour and Joal to enhance compliance with the Conventions Locales during the establishment of management plans. The ICC is the most important dialogue forum on fishing sites. It groups all fisheries stakeholders in the CLPA (administrative authorities, technical services and fishing trades). It was through this body that the USAID/COMFISH project initiated important consultations to promote the collaborative management of fisheries via consensual local agreements in the CLPAs in Sindia, Mbour and Joal. In doing so, the CLPAs chaired by the Préfets (Senior Divisional Officers) and Sous-préfets (Sub-divisional Officers) in the respective localities, were able to develop and validate the first Conventions Locales on marine fisheries in Senegal. Procedures for the official approval of these provisions have been initiated by the competent authorities, and implementation is scheduled to begin this year (year three).

This is the stage where consultations begin (Fig. 4 and 5) for stock-based management plans to establish UGDs.

Several initiatives are run simultaneously through the work of consultants and the workshops organized to **formalize relations between CLPAs, which are a second forum for dialogue on fish stocks (Fig. 4 and 5).**

Establishing CLPA extension workers and building their skills for data collection, sustainable fisheries management and climate change mitigation has been well received by the administrative authorities and technical services, for it contributes to strengthen the management frameworks established at the local level.

A strategy to empower women in the fisheries sector is developed and supported: The gender approach is part and parcel of *USAID/COMFISH* project activities. To build the capacities of women working in the fisheries sector, so that they can protect their interests in the decision making process, a fisheries sector capacity building strategy for women has been developed and an action plan submitted to DPM and other project partners. Some of the activities on this action plan are going to be implemented by the *USAID/COMFISH* project using this work plan. Synergies have also been created with partners (Enda GRAF, WWF, MPAM, APTE) to raise funds for the activities not covered by the *USAID/COMFISH* project.

A Declaration on women has been made (including the values and criteria women want the authorities to address) in order to enhance the mainstreaming of gender in fishery policies, and especially throughout the development of fisheries management plans in Senegal.

An adequate methodology for including women in discussions has been developed. Teaching/learning tools, tailored to women's level of learning, were used to make it easier for them to understand the discussions in plenary and the presentations made by consultants. This perfectly innovative methodology made it possible to work in a friendly atmosphere, adapted to the situation and the experiences of the targets (women involved in fishing), and to develop (in record time) a Plan of action for training women in the fisheries sector and establishing the declaration of women working in Senegal's fisheries sector.

A baseline on CLPA effectiveness and operationalization on project sites is developed. This baseline was developed to help measure the project's contribution in improving effectiveness in the role of CLPAs as a framework for local governance of fisheries. The study covered the project's 7 target CLPAs, namely the CLPAs in Sindia, Foundiougne Yenne-Dialaw, Rufisque-Bargny, Mbour, Joal and Cayar.

Capacity building for management institutions: the representatives of management institutions (DPM Deputy Director), fisheries research institutes (Director of CRODT), local stakeholder organizations and project staff attended the training course on leadership organized by the University of Rhode Island "Fisheries leadership Institute." This enabled the participants to explore new avenues for partnership and acquire new tools and principles they can use to fine-tune fisheries policies for sustainable fisheries management in Senegal.

Scholarships: Two graduate fellowships for short courses were granted to staff engaged in research and fisheries management at the Ministry of Fisheries and Marine Affairs and at the Oceanographic Research Centre in Thiaroye, Dakar. These two scholarships in fisheries governance and scientific assessment of fishery resources will contribute to the development and pursuit of research work and sustainable collaborative management in Senegal.

Results on Performance Plan and Indicators

Indicators	Annual targets	Results	Notes
1. A 75% increase in the synthetic index score for CLPA management effectiveness on USAID/COMFISH project sites by 2016	NA	0.04	The benchmark represents an average of the scores obtained in five indicators. The scores range between -1 and 1 A baseline survey has been done and is available
2. Number of individuals who have attended short training courses on productivity in the agriculture sector and food security (indicator 4.5.2-7 of FTF)	700	977	All individuals who have attended training workshops held this year
3. Number of print and audiovisual productions developed for building the capacities of collaborative management institutions and fisheries stakeholders	NA	2	Document on Best Fishing Practices (BPP), lessons learned from Ngaparou and Dionewar Development of monitoring/ evaluation indicators for CLPAs in Senegal
4. Ratio of women trained in food security and short-term productivity	NA	40%	Proportion of women who attended the workshops organized by the project
5. Number of research institutes and educational institutions, government agencies, dialogue forums and NGOs that have strengthened their capacities thanks to the support of the USAID/COMFISH project		15	APTE, ISE, CRODT, DPM, COPEM, WWF, ENDA ENERGIE, IUPA, CSE, DITP, COMO PECHE, DAMCP, CEP, DPSP, Alliance

The USAID/COMFISH project also organized 22 workshops and meetings for stakeholders under the activities for the first generation of Conventions Locales on marine fisheries in Senegal.

These support efforts to the Conventions Locales involved 671 individuals, including 498 men and 173 women. The activities took place on all the project's target sites with a focus on the CLPAs in Mbour, Joal and Sindia. The initiative made it possible for stakeholders to engage in and support the Conventions Locales.

IR 2: ***Strategies, policies and best practices identified, tested and applied to address both climate and non-climate stressors and their interactions in marine fisheries and bidiversty.***

To establish UGDs on priority species, there has to be a scientific basis giving deeper insights to the fisheries potential. This requires a scientific approach with empirical local knowledge on the management of fisheries resources. It is in this regard that scientific knowledge on priority species/stocks was developed to support the development of Conventions Locales that inform efforts to establish resource management plans. Below is a summary of the results achieved per project:

- Biological and ecological knowledge on two Sardinella species (*Sardinella aurita and Sardinella maderensis*) was developed from studies by the Oceanographic Research Center (CRODT) and used to prepare a draft report that improves understanding of:
  - Sardinella population dynamics in North West Africa;
  - Key environmental factors influencing the dynamics of the sardinella stocks exploited in West Africa;
  - Space and time variability of the resource in the West African coastal environment[4];
  - An assessment of the biological status of stocks and fishing capacity;
  - A socio-economic assessment of national fisheries.
- Socio-economic studies have been conducted to support the implementation of the coastal shrimp management plans initiated by the GIRMAC project's Fisheries Department;
- Efforts are being made also to establish a participatory biological data collection system (growth, size etc.) on fisheries with IUPA and IRD/IFAN in order to strengthen the capacities of stakeholders, NGOs and data collecting institutions, and to improve the system for sharing and communicating scientific information on fisheries. This initiative will contribute to the steps being taken to establish management plans for the priority species listed in Table 1.
- The response to illegal, unreported and unregulated (IUU) fishing in the fisheries management plans has started and involves the National Marine, DPSP and the US Navy. This data is being collected to determine (i) the impact of IUU on artisanal fishery landings of sardinella and other prized species; and to (ii) identify investment opportunities for the eradication of IUU fishing in Senegal:
- The establishment of a working group to develop an action plan for the management of Senegal's fisheries capacity, and to use said plan in reconciling the conflicting objectives in fleet capacity based on objective and quantitative criteria:
- There is an ongoing assessment of the fishing effort and the landings of Senegalese artisanal fishing boats that harvest fish in the sub-region;

[4] The preliminary results of the USAID/COMFISH – CRODT study on sardinella suggest that Senegalese and Mauritanian fisheries are probably exploiting separate stocks/sub-stocks.

- Support is being provided to CLPAs for them to carry out a mapping of fishing areas and sites so that they have a better understanding of the distribution of fisheries stocks and areas, and can better calibrate access to the resources under the Conventions Locales (fig.1, 2 and 3 were done in a participatory manner with the fishing communities on the sites concerned);
- Support has been provided to the CLPAs in Joal, Mbour and Sindia to develop three locally binding agreements for sustainable fisheries management (the first CLs in marine fisheries), which is an important step for establishing UGDs.
- About a dozen community outreach workers from the CLPAs in Sindia, Mbour and Joal have been trained in an effort to strengthen the technical capacity of the CLPAs in facilitating meetings, collecting fishing data, using fact sheets, taking notes during meetings, preparing meeting minutes, etc. These workers, in turn, support technical services and play a key role in the establishment of UGDs.

In terms of biodiversity conservation: A national strategy on MPAs has been developed and validated: The action plan for this strategy is already being implemented. Some of the activities include: support to eco-tourism activities as an alternative way to encourage the management of MPAs in Joal-Fadiouth and the equipment of the Joal Fadiouth tourist information office's information desk. The project has retrained former MPA fishermen as eco-guides. It also helped members of Senegal's MPAs to attend a training/capacity building exercise (South Africa), which was aimed at certifying MPA managers, showcasing their work and encouraging them in capacity building. Further, efforts have been initiated for tagging the MPAs in Cayar (one of the MPAs in the project target area). A part of this initiative is to monitor the tagging done this year in Joal-Fadiouth's MPAs, which are also in the project target area.

The *USAID/COMFISH* project accords particular importance to capacity building initiatives that can contribute towards lasting behavior change among stakeholders at all levels of governance to ensure the rational and responsible management of fisheries. This is why the project strategy includes an important component for identifying, promoting and integrating the *good management practices used at local level in efforts to establish management plans for priority stocks*. In that regard, the final selection of good practices was on the agenda of the national workshop of 6 and 7 June 2012 on best practices in Senegal's artisanal fisheries. The top two winning initiatives, and all those presented at the workshop, were profiled by GREP (Group of journalists specialized on environmental issues) for large-scale dissemination and learning. This initiative will continue in year three. An action plan will be implemented as well to include these good practices in fisheries planning activities. These good fishing practices have proven to be an effective way of providing collateral support to the project, and have been instrumental in raising the project's profile and sparking interest in its strategy.

Results on Performance plan and indicators

Indicators	Targets	Results	Notes
6. Number of action plans and/or projects developed to support the fisheries management process	NA	2	Strategy for the empowerment of women, CLPA strategy for establishing UGDs
7. Number of technical studies offering support to management plans and sustainable management units	NA	2	Census of Shrimp Fisheries in the Sine Saloum area Role of women in the fishing communities in Dakar, on the Petite Cote, and in Sine Saloum

9. Number of policies/regulations and administrative procedures analyzed	11	10	Policies, regulations and procedures analyzed during the development of Conventions Locales
10. Number of policies/regulations and administrative procedures drafted and presented to the public/stakeholders for dialogue	3	3	3 Conventions Locales
11. Number of policies/regulations and administrative procedures submitted for formal adoption	3	3	3 Conventions Locales
12. Number of policies/regulations and administrative procedures approved through the support of the USG	3	2	The Convention Locales in Sindia and Mbour
13. Number of policies/regulations and administrative procedures approved and implemented	2	0	
14. Number of new technologies in place for the management of fisheries resources	NA	4	- Process on good practices (Contests, selection and winners, exchange visits between fishers, production of a magazine on best practices) The Conventions Locales of Mbour, Joal and Sindia
15. Number of stakeholders that have adopted the new rules agreed for fisheries management	NA	20 940	Stakeholders identified by the outreach workers in the CLPAs of Mbour, Joal and Sindia
16. Number of producers and others that have used the new technologies or management practices thanks to the assistance received from the USG	0	0	There is no provision for this indicator this year
17. Number of hectares of biological significance and/or containing natural resources where management has improve through the support of the USG	17 100 ha	0	
18. Number of hectares of biological significance where management has improve through the assistance of the USG	17 100 ha	0	The Cayar MPA tagging process has commenced.

IR 3: ***Vulnerability assessed and capacity of vulnerable coastal communities strengthened to adapt to impacts of climate variability and change***

The activities in this component began behind schedule due to delays in the approval and signing of the contract with the Institute of Environmental Sciences (ISE), the project partner responsible for carrying out activities on Climate Change. However, a number of activities were performed:

- A guide for assessing stakeholder vulnerability and planning adaptation to climate change was developed.

- The trainers and stakeholders in climate change at the national level and in the 9 target CLPAs now have stronger capacities thanks to the training provided in February 2012 in Dakar to project staff, implementing partners and the women fish processors of Cayar. Further, the women fish processors received training also in environmental monitoring to familiarize them with the concept of environmental monitoring and its importance to the development of their activities. This was to help them envisage and plan adaptation initiatives, and to provide adequate responses to climate change. Coupled with this was training for about 300 CLPA members in the project areas, as well as a course dispensed in June by the University of Rhode Island (URI) on the Population, Health and Environment (PHE) Program in which the project and DPM participated.

- The process for vulnerability assessment of coastal communities started in July 2012 with the first exploratory surveys and the selection of sites;

- Efforts are under way to establish a dialogue forum with the Ministries of Environmental Affairs and Fisheries. The first meeting took place on 25 September 2012 to build synergy in initiatives and find more effective ways of including climate change issues in fisheries policies.

- Apart from these activities, there is a series of initiatives (scientific studies, GIS mapping) under way to: a) provide aggregated statistical data on over twenty years (20 years) of fishing effort and captures of the 6 priority species in the USAID/COMFISH project, namely sardinella (flat and round), bonga, coastal shrimps, the white grouper, and octopus; and to b) Provide statistical data (on a period of over 20 years) on the environmental impacts of sardinella population landings (temperature, upwelling indices, etc.) in order to determine the environmental factors influencing sardinella population dynamics.

Overall, the USAID/COMFISH project pursues a variety of initiatives for the management of priority stocks and/or development plans:

- Harmonizing fishers' operating capacity with the productive capacity of the stocks harvested to encourage sustainable fishing practices;
- Supporting the development and implementation of Senegal's National MPA Management Strategy;
- Supporting the introduction of biological recovery in Mbour Division (participating in the supply of pots that serve as octopus habitats during periods of biological recovery);
- Improving local governance of fisheries (CLPA, CLP, Conventions Locales and fisheries management plans);
- Building the capacities of stakeholders and institutions (conducting vulnerability assessments and planning adaptation to climate change, participating in the URI course on climate change).

All these initiatives will continue throughout the project cycle. Their goal is to increase the resilience of coastal communities and marine and coastal ecosystems to the impacts of climate change by establishing suitable and effective strategies.

The results of all this work will be fed into efforts to establish the above management plans so as to help Senegal implement an effective strategy for information on, and awareness of the sustainable management of its fisheries, including climate change issues.

Results on Performance Plan and Indicators

Indicators	Targets	Results	Notes
19. Number of individuals trained on climate change through the assistance of the USG	650	394	The target was not achieved because training on the vulnerability assessment sites will be done in year three, following the delay in the onset of activities.
20. Number of climate change vulnerability assessments conducted through the assistance of the USG	3	0	Fact-finding missions to the vulnerable sites have been conducted. Three sites have been chosen for vulnerability assessments.
21. Number of laws, policies, strategies, plans, agreements or regulations on climate change (mitigation or adaptation) and/or biodiversity conservation passed officially, adopted or implemented through the assistance of the USG.	0	0	
22. Number of stakeholders with increased capacities to cope with climate variability and change through the assistance of the USG.	700	977	Above target

IR 4: ***Increased social and economic benefits to artisanal fishing communities and their resilience to climate change provide incentives to a continued sustainable fisheries agenda***

A baseline for stakeholders' socio-economic well-being is established. To measure the project's performance in improving the social and economic well-being of stakeholders on the project sites, the team developed a baseline with indicators for monitoring and evaluating project performance.

A process to establish a local label for artisanal fish processing has been launched. To help women fish processors modernize their working tools, increase their production capacity, improve their working conditions and increase profits from their activities, the *USAID/COMFISH* project has launched efforts *to improve the techniques for processing and conserving artisanal fishery products in Cayar*. The main activity in this initiative is to establish a modern artisanal fish processing unit that will boost efforts to establish a local label for the small-scale fish processing products made in Cayar (mainly smoked, salted, dried sardinella or "*keccax"*). The activities began with a diagnosis of the barriers to good practice in fish processing and the development of an action plan for improving the techniques in use. By implementing this action plan, some results have been achieved. These include:

- An audit of fish processing infrastructure in Cayar;
- Microbiological analyses of the processed products (*keccax)*
- Training on climate change, hygiene and quality, literacy education and leadership, environmental monitoring, and the standardization of processing units.

A USAID staff member in Washington D.C. did a cost-benefit analysis of this USAID/COMFISH project activity with the aim of improving the quality of processed sardinella (Keccax). The analysis

suggests that the assistance from the USAID Feed the Future Initiative (FTF) will secure an impressive return on investment. This result is based on assumptions regarding the price of fish and future landing trends, etc. Some of the assumptions are still under verification.

Further, all the activities to establish management plans (Conventions Locales, socio-economic studies) and those still to come all aim at improving and increasing the profits that stakeholders can make from sustainable and rationale fisheries.

Results on performance plan and indicators

Indicator	Targets	Results	Notes
23. Number of private food security companies (for profit), producer organizations, water users' associations, women's groups, trade and professional associations and community based organizations (CBOs) receiving assistance from the USG.	21	20	12 CLPAs (Cayar, Mbour, Joal, Sindia, Foudiougne, Yen Dialaw, Rufisque-Bargny, St-Louis, Ziguinchor, Dakar-Ouest, Niodior and Fimela) FENAGIE, CNPS, Try (Gambia), GIE Mametoulaye Diène, GIE Awa Guèye Kébé, SUDEMS and FENATRAMS
24. Number of rural households getting direct assistance from the USG	NA	NA	The survey has been done. 10 272 households were surveyed in the project's 7 CLPAs
25. Fisheries sector stakeholders on the project sites seeing an improvement in their social well-being through the assistance of the USG (this is not an FTF indicator, but it helps measure project impact)	NA	NA	The baseline has been established

3. YEAR THREE ACTIVITIES

3.1 Introduction

The objective of the *USAID/COMFISH* project is to develop fisheries management plans through a process of establishing Sustainable Management Units (UGD) for targeted priority stocks. The project's first two years were devoted to level one of this process shown in Figure 5, after the process shown in Figure 4. This first phase, termed the Diagnosis and Analysis Phase, is crucial in the ecosystem approach to sustainable collaborative fisheries management. For, it uses participatory diagnosis and analysis to improve understanding of the complex dynamics and interactions between all the factors (institutional, legal, socio-economic, cultural, biological, environmental) involved in the process. For the project, this first phase made it possible to develop strategies and build synergies for coherent and effective initiatives at both the local and policy levels. The approach enabled the project to develop action plans and strategies to use in the planning process for target stocks.

Year three of the project (presented in this Work Plan) will focus on completing level 2 of the process shown in Figure 5, with emphasis on implementing the strategies identified and/or developed in previous years, analyzing the results of scientific studies to use in establishing the UGD for sardinella and other priority stocks, and beginning to develop the sardinella management plan.

3.2 Context for planning

This work plan will be delivered in a context where the project's five strategic result areas for priority stocks management plans are already being implemented, as evidenced by:

- The development of UGB management plans for the 5 priority stocks;
- The production of scientific data to support the management plans, the Sustainable Management Units, and the promotion of information sharing between stakeholders in the process;
- The development of a project action plan for fisheries capacity management;
- Institutional and stakeholder capacity building for the governance and management of marine fisheries;
- Enhanced dialogue among all players and at all levels of fisheries governance;
- Synergies between the programs pursuing fisheries management to establish Sustainable Management Units;
- The strengthening of fishery community resilience to climate change impacts;
- Improved and enhanced working conditions and livelihoods for stakeholders, particularly women fish processors.

Developing a strategy to establish the Sustainable Management Unit is still a central issue. The first step forward is to develop and implement local management plans. To do this properly, holding local consultations (on-site, sub-divisional level, divisional level) and strengthening fisheries governance organs are crucial. This is why the project this year organized several Advisory and Coordination Council (ICC) meetings on target sites to develop and implement Conventions Locales in the target CLPAs and thus strengthen cooperation between stakeholders on the same fishing site, as well as with the divisional and sub-divisional levels. It used the Conventions Locales (CL) as a legal tool to strengthen and negotiate business rules at the local level. In developing the Conventions Locales, three steps helped strengthen the functional capacity of the governing organs: (i) upgrading the technical capacities of CLPA outreach workers; (ii) building capacity for ICCs via the training dispensed by the project on sustainable fishery resource management tools; and (iii) strengthening the stakeholders' legal and organizational knowledge (to improve their understanding of the legislation, the fisheries Code, the principles of leadership, etc.).

With the development of the three Conventions Locales in the CLPAs in Sindia, Mbour and Joal, one can conclude that efforts to establish the Sustainable Management Unit for sardinella fisheries have started. Because the project is targeting the entire sardinella stock, it will be necessary to continue and complete the Conventions Locales for Yenne/Dialaw Rufisque/Bargny and Cayar to cover nearly 80% of the fishing effort exerted on the fishing stock, and begin regional consultations (inter-CLPA) as well as national consultations to develop the management plan for this species.

There is no doubt that local knowledge plays a decisive role in the development of local management plans and the establishment of UGDs. The results of several focus groups organized in the fishing trade were used during discussions on the fishing potential of these areas, as well as for setting rules on the management of local fisheries. But science is crucial for providing expertise in stakeholders' proposals and for finalizing the UGD concept (balance between the human dimension and the productivity of fish stocks). Furthermore, having a system for participatory monitoring of the resource in support of the local management plans and UGDs is essential for understanding the landing patterns and population dynamics of the stock. It is in this respect that UPA, IRD/IFAN, and CRODT have been pursuing efforts to provide basic scientific data that will be used to assess the biological and social-economic status of the stocks and fisheries targeted by the project as well as by the partners involved in the management of the priority stocks listed in Table 1. However, in establishing

the UGD for sardinella stocks, the project must not lose sight of the fish harvests of industrial fisheries and the catches claimed in IUU fishing.

All the other strategic areas in the process are designed to enhance the development and implementation of local management plans (Conventions Locales) and stock-based management plans (UGDs). These areas are: establishing scientific databases, building governance capacity for institutions and stakeholders with new tools and approaches informed by the University of Rhode Island in the United States, strengthening dialogue among stakeholders at all levels of fisheries governance, building synergies between the programs involved in fisheries management, increasing fishing community resilience to climate change and improving stakeholders' livelihoods, mainstreaming gender through studies on the value chain, and establishing a local label to promote the sale of processed fish products.

3.3 Activities

3.3.1 Capacities of institutions and stakeholders strengthened at all levels of governance to implement an ecosystem-based collaborative management system with a view to preventing overfishing and increasing resilience to climate change

All stakeholders agree today that the State alone cannot tackle all the challenges to sustainable fisheries. Aware of the role they can play in finding solutions to the problems facing the fisheries sector, there are management institutions, Fisheries Professional Organizations (POs), research institutes and training institutions, non-governmental organizations (NGOs) and development partners that are taking more and more initiatives in this regard. But the capacities of these institutions and stakeholders need to be strengthened to enable them to play their role in full throughout this process.

The USAID/COMFISH project has chosen Local Councils of Artisanal Fishers as the institutional entry point for establishing management plans. But because these entities do not function properly, the project opted to launch a comprehensive capacity building program at all levels of governance to support them, so that they can assist the Fisheries Department in monitoring operations, controlling fishing activities as well as developing local fisheries management and development plans. To enable these CLPAs to plan their activities better and increase their financial resources, the project is upgrading their capacities and building their relationships with the administrative departments at local level (territorial administration) and at central level. At the same time, it is strengthening the capacities of professional organizations and stakeholders (fishermen, women fish processors, fishers associations, etc.) so that they become pressure groups able to defend their interests in the decision making process.

Under this capacity building program, the project's activities this year will be at four levels:

- Supporting implementation of the CLPA capacity building strategy, which was developed after the project established a framework of reference for assessing its performance on effective CLPA management;
- Supporting implementation of the women's capacity building strategy that was developed in year two;
- Building the capacities of professional organizations and management institutions;
- Strengthening the capacities of national research institutes and training institutions, as well as those of stakeholders to improve the information systems on priority stocks (through the "Sea

Grants Program" and grant making on specific field activities to research institutes: IUPA, ISRA/CRODT, IFAN/IRD, lCSE and ISE).

Activity 3.3.1.1: Supporting the capacity building strategy for CLPAs, including fishers organizations in the project target communities

The CLPA capacity building strategy is a key first step to sustainable management units for fisheries resources and greater local stakeholder participation in fisheries management. It is a vision based on promoting good governance and the sustainable management of fisheries resources. The CLPA capacity building strategy was developed on the basis of recommendations from (*i*) the workshop for identification of key stocks, held on 22 to 24 July 2011 in Dakar; (*ii*) the Local Councils of Artisanal Fishers assessment report (December 2011); (*iii*) the capacity building workshop for CLPA women workers, held in March 2012 in Dakar; and (*iv*) the recommendations of the workshop on identifying strategies for CLPAs to establish units for sustainable management of fisheries resources, held in March 2012.

An assessment of CLPA operations showed that there are many shortcomings to be addressed before CLPAs can fully play their roles in the development and management of local fisheries. These problems are organizational, material, technical, managerial and financial management challenges (resource mobilization, etc.). Therefore, there is an imperative need in 2013 for capacity building activities that can render CLPAs more functional. But financial shortfalls pose a major challenge.

There are plans also to support CLPA representatives in educating other stakeholders on the training they received in the way CLPAs are organized and the advisory role they play in the collaborative management of fisheries resources.

It is along the same lines that the project, considering the CLPA is not represented in the National Advisory Council for Marine Fisheries (a body that validates the management measures submitted to the Ministry of Fisheries), will support CLPAs to ensure they are represented in this body, so that they are better placed to defend the management measures taken on fishing sites.

Further, efforts to develop Conventions Locales have shown that local communities take part in the management of fisheries infrastructure. They play a decisive role in offering and managing fish landing and processing sites, and could be required to grant funding and mobilize sustainable financial resources for CLPAs. The USAID/COMFISH project will study the current CLPA funding mechanisms and the strategies to put in place so as to sustain project interventions in CLPAs and UGDs in a profitable manner.

Expected results:

- The ICCs and stakeholders have a better understanding of legislative provisions, of the way CLPAs are organized and function, and the roles that CLPAs play in collaborative management;
- Stakeholders have a better understanding of collaborative management;
- There is better communication between the ICCs, CLPAs and stakeholders;
- The CLPAs have functional seats and better representation at the CNCPM;
- The needs and possible sources of funding for CLPA operations are identified for the development of an action plan;
- At least one CLPA is equipped.

Project focal points: Amadou Niane, Vaque Ndiaye

Partner institutions: WWF (Ibrahima Niamadio), the 7 CLPAs of the project, DPM, the consultant

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Supporting CLPA representatives to feed back the training they received on the organization of CLPAs and how to play an advisory role	X	X		
Organizing training activities on CLPA-related regulations for CLPA members	X	X		
Training for CLPAs to raise their level of understanding on collaborative management	X	X		
Strengthening the operational resources of fisheries services to support the CLPA secretariat (human and material resources)	X	X	X	X
Organizing meetings to revamp the CNCPM and CLPA membership in it			X	X
Organizing two workshops to strengthen the role of local government areas in financing CLPAs			X	X

Results on performance plan and indicators

Indicators	Targets	Notes
1 A 75% increase in the synthetic index score for CLPA management effectiveness on USAID/COMFISH project sites by 2016	A 25% increase in the management effectiveness of 3 CLPAs	The three CLPAs (Mbour, Sindia and Joal) are targeted because of the onset of implementation of Conventions Locales in these CLPAs).
2: Number of persons with short training on food security and productivity	510	Participants expected at workshops for: feed back of training exercises on the organization of CLPAs and their advisory role (210), training to improve the knowledge of CLPAs on collaborative management (30x3 CLPA: 90), training on CLPA-related regulations (210)
6: Number of plans and/or projects developed to support the fishers management process	1	1 action plan produced from the workshops on the role of local government areas in financing CLPAs

Outputs

- Two workshop reports on the role of local government areas in financing CLPAs;
- Report on training in CLPA regulations;
- Report on training in collaborative management;
- At least one CLPA office is equipped and operational.

Activity 3.3.1.2 Supporting implementation of the strategy for the empowerment of women

One of the key objectives of the USAID/COMFISH project is to improve the governance of artisanal fisheries by involving all stakeholders, including women, in the management of fisheries resources. It is in this respect that the project worked together with WWF and FIT to assess the role of women in artisanal fisheries. A workshop was held in March 2012 to enable the women working in all areas of the artisanal fisheries sector (processors, small-scale fish sellers, wholesalers, and those involved in fish harvesting) to express themselves, share their views and propose ideas for initiatives they could take in CLPAs and fisheries organizations. This workshop developed a four-year action plan for

strengthening women's role and status and according more importance to their concerns in fisheries and CLPAs. On this basis, a strategy was developed and a declaration by women adopted and signed by the Deputy Director of Marine Fisheries (DPM) in Senegal. This declaration was sent to DPM authorities. In 2013, the USAID/COMFISH project is going to provide support for this strategy to be implemented by pursuing the priorities in the action plan adopted at the workshop, which include:

1. Identifying the women working in fisheries and assessing their contribution to the sector in order to:

    - have a clear idea of the total number of women working in the artisanal fisheries sub-sector. This will be done by involving the USAID/COMFISH project's outreach workers and groups of women working in fisheries (FENATRAMS, small-scale fish sellers, exporters, and those representing women in the CLPAs, CLPs and other organizations);
    - assess women's contribution to the artisanal fisheries sector;
    - organize a workshop, in partnership with MPAM and COMHAFAT (Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic Ocean), to feed back and validate the results of this survey.

2. Organizing training in CLPAs on women's rights and leadership values and principles. This is aimed at organizing capacity building sessions for women as well as for the CLPAs located in the project target area. These modular training exercises will be dispensed at each CLPA.

3. Disseminating the declaration of women working in the fisheries sector. This is aimed at publicizing the declaration through: (1) inserts in local newspapers; (2) dissemination online to women's groups; (3) information sharing with women parliamentarians and senators, as well as with all parliamentarians; (4) an official meeting to submit the declaration to the Minister of Fisheries; and (5) new partnerships to implement this declaration.

Expected results:

- A reliable study on women's contribution to the fisheries sector is done and validated;
- Training sessions on women's rights and leadership values and principles are organized in the 7 CLPAs;
- The declaration of women in fisheries is disseminated and submitted to the fisheries authorities.

Project focal points: Khady Sané Diouf, Najih Lazar
Partner institutions: WWF (Ibrahima Niamadio), the project's 7 CLPAs, APTE (Aminata), ENDA GRAF, COMHAFAT, MPAM, consultants, DPM

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Conduct survey on women in the fisheries sector, assess their contribution in the sector and report the results of this study	X			
Organize training in the 7 CLPAs on women's rights and on leadership values and principles		X		
Disseminate the declaration by women	X			

Results on performance plan and indicators

Indicators	Targets	Notes
2: Number of persons trained in the short term on food security and productivity	210	Participants in training on women's rights, leadership values and principles (7 CLPA X 30 participants)
3: Number of print and audiovisual materials on capacity building for co-management institutions and fisheries stakeholders	1	Report on the survey on women in the fisheries sector
4: Ratio of women trained in the short term on food security and productivity	50%	This indicator measures women's share of capacity building activities in the project
23: Number of private food security companies (for profit), producer organizations, water users organizations, women's groups, men and women entrepreneur groups, and CBOs that received support from the USG	12	Number of women's organization trained on women's rights (2 per CLPA). Groups such as GIE Mame Toulaye Guéne and Awa Gueye Kébé will be included on an ongoing basis

Outputs:

- A study report on women in the fisheries sector
- A training report on women's rights

Activity 3.3.1.3 Strengthening capacity for national management entities, research institutes, training schools, NGOs and stakeholders to improve the system for producing, sharing and communicating information on fisheries

This activity is aimed at testing and implementing new approaches and tools from the USA, which are designed to strengthen the capacity of scientific research institutes and training centers to collaborate better towards efficient and useful results in the fisheries planning process. USAID/COMFISH plans to use the "Sea Grant Program" to empower national management, research and training institutions as well as NGOs and stakeholders to improve the information system on fisheries, establish adequate consultation forums, and build effective partnerships in scientific research for sustainable management of fisheries resources.

The activities planned include:

- Assessing the means and resources for training and sharing information on fisheries in order to establish a partnership between fisheries research and management institutions;
- Developing a pilot project on capacity building for fishing communities and promoting sustainable fishing practices (fishing gear, safety at sea, etc.). The topics will be chosen during stakeholder consultations;
- Organizing meetings to establish the forum for consultation on a National Partnership for Collaborative Scientific Research on fisheries (with all stakeholders in fisheries research in Senegal);
- Developing an action plan for the National Partnership for Collaborative Scientific Research on fisheries.

Expected results:

- An assessment of the means and resources for training and sharing information on fisheries in order to establish a partnership between fisheries research and management institutions is done;
- A pilot project for building the capacities of fishing communities and promoting sustainable fisheries is developed (in partnership with the BPP process);
- A forum for consultation on the National Partnership for Collaborative Scientific Research on fisheries is established;
- An action plan on the National Partnership for Collaborative Scientific Research on fisheries is developed.

Project focal points: Khady Sané Diouf, Najih and Kathy
Partner institutions: IUPA, ISRA/CRODT, DPM, IRD/IFAN, WWF, ISE etc.

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Assess the means and resources for training and sharing information on fisheries in order to establish a partnership between fisheries research and management institutions	X			
Develop a pilot project on capacity building for fishing communities and the promotion of sustainable fishing practices (fishing gear, safety at sea, etc.)	X			
Organize meetings to establish a forum for consultation on the National Partnership for Collaborative Scientific Research on fisheries in the IUPA budget		X	X	
Develop an action plan on the National Partnership for Collaborative Scientific Research on fisheries			X	X

Results on performance plan and indicators

Indicators	Targets	Notes
3. Number of print and audiovisual materials produced for building the capacity of collaborative management institutions and stakeholders in the fisheries sector	1	Assessment report on the materials and resources for information sharing
5. Number of research institutes and education establishments, government agencies, **forums for consultation** and NGOs whose capacities have been reinforced through the support of the *USAID/COMFISH* project	1	The scientific research consultation forum
6. Number of action plans or projects developed to support the fisheries management process	2	"Extension" pilot project Research partnership action plan

Outputs:

- An assessment report on means and resources for training and sharing information on fisheries;
- A pilot project on capacity building for fishing communities and promotion of sustainable fishing practices;

- A forum for consultation and an action plan on the National Partnership for Collaborative Scientific Research on fisheries

3.3.2 Strategies, policies and best practices identified, tested and applied to address both climate and non-climate stressors and their interactions in marine fisheries and biodiversity

This section of the work plan is for designing strategies that can effectively address the bad practices and management methods in management plan development. The idea is to integrate biodiversity conservation and management activities into the management plan development process. This was why the project began by developing local management plans (Conventions Locales) and biodiversity conservation and management activities via initiatives in Marine Protected Areas. It has started to assess and promote good fishing and conservation practices in the target areas and will develop this further in the current year. At the same time, exchange visits will be organized so that stakeholders can learn from successful activities and take part eventually in planning fisheries management. Attention will be paid also to scientific research and to developing a participatory resource monitoring system that supports local development plans and UGDs in order to improve understanding of stock landings and population dynamics, finalize the UGD concept, and offer stakeholders credible content for their proposals. The scientific data collected will be processed, analyzed and used to develop management plans.

The project will develop a certain number of activities to highlight the need for, and relevance of taking into account industrial fishery catches and illegal, unreported and unregulated (IUU) fishing activities during the establishment of UGDs.

This work plan will consolidate all these actions. The various initiatives will have more impact if they are coordinated and based on a much more coherent strategy. The project is going to continue building synergies with the partners implementing certain initiatives.

The issues and activities pursued in year three will be:

- Promoting exchanges on best fisheries management practices and putting together local knowledge on selected species;
- Pursuing collaboration and synergy with partner programs to develop and implement targeted stock management plans;
- Processing and analyzing collected scientific data;
- Implementing the Conventions Locales in place and developing new ones to establish UGDs;
- Initiating and pursuing consultations to develop management plans,
- Developing and initiating activities to monitor fishery resources and manage marine ecosystems (MPAs).

Activity 3.3.2.1 Best Fishing Practices (BPP)

The process on best practices came to a successful end at the national workshop on best practices in artisanal fisheries that took place in June 2012 for the first time in Senegal. A jury, with members from IUPA (Chair), WWF (Secretary) and other member institutions (DPM, FENAGIE-Fishing, COPEM and Cabinet FORACTION), set the criteria for reviewing the contestants' submissions and selecting the winners. USAID/COMFISH rewarded the best two practices for fishing (Ngaparou) and processing (Dionewar and Falia). Following this, WWF provided support for press coverage mission on these two initiatives. A magazine on the process was produced with interviews of the main players (winners) and the technical and financial partners. Thanks to this awareness approach, there was plenty of interest in the initiative. Better still, some of the stakeholders called for the institution of a

Grand Prix du Président de la République or the Ministry in charge of BPP. An exchange visit was organized in August to the BPP in Ngaparou for all CLPA stakeholders in the project area. In 2013, the project will establish a system for monitoring the integration of these best practices in management plans. The system will contribute to give stakeholders the key elements for behavior change and the innovations to make in fisheries management.

Expected results:

- Best practices on artisanal fisheries are promoted;
- Exchange visits and trips for fishers to share experience are organized on project sites;
- The tools for disseminating these best practices are identified.

Project focal points: Kathy and Najih
Partner institutions: WWF, IUPA, FENAGIE, APTE, CLPA, MPAM, COPEM, Foraction, etc.

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Establish a mechanism for monitoring the integration of best practices in the management plan development process	X	X	X	X

Results on performance plan and indicators

Indicators	Targets	Notes
6: Number of action plans and/or projects developed to support the fisheries management process	1	Action plan on BPPs

Outputs

- The report on the exchange visits
- The action plan for integrating BPPs in management plans

Activity 3.3.2.2 Developing strategies for collaboration and synergy with partner programs

Establishing cooperation ties and building synergies with other sustainable fisheries management projects is one of the key strategies of the USAID/COMFISH project. From the onset, the project worked together with DPM to establish contacts with other projects through the technical committee and the group of donors supporting fisheries activities.

The priorities in this area were to undertake a partner identification mission (surveys), organize meetings for sharing information on the activities of the various stakeholders, and develop a streamlining, partnership and synergy framework for collaborative field work.

The USAID/COMFISH project first established contact with the COGEPAS project (JICA), the APL project (Embassy of Japan), the COPE project (World Bank), the COMOPECHE project (World Bank, Spanish Agency for Cooperation, Italian Agency for Cooperation and the Alliance for Sustainable Fishing. Three of these contacts had a positive and practical approach to working with the project. These are the COGEPAS project (JICA) the APL project (Embassy of Japan) and the Alliance. Some activities for synergy were discussed with these entities in 2012 and will be implemented in this work Plan:

- **Constructing the fisherman's center in Joal**. The Embassy of Japan has invited the USAID/COMFISH project to support their initiative to build a center for fishermen in Joal through their programs (APL). They are expecting USAID/COMFISH to contribute in equipping

the fishermen's center to make it functional. Through this support, the USAID/COMFISH project will help the local co-management institutions (CLPA, UGD) to be ready to play an active role in fisheries governance at local level. This activity will be carried out in year four when the fisherman's center is expected to be complete.

- **Supporting the Department of Marine Fisheries to develop octopus and *Thiof* management plans in collaboration with COGEPAS**. Since this initiative began in 2010, it has been based solely on the local fishermen's knowledge of these species. On octopus, for example, the initiative has made it possible to set time aside for biological recovery, contributing to reduce the fishing effort and to protect the species through the creation of artificial habitats for juveniles each year (pot immersion). The USAID/COMFISH project will continue to make a contribution to this initiative.
- **Using the Alliance for Sustainable Fisheries to share more information on the activities of *USAID/COMFISH* and its partners at local and strategic level**. The Alliance has been contributing to the USAID/COMFISH project by: 1) helping accelerate and sustain the processes initiated by the project (the process of fishery resource management by CLPAs, CLPs and UGDs); 2) informing and sensitizing the authorities on management measures deemed relevant by stakeholders and the Alliance, and providing support to implement them; 3) serving as a forum for consultation on the delivery of USAID/COMFISH activities and for disseminating the results so that the other stakeholders adopt them. To continue this process, the project will support the Alliance to:
    - Review local initiatives on best fishing practices, and inform and sensitize the authorities to build on them and continue to implement them over the long term;
    - Organize chats over coffee on issues of common interest related to sustainable fisheries management for the *USAID/COMFISH* project, Alliance, WWF, APTE, GREP and the Department of Marine Fisheries.

Expected results:

- The use of financial and human resources to develop management plans through collaborative initiatives is efficient;
- The implementation of the Alliance action plan for sustainable fisheries is supported.

Project focal points: Christopher Mathews, Vaque Ndiaye

Partner institutions and staff members involved: COGEPAS, WWF, APTE, GREP, DPM

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Build synergies, through CLPAs, with partners working in the same area (e.g. COGEPAS)	X	X	X	X
Support the activities of partners involved in sustainable fisheries management (octopus pots)	X	X	X	X
Support the implementation of the Alliance action plan for sustainable management	X	X	X	X

Results on performance plan and indicators

Indicators	Targets	Notes
8: Number of synergy areas created in the process of establishing sustainable management units	2	Support for developing a management plan for octopus and *Thiof*

18: Number of hectares in areas of biological significance where management has improved through the assistance of the USG	TBD	Pot immersion (octopus) CLPA Mbour, Sindia and Joal (estimation of the affected areas to cover)

Outputs

- Purchase of 2000 octopus pots to contribute to the management measures initiated for this species;
- Alliance annual reports

Activity 3.3.2.3 Improving the scientific database to begin the development of collaborative management plans for targeted stocks

Pursuing the collection of data on sardinella, shrimp, octopus, shad or *cobo* and grouper or *Thiof*. To assess selected stocks, the USAID/COMFISH project will continue the sampling program, in collaboration with IUPA and IRD, to identify the biological growth and reproduction structure of the five targeted species. Representative samples on size and age will be collected each month in the project area to determine the length/age relationship of sardines, white grouper, and shad (cobo). At the same time, size frequency will be analyzed using the ELEFAN model to determine the age and mortality of shrimp and octopus. This work is a prerequisite for evaluating target stock status.

Organizing a working group on the biological and socio-economic assessment of sardinella stocks. The studies that the USAID/COMFISH project initiated in 2012 on the assessment and management of sardinella will be concluded this year (2013). A working group will be organized to identify and approve the factors to take into account at the national and sub-regional levels (CSRP and CCLME region) for establishing the UGD for this shared stock.

Initiating efforts to assess (by formal review) the data and stock assessment results on selected species by fisheries authorities at the Ministry of Marine Fisheries and various stakeholders. This process will be used to do a regular annual presentation on stock status and practical recommendations on research and management (DPM CRODT and CLPA/UGD).

Stock assessments will be prepared annually by a scientific committee chaired by the Director of CRODT and attended by fisheries scientists from research and management bodies such as DPM, CRODT, IUPA, IRD, CSRP, USAID, GIRMAC, WWF, COGEPAS, etc. The process will take place once a year for a list of three species (average per session) depending on the needs and priorities identified by DPM after a series of consultations with stakeholders during data and research results compilation workshops.

Starting to develop the shrimp management plan in Sine Saloum using local knowledge. To help develop the coastal shrimp management plan, the socio-economic studies that USAID began conducting as far back as 2005, in collaboration with IUCN, were taken over by the USAID/COMFISH project in 2011. It is expected that data on a full annual cycle would be available towards November 2012 and would be analyzed using the IUCN method (2002-2005), which includes:

- Testing the predictions in 2004 on the effects of poor control and of overfishing due to free access to shrimp fisheries in Sine Saloum;
- Comparing the two studies (USAID/COMFISH and IUCN);

- Applying the lessons learned from these two methods during the development of the second shrimp management plan (using the first collaborative management plan produced by IUCN as a starting point).

It will be necessary also to continue sampling data for a full year-long cycle (2012-2013) and to organize a session for a participatory review of the existing management plan in 2013-2014. This revised participatory management plan may be a basis for developing a shrimp management plan in 2014 through workshops in the six key fishing areas across Sine Saloum.

Pursuing the collection of data on bonga (cobo) to help develop a management plan for this species in Sine Saloum. Bonga (*Ethmalosa fimbria*, cobo) is one of the priority stocks of the USAID/COMFISH project. After coastal shrimp, it is the second most harvested species in Sine Saloum. In 2012, the USAID/COMFISH project focused on shrimp in Sine Saloum. This year, it is going to add the stock of *cobo* to sampling, so that the sustainability of both species is preserved. The socio-economic sampling system established to support the biological sustainability of coastal shrimp in Sine Saloum will be extended to *cobo (*beginning October 2013). The data collected in 2013 will be used to identify fishing strategies that are biologically and socio-economically sustainable for developing the participatory management plan for Cobo and implementing the UGD plan on cobo (beginning 2014). This UGD cobo initiative will work closely together with the UGD shrimp initiative that will be established at the same time in Sine Saloum, so that the two species can be managed jointly.

Updating GIS mapping using the database with information on the stocks and CLPAs supported by the *USAID/COMFISH* project. The GIS (Geographic Information System) database that was initiated in the first year is gradually being fed, completed and made available to all stakeholders. The combination of participatory and scientific mapping of stocks, resources, habitats and the special occupation of fishing communities has been a vital tool for understanding the biological aspects to be included in the process of establishing UGDs for target stocks.

Through the participatory mapping of the CLPAs in Mbour, Sindia and Joal, it was noted that most of the fishermen in the project area target the same stock, and that artisanal and industrial fisheries also harvest the same stock of sardinella. This helped improve understanding of the need to integrate industrial fisheries in the process. The USAID/COMFISH project will continue this exercise in the other CLPAs (Cayar, Rufisque/Bargny, Yenne/Dialaw and Foundiougne) as well as on the other priority stocks (shrimp, cobo, etc.). Existing GIS maps will be updated from databases with information on these stocks in order to strengthen the process of developing management plans and UGDs in a participatory manner.

Extending fishing surveys to the Kafountine site outside Senegal's EEZ: The USAID/COMFISH project has established a partnership for stock assessment (DPM to support and strengthen the capacity of CRODT). One of the core objectives of CRODT in this regard was to produce data that would make it possible to estimate: (i) the volume of artisanal fishery catches landed in Senegal and from the neighboring countries of Mauritania, Guinea, etc.; and (ii) the volume of the effort deployed to harvest these stocks. The results of these studies will be produced this year. The project staff visit to Ziguinchor and St. Louis to assess CRODT's sampling system was satisfactory. It would be interesting to extend this work to Kafountine so as to include data on landings from The Gambia. This would make it possible to complete and finalize this study and to collaborate better with the USAID/Ba Nafaa project on estimating sardine landings in Senegal. This issue is probably going to be addressed in year four.

Organizing a workshop for reconstruction of catches and integration of IUU fishing. The capture data that countries report to FAO is compiled without correction and may contain errors or omissions. National statistics often contain errors that may lead to underestimation of:

- Fisheries landing volumes and value;
- The fisheries sector's contribution to the national economy;
- Inadequate funding allocations for fisheries research and marine fisheries management on the whole.

In partnership with MPAM, CRODT and IUPA, the USAID/COMFISH project will organize training sessions for the transfer of technology developed on the reconstruction of catches to Senegal. To ensure the sustainability of such an initiative, public service officials and/or researchers will be trained in the use of such technology. However the replication or implementation of this technique is a matter of national sovereignty for Senegal. The USAID/COMFISH project will support the Government of Senegal in that regard.

The project will set up a database to monitor and provide information on the evolution of illicit activities in Senegal, which can significantly affect management measures for the targeted stocks.

Organizing a workshop for testing, partner training and assessment of sardinella (round and flat), *cobos*, shrimp, *thiof* and octopus with ELEFAN on a size-frequency basis. The management plan development initiatives that partners launched to support DPM are not based on sufficient scientific evidence. The USAID/COMFISH project will devote time and effort to this area in collaboration with CRODT, IUPA and MPAM to develop an easy-to-use and affordable evaluation method using the ELEFAN based technique for assessing size-frequency distributions. The results of this initiative will be used to supplement and update local knowledge in the management planning process, making it possible to also highlight the: exact level of overfishing, the selectivity of gear used, the optimal size, the duration of the biological recovery period, etc. These results will be presented and tested during the workshop on the ELEFAN based assessment technique and will be made available to DPM for subsequent development of UGDs through the collaborative work between MPAM, COGEPAS, CRODT, IFAN/IRD and the USAID/COMFISH project.

Using the ELEFAN to implement management plans and UGDs: this activity is about conducting cost-effective CLPA/UGD based assessments and using "ELEFAN" to analyze data on size frequency distribution. The results will be compared with the maturity-based growth curves from IRD/IFAN data to verify the accuracy of the length-based estimates on sardinella and Thiof. The assessments will be used to inform MPAM on optimal size, as well as on the entry and harvesting rates for each stock considered. This will help establish more solid scientific bases for the current management plans (shrimp, grouper, octopus) and for the sardinella and cobo stocks for which USAID/COMFISH will help develop management plans for the Ministry.

The results going to be presented and tested during the workshop on these assessment techniques will be used also to contribute to participatory management plans for each priority stock. The assessment results on the 6 target species were expected to be available in 2012. However, only draft participatory management plans for coastal shrimp and sardinella (Sine Saloum) will be introduced by July 2013. These draft management plans will include information on industrial and artisanal fishing ratios, and on the volume of illegal fishing from sardinella stocks. The results of the Sine Saloum socio-economic study will be taken into account, thanks to the new ELEFAN based assessment technique applied to the IUPA sampling data that we mentioned earlier (for assessments that cover juveniles caught in the mangrove areas in Sine Saloum).

The process of developing management plans for the stocks of these species will also encompass all of the work described in Figures 4 and 5 (construction, inter-CLPA and UGD) on establishing institutions and management bodies for the UGD in order to secure ownership by fishers and the various stakeholders. The efforts include:

1. Beginning activities to establish forums for consultation on sardinella stocks among CLPAs and between artisanal fisheries and industrial fisheries in order to establish UGDs;

2. Providing support for the establishment of divisional committees and a national consultation forum to begin developing the management plan for sardinella (Sine- Saloum);

3. Kick-starting the elaboration of sardinella management plans in the CLPAs that target this species (UGD), taking into account the knowledge of local fishers;

4. Collaborating with the other projects/programs (COGEPAS, JICA, PRAO) to begin inter-CLPA consultations on shrimp, octopus, and "Thiof" stocks, with a view to establishing UGDs

The activities for implementation include:

- Pursuing the collection of data on sardinella, shrimp, octopus, *cobo* and *thiof*;
- Pursuing socio-economic studies to support the development of a management plan for coastal shrimp in Sine Saloum;
- Finalizing the biological and socio-economic studies on sardinella fisheries in Senegal and the sub-region;
- Organizing a working group on the biological and socio-economic assessment of sardinella stocks;
- Organizing a workshop for testing, partner training and assessment of sardinella (round and flat), *cobos*, shrimp, *Thiof* and octopus stocks using the ELEFAN based system, BHATTACHARY, etc.
- Using the results of these studies to support the development of participatory management plans;
- Organizing a workshop on the methods for assessing and analyzing stocks, using the data available on the selected species;
- Feeding back the conclusions of the workshop and discussing the results through a series of meetings in the USAID/COMFISH target areas;
- Establishing a system for collaborative collection of data on "*thiof*" and octopus (synergizing with JICA)
- Supporting efforts to process and analyze IUU fishing data (sardinella and others) in order to estimate the volume of IUU captures. Organizing a workshop to approve the work;
- Establishing a technical working group to process and analyze data on captures and capacity;
- Updating GIS maps, using data on stocks, CLPAs supported by the *USAID/COMF*ISH project, and administrative governance units.

Expected results:

- Basic scientific evidence for developing management plans and UGDs on the targeted stocks is available;
- A joint strategy for the participatory collection of data on the priority species is developed;

- A participatory framework for analyzing scientific data and using it in management plans is established.

Project focal points: Christopher Mathews, Najih and Vaque Ndiaye
Partner institutions: IUPA, IRD/IFAN, CRODT, MPAM, CSE, CLPA, DPSP, US Navy

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Pursue the collection of data on sardinella, shrimp, octopus, *cobo* and *Thiof;*	X	X		
Pursue the socio-economic studies to support the development of the Sine Saloum coastal shrimp management plan;	X	X		
Finalize the biological and socio-economic study on the sardinella fisheries in Senegal and the sub-region;	X			
Organize a working group on the biological and socio-economic assessment of sardinella stocks;	X			
Organize a workshop for testing, partner training and assessment of sardinella (round and flat), *cobos*, shrimp, *thiof* and octopus stocks, using the ELEFAN based system;				
Use the results of this assessment to support the development of participatory management plans;				
Organize a workshop on the methods for assessing and analyzing stocks, using the available data on the selected species (IUPA);	X			
Feed back the conclusions of the workshop and discuss the results through a series of meetings in *USAID/COMFISH* project target areas (IUPA);		X		
Establish a collaborative system for collecting data on *thiof* and octopus (synergizing with JICA);		X		
Support IUU data processing and analysis (sardinella and others) to estimate the volumes of IUU captures. Workshop to validate the data collected on IUU fishing;	X	X		
Establish a technical working group for processing and analyzing data on captures and capacity;	X	X		
Update GIS maps using the database on stocks, CLPAs supported by the USAID/COMFISH project, and the administrative governance units.	X	X	X	X

Results on performance plan and indicators

Indicators	Targets	Notes
2. Number of persons trained in the short term on food security and productivity through the assistance of the USG	195	Participants in the workshop for testing, partner training and assessment of sardinella (20) Workshop on the methods for assessing and analyzing stocks, using available data on the selected species (25). Workshops to feed back the conclusions on stock assessment techniques in the project target areas (150)
7: Number of technical studies contributing to support management plans and sustainable management units	5	Scientific studies on data collection; Socio-economic studies (sardinella and shrimp)

		SIG mapping Study on IUU fishing
8: Number of synergy areas created in the process of developing sustainable management units	1	Establishment of a collaborative system for collecting data on *thiof* and octopus
14. Number of new fishery resource management technologies put in place	1	ELEFAN system

Outputs

- Technical report on methods for analyzing data collected on stocks;
- Report on IUU catches;
- GIS maps on priority stocks;
- Technical report on the contribution of fishery landings outside Senegal's EEZ sent to the national statistics service;
- Draft management plan for sardinella and shrimp stocks.

Activity 3.3.2.4 Progress in strengthening the institutional framework for developing management plans and UGDs on priority stocks

The Convention Locale is a management tool for securing the sustainable use and conservation of fishery resources in ways that address the growing, diverse and evolving needs of the population while still preserving their productive, ecological and cultural benefits for the community. The USAID/COMFISH project's efforts to develop and implement the Convention Locale will contribute in improving local fisheries governance and in negotiating the rules for target stock management plans and sustainable management units (CLPA, UGD, etc.).

Monitoring approval and support for the first Conventions Locales (CL) and UGDs on sustainable fishery resource management: Setting rules on access to and control over local fishery resources is a key first step to halting the downward spiral of degradation. The rules set in this regard would make provision for sustainable management of the resource without comprising its replenishment.

The steps taken by the Advisory and Coordination Council (ICC) and by the respective CLPAs (Fig. 6) to approve the Conventions Locales in Sindia, Mbour and Joal have made it imperative to recruit additional staff and to build the capacity of staff and stakeholders alike so that they all can implement the management rules properly. The initiative is going to give the CLPAs a better structure and make them functional with the establishment of management committees and commissions.

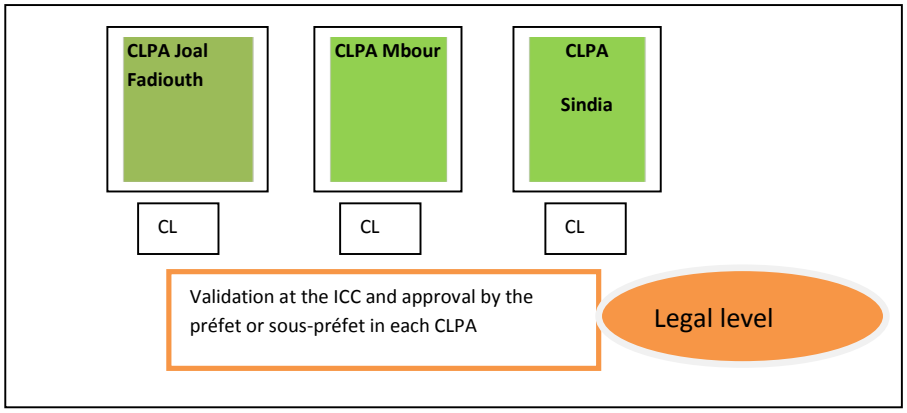


Figure 6. **Establishment of the first three CLs in (Sindia, Mbour and Joal Fadiouth)**

Support for implementing the first three CLs will begin with the harmonization of management rules in these 3 CLPAs, followed by efforts to establish the UDG on sardinella through the creation of an **inter-CLPA consultation forum** in Joal Fadiouth, Mbour and Sindia (*Fig. 7*).

To begin implementing the CLs, there will be need to:

- Monitor the approval of the Conventions Locales in Sindia, Mbour and Joal (Orders);
- Organize a meeting to harmonize the rules of the 3 CLPAs in Mbour division;
- Recruit more field workers to start implementing the Conventions Locales;
- Build the capacities of the outreach workers and facilitators to ensure they implement the Conventions Locales in a proper manner;
- Begin to organize the CLPAs in Sindia, Mbour and Joal to implement the Conventions Locales: establishing a committee, setting up commissions;
- Provide support to formally establish these organs within the CLPAs in Sindia, Mbour and Joal (committee, commissions);
- Build the capacities of the members of these organs to enable them to understand their roles and responsibilities;
- Support the establishment of a participatory monitoring system in the 3 CLPAs;
- Assist with the annual assessment meetings (technical and organizational) of the CLPAs that are expected to implement the Conventions Locales.

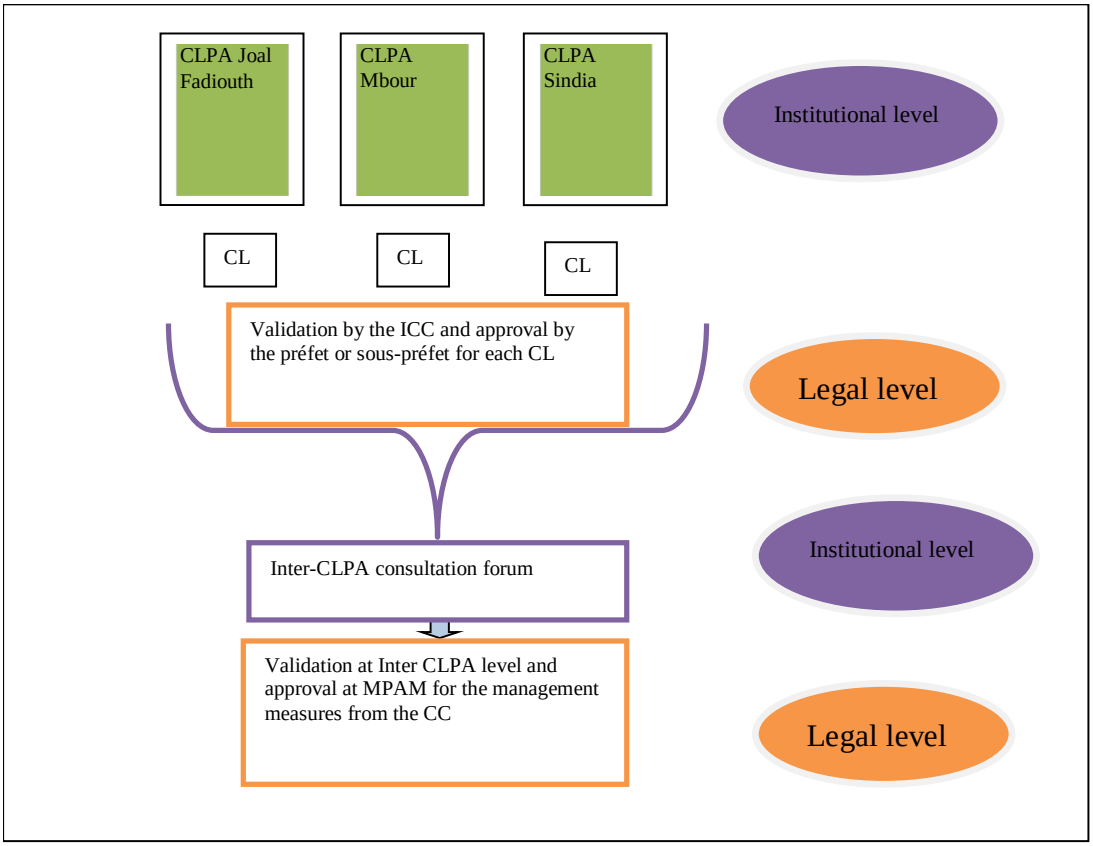


Figure 7. **Implementation of inter CLPA management measures (Mbour, Sindia, Joal)**

Results on performance plan and indicators

Indicators	Targets	Notes
2. Number of persons trained in the short term on food security and productivity through the assistance of the USG	160	50 persons X3 CLPAs (150) + the 10 outreach workers and facilitators
9. Number of policies/regulations/administrative procedures analyzed	3	Analysis of the 3 Conventions Locales in Mbour, Joal and Sindia for the establishment of the inter-CLPA CC
12. Number of policies/regulations/administrative procedures, prepared through USG assistance, are passed/approved	2	Mbour, Joal CLs
13. Number of policies/regulations/administrative procedures passed and implemented	3	Mbour, Joal, Sindia CLs
16. Number of producers and others applying new management technologies or practices through the assistance of the USG	20 940	The stakeholders in the Mbour, Joal and Sindia CLPAs

Supporting new Conventions Locales in the CLPAs in Cayar, Rufisque/Bargny and Yenne/Dialaw. While the three first CLs are being implemented, new Conventions Locales will enter into force in Yenne/Dialaw, Rufisque/Bargny and Cayar to prepare the way for stock-based management plans. This step will round up level 1 in Figure 5 (process of establishing the sardinella UGD management plan), which is designed like the previous model (Fig. 8), with activities to:

- Inform local and administrative authorities at the CLPAs in Cayar, Rufisque/Bargny and Yenne/Dialaw CLPAs;
- Sign cooperation agreements between *USAID/COMFISH* and key stakeholders;
- Establish a steering committee under the CLPA;
- Select local facilitators for the Convention Locale;
- Review and prepare a document on fisheries management;
- Update the mapping of fisheries (Stocks and fishing sites) and coastal areas;
- Set rules for villages or zones;
- Deliberate upon and approve the Convention Locale (intra-CLPA);
- Establish inter-CLPA Consultation Forums (CC) (Cayar, Rufisque/Bargny, Yenne/Dialaw) and (Mbour, Joal, Sindia, Cayar, Rufisque/Bargny and Yen/Dialaw).

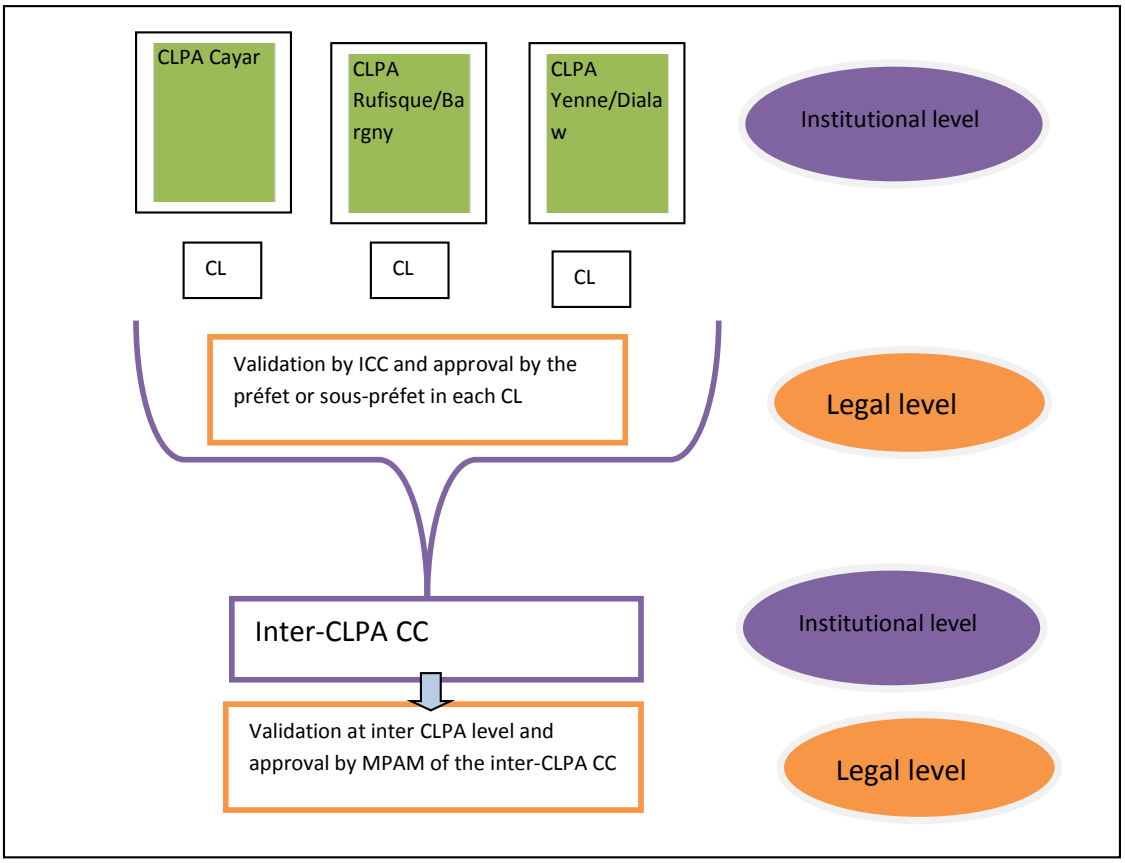


Figure 8. **Establishment of the inter CLPA CL (Cayar, Yen/Dialaw and Rufisque/Bargny**)

Results on performance plan and indicators

Indicators	Targets	Notes
9. Number of policies/regulations/administrative procedures analyzed	10	10 provisions analyzed during the elaboration of 3 Conventions Locales
10. Number of policies/regulations/administrative procedures developed and presented for public/stakeholder consultation	3	The Cayar, Yene/Dialaw and Rufisque/Bargny CL
11. Number of policies/regulations/administrative procedures presented for legislation/decree	3	3 CLs in Cayar, Yen/Dialaw and Rufisque/Bargny
12. Number of policies/regulations/administrative procedures, prepared through the assistance of the USG, passed/approved	3	3 CLs in Cayar, Yene/Dialaw and Rufisque/Bargny
14. Number of new fisheries management technologies in place	3	CLs in Cayar, Yene/Dialaw, Rufisque/Bargny

At the end of this year (Work Plan 3), the 6 Conventions Locales covering the Petite Côte and a large part of the coastal area will have been developed. To begin developing the stock-based management plan, the management rules of the CLPAs targeting this stock will be harmonized and forums established for dialogue between the stakeholders harvesting the stock. The activities planned in this regard include:

- Harmonizing and validating the rules of the Convention Locale (inter-CLPA);
- Supporting the divisional committees (CGD) and a national consultation forum to begin developing the sardinella management plan;
- Initiating efforts to develop the Sine Saloum shrimp management plan, making use of local knowledge;
- Starting to develop sardinella management plans in the CLPAs that target this species (UGD), taking advantage of fishermen's knowledge in this regard.

At the same time, the scientific studies conducted in the process (described above in point 3.3.2.3) will be used to inform the vision, objectives, activities and monitoring and evaluation system of the sardinella management plan.

Expected results:

- The Joal, Mbour and Sindia CLs are approved officially and implemented;
- The Cayar, Rufisque/Bargny and Yenne/Dialaw CLs are developed and approved;
- Inter-CLPA consultation forums to harmonize the management rules from the CLs are established;
- CLPAs are organized and strengthened to begin implementing the management measures from the Convention Locale;
- A participatory management plan for sardinella stocks is drafted;
- Efforts to develop shrimp management plans in Sine Saloum are launched.

Project focal points: Vaque Ndiaye, Amadou Niane, Frédéric Bambara

Partner institutions and staff members involved: CLPA, DPM, DEEC, WWF, FENAGIE, local government areas

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Support divisional committees (CGD) and a national dialogue forum to begin developing the sardinella management plan;	X			
Begin developing the Sine Saloum shrimp management plan, making use of local knowledge;			X	X
Mbour, Joal, Sindia				
UDG: Organize a meeting to harmonize the stock harvesting rules for the 3 CLPAs in Mbour division	X			
Recruit more field workers to begin implementing the Conventions Locales	X			
Monitor the approval of the Sindia, Mbour and Joal Conventions Locales (decrees)	X			
Begin organizing the Sindia, Mbour and Joal CLPAs to implement the Conventions Locales	X	X		
Support the formalization of these organs in the Sindia, Mbour and Joal CLPAs (committees, commissions)		X	X	X
Train the members of these organs to enable them to understand their roles and responsibilities		X	X	X
Train the outreach workers and facilitators to implement the Conventions Locales in an effective manner	X	X		
Support the committee in developing a strategic action plan to properly execute the Convention Locale		X	X	
Support the establishment of a participatory monitoring system in the 3 CLPAs	X	X	X	X
Support the annual evaluation meetings (technical and organizational meetings) on CLPA implementation of the Convention Locale				X
CLPAs: Cayar, Rufisque/Bargny and Yen/Dialaw				
Inform the administrative and local authorities in the Cayar, Rufisque/Bargny and Yen/Dialaw CLPAs	X			
Sign cooperation agreements between *USAID/COMFISH* and key stakeholders	X			
Establish a steering committee under the CLPA	X			
Select local facilitators for the Convention Locale	X	X	X	
Review and prepare a document on the management of fisheries resources		X	X	
Update the mapping of fisheries (fish stocks and fishing sites) and the coastal areas (CSE)	X	X	X	X
Develop rules in villages or zones			X	
Deliberate on and approve the three Conventions Locales (intra CLPA)			X	X
UGD				
Harmonize and validate the rules of the Convention Locale (inter CLPA)				X
Begin to develop sardinella management plans in CLPAs targeting this species (UGD), making use of fishermen's knowledge in this regard			X	X

Results on performance plan and indicators

Indicators	Targets	Notes
2. Number of persons trained in the short term on food security and productivity through the assistance of the USG	160	
9. Number of policies/regulations/administrative procedures analyzed	13	
10. Number of policies/regulations/administrative procedures developed and presented for public/stakeholder consultations	3	The 3 Conventions Locales in Yen/Dialaw, Rufisque/Bargny and Cayar respectively
11. Number of policies/regulations/administrative procedures presented for legislation/decree	3	The 3 Conventions Locales in Yene/Dialaw, Rufisque/Bargny and Cayar respectively
12. Number of policies/regulations/administrative procedures, prepared with the assistance of the USG, passed/approved	4	The Joal, Cayar, Yene/Dialaw, Rufisque/Bargny CLs
13. Number of policies/regulations/administrative procedures passed and implemented	3	The Mbour, Joal and Sindia CLs
14. Number of new technologies in place for fisheries management	3	The Cayar, Yene/Dialaw, Rufisque/Bargny CLs
15. Number of stakeholders with new rules for collaborative management of fisheries resources	40 000	Stakeholders in the Cayar, Yene/Dialaw, Rufisque/Bargny CLPAs
16. Number of producers and other stakeholders using new management technologies and practices through the assistance of the USG	20 940	Stakeholders in the Mbour, Joal and Sindia CLPAs
17. Number of biologically significant areas and/or natural resources where management has improved through the assistance of the USG	327 104 ha (To be confirmed)	The size of the fishing areas in Joal, Mbour and Sindia

Outputs

- Prefectoral Orders for the Convention Locales in Joal, Sindia, Mbour;
- Strategic action plan for smooth execution of the Conventions Locales;
- Development of Conventions Locales in Cayar, Rufisque/Bargny and Yenne/Dialaw;
- Establishment of the inter-CLPA dialogue forum;
- A draft participatory management plan on sardinella stocks;
- A draft participatory management plan on shrimp stocks.

SUMMARY OF ACTIONS FOR DEVELOPMENT OF MANAGEMENT PLANS AND UGDs ON THE TARGET STOCKS OF THE PROJECT

On Sardinella

At the end of this year, the 6 Conventions Locales covering the Petite Côte and a large portion of the coast will be developed. To begin developing the stock-based management plan on sardinella, the forums for dialogue between stakeholders targeting this stock will be established. Beside the ICC, which is the forum for dialogue at the local level (fishing sites), there are going to be divisional committees and regional committees (inter CLPA) to provide a forum for inter CLPA dialogue so that efforts to develop management plans can begin, first in divisions, and then in regions. Linkages with the national level will be established by involving DMP and CNCPM (legal and institutional levels).

In the process, due attention will be given to fishermen's knowledge. This was discussed at length during the elaboration of Conventions Locales and the workshops on best fishing practices. Because sardinella stocks are shared with neighboring countries, a workshop is going to be organized to devise a strategy for supporting Sustainable Management Plans for sardinella. The ELEFAN method is also going to be tested. Modern stock assessment methods that are environment-friendly will be used in developing and monitoring management plans (ELEFAN, and others).

On shrimp and *cobo*

The collection of socio-economic data will be pursued in order to complete the annual series required for analysis (see section 3.3.2.3.). The project will begin to develop management plans for shrimp, based on the methodology used by the USAID/IUCN project between 2002 and 2005.

With the stakeholders' pressing demands for a local management plan on these two species, the project can envisage as from next year to enforce the Convention Locale with the CLPAs concerned. In that respect, the data that was collected at the respective workshops on new stock assessment techniques (ELEFAN etc.), as mentioned in section 3, will provide the scientific evidence for future Conventions Locales as well as for drafting management plans.

On *thiof* and octopus

The activities to carry out have been defined together with partners already implementing management plans for these stocks. The project will continue using its sampling system so that it has a scientifically based information system to use in developing these management plans. (See section 3.3.2.3).

The activities planned to begin developing management plans include:

- The implementation of existing CLs and development of new CLs to establish UGDs and develop management plans;
- The provision of support to establish divisional committees (CGD) and a national forum for dialogue on the development of the sardinella management plan;
- The onset of efforts using fishermen's knowledge to develop sardinella management plans in the CLPAs targeting this species (UGD);
- A workshop to devise a strategy for supporting a sustainable management plan on sardinella;
- The pursuit of socio-economic studies to help develop the shrimp management plan in Sine Saloum;
- The initial formulation of the shrimp management plan in Sine Saloum, using local knowledge;
- A workshop that uses the ELEFAN Model to do testing, partner training and assessment of sardinella (round and flat), *cobo*, shrimp, *thiof* and octopus;
- The deployment of results to (i) train team members on how to transform these assessments into advisory materials; (ii) factor such information into participatory management plans; (iii) collaborate with national research institutes and management institutions in identifying the implications at national and sub-regional level.

Activity .3.3.2.5 Marine Ecosystems Management

Supporting efforts to implement the Marine Protected Areas (MPA) management strategy for biodiversity conservation and stock productivity enhancement.

To support biodiversity conservation in the process of developing UGDs and management plans for target stocks, the USAID/COMFISH project also addresses the management and protection of fragile coastal and marine ecosystems and/or priority bio-ecology systems on its intervention sites.

It is in this regard that USAID/COMFISH, in partnership with WWF, contributed towards the development and adoption of the **National MPA Strategy in 2011**. The project's activities to implement this strategy are under way. In 2012, it helped train MPA experts at a WIO COMPAS workshop in South Africa, which explored areas for collaboration between the two sub-regions of East and West Africa. A National Scientific and Technical Committee on MPAs is now in place. This Committee supported a new entity, Department of Community-based Marine Protected Areas, in developing its strategy document on MPA management. In 2012, USAID/COMFISH contributed to: (i) initiate the tagging of MPAs in Cayar; (ii) track MPA tags in Joal Fadiouth; (iii) review the challenges and gaps in MPA management; (iv) monitor the biological and socio-economic indicators on MPA management in Joal Fadiouth; and (v) create wealth for the committee that is in charge of managing this MPA by helping equip the eco-tourism center in Joal Fadiouth. These were decisive factors in the enhancement of MPA management. This work plan will continue implementing said strategy, by:

- **Obtaining official approval of the National Strategy on MPAs from the administrative authorities**: (1) organizing technical meetings with officials of the new Department of Community-based Marine Protected Areas (DAMCP), DPM, CRODT, Universities and MPA stakeholders; (2) holding meetings with the line ministry; and (3) securing official recognition;
- **Developing a plan of action to improve MPA management on project sites (Joal, Cayar, ZPP):** by applying the recommendations of the 2012 study on the constraints and gaps in Senegal's MPA management system. These recommendations include: (1) applying the corrective measures proposed in the 2012 study on challenges and gaps in MPA management; and (2) measuring effectiveness in the implementation phase by the end of 2013 and suggesting ideas on the way forward;
- **Implementing the capacity building strategy for MPA management**: together with URI and WIO COMPAS.

Expected results:
The national strategy on MPAs is approved officially and implemented.

Project focal points: Najih, Vaque
Partner institutions and staff members involved: WWF, DEEC, DAMCP, DPM, APTE

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Pursue efforts for the administrative authorities to officially approve the National MPA Strategy	X			
Conduct a diagnostic study on the challenges and gaps in the current MPA management system on project sites		X		

Activities	Q1	Q2	Q3	Q4
Develop a plan of action on the challenges identified and the solutions provided in the study for improving MPA management on the project sites (Joal, Cayar, ZPP)			X	
Implement the capacity building strategy for MPA managers		X	X	X

Results on performance plan and indicators

Indicators	Targets	Notes
6: Number of action plans or projects developed to support fisheries management	1	Plan of action for the enhancement of MPA management
Number of scientific studies contributing to support management plans and sustainable management units	1	Diagnostic study on the challenges and gaps in the current MPA management system
12. Number of policies/regulations/administrative procedures, prepared through the assistance of the USG, passed/approved	1	MPA strategy
13. Number of policies/regulations/administrative procedures passed and implemented	1	MPA strategy
17. Number of hectares in areas of biological significance and/or natural resources where management has improved through the assistance of the USG	327 104 ha (17 100 ha + 17 400 and the octopus pot immersion zone in Mbour division)	MPAs in Cayar, contribution of biological recovery (Mbour, Joal, Nianing, Ngaparu Divisions) Joal
18. Number of hectares in areas of biological significance where management has improved through the assistance of the USG	17 400 and the octopus pot immersion zone in Mbour division	MPAs in Cayar, contribution of biological recovery (Mbour Division, octopus pot immersion zone (in the CLPAs of Joal, Nianing, Ngaparu)

Outputs

- The National MPA Strategy is approved officially;
- The diagnostic study on the challenges and gaps in the current MPA system is done;
- The action plan for the enhancement of MPA management is developed.

3.3.3 Vulnerability assessed and capacity of vulnerable coastal communities strengthened to adapt to impacts of climate variability and change

Climate change is increasingly observed on Senegal's coastal areas and will intensify with time. Its impact on certain fisheries species is beginning to be felt. It can also have significant impacts on marine and coastal biodiversity, habitats, coastal infrastructure and coastal communities. Reports suggest that the direct and indirect impacts of climate change may jeopardize the development of fisheries management plans or the targets set for sustainable fisheries management. These impacts include changes in rainfall, soil salinization, and crowded coastal areas (the movement of people from farmland to the coast), which contribute to the fishing effort. The direct impacts of climate change range

from coastal erosion and habitat loss associated with rising sea levels to the migration of species, to name just a few.

Considering the importance of factoring climate change into fisheries management, it is worth recalling here that all the work the project has done so far and will continue doing throughout its life cycle to establish UDGs, are aimed at implementing appropriate and effective strategies to develop climate change resilience in coastal communities and marine and coastal ecosystems.

Project activities in the first two years focused on strengthening stakeholder capacity with the aim of sharing climate-related information and building consensus at all levels on the key concepts and effects of climate change. The project developed a methodological guide for assessing coastal community vulnerability to climate change, and organized a series of workshops to train the entire project team, executing partners, women fish processors in Cayar and over 300 stakeholders and members of the Advisory and Coordination Bodies (ICC) in the 9 CLPAs of *Cayar, Rufisque/Bargny, Foundiougne, Mbour, Joal/Fadiouth, Yenne/Dialaw, Sindia, Hann and Dakar-Oues*t. This series of training exercises will be pursued with training for 500 other local stakeholders on the 3 sites targeted for the vulnerability assessment.

The activities in this work plan take forward the processes in the first two years of project activities. They build on three pillars: establishing dialogue for the mainstreaming of climate change in Senegal's fisheries policies; assessing coastal community vulnerability and developing sustainable adaptation strategies; and assessing the impacts of climate change on the stocks targeted by the project to establish UGDs.

3.3.3.1 Dialogue for the mainstreaming of climate change issues in fisheries policy formulation in Senegal

The mainstreaming of climate change has become a crucial issue today in all development, poverty reduction and natural resource management initiatives. Several development partners are therefore providing support to the Government of Senegal to make climate change a part and parcel of its development policies. It is in this respect that the USAID/COMFISH project, aware that these environmental changes pose a threat to Senegal's fisheries sector, is pursuing efforts to, among other things, establish a forum for dialogue with public entities and development partners in order to ensure that the mainstreaming of climate change issues in decision making on fisheries is done in an effective manner. The project activities in this area are basically in the ongoing communication and capitalization initiatives.

Proper communication and dialogue on climate change and its impacts, as well as on the proposed mitigation measures, would make it possible to address this issue in more effective and sustainable ways across the development spectrum. This approach will foster the harmonization of efforts, the sharing of experience, and the sensitization of state services. A forum for dialogue with state services for climate change, research institutes and development partners will be put in place to facilitate information sharing, validation and synergy in climate change initiatives. To that end, the **first national information and outreach meeting was held on 25 September 2012**. At the end of these meetings, an action plan for enhancing the mainstreaming of climate change in the development of fisheries management plans will be developed.

Activity timeline

Activities	Q1	Q2	Q3	Q4
Organize 2 stakeholder discussion and consultation workshops on the results of the coastal communities vulnerability assessment and the proposed solutions for adaptation to climate change	X		X	
Build synergies on the ongoing climate change initiatives with DEEC, DPM and other institutions working in the same area	X	X	X	X
Initiate discussions with DPM on the need for mainstreaming climate change issues in fisheries sector policies	X	X	X	X

Expected outcomes:

- Information sharing between the *USAID/COMFISH* team, development partners, and the State services in charge of fisheries, environment and climate change;
- The mainstreaming of climate changes issues in all development activities and at all levels
- Consensus on climate change activities and accomplishments on the ground;
- Improved management of climate change impacts on the vulnerable sites, based on planned and agreed strategies.

Results on performance plan and indicators

Indicators	Targets	Notes
2. Number of persons trained in the short term on food security and productivity through the assistance of the USG	100	50 Participants in the 2 stakeholder discussion and consultation workshops on coastal community vulnerability assessment and proposed climate change adaptation measures
5. Number of research institutes and training institutions, government departments, dialogue forums and NGOs with enhanced capacities through the support of the *USAID/COMFISH* project	1	A forum for dialogue on the mainstreaming of climate change in policy making on fisheries

3.3.3.2 Assessing coastal community vulnerability and developing sustainable adaptation strategies

As concerns coastal community vulnerability assessment, Enda Energie, one of the USAID/COMFISH project's implementing partners, developed a guide last year for assessing the vulnerability of coastal community populations to climate change. The rollout of the climate change component has been slow because of delays in the approval and signature of the contract with ISE, an implementing partner. Nevertheless, a fact-finding trip to the seven project sites was conducted and vulnerability indicators established on the basis of the information gathered during the fact-finding trip. The 3 most vulnerable sites were identified using general information and weighted indicators. Population sampling on each of the 3 target sites was done. Data collection tools were also developed and data collection proper was to begin in the month of September 2012.

Alongside, a spatial analysis of environmental challenges and coastal area dynamics from 1954 to 2011/2012 is being conducted. The study area has already been mapped out. Each site covers a 5 to 6 km coastal buffer area from the shoreline. The baseline data (aerial photographs and high resolution satellite images of the area in 1954, 1978, 2003 and 2011) has been collected. The processing of this data is in progress.

The activities on the table below will be implemented in 2013 to pursue the efforts made in previous years to develop action plans for the project's 3 target CLPAs.

Activity timeline

Activities	Q1	Q2	Q3	Q4
Pursue documentary review, data collection and mapping of environmental dynamics on the project sites	X	X		
Process and analyze socio-economic data, aerial photographs and satellite images	X	X		
Do mapping and characterization (description, strengths and weaknesses) of the strategies implemented already by the local communities on the project sites to mitigate the impacts of climate change	X	X		
Feed back and validate the results with the local populations in the 3 CLPAs		X	X	
Develop climate change adaptation strategies in the 3 selected CLPAs		X	X	
Develop and validate the action plan in the 3 CLPAs		X	X	
Establish a system for indicator-based monitoring and evaluation			X	
Study project zone community vulnerability to climate change using an innovative approach based on vulnerability, sensitivity, living conditions, adaptation capacities, and hazards				

Expected results:

- Community vulnerability to climate change on the 3 project sites is known;
- Adaptation strategies and action plans are designed together with local communities and implementation initiated on the three sites under review.
- Coastal zone dynamics from 1954 to 2011/2012 are established and mapping on the vulnerability of each site done;
- Spatial analysis of environmental challgnes is done.

Results on performance plan and indicators

Indicators	Targets	Notes
2. Number of persons trained in the short term on food security and productivity through the assistance of the USG	500	500 persons trained on the vulnerability assessment sites
6. Number of action plans or projects developed to support the establishment of sustainable management units	3	3 climate change adaptation plans
7. Number of scientific studies contributing to support management plans and sustainable management units	2	Report on coastal zone dynamics. Report on project zone community vulnerability to climate change
19. Number of persons trained on climate change through the assistance of the USG	500	500 persons trained on the vulnerability assessment sites
20. Number of climate change vulnerability assessments conducted through the assistance of the USG	3	Vulnerability assessments

21. Number of laws, policies, agreements or regulations on climate change **proposed**, adopted or implemented through the assistance of the USG	3	3 climate change adaptation plans proposed
22. Number of stakeholders with enhanced capacity to cope with climate variability and change	500	500 persons trained on the vulnerability assessment sites

3.3.3.3 Improving the scientific database for policy making and action plans

Most of the initial discussions between DPM and USAID/COMFISH were on building consensus around important initiatives on climate change and how they are implemented. At the beginning of FY 2012, DPM and the Project decided to join hands in identifying and managing stocks/fisheries whose landings are vulnerable to climate change. USAID/COMFISH, aware that sardinella and shrimp stocks could be particularly vulnerable to climate change, proposed a methodology that can be used to separately identify how overfishing and climate change may deplete catches per unit effort (CPUE) and landings. The project also identified a set of data that can be used to identify climate change impacts on shrimp and maybe even on sardinella fisheries. It is in this regard that an entire research program, based on sampling, was developed with CRODT, IUPA and the Ministry of Fisheries (DPM/CEP) to assess the biological and economic consequences of environmental variations and climate change on these stocks and their landings. The project will train Senegalese researchers to use this assessment methodology through hands-on learning.

The project has also established a capacity building program for coastal communities on the Joal, Foundiougne, Mbour, Sindia, Rufisque/Bargny, Yenne/Dialaw and Cayar sites. The program will develop their resilience especially by facilitating access to information. Its activities will provide stakeholders and partners with the scientific data to inform policy making and support community action plans. Below is a summary of activities scheduled for the year.

Activity timeline

Activities	**Q1**	**Q2**	**Q3**	**Q4**
Study the evolution of the Cayor shoreline in Sine-Saloum		X		
Conduct participatory spatial and temporal mapping of stock dynamics by surveying fishermen and using research data	X	X		
Perform spatial and temporal analysis of upwelling indices in Senegal's coastal areas and their correlation with the spatial distribution of stocks	X	X		
Update the database and fine mapping of the current state of project sites	X	X	X	X

Expected results:

- The evolution of the space and time distribution of stocks, especially sardinella, is known;
- The overall dynamics of the Cayar shoreline in Sine-Saloum is known;
- A more detailed mapping of the project target areas is done;
- The data obtained is integrated into the GIS established in the project and available to decision makers.

Results on performance plan and indicators

Indicators	Targets	Notes
7: Number of scientific studies contributing to achieve the targets of management plans and sustainable management units	3	CSE report on populations, stocks, coastline (ISE), etc. Study report on the evolution of the Cayar coastline in Sine-Saloum Report on the evolution of the distribution of stocks, and sardinella in particular, in space and time

The outputs for all activities on climate change include:

- Report on community vulnerability to climate change in the project zone;
- Mapping and characterization (description, strengths and weaknesses) of the strategies already implemented;
- Vulnerability mapping for each project site;
- Adaptation strategies and action plans;
- Report on the national workshop on climate change;
- CSE report on populations and stocks, coastline dynamics, etc.;
- GIS maps on climate change data and stock dynamics;
- Report on the study of the evolution of the Cayar shoreline in Sine-Saloum;
- Report on natural and man-made infrastructure vulnerability to climate change and flood risk scenarios in the project target areas;
- Report on the analysis of upwelling indices in space and time.

Project focal points: Chris, Vaque

Partner institutions and staff involved: WWF, DEEC, ISE, CSE, CRODT, CLPA, DPM, APTE

Summary table of performance plan indicators

Indicators	Targets	Notes
2. Number of persons trained in the short term on food security and productivity through the assistance of the USG.	950	500 persons trained on vulnerability assessment sites 100 during 2 workshops 350 in the 7 CLPAs
6. Number of action plans or projects developed to help establish sustainable management units	3	3 climate change adaptation plans
7. Number of scientific studies contributing to support management plans and sustainable management units	4	
8. Number of synergy areas created while establishing sustainable management units	1	
19. Number of persons trained on climate change through the support of the USG	950	
20 Number of climate change vulnerability assessments conducted through the assistance of the USG	3	

21. Number of climate change laws, policies, agreements or regulations proposed, adopted or implemented with the assistance of the USG	3	3 plans proposed
22. Number of stakeholders with increased capacity to cope with climate variability and change	950	A baseline will be defined in 2013

3.3.4 Increased social and economic benefits to artisanal fishing communities and their resilience to climate change provide incentives to a continued sustainable fisheries agenda

Support in this section will comprise two aspects: value chain analysis and improved techniques for fishery product processing and storage on project sites.

Value chain analysis: Value chain analysis identifies the entry points and opportunities for increasing profits and enhancing equity throughout the value chain (from fish landing sites to the processing plants, transportation systems, and sales outlets). The USAID/COMFISH project will place particular emphasis on increasing the added value of small-scale fishing and women's artisanal processing. To do so, it plans to conduct an in-depth analytical study on the value chain of the main products of artisanal fisheries on the Petite Côte, in the Saloum area and the Cayar zone in particular. The study's target species will be sardinella and coastal shrimp.

The study will cover the fishing and seasonality of the above species, and their processing and commercialization. It will also cover gender aspects and the particularities of fishery products in the economic sectors considered. Owing to budgetary constraints, this activity will be performed in year four (FY 2014).

Improved artisanal processing techniques: To enable women fish processors to have modern working tools, increase their production capacity, better their working conditions and make more profit from their trade, USAID/COMFISH initiated efforts for *Improved artisanal fishery product processing and storage techniques in Cayar*. The main activity of this initiative is to put in place a modern artisanal fish processing plant for sardinella, and thus establish a local label for artisanal fish processing products in Cayar. The first step in the initiative was to diagnose the barriers to good practice in fish processing and to develop an action plan for improved techniques. The activities performed to establish the modern processing unit in Cayar do include:

- Auditing fish processing infrastructure in Cayar;
- Conducting microbiological analyses on processed products (*keccax)*;
- Providing training on climate change, hygiene and quality, life skills training and leadership.

In year 3, USAID/COMFISH will support APTE to implement the action plan that is based on studies for the standardization of the processing plant. This action plan focuses on improving techniques for the processing and storage of products by providing appropriate equipment, improving processing practices, strengthening women's skills and encouraging the labeling of fishery products on the Cayar processing site. The project will also conduct activities on climate change resilience that require research and additional funding.

This initiative is one of the most important activities of the *USAID/COMFISH* project. It will actually contribute in mainstreaming gender and improving women's social and economic conditions by initiating efforts for Cayar to have a **local label** of *Keccax*, one of Senegal's most popular processed products that serves as a nutritional alternative at a time when fishery resources are on a dwindling trend. The Cayar project for development of the Processing Plant and improvement of techniques for the processing and storage of fishery products is presented on figure 9 below.

Expected results:
The processing and storage techniques of GIE Mame Toulaye Diène processing plant in Cayar are improved.

Project focal points: Khady Sané Diouf, Frédéric Bambara
Partner institutions and staff involved: APTE, DITP, DECC, MPAM, association des femmes de Cayar (GIE Mame Toulaye Diène).

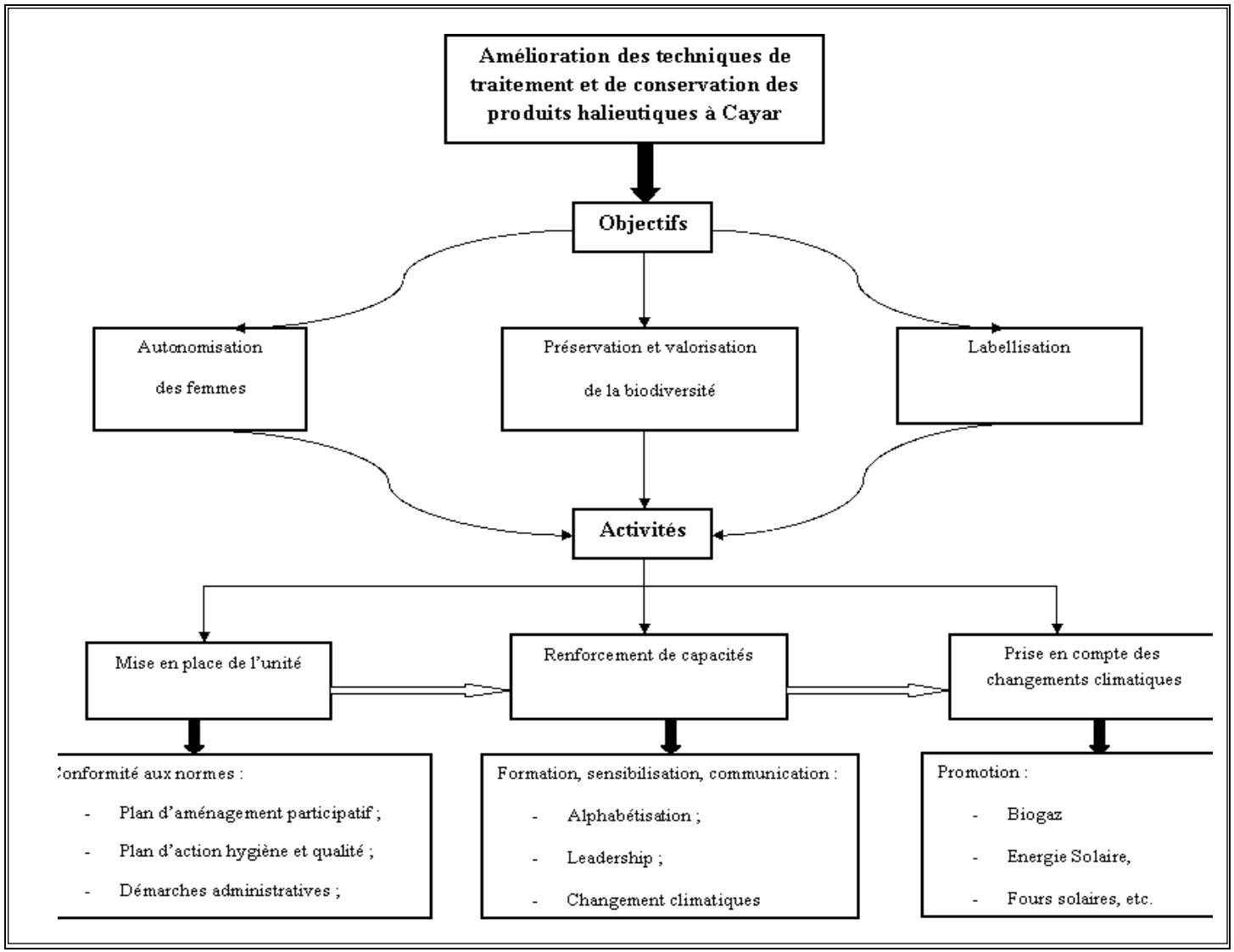


Figure 9. **Diagram on the USAID/COMFISH/APTE initiative in Cayar**

***Activity timeline*:**

Activities	**Q1**	**Q2**	**Q3**	**Q4**
Support the hygiene committee	X			
Support efforts to establish a quality control committee		X	X	X
Donate computer equipment to the management committee		X		
Organize computer training sessions		X	X	X
Analyze the products processed in the processing plant		X		
Conduct a study on appropriate packaging measures		X	X	
Organize training on packaging			X	X
Provide proper equipment and infrastructure to the processing sites			X	X
Make provision for a functional office in the unit		X	X	
Supply women with trimming equipment		X		
Support the purchase of packaging material				
Organize life skills training	X	X	X	X

Results on performance plan and indicators

Indicators	**Targets**	**Notes**
2. Number of persons with short term training on food security and productivity	40	Workshop on packaging (20), training on computer skills (20)
7. Number of technical studies used to support the management plans of sustainable management units	2	Analytical report on the products processed in the processing plant Report on appropriate packaging measures
14. Number of new fishery resource management technologies available	3	Environmental monitoring, standardization, quality and hygiene
16. Number of producers and others applying new management technologies or practices	137 (to be confirmed)	Number of women fish processors using new processing techniques
2 3. Number of private for-profit food security companies, producer organizations, water users associations, women's groups, associations of men and women entrepreneurs, and CBOs that have received support through the USG		GIE Mame Toulaye Guéne and Awa Gueye Kébé will be included on an ongoing basis
24. Number of rural households making profit directly from the initiatives	5389	CLPA households in Mbour, Joal and Sindia

Outputs

- Computer equipment available to the Cayar processing unit
- Analytical reports on the products of the processing plant
- Study on appropriate packaging measures
- Technical report on opportunities for profitable income generating activities
- Equipment for the processing sites
- Trimming equipment
- Packaging materials

3.3.5 USAID/COMFISH communication activities

The USAID/COMFISH project's communication component is designed to disseminate information on the entire process of instituting UGD development plans for the sustainable management of the project's target stocks, on one hand, and to help raise the project's profile and contribute towards behavior change in the beneficiary fishing committees, on the other. It is in this regard that emphasis was placed, in year one and two, on launching the project officially, erecting signboards and disseminating other project profile enhancing materials (flyers, kakemonos, banners, bi-weeklies, etc..), and meeting with the press and with others to devise a communication strategy for the project. The objective of this strategy was first to improve internal communication within the project team, including between the project team, the donor (USAID) and the main project beneficiaries (CLPA and / DPM / MPAM); and secondly, to support and profile project activities. This strategy made it possible to identify the key target groups to influence on climate change, poor fishing practices and the good governance of fishery resources. It made it possible also to identify the communication approaches/activities and tools to use for the target groups identified, as well as the mechanisms for monitoring and evaluating these activities. The efforts to develop this strategy involved key project partners (representatives from CLPA, FENAGIE, DPM, WWF, CSE, FIT, IUPA, community radios, etc.).

The process of supporting, disseminating and communicating project activities will continue in year three. Specific activities that are performed traditionally will also be implemented. These include media coverage of project activities, the publication of bi-weeklies, success stories, audiovisual productions on the key activities of the project, and project visibility on the Internet. The activities to be implemented are described below:

Disseminating the Conventions Locales and management plans
Once the Conventions Locales and management plans are finalized, the project will disseminate them through community and/or local radios and by using other appropriate communication media together with key stakeholders based on the communities concerned.

Success-stories
There were plans in year two to publish at least two success stories, as provided in the Branding strategy put in place together with USAID.

Publicizing the declaration by women in the fisheries sector
During the first two quarters in year 3, the project will publicize the declaration by women in fisheries via the community radios covering target zone CLPAs and publish a brochure on the statement for potential partners.

Videos
In accordance with new USAID requirements, the USAID/COMFISH project intends in year three to produce two videos on its mid-term results and/or some of its key areas. These videos will be broadcast on the websites of USAID and URI/CRC, as well as on YouTube and social networks like Facebook. To do so, the project will hire external service providers.

Press junket
In the last two quarters of year 3, a press junket will be organized to document how the Conventions Locales are developed on project sites. The press junket is aimed at raising the public profile and added value of the project / collaborative management of fisheries in Senegal by spotlighting concrete achievements on the ground. About a dozen print, online, television and radio journalists will go to

the field to report on project and partner activities, using through the appropriate public information mediums.

Expected results:

- 2 Success-stories are prepared
- 2 TV/Radio programs for disseminating Conventions Locales
- Photo report;
- Media coverage (press articles, TV reports) on Conventions Locales and climate change /bad fishing practices;
- 'Fact sheet' on the conventions locales
- 2 videos on the project's flagship activities
- Project information update on the FTF and URI websites

Focal point: Frédéric BAMBARA
Colleagues involved: Vaque NDIAYE, Niane, outreach workers, Khady Sané Diouf
Partner institutions: GREP, CLPA, AMARC, DPM, WWF, Alliance

Activity timeline:

Activities	Q1	Q2	Q3	Q4
Disseminate the declaration by women in the fishing trade	X	X		
Support the implementation of the Conventions Locales through community radios	X	X	X	
Produce 2 success stories		X		X
Prepare a photo report on the key aspects of fishing in the USAID/COMFISH project target area (landings, fishing pier, machinery, processing of fishery products, coastal erosion, monitoring activities, CLPAs, etc.)			X	X
Conduct a press junket (document the development and implementation of CLs as a tool for FR management)			X	X
2 videos on the project's flagship activities	X		X	
Update and manage the USAID FTF website		X	X	X
Publish and distribute brochures on best fishing practices		X	X	

Results on performance plan and indicators

Indicators	Targets	Notes
3: Number of print and audiovisual materials produced for building the capacities of collaborative management institutions and stakeholders in the fisheries sector	1	A document on the process of developing Conventions Locales; 3 radio programs in 3 community radios

4. PROJECT MANAGEMENT

4.1 Strategic partners and beneficiaries

While University of Rhode Island (URI) is USAID/COMFISH's main agency for execution and management, and for financial reporting to USAID/Senegal, the project's major clients are the governance organs of the State, research institutes and training establishments. The one sure way to secure lasting success and durable reforms in Senegal's fisheries sector is by ensuring that these national agencies and their local units have the ability, at the end of the project, to sustain the political, technical and financial commitment and support needed to carry forward the reforms and new approaches intro-

duced throughout the project. USAID/COMFISH will help strengthen these agencies via the learning by doing approach. In the same vein, it will work with civil society and the private sector that also represent key links in the sustainability chain. Other regional, national and local organizations are also going to play a decisive role in the efforts made to build partnerships for implementing project activities. The project's major executing partners and their roles in year three activities are described below. Most of these institutions will receive funding as executing partners of the USAID/COMFISH project to enable them to implement a certain number of the work plan activities described above.

Ministry of Fisheries and Maritime Affairs (MPAM): the project works with the Ministry of Fisheries and Maritime Affairs, which is the Department responsible for fisheries management in Senegal. The project works through the Technical Units, in particular the Department of Marine Fisheries (DPM), which establishes management rules and institutions for collaborative management. It also works, as need be, with the Department of Fisheries Processing Industries (UITP), Department of Fisheries Protection and Monitoring (DPSP), and the Studies and Planning Unit (CEP). This latter has an overarching position, for it reports directly to the Minister's cabinet.

Ministry of Environment and Nature Protection (ME) deals with the management of protected areas, including some coastal and marine parks (Department of National Parks), and coordinates initiatives and responses to climate change through the Department of Environment and Classified Establishments (DEEC). These organs have an equally important part in marine conservation and climate change. In the first year of project execution, they played a decisive role in the finalization and official adoption of the National Strategy on MPAs. In the second and third years, this institution will be a key partner in the response to climate change and bio-diversity conservation. The WWF, ISE and FIT will coordinate these activities closely together with this Ministry. Further, the Department for Community-based Areas (DAMPC), which is responsible for planning, managing and developing a coherent and integrated national network of community areas, marine protected areas and artificial reefs, will be involved in many activities on the management of marine and coastal ecosystems.

Dakar Institute of Fisheries and Aquaculture (IUPA): IUPA is a regional institute for training and research at the University Cheikh Anta Diop of Dakar (UCAD). It deals mainly with fisheries and aquaculture issues. Its role in the project will be to assist in implementing human resource development strategies, applied research and technical studies, as well as in developing and steering an action research program. This program will involve researchers, fisheries administrative services, the University, civil society stakeholders, etc. IUPA will be involved in conducting a number of important meetings, including those for developing terms of reference for the profile / description of fisheries.

Laboratory for Fish Biology and Ecology in West Africa (LABEP-AO) - (IRD / IFAN-Ch. A. Diop) The main duty of LABEP AO/UCAD will be to contribute, together with IUPA, in: (i) establishing a data collection system for sardinella, bonga (cobo), and grouper (thiof) fisheries; (ii) making available data on the maturity and growth curves of these species in order to compare the results with those used by the methodology based on the most profitable size; (iii) identifying with greater precision the spawning period and the length at first maturity for these species. The results will inform and support the collaborative management plans that are going to be developed for CLPAs and UGDs.

Institute of Environmental Sciences, Université Cheikh Anta Diop, Dakar (ISE) is an institute based in UCAD. It takes charge of Higher Education and multidisciplinary research on environmental sciences in Senegal. Its role in the project will be to pursue and coordinate, together with DEEC, CRODT, CSE, WWF and other partners, the activities for assessing vulnerability and planning adaptation to climate change through its Research Unit on Climate Change, Adaptation and Environmental Risks (CAREX).

Centre de Suivi Ecologique (CSE): The mission of the Centre for Ecological Monitoring (CSE) is to collect, process, analyze and disseminate data and information on the natural resources of a given sector, using spatial technology, in order to improve environmental and natural resource management. CSE will be involved in developing a GIS database as well as maps for the project. During the management plan development process, it will be involved in a number of technical studies on local ecological knowledge in the characterization of selected fisheries, and in certain aspects of vulnerability assessment, planning climate change adaptation, and identifying areas or effects of biological significance. CSE plays an important role in the spatial mapping of Senegal's main stocks, in various donor initiatives on fishing, and in the location and jurisdictions of existing CLPAs and local government areas in the project's target zones.

Centre de Recherches Océanographiques in Thiaroye, Dakar (CRODT): CRODT is under the Research Institute for Agriculture in Senegal (ISRA). It will summarize literature on the status of fish stocks and related workshops, assess fish stock management information systems and needs, and help assess the vulnerability of sardinella and demersal stocks to climate change. Together with DPM and IUPA, ISE, and IRD/IFAN, CRODT will form a hard core for establishing reliable fisheries information and capacity management systems in Senegal, as well as for developing a fisheries research partnership program in Senegal to be initiated this year by the project.

World Wildlife Fund (WWF): The WWF West Africa Ecoregion Program Office promotes sustainable natural resource management in West Africa. Its conservation program is people-centered and ensures that all initiatives address local needs and involve a broad spectrum of stakeholders, who range from the grassroots to the highest decision-making level. WWF is an implementing partner of the USAID Wula Nafaa Program's fisheries initiatives. Likewise, it is the University of Rhode Island's (URI) main implementing partner in the USAID West Africa Ba Nafaa project on sustainable fishing that is based in The Gambia. Together with DPM, DAC, CRODT, ENDA and civil society, WWF will coordinate activities on Marine Protected Areas and contribute to key activities for building institutional and stakeholder capacity. WWF is also going to help develop the CLPA gender strategy and the institutional capacity building strategies.

Fédération Nationale des GIE de Pêche (FENAGIE): FENAGIE has, since 1990, been working to build organizational and technical capacities for processing fishery products. It does this by building infrastructure and production units for women, supporting efforts to provide access to credit, and improving the lives of fishing communities. FENAGIE will take part in strengthening professional organizations in leadership, in literacy, and in studying ways to improve the value chain in artisanal processing.

Association Assainissement Pêche Tourisme Environnement (APTE): is a group of scientists committed to promoting sustainable development through initiatives on sanitation, fisheries, tourism, environment and the gender approach. The role of APTE will be to help develop strategies for empowering women in the decision-making process. It will also take part in promoting artisanal fishery products, in building the leadership skills of stakeholders, including women, in studying MPA effectiveness in biodiversity conservation, and in supporting the development of eco-tourism in MPAs.

The roles and responsibilities of the various groups mentioned above will be refined progressively as project activities go forward. These roles will also change depending on the priorities identified and the effectiveness required to deliver activities properly. Progressively, more local institutions that can add value are going to be identified and involved as implementing partners. While the number of

partners involved may seem large, taking an inclusive and properly managed approach will produce better results and provide experiences and opportunities for learning.

4.2 Office structure, staff organization and organizational chart

The project is implemented by a team of local staff working under a Program Director who is based at the National Program Coordination Unit (UCNP) in Dakar. The UNCP office is a legal entity of the University of Rhode Island (URI) with a highly decentralized system for financial management of local transactions (procurements and contracts), except in the case of rules and procedures governing U.S. based subcontractors and international staff. The powers for program coordination are decentralized as well. The UCNP Director is responsible for developing and implementing approved annual work plans and achieving performance indicators. He is USAID's main contact person responsible for preparing the project's technical performance reports, terms of reference for consultants and local partners, and supervising and managing local staff. As URI is responsible for financial reporting and for achieving the project's performance indicators, it will provide technical and administrative support,, as required and supervise the team. A local office is based in Joal in order to ensure better monitoring and coordination of field activities. The Joal site was chosen for two strategic reasons:

- It has a central location among the project target areas (Cayar, Petite Côte, Foundiougne and Casamance).
- Joal hosts the Regional Inspectorate of Fisheries in Thies, making it possible for the project to collaborate better with the technical services for fisheries.

The project's implementing partners are trained progressively to monitor performance, use the *TraiNet* reporting tool, and master USAID rules and regulations on the use of trademarks/logos, graphic identity, and environmental compliance procedures. Under the supervision of the Coastal Resources Center (CRC), UCNP will submit project reports to USAID/Senegal, while URI will submit official financial reports. At the request of USAID, the project team also provides cost estimates (cumulative) and related budget analysis.

CRC/URI and other foreign technical experts report to Dr. James Tobey, who is the USAID/COMFISH project coordinator at the Coastal Resources Center (CRC). The terms of reference of these experts will be developed in close consultation with the Project Director. However, these foreign experts will work under the Project Director during their missions in the country. Subcontracts over $ 250,000 will be managed financially from URI while UNCP will handle smaller contracts. Diagram 1 below presents the project's organizational chart.

USAID/Senegal will be invited to the planning sessions on the work plan to contribute in developing the annual work plan and performance-monitoring plan. The Project Director will submit the work plans and annual results achieved to the Agreement Officer's Technical Representative for review, remarks and approval. USAID will be invited also to certain major events and encouraged to conduct field visits. The Project Director will submit periodic reports on progress, challenges and achievements to USAID/Senegal.

The Coastal Resources Center (CRC) team and the USAID/COMFISH project coordination team will do regular project management and annual reporting activities. The service and reporting outputs expected are:

- Preparation and submission of three quarterly progress reports to USAID/Senegal's Agreement Officer' Representative (AOR). These reports will be written in French and English.

- The fourth quarterly report (July-September), quarterly/annual report will include information on the quarterly audit and a section summarizing the year's achievements and challenges. This fourth quarterly report represents the annual report. It will provide more details on yearly results, a table on the success levels for annual indicators based on the indicator monitoring plan, and the annual targets for the following year.
- Data collection, analysis and reporting to USAID on indicators and targets for monitoring project performance submitted in quarterly reports.
- Annual work plan in French and English submitted by the Coastal Resources Center to USAID for approval.
- Input to the USAID TraiNet system with regular, timely data on all project training activities.
- USAID/COMFISH monthly financial reports sent to the Coastal Resources Center.
- URC/URL expense reports submitted to USAID.

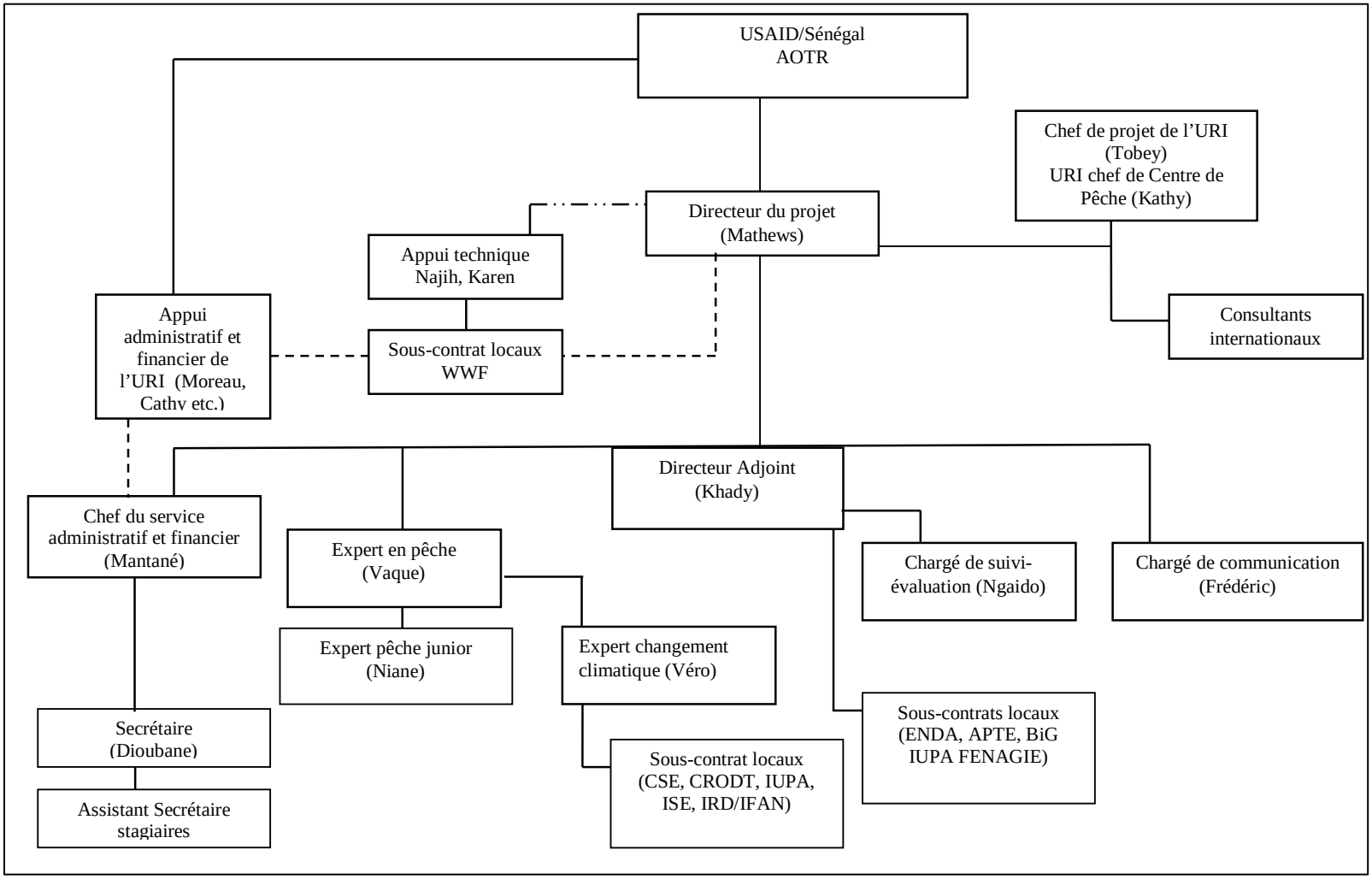


Figure 10. **UCNP organizational chart**

The project work plans and annual reports will include: 1) actual performance versus targets set for the period; 2) evidence on expected results achieved and/or not achieved; 3) challenges encountered and solutions recommended; and 4) an analysis and explanation of cost overruns or high unit costs, if necessary.

The table below presents the implementation and reporting timeline for the activities mentioned above.

Activity timeline: routine management and administration

Activities	2012				Person in charge
	G1	G2	G3	G4	
Routine reporting					
Quarterly and annual reporting to USAID	Jan.	April	July	Oct.	CM/KS
Training data entry into the USAID TraiNet system					KS
Submission of annual work plan to USAID for approval				Sept.	JT
Financial management					
USAID/COMFISH monthly financial reports to CRC					CM
CRC/URI quarterly expense reports (cumulative) to USAID					CM2
Quarterly financial information from SF 425 to AO and AOTR					CM2

CM - Chris Mathews, KS - Khady Sané,
JT-Jim Tobey (CRC), CM2-Cindy Moreau (CRC), NL-Najih Lazar

4.3 Performance management, evaluation and learning

According to USAID's ADS 203 guide, the project Results Framework and Performance Monitoring Plan (PSP) should be appended to the annual work plan. The performance monitoring plan is designed to assess and measure project activity effectiveness and predictability in contributing to expected results. The PSP is the basis for continuous performance assessment, and for adaptive project management and implementation. It is a source of learning on ecosystem management and provides the material for reporting results to USAID. To monitor how well the project attains some of its success indicators, such as the effectiveness of CLPA capacity building tools and increased socio-economic gains for beneficiary communities, baselines were established at the beginning of the second year.

The objectives of the PMP for the entire project period have been revised and two other indicators on climate change added to the initial list (indicators 10 and 11). The indicator on CLPA effectiveness was finalized with DPM in year 2 and will be used as from year 3. Apart from FTF indicators, a certain number of *project indicators* (7 in all) have been developed so that the project can measure its performance on the field (these are indicators 3, 4, 5, 6, 7, 14, 15). Similarly, the baseline study on community well-being has been developed (Indicator 15). Further, a tool for measuring the economic performance of fisheries, which was developed and used in other countries, will be applied to some fisheries under the USAID/COMFISH project. This will make it possible to do comparisons with other countries (Gambia) and provides a reference for establishing trends at mid-term and towards the end of the project.

Semi-annual partner meetings are held to improve activity coordination. The project will also organize an annual activity planning workshop to give partners the opportunity to discuss the project's major accomplishments and challenges, as well as their own experiences, and to plan activities for the next year. These meetings provide good opportunities also for stakeholders to get information and assess

the progress and level of achievement of results. The Deputy Director will coordinate them. He will supervise the field activities of the monitoring and evaluation officer, who keeps records and files/folders on evidence of the results achieved and the performance indicators met. The Deputy Director will also perform quality control and compliance procedures.

Timeline

Activities	Year 2012				Local partners	USAID/COMFISH	External team
	Q1	Q2	Q3	Q4			
Annual activity planning workshop				X	All	Team leader	Tobey
Semi-annual partner meeting, annual activity planning and learning retreat with implementing partners, USAID and a number of other project donors		X		X	All	Team leader	Tobey
Quarterly reporting on monitoring and evaluation to USAID	X	X	X	X	All	Team leader	Tobey

The results framework and project indicators for each result are provided in Appendix 1. This section also summarizes Year 3 and the targets for the entire project. The specific results, targets and indicators to monitor will be reviewed once a year to determine whether the targets and/or project strategy need to be revised on the basis of experience gained and lessons learned during implementation.

4.4 Environmental monitoring and compliance

The mission approved the environmental monitoring plan in FY12. This document includes an environmental mitigation and monitoring plan. The Annual Report (FY2012) will include an environmental mitigation and monitoring component. Each quarterly report is also going to include an environmental mitigation and monitoring report.

4.5 Branding

The USAID/COMFISH project shares information through several different channels. These include presentations at meetings, conferences, awareness sessions and other forums; print mediums for disseminating information locally: information materials for Information, Education and Communication (IEC) initiatives, flyers, brochures, guidance notes, guides, and PowerPoint presentations. The main target audiences are local communities, local government authorities, national policy makers, local NGOs and other donors. All communication materials for the project will highlight the generous support of the American people through USAID and the partnership with and support of Government Ministries and Local Government agencies and departments involved in various project activities. The mediums to produce and the type of inscription to use are presented on the table below.

Synopsis of communication mediums in year 2, based on USAID rules and regulations on inscriptions/Branding (ADS 320/AAPD 05-11)

Mediums	Type of USAID inscription	Inscription Code	Targets Explication for any `U'
Video/film	USAID logo (associated with any other if necessary)	M	Presentation for a Senegalese audience and a non-Senegalese audience
Success-stories		M	Presentation for a Senegalese audience and a non-Senegalese audience

Brochures on best fishing practices	USAID logo (associated with any other if necessary)	M	Presentation primarily for a Senegalese audience
Press release published during key project meetings	USAID logo (associated with any other if necessary)	M	Presentation primarily for a Senegalese audience
Technical reports	USAID logo (associated with any other if necessary)	M	Presentation primarily for a Senegalese audience
Communication workshop reports	USAID logo (associated with any other if necessary)	M	Presentation primarily for a Senegalese audience
Banners	USAID logo (associated with any other if necessary)	M	Presentation primarily for a Senegalese audience
Online articles	USAID logo (associated with any other if necessary)	M	Presentation primarily for a non-Senegalese audience
Factsheet on Conventions Locales	USAID logo (associated with any other if necessary)	M	Presentation primarily for a Senegalese and non-Senegalese audience

Inscription codes: M = Marking required, U=no marking required, PE = Presumed Exception, W=Waiver

4.6 Schedule for international travel

The table below presents the dates and objectives of international duty travel in the project budget for year two of activity delivery. These trips involve travel to Senegal and from Senegal.

Quarter	Traveller and goal of duty travel
Q1	Kathy Castro and Barbara Somers: To work with IUPA on dissemination in the fisheries sector Najih Lazar (1): To work with CRODT's team on the sardinella report Najih Lazar (2): Sardinella report validation workshop Ousmane Ndiaye: Trip to URI to initiate the experts program
Q2	Jim Tobey: Project management and supervision Najih Lazar: To work with partners on sustainable fisheries Mareme Diop: Trip to URI to begin her Masters Program (pending success in TOEFL) Kathy Castro: To work with WWF on best fishing practices and with IUPA on dissemination and capacity building for fisheries
Q3	Najih Lazar: To work with partners on sustainable fisheries Kathy Castro: To work with partners on institutional capacity building and sustainable fisheries Glenn Ricci: To work with WWF and partners on MPA capacity building Jim Tobey and Brian Crawford: project assessment and support for strategic planning Ousmane Ndiaye: to end the experts program and return to Senegal
Q4	Jim Tobey, Cindy Moreau, Cathy Dwyer: Work plan and budget Najih Lazar: To work with partners on sustainable fisheries

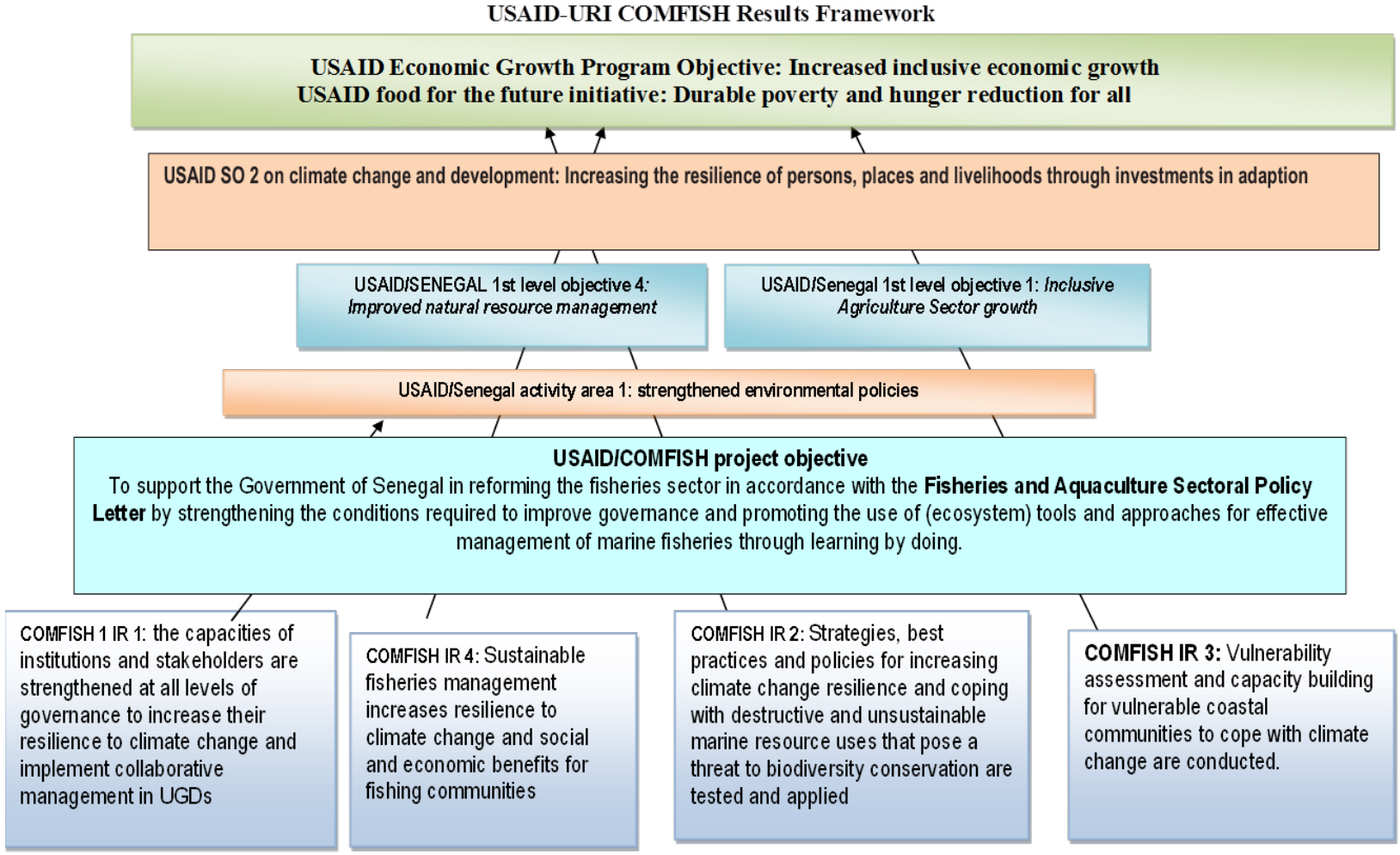
5. BUDGET

Year one budget by component	Requested	Cost sharing	Total
Institutional and stakeholder capacities for collaborative management are strengthened	$473,005	$354,500	$827,505
Strategies and policies to eradicate the use of harmful and unsustainable practices on fishery resources and biodiversity are tested and applied	$754,313	$274,359	$1,028,673
Planning of climate change vulnerability assessment and adaptation is done	$255,497	$31,885	$287,382
Sustainable fisheries management increases social and economic benefits for fishing communities	$134,815	$130,000	$264,815
Communication	$58,730	$54,821	$113,551
Project management	$745,994		$745,994
Total	**$2,422,354**	**$845,566**	**$3,267,920**

Year one budget by category and item	Requested	Cost sharing	Total
URI staff	$210,744	$93,217	$303,961
Benefits	$113,802	$31,679	$145,481
Local staff and consultants	$808,538	$39,960	$848,498
Sub-contracts	$352,962	$88,241	$441,203
Other direct costs	$190,109	$561,318	$751,427
Travel	$317,117		$317,117
Total Direct costs	$1,993,273	$814,414	$2,807,687
Indirect costs	$429,081	$31,152	$460,233
Total	**$2,422,354**	**$845,566**	**$3,267,920**

Appendix 1: USAID/COMFISH project monitoring and evaluation plan

The Results Framework below shows the overall interactions between USAID/COMFISH Intermediate Results (IRs) and USAID/Senegal's Economic Growth Program Objectives. Every IR has one or more indicators and targets for the entire project period shown in the table below. Targets are reviewed and adjusted annually.



Indicators	Targets at the end of the project	Year 1 result	Year 2 result	Year 3 targets	Year 4 targets	Notes
Result 1: ***The capacities of institutions and stakeholders to increase their resilience to climate change and implement collaborative management in UGDs are strengthened at all levels of governance:***						
1. A 75% increase in the synthetic index score for CLPA management effectiveness on USAID/COMFISH project sites by 2016	A 75% increase in the index score	NA	Baseline established (0.04 out of a range of -1 and +1)	Increase by 20%	Increase by 20%	
2. Number of persons trained in short courses on food security and productivity through the assistance of the USG	4 790	45	977	2090	800	The target increases because the initial figure of 2800 trainees will be exceeded in 2013
3. Number of print and audiovisual materials produced to build capacity for institutions and stakeholders involved in collaborative fisheries management	15	NA	2	9	2	Results in 2012: 1 magazine on winners of the best practices contest is distributed to the 7 target CLPAs 1 report on the baseline for CLPA management
4. Ratio of women who attended short training courses on food security (compared to the total number of persons trained)	55%	NA	40%	50%	50%	It is the number of women trained, divided by the total number of persons trained
5. Number of research institutes and training establishments, governments and dialogue forums and NGOs with enhanced capacity through the assistance of the	20	NA	15	2	1	

Indicators	Targets at the end of the project	Year 1 result	Year 2 result	Year 3 targets	Year 4 targets	Notes
USAID/COMFISH project						
Result 2: ***Strategies, best practices and policies for increasing resilience to climate change, destructive and unsustainable marine resource use, and risks to biodiversity conservation are tested and implemented***						
6. Number of action plans or projects developed to support the fisheries management process	9	NA	2	7	2	
7. Number of technical studies contributing to support the management plans of sustainable management units	11	NA	2	11	0	
8: Number of synergy areas created in the process of establishing sustainable management units	9	NA	1	4	2	Contribution to the procurement of octopus pots with COGEPAS
9. Number of policies/regulations and administrative procedures analyzed	31	13	10	13	7	The target figure increases because the provisions analyzed have reached 23 (the initial target)
10. Number of policies/regulations and administrative procedures drafted and presented to the public/stakeholders for consultation	17	0	3	6	6	3 Conventions Locales and 3 climate change adaptation plans

Indicators	Targets at the end of the project	Year 1 result	Year 2 result	Year 3 targets	Year 4 targets	Notes
11. Number of policies/regulations and administrative procedures submitted for official adoption (legislation/decrees)	12	1	3	6	3	7 Conventions Locales and 3 climate change adaptation plans + 2 management plans Number of targets reduced because there was an extra coping plan and management plan
12. Number of policies/regulations and administrative procedures put in place through USG assistance that are approved	14	0	2	5	5	4 Conventions Locales and 1 strategy on MPAs (in 2013)
13. Number of policies/regulations and administrative procedures approved and implemented	15	0	0	4	5	3 Conventions Locales and 1 strategy on MPAs (in 2013)
14. Number of new technologies for fisheries management put in place	10	NA	4	4	4	3 Conventions Locales and 1 process on best practices
15. Number of stakeholders using new rules for collaborative fisheries management	40 000	NA	20 940	15 000	4 060	20 940 stakeholders from the CLPAs in Mbour, Joal and Sindia
16. Number of producers and others who applied the new technologies or management practices through the assistance of the USG (FTF indicator 4.5.2-5)	40 000	0	0	20 940	15000	

Indicators	Targets at the end of the project	Year 1 result	Year 2 result	Year 3 targets	Year 4 targets	Notes
17. Number of hectares in areas of biological significance and/or containing natural resources under enhanced management through the assistance of the USG	844 655 ha	0	0	327 104 ha	170 451 ha	Fishing areas of the CLPAs in Joal, Mbour and Sindia (in 2013)
18. Number of hectares of land of biological significance under enhanced management through the assistance of the USG	364 500 ha	0	0	34 500 ha	330 000 ha	MPA in Cayar, MPA in Joal and RBDS
Result 3: Vulnerability assessment and capacity building for coastal communities vulnerable to climate change impacts are conducted						
19 Number of individuals trained on climate change through the assistance of the USG	2 400	0	394	950	300	
20. Number of climate change vulnerability assessments conducted through the assistance of the USG	4	0	0	3	1	
21. Number of laws, policies, agreements, protocols, or regulations on climate change passed, adopted or implemented through the assistance of the USG	11	NA	NA	3 (passed)	6 (3 adopted 3 implemented)	3 climate change adaptation plans in 2013
22. Number of persons with improved capacity to cope with climate variability and change through the assistance of the USG	4 790	700	977	2 090	800	

Indicators	Targets at the end of the project	Year 1 result	Year 2 result	Year 3 targets	Year 4 targets	Notes
Result 4: Sustainable fisheries management increases resilience to climate change and social and economic benefits for fishing communities						
23. Number of private food security companies (for profit), producer organizations, water users associations, women's groups, associations of men and women entrepreneurs, and CBOs supported by the USG	53	0	20	12	12	
24. Number of rural households benefiting directly from the assistance of the USG (FTF indicator 4.5.2-13)	10 272	0	Baseline	5 389 CLPA households in Mbour, Joal and Sindia	3 691	
25. Fishery stakeholders on the project sites have the perception that their well being has improved through the assistance of the USG	NA	NA	Baseline completed	NA	NA	Well being includes dimensions tied to quality of life, level of empowerment of fishers in the management of the resource, decision making, access to and control over the resource as well as changes perceived in the status of the resource. A study on the baseline for fisheries stakeholders will be conducted at mid-term and at the end of the project. The same study will be carried out again as necessary