

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

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By:
The University of Rhode Island (URI)
In Partnership With:

Coastal Resources Center, University of Rhode Island
United States Agency for International Development / Senegal
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Environnement et Développement en Afrique-Energie
Centre de Suivi Ecologique
Institut Universitaire de Pêche et d'Aquaculture/ Université Cheikh Anta Diop de Dakar
Centre de Recherches Océanographiques de Dakar-Thiaroye
Fédération Nationale des GIE de Pêche



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EXECUTIVE SUMMARY

The primary goal of the USAID/COMFISH project is to support the Senegalese Ministry of Fisheries and Maritime Affairs, through its technical departments and particularly the Department of Marine Fisheries (DPM), in implementing the Fisheries and Aquaculture Sector Policy Letter (LPS) that serves as the blueprint for national efforts to achieve sustainable management of fisheries resources. To do so, the project establishes collaborative management plans for priority fish stocks through a stock-based sustainable management approach, and uses CLPAs as entry points into the institutional system. The initiative is designed to streamline and synergize institutional, administrative, socio-economic and environmental aspects in Senegal's efforts to achieve sustainable management of its fisheries resources. A point of particular importance this year was the project's steadfast commitment to ensuring that all activities were geared towards improved climate change resilience for marine and coastal ecosystems and communities through the use of adapted and effective strategies.

On policy dialogue and reforms, the project supported several initiatives to:

- Mainstream climate change in Senegal's fisheries policies and thereby improve the response to climate change in the sector's collaborative management plans
- Help implement the National Management Plan for Small Pelagics by developing collaborative management plans for sardinella and bonga fisheries
- Enhance local governance of fisheries to achieve the LPS by creating new CLPAs and reinforcing the existing ones
- Contribute against IUU fishing by conducting and sharing studies the Ministry of Fisheries and Maritime Affairs can use to estimate IUU captures, and also by supporting CLPA collaborative management communities to eradicate this scourge locally
- Support the Technical Experts Committee on fishing capacity management to organize its meetings and train its members on IUU fishing
- Support those implementing the Accelerated Growth Strategy (SCA) to review the "Seafood and Aquaculture" cluster's action plan
- Initiate thinking to support the Ministry of Fisheries and Maritime Affairs in developing Senegal's maritime fisheries extension strategy
- Contribute to develop Senegal's MPA strategy (SNAMP) and ensure the Minister of Environment and Sustainable Development validates and approves the strategy

The project continued this year to develop institutional and stakeholder capacity:

- Providing support to CRODT, IUPA, CSE and IFAN to further extend their activities to the zones they still were not covering, and to improve the collection of fishing data
- Developing institutional capacity for extension through the exchange visit to URI to learn about the Sea Grant program and how to apply it in Senegal
- Developing the capacities of local governance institutions and stakeholders from several CLPAs by renovating and equipping their work premises; giving them cleaning materials and office automation equipment; training collaborative supervision units; and reinforcing CLPA capacity for administrative and financial management, internal funding, community organization and dynamics and resource management. The project also gave local governments in its coverage areas substantial support by using consultants to conduct a study that enlightened these officials on the fishing sector's key role in their area, and the need for them to take part in financing CLPAs.
- Strengthening women's skills on improved techniques for processing and storing fishery products via the commissioning of the Cayar fish processing facility, the provision of several technical training exercises, and the promotion of revolving credit.

The project's efforts to improve its scientific knowledge base continued also with the launch of three (3) new activities: the study on bonga fishing gear selectivity by IUPA, the mapping of fishing

sites and infrastructure by CSE, and the bio-ecological and socio-economic study on bonga stocks by CRODT. With the support of consultants, two (2) other draft study reports were prepared on the role of fishing in local government economies, and internal and external funding of CLPAs.

Efforts to develop the collaborative management plan for sardinella fisheries were pursued. The DPM did a technical pre-validation of the first three (3) local management plan documents for Cape Verde, the Petite Côte and the Grande Côte Sud respectively. At the same time, the three other zones, including Sine Saloum in Casamance and the zone of Saint Louis, began to develop collaborative management plans for sardinella and bonga fisheries.

On climate change, project interventions centered on the policy, local and scientific components. This consisted in integrating climate change in Senegal's fisheries policy, supporting local stakeholders to implement the national adaptation strategy through training on the planning and implementation of adaptation strategies, and improving the scientific knowledge base to serve as a repository for policy and decision making, and for the development of action plans.

In communication, the accomplishments in fiscal 2013/2014 were many. These include support for extension work on Local Conventions and/or collaborative management plans, capacity development for grassroots partners, and increased visibility for COMFISH activities among the project's partners and the wider public.

Of particular importance was the USAID field mission the project organized on some of its intervention sites from June 23 to 28, 2014.

In terms of performance, fiscal 2014 was a very productive year for the COMFISH project. The performance progress rates resulted partly from the extension of activities to the new zones of Saint-Louis, Ziguinchor and Kafountine, and also from the efforts made to replicate training among stakeholders at the grassroots level.

To foster capacity development, the project organized 169 training workshops on topics ranging from administrative and financial management to climate change. About 32% of these workshops targeted women. The workshops also benefitted 71 national institutions (research institutes, departments, agencies, consultation frameworks and NGOs) through the use of reporting back sessions and the strong involvement of stakeholders in workshops and consultative meetings. In this regard, communication served as a tool for building capacity through radio programs (5 MoUs signed with community radios), project factsheets and brochures.

The project's scientific knowledge base was reinforced also with findings from 12 studies. The project commissioned these studies to help support management plans for new sustainable management units. It also built many synergy-enhancing partnerships, especially with ANACIM, DPSP and other institutions.

To increase community resilience to climate change, the project continued to implement the Local Conventions of Yenne/Dialaw, Rufisque/Bargny and Cayar. At the same time, it continued to process the Local Conventions of the new zones (Kafountine, Ziguinchor) to ensure they reach the approval stage. Among these new zones, Saint Louis is the only site whose Local Convention has already been approved. With the inauguration of the Cayar processing facility, these Local Conventions made it possible for 12,858 stakeholders to establish new resource management rules. In this regard, the project attained a completion rate of 128% over an area with 603,714 ha of biologically significant land, including 66,496 ha of MPAs under improved management.

The project's climate change component achieved excellent results in the reporting period. It trained 1,841 persons, with 39% of them women. Additionally, there was training of trainers, allowing for replication which raised the completion rate to 278%. The synergistic partnerships with ANACIM and DPSP also played a key role in the project's success in exceeding its annual targets, particularly through the training exercises on weather data. No vulnerability assessment was planned for the

reporting period. But eight (8) hygiene charters were signed on the various processing sites to ensure the committees continue to function properly and maintain quality hygiene standards.

In fiscal 2015, training will continue alongside the implementation of Local Conventions, particularly in the new zones. The project will conduct three (3) vulnerability assessments via studies on climate change, and develop three (3) additional adaptation plans. The project intends also to seek approval for six (6) local collaborative management plans and to begin implementing three (3) of them. On communication matters, radio programs will continue across the project zones. These programs have proved to be effective tools for disseminating information and good practices on fishing.

1. INTRODUCTION

The Collaborative Management for a Sustainable Fisheries Future in Senegal Project (USAID/COMFISH) is a five-year initiative funded by the United States Agency for International Development (USAID) and implemented through a Collaborative Agreement between USAID and the University of Rhode Island (URI). The project's major implementing partners include government entities, the private sector, non-governmental organizations (NGOs) working on fisheries in coastal communities, academic institutions (IFAN, IUPA), research institutes (CRODT, IRD, CSE) and many other bodies (APTE, WWF, FENAGIE PECHE, etc.).

The goal of the USAID/COMFISH project is to support the Government of Senegal's efforts to achieve reform of its fisheries sector, as stated in the Fisheries and Aquaculture Policy Letter, by strengthening the enabling conditions necessary for enhancing governance and promoting the use of effective management tools and approaches. These tools simultaneously address all the aspects of sustainability, specifically the social, institutional and biological aspects. The 1998 Fishing Code makes overall provision for local governance organs, as evidenced by the creation of Local Artisanal Fishing Committees (CLPAs). However, research on the biological sustainability of some stocks is still not being used adequately in collaborative management plans. This means the existing mechanisms responsible for collaborative management at the local level do not actually internalize the sustainability criteria in the Sector Policy Letter. The direct consequence is that most fisheries in Senegal are not managed in a sustainable manner.

The USAID/COMFISH project supports Senegal's efforts to achieve fisheries sector reform. It also promotes the objectives of biodiversity conservation, taking into account the crosscutting themes of enhanced governance, gender mainstreaming and adaptation to the impacts of climate change.

The USAID/COMFISH project's long term objective, over a 20-to-30 year timeframe, is to end overfishing in Senegal and provide the nation with a sustainable source of high quality protein that contributes to the quality of life in artisanal fishing communities, and maintains the capacity of coastal and marine ecosystems to produce goods and services that are useful to, and desired by the people in Senegal.

The USAID/COMFISH project contributes to achieve the following four major results:

IR 1: Institutional and stakeholder capacity strengthened at all levels of governance to implement an ecosystem-based, collaborative management approach to sustainable fisheries to prevent overfishing, and to increase climate change resilience;

IR 2: Strategies, policies and best practices identified, tested and applied to strengthen resilience to climate change and address destructive and unsustainable marine resource uses that threaten biodiversity conservation in the West African ecoregion;

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

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

This report presents the activities the USAID/COMFISH project conducted in FY14.

It contains five parts: an introduction; section one that presents the year's major accomplishments; section three on crosscutting activities (communication, environmental compliance monitoring, performance monitoring and evaluation); and the last section on project management and annexes.

2. ACCOMPLISHMENTS IN YEAR FOUR

2.1. Policy dialogue/reforms

At the policy level, the project carried out a good number of activities to:

- Obtain validation of the final report on the *“Diagnostic study of existing consultation frameworks on climate change, fishing and the marine and coastal environment”* by the Vulnerability and Adaptation Group, which works under the National Committee on Climate Change (COMNAC). The validation took place during a meeting the group organized at DEEC on June 27th 2014. The project later coordinated comprehensive information sharing and awareness building in the regions of Senegal to disseminate the study results and the action plan for integrating climate change in Senegal’s fisheries policies. The reporting back sessions organized to that effect have already taken place in the three regions of Dakar, Louga and Fatick where they brought together 224 persons from all the local technical units of the fisheries and environment departments, the administrative and local authorities, as well as the local stakeholders.



Photo 1: National reporting back session



Photo 2: Regional reporting session

- Continue supporting the **national management plan for sardinella** fisheries by finalizing the collaborative management plans for the zones of Cape Verde, Petite Côte and Grande Côte Sud. The last Technical Working Group (ETT) meeting, attended by resource persons, pre-validated these plans before they were submitted to the National Commission for the Management of Small Pelagics.
- Contribute in **enhancing local governance** of fisheries (to support the DPM’s efforts for compliance with the LPS) by establishing the Kafountine CLPA through a participatory and inclusive process with all the stakeholders on site (local authorities, the Ziguinchor fisheries service, fisheries practitioners). These stakeholders subsequently sent their representatives for a three-day training exercise on the role of CLPA council members, after which an official ceremony to install the council members was held in Kafountine under the Katabal District Officer, who also presides over the CLPA.



Photo 3: Village meeting in Diannah



Photo 4: Kafountine CLPA installation ceremony

- Conduct studies and develop a methodology for the Fisheries Ministry to use in estimating IUU captures in the **fight against IUU fishing**. To fight more vigorously against this problem **at the local level, the project provided strong support to CLPA collaborative supervision committees**.
- Support the **technical experts committee on fishing capacity management** to organize their technical and capacity development meetings, and thereby contribute to enhance fishing capacity management. The project conducted these activities within the action plan of the “Seafood and Aquaculture” cluster in the Accelerated Growth Strategy. The last meeting to assess and develop the action plan of the said cluster took place on August 12 and 13, 2014 in Dakar with the support of USAID/COMFISH.
- Contribute to initiate thinking on Senegal’s **national extension strategy** for maritime artisanal fisheries in order to boost the efforts being made in this regard by the Ministry of Fisheries and Maritime Affairs. The project also played an enabling role in the validation and approval of a **national MPA strategy** (SNAMP) by the Ministry of Environment and Sustainable Development.

2.2. Human and institutional capacity development

The Fisheries Department, academic institutions and research institutes

DPM: The project contributed to organize two meetings of the technical experts team. These meetings were convened by the Department of Maritime Fisheries (DPM) to validate the periodic progress reports produced by the USAID/COMFISH project. The project produces these reports to support the development of management plans for sardinella and bonga.

Sea Grant: The project supported a team of six (6) persons to attend training on the Sea Grant program in the United States of America. The goal was to empower them to apply the techniques in Senegal’s fisheries. The group had representatives of strategic partners like the Department of Fisheries, CRODT, IUPA, FENAGIE Pêche and APTE. To follow up on the training, the team prepared an action plan to develop a national extension strategy for fisheries in Senegal.

CRODT: The project signed a Memorandum of Understanding with CRODT for scientific support to develop collaborative management plans for sardinella and bonga fisheries. The arrangement also includes the reinforcement of CRODT’s system for collecting fisheries data in Casamance and Sine Saloum, which were not covered previously.

IUPA and IFAN: Project support reinforced the deployment of the system IUPA is using to study fishing gear selectivity for small pelagics in Sine Saloum and Casamance. Additionally, the project assisted two PhD students, in IUPA and IFAN respectively, to prepare their theses. The ELEFAN

software package was finalized by the University of British Columbia and sent to IUPA for dissemination.

ALLIANCE pour une PECHE DURABLE: As in previous years, Alliance this year received financial support from the USAID/COMFISH project to implement its plan of action for 2014. Accordingly, Alliance convened two coffee talks on (i) illegal, unreported and unregulated fishing (IUU fishing) in Senegal, and on (ii) inland fisheries, aquaculture and food security in Senegal. By organizing discussions around the most salient issues in sustainable fisheries resources management and generating innovative ideas and efforts to make them a reality, Alliance contributes to disseminate results of the USAID/COMFISH project and other partners such as WWF and DPM.



Photo 5 & 6: Alliance Conference on IUU Fishing and Inland Fishing/Aquaculture

Local governance institutions and stakeholders

To develop the capacities of local governance organs, the project this year took steps to:

- **Renovate CLPA office premises:** together with the permanent secretaries of CLPAs, the project provided funds to renovate the work premises of the CLPAs in Rufisque/Bargny and Mbour, so that they are properly functional.
- **Equip CLPAs:** the project provided the new CLPA in Sindia Sud with office automation equipment (computers, printers), office furniture (table) and about fifty chairs to enable the members to organize their meetings conveniently and to improve the operationalization of the ICC.
- **Donate cleaning equipment:** This donation was in response to a long-standing request from women in CLPAs who were always complaining about the lack of means for hygiene and sanitation on their processing site. They reiterated this request during the needs assessment exercise to develop Local Conventions and the hygiene charter for their processing sites. The project's donation included shovels, wheelbarrows, rakes, dustbins, masks, etc.
- **Develop capacity for collaborative supervision** by training the CLPAs in Cayar, Yene/Dialaw and Rufisque/Bargny on collaborative supervision and safety at sea. DPM and DPSP officers conducted these training activities to revitalize CLPA activities for implementing and monitoring Local Conventions with the fisheries department. The five-day training included three (3) days of theory and two (2) days of practical work. It brought together 23 participants and covered the definition, typology and stakeholders of collaborative supervision; types of unlawful fishing practices; inspection techniques and supervision tools; procedures for reporting offenses; safety at sea and the roles and responsibilities of surveillance workers.

After the training, a manual was designed for collaborative supervision committee members in the CLPAs involved. The workshop recommendations were: continue thinking on the status of supervision agents, give CLPAs canoes equipped for monitoring and supervision, support collaborative supervision activities (inland and at sea), and provide badges and uniforms to the agents.



Photo7 & 8: Training on safety at sea

- **Train the Yene/Dialaw, Rufisque/Bargny, Sindia Nord and Sud CLPAs on administrative and financial management:** the project began training on administrative and financial management to equip CLPA organs with a simple system for improving their work and addressing their lack of material and financial resources. This training by experts from the project focused on the missions of the CLPA, the roles, responsibilities and ways of working of its Committees, the tools for administrative management, the basic principles of financial management, the budget (the project development process, budgeting, etc).

After the training, the coordination committees of four CLPAs promised to invest in internal resources to address financial resource scarcity in CLPAs. They proposed steps for further action. All CLPA permanent secretaries and extension workers were at the training. This made about forty (40) participants from four (4) different CLPAs.

A manual on administrative and financial management in CLPA coordination committees was produced. It will be shared with the other CLPAs after the validation phase at DPM.



Photo 9 & 10: CLPA coordination committee members at the training event

- **Provide training on community organization and dynamics (COD):** This training was designed to address a request from women processors in Joal Fadiouth who wanted the skills to manage their newly established micro-credit fund. The first training session for the twenty EIG members gave them a better understanding of their respective roles and responsibilities. The training also enabled them to start using financial management tools. The trainers prepared a plan of action that EIG members would use to apply what they had learned.



Photos 11 & 12: Group picture of the trainees (left) and the handing over of the training action plan to the GIE President (right)

- **Train stakeholders on CLPA administrative and resource management:** To help develop collaborative management plans for small pelagics, the project organized three workshops on its new activity sites for the CLPAs in Ziguinchor, Saint Louis and the Petite Côte in Mbour. These workshops trained CLPA leaders on the management of shared resources (sardinella, bongu) and on CLPA ways of working, communication, and the roles and duties involved in the process.
- **Develop capacity for local stakeholders to operationalize CLPA consultation frameworks:** To implement all the collaborative management plans for sardinella fisheries, the project deemed it useful to establish a framework for consultation between stakeholders who fish in the same areas, considering no CLPA could manage the stocks alone. This created the need to harmonize the management measures, which the project addressed by extending the consultations to include all the CLPAs in Joal, Mbour, Sindia Nord, Sindia Sud, Yene-Dialaw, Rufisque-Bargny, Kayar, Dakar Ouest, Pikine and Hann. To ensure all components were covered at this important stage in the organization process, the project held three workshops respectively in Dakar, Rufisque and Mbour for CLPA consultation framework members to understand their roles and responsibilities in implementing these management plans.



Photos 13 & 14: Training workshops on the consultation framework

- **Train women in the fisheries sector:** The project took several initiatives at the policy-making level to develop capacity for women in the fisheries sector. This included support to organize the women, to empower them and to organize them in a network at the local and national levels (REFEPAS). The project also joined fishermen from Cayar for an audience with the President of

Senegal in January 2014, and contributed to prepare a grant submission to the World Bank aimed at developing capacity for women in Senegal's fisheries sector.

2.3. Natural resources/management plans/marine biodiversity and ecosystem conservation

This section of the report covers three (3) points: the efforts made to enhance the project's scientific knowledge base and use it to develop and implement management plans and local conventions; the development of management plans; and the conservation activities performed through support to Marine Protected Areas.

Enhancing the scientific knowledge base

The project continued to strengthen its scientific knowledge base by launching three (3) new activities, namely: the bonga fishing gear selectivity study by IUPA, the fishing sites and infrastructure mapping exercise by CSE, and the bio-economic and socio-economic study on bonga stocks by CRODT. With the support of consultants, the project produced two (2) other draft reports on the fisheries sector's contribution to local government economies and on internal and external funding of CLPAs. Efforts to begin the study on the value chain for sardinella in Senegal also kicked off.

- Bonga fishing gear selectivity

A study on the selectivity of bonga fishing gear is being completed by the Institut Universitaire de Pêche et d'Aquaculture (IUPA). Its findings will enrich the scientific knowledge base for the bonga fisheries management plan.

To ensure a proper test phase in the fishing gear selectivity exercise, a bonga fisheries profiling exercise was conducted to characterize the bonga fisheries on the Saloum Islands. This necessitated field visits and surveys in villages within the seven (7) CLPAs involved (Niodor, Joal, Djirnda, Bassoul, Missirah, Toubacouta and Fimela).

Reporting back sessions were organized in August at these CLPAs to validate the preliminary findings of the study. These meetings brought together about thirty participants, making it possible to share the preliminary results of the study with the stakeholders, to gather the views of the fishermen, and to discuss the protocol for collaborative research on fishing gear selectivity. The meetings also discussed the characteristics of fishing nets to use, particularly the net type, length, width, meshing, assembly, etc.; the zones to choose; the experimental fishing periods; the conditions for involving local fishermen more effectively; and the cost of the fishing gear to be used.

To do the selectivity tests, the participants chose encircling gillnets with four (4) types of meshing: 28 or 30 mm, 32 mm, 36 mm and 40 mm which the fishermen in Sine Saloum generally use. Each net had four layers (30, 32, 36, 40 mm) between 400m and 600m long.

The experimental fishing zones were chosen in nine (9) stations across the four major fishing zones. Experimental fishing was done in zones 1 and 4 according to the following schedule: September 24 and 25: Zone 1 (Missirah CLPA); September 26 and 27: Zone 4 (Djirnda CLPA).

The preliminary findings were that:

The sizes of individuals in zone 1 (Bacao and Banc rouge, facing the sea) vary between 11 cm and 38 cm. In this lot, individuals over 25 cm are well represented. Over 80% of the individuals captured by 40 mesh are over 25 cm in size, while the individuals captured by 36 mesh vary between 22 and 37 cm. The sizes of individuals captured by 28 mm mesh usually vary between 20 cm and 27 cm. Meanwhile, those of the individuals captured in zone 4 (Saloum) vary between 18 cm and 29 cm, hardly reaching 30 cm. The biggest captures were observed by 30 mm and 32 mm mesh.

- Fishing sites and infrastructure mapping

This activity consists in mapping fishing sites and infrastructure, as well as land occupation for the CLPAs in Ziguinchor, Kafountine, Saint Louis and Boudié-Balantacounda.

The Ecological Monitoring Center, a project partner, provides technical support for developing mapping products. The advantage of using mapping materials has been demonstrated in previous phases of the project. The maps drawn as a result of this work serve as material for developing fisheries management plans. The Landsat 8 images (with a 15 m resolution) taken in 2013 have been used to reference the land occupation maps. The fishing areas and infrastructure maps are produced from GPS geo-location activity and collaborative mapping sessions with local stakeholders.



Photo 15 & 16: Collaborative mapping workshop at the Kafountine and Ziguinchor CLPAs

Using these methods, the project characterized and added sixty fishing areas to its geo spatial database, and also produced land occupation maps for CLPAs.

Maps locating fishing areas and infrastructure

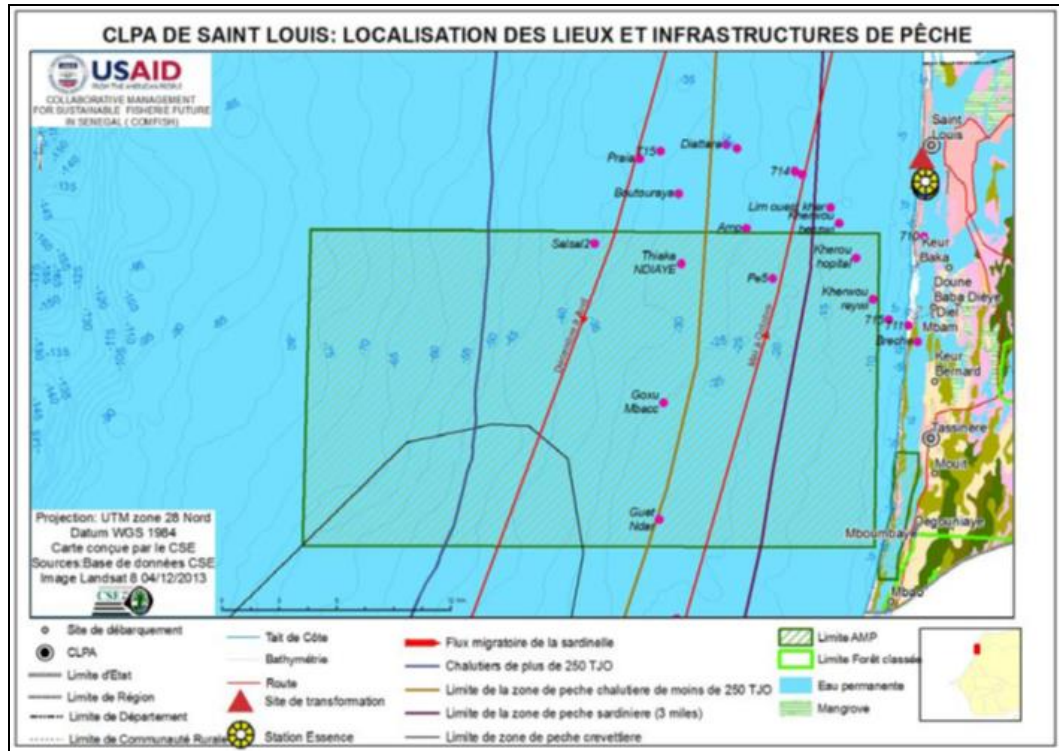


Figure 1: The fishing areas of the Saint Louis CLPA

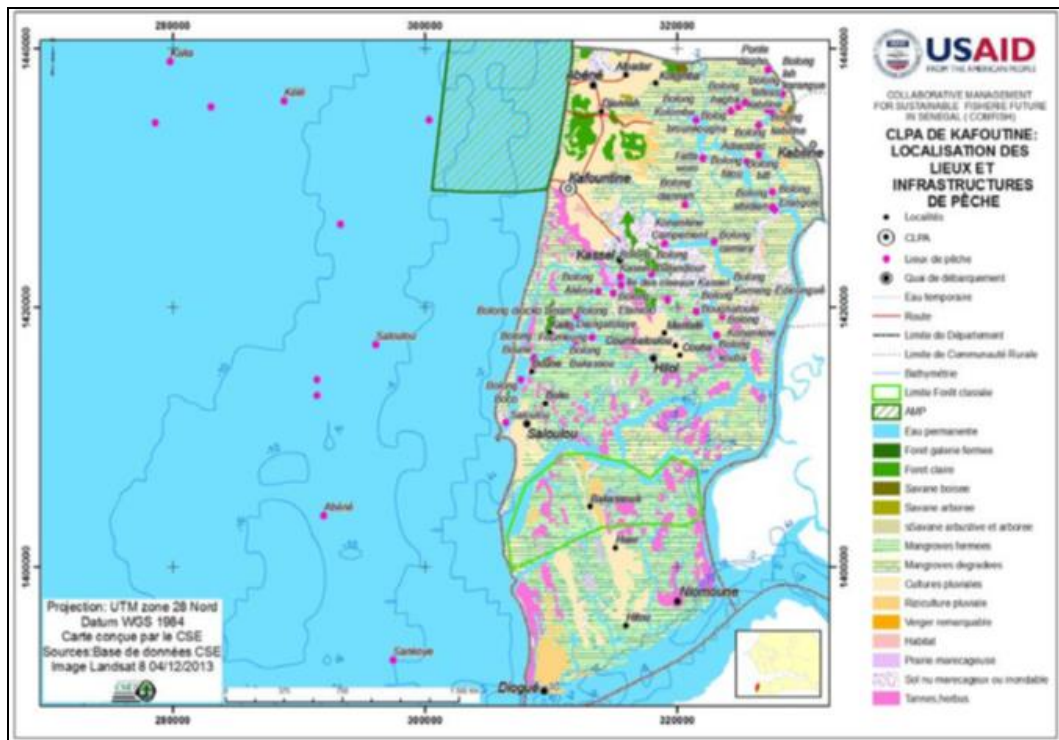


Figure 2: The fishing areas of the Kafountine CLPA

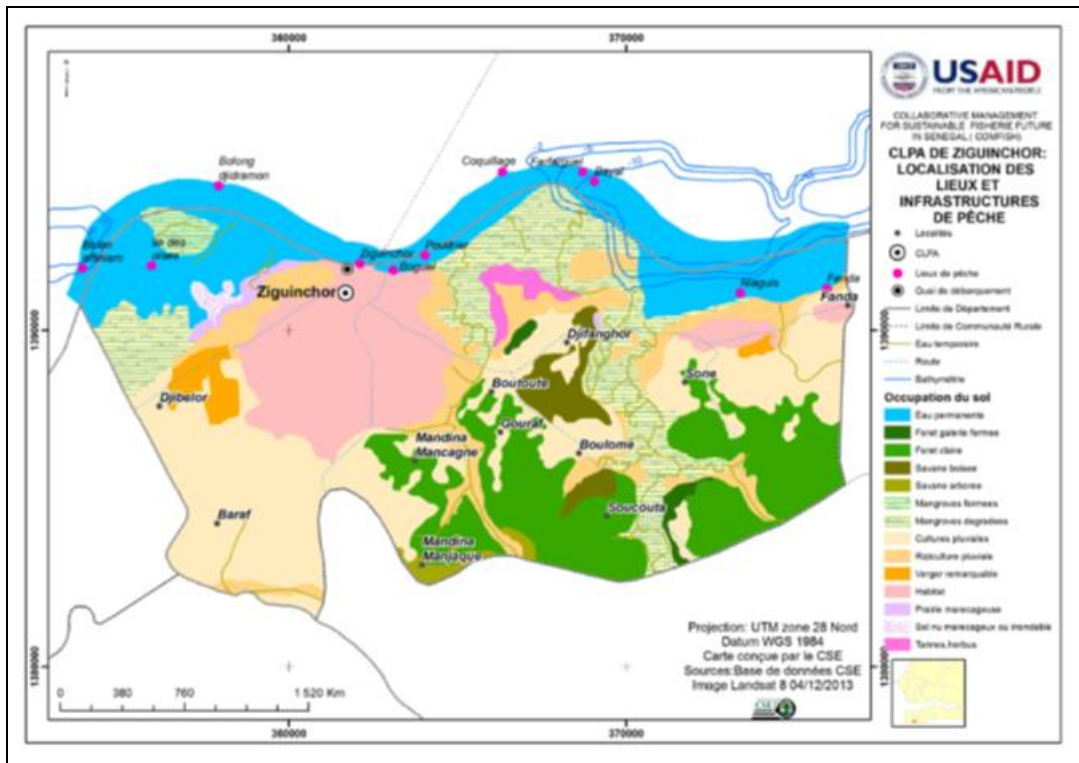


Figure 3: The fishing areas of the Ziguinchor CLPA

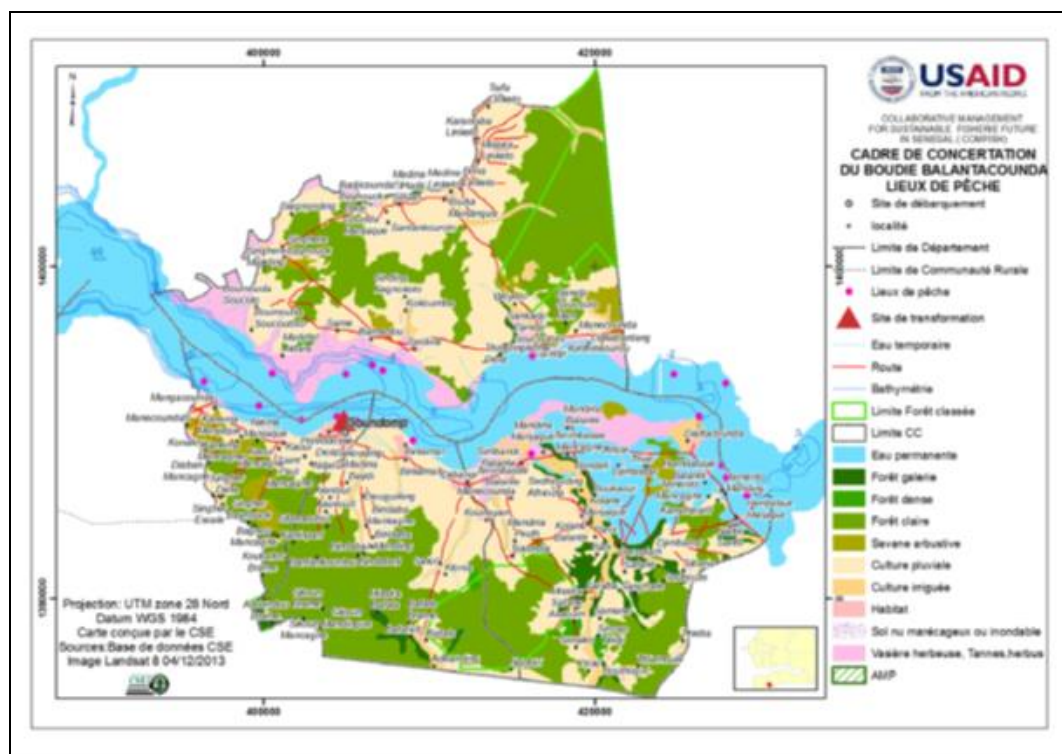


Figure 4: The fishing areas in the Boudié Balanta Counda zone

Sardinella and bonga species

Under the scientific support it provides for the development of management plans, CRODT initiated two studies this year, aimed at:

- Supporting the establishment of management plans for small pelagics

The CRODT team conducted two missions in July to Thies, Fatick and Saint Louis, and to Kafountine in the heart of the Casamance region. The objectives of these missions were two-fold and consisted in (i) validating and testing survey questionnaires, and (ii) setting up a system to collect biological data (population structure and recruitment of round sardines, flat sardines and bonga - *Ethmalosa fimbriata*) as well as socio-economic data (relevance and effectiveness of regulatory measures and initiatives in local fisheries) in the eight (8) major landing ports (Saint Louis, Joal, Mbour, Kayar, Foundiougne and Kafountine).

On the biological aspect, the focus was on gathering data on size frequency distribution by type of fishing gear, based on commercial captures from artisanal fisheries targeting small pelagics. The method used was to select boat landings at random and sort each one by species. Then, each individual from the three (3) targeted species (round sardines, flat sardines and bonga) or in a sample of not more than 70 specimens was weighed carefully to obtain the exact weight in grams, and also measured to determine the total length in centimeters.

On the socio-economic aspect, the CRODT team facilitated focus groups at the landing sites, using an interview guide to capture information on how various measures impact groups of stakeholders.

- Studying the bio-ecological and socio-economic characteristics of bonga stocks

The summary report on the bio-ecological and socio-economic study of bonga stocks, which CRODT finalized recently, has been submitted for validation. The report sums up the scientific information drawn from a literature review on bonga stocks at the national and regional level. The report mainly highlights the geographic distribution, biology, ecology, capture status and population dynamics of bonga, as well as the socio-economic aspects tied to the fisheries.

- Value chain for sardinella in Senegal

In September, the project did a literature review to develop data collection tools. With the findings from the literature review, the program was able to:

- Define a position on the different approaches to the value chain for fishery products
- Select the theoretical frameworks for analyzing the key networks that influence the pricing and destination of products. To do this, the study team defined a network as a regular set of contacts or ongoing social relations among people. It attempted also to analyze the motivations, nature, procedures and protagonists in wholesale and artisanal contracts for processing sardinella
- Review the socio-economic variables for identifying the stakeholders involved in transactions, the types of products for sale, the marketing channels, the choice of partners, the partner loyalty systems, the formation of prices and variations in pricing, and the financing system, among other things)
- Identify standards and quality variables for describing site locations, designing plans for premises, principles of hygiene, equipment, materials and tools for production, conservation, and storage to identify losses caused by low yields and poor quality compliance that result in the loss of product competitiveness and market value.

The interview guide being designed from these major variables will serve also as a preliminary survey for refining the questionnaire.

The project will work closely together with lecturers at Université Gaston Berger (UGB) who are ready to involve their students in practical case studies through USAID/ERA.

Extension in Senegal's fisheries sector

The objective of this study is to conduct an in-depth review of extension activities in Senegal's fisheries sector, so that the project can contribute to roll out a human and institutional capacity development plan for fisheries extension work. The idea was to identify and analyze the administrative and legislative framework for fisheries in Senegal, identify and review the activities conducted by CPEP and other entities for fisheries extension, assess the capacities, weaknesses and relevance of programs by State entities responsible for fisheries extension, identify the constraints on extension services, and propose solutions and an action plan for establishing a system for extension in artisanal fisheries. The study was validated after the project shared it with the respective bodies involved.

Internal and external resource mobilization for CLPAs to buttress the fisheries sector's contribution to the local economy

The study on ways to mobilize resources inside and outside local artisanal fishing councils (CLPAs) is one of the many efforts the project is making to develop capacity for these local institutions, so that they can play their roles in the development and management of local fisheries. Local artisanal fishing councils were created under Law 98/32 on the Maritime Fishing Code, but have always lacked dynamism. The challenges responsible for this are organizational, technical, and financial.

To find sustainable ways of financing CLPAs, the project began this study to give CLPA members stronger skills for mobilizing resources inside and outside CLPAs, using methods that encourage local stakeholders to finance CLPA operations.

After reviewing the CLPAs in Mbour, Cayar, Yene/Dialaw, Rufisque, Sindia Sud and Nord and Joal Fadiouth, the project identified several mechanisms for mobilizing resources inside and outside the CLPAs to enable them to at least run their operations. These mechanisms include: making and selling membership cards; collecting monthly contributions from members; collecting contributions from inter-professional EIGs; collecting payments from impounded boats; reducing the amounts CLPAs pay for offences committed by their members; helping CLPAs to organize one-day public events on fisheries and to create central purchase points for fishery products; soliciting contributions from gas stations, refrigeration facilities, banks and other stakeholders around the fisheries sector; and organizing income generating activities (boat races, mbapatt, lion dance, chair rental outlets, t-shirt sales, etc.)



Photo 17: Meeting of wholesalers from Joal



Photo 18: Meeting of stakeholders in Yene/Dialaw

The encounters organized with stakeholders during the study identified many suggestions: renewing the management organs properly and regularly; generalizing the creation of an executive unit in ICCs; developing and using administrative and financial management tools; preparing and implementing a communication strategy, particularly through regular information updates for the members; encouraging the ICC to involve all stakeholders; including stakeholders in activity planning; monitoring budget planning and execution; training the members; and, lobbying and advocating for stakeholders' rights and interests.

Establishing management plans

- ***Collaborative management plan for sardinella fisheries***

To implement the National Management Plan for Small Pelagics, the Technical Working Group came together on several occasions to refine the draft collaborative management plan it had received. The challenge now is for the USAID/COMFISH project to finalize and implement six (6) local collaborative management plans, as follows:

- **Zone 1/Cape Verde** with CLPAs in Pikine, Hann, Rufisque/Bargny and Yene/Dialaw;
- **Zone 2/Petite Côte** with CLPAs in Joal, Mbour, Sindia Nord, Sindia Sud and Palmarin;
- **Zone 3/Grande Côte Sud** with CLPAs in Dakar Ouest, Cayar and Fasse Boye;
- **Zone 4/Grande Côte Nord** with CLPAs in Saint Louis, Potou and Lompoul;
- **Zone 5/Sine Saloum** with CLPAs in Foundiougne, Djirnda, Bassoul, Niodior and Missirah, particularly targeting bonga fisheries;
- **Zone 6/Casamance**, with CLPAs in Ziguinchor and Kafountine that play a very active role in bonga and sardinella fisheries.

The map below shows the zones targeted by these local management plans.

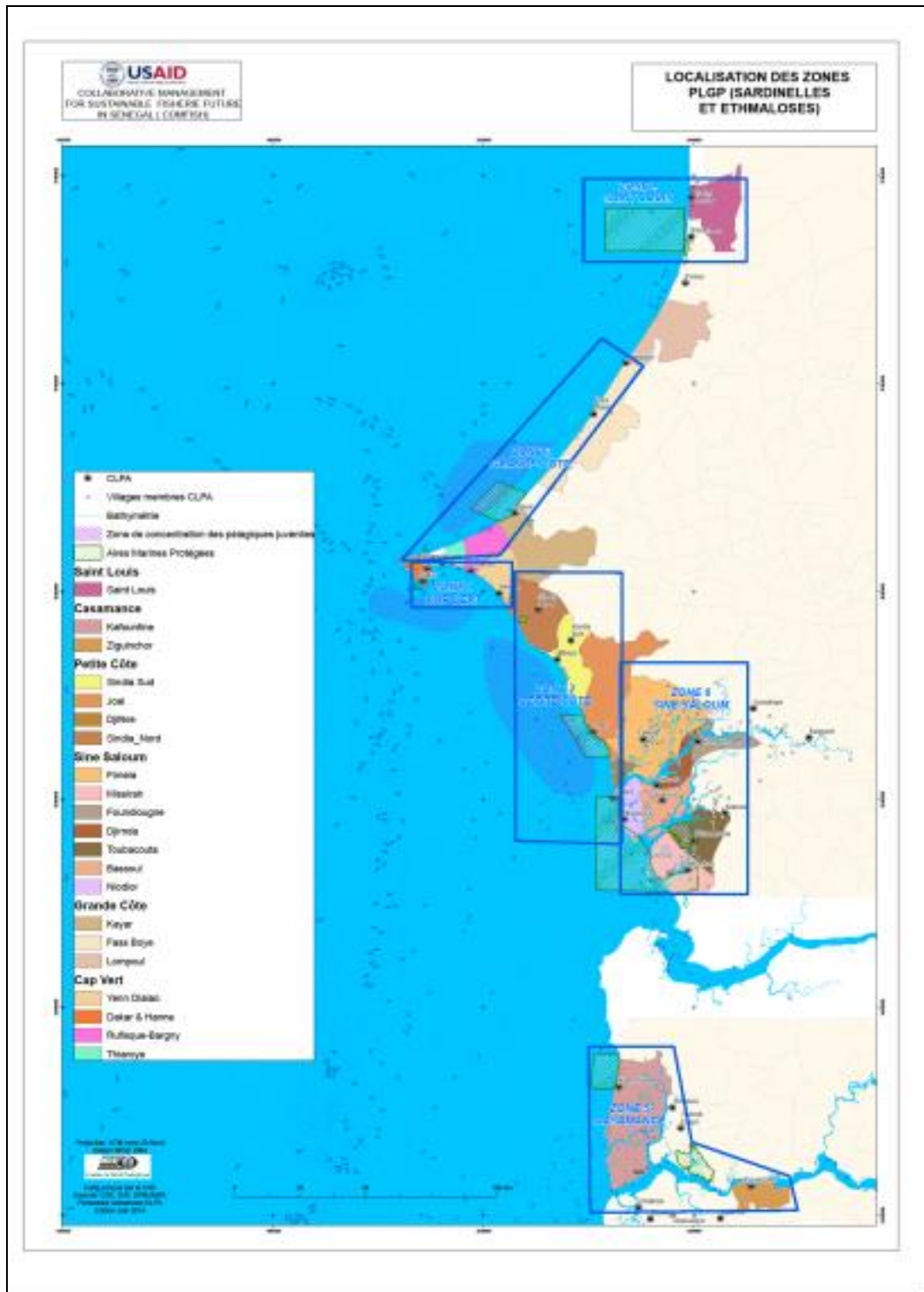


Figure 5: Map locating CLPAs targeted by USAID/COMFISH activities for the pelagic management plan

The last Technical Working Group meeting discussed the first three (3) local plans developed by the project (Cape Verde, Petite Côte and Grande Côte Sud) and made plans to review them in a technical pre-validation exercise. The National Committee for Management of Small Pelagics will organize a meeting (at the request of DPM) to validate these plans.

Maps of marine habitats and fish nurseries, fishing sites, and fishing infrastructure were produced for the north, Big Coast, and Small Coast zones to help with the management plans.

Consultative meetings were also held in Grande Côte Nord and in Casamance to develop new collaborative management plans for sardinella fisheries.

- ***Collaborative management plan for bonga fisheries***

To develop the collaborative management plan for bonga fisheries, the project began by informing, sensitizing and discussing with the key stakeholders in the zones covered by the CLPAs in Sine Saloum and Casamance. This improved participation from all stakeholders in the sector and paved the way for consultative meetings in May and in August together with the technical services in these localities. The project's support made it possible also to share information and/or data on bonga fisheries, identify the major problems, propose solutions and agree on the next steps for developing and implementing the plan.



Photo 19 & 20: Processors (women from the Guinean community) in Niodior and Missirah

Supporting Marine Protected Areas

The objective of this intervention is to achieve a significant improvement in MPA management by taking steps to: (a) validate the national strategy on MPAs, (b) develop capacity and skills for staff at DAMCP, DPM, DPN as well as for community-based partners involved in the management of marine protected areas (MPA), and (c) take the corrective measures/actions identified and those relating to the biological, socio-economic and governance indicators for MPAs.

Validating the national strategy for MPAs in Senegal: Wide dissemination, ownership and consensus on the national strategy for MPAs was observed in the Department of Community-based Marine Protected Areas (DAMCP) and among partners in grassroots communities. The DAMCP organized several workshops on the strategy with the support of the USAID/COMFISH project. The strategy is going to serve as a document of reference for the government's policy guidelines on the creation and management of MPAs. At the last workshop that took place in February 2014, the national MPA strategy (SNAMP) was validated by experts and approved by the end of February 2014 by the Ministry of Environment and Sustainable Development. This last step paves the way for full political backing to the strategy's implementation phase nationwide.

Implementing corrective measures in the Joal –Fadiouth MPA: In 2012, a study on the gaps and weaknesses of MPA management was conducted under the auspices of the USAID/COMFISH project. This study, which focused on three MPAs (Joal Fadiouth, Bamboung and Cayar), brought out the

major gaps that kept the MPAs from functioning properly and issued recommendations on the corrective measures to be implemented in each of these sites. A plan of action for rolling out these corrective measures has been developed.



Photos 21 & 22: Members of the Joal-Fadiouth MPA recover tags for maintenanc and commission another tag after repairs in December 2013

The project has done a collaborative assessment of these actions, implemented in its current work plan, and is satisfied with the overall performance of the Joal MPA management committee, considering the good results they achieved in activity delivery and in technical and financial reporting.

Developing capacity for DAMCP, DPM, DPN staff and other community stakeholders: The project organized a training workshop in Foundiougne for staff from the technical services engaged in this phase of activities, as well as for the local stakeholders. The Foundiougne workshop was the second in line, after the first workshop that was held last year to consider certification modalities for the qualifications earned by MPA managers. This second workshop contributed to develop an action plan for capacity development. The participants proposed several themes that could be taken into account moving forward.



Photos 23 & 24: Partial view of the workshop room

2.4. Crosscutting themes

2.4.1. Adaptation to climate change

The initiatives taken this year to improve the integration of climate change in Senegal's fisheries sector were mainly in three (3) areas: policy, local and scientific.

Mainstreaming climate change issues in Senegal’s fisheries policies: This activity began in year two with a first contact meeting between the project and all the other agencies involved (the public administration, research institutes, and development partners). The next step was a consultative meeting between various entities: Department for Marine Fisheries (DPM), Department for Environmental Affairs and Classified Establishments (DEEC), National Committee on Adaptation to Climate Change (COMNACC), Ecological Monitoring Center (CSE), Dakar-Thiaroye Oceanographic Research Center (CRODT) and National Agency for Civil Aviation and Meteorology (ANACIM). After this meeting, a steering committee was set up to identify the enabling conditions for dialogue. Following a diagnostic study on fisheries consultation frameworks, the committee proposed that the stakeholders should initiate dialogue with a multi-stakeholder framework like COMNACC. The diagram below presents the mechanism for integrating fisheries consultations in COMNACC.

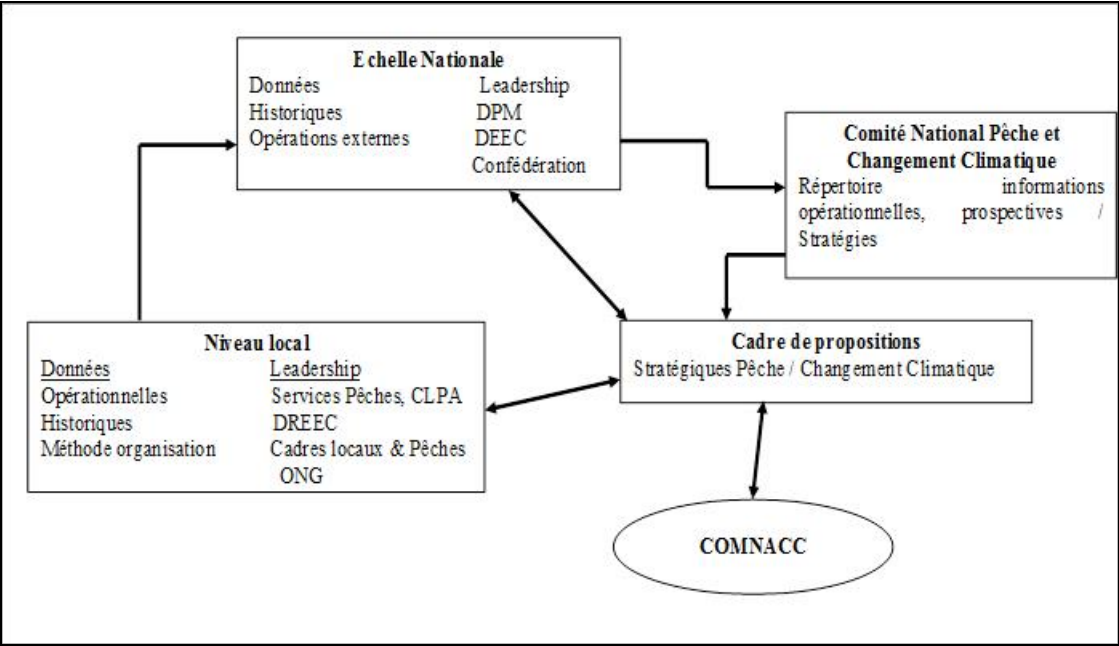


Figure 6: Fisheries/Climate Change consultation frameworks and the linkages between them

This mechanism has the advantage of building on bodies that existed already, at local and national level, with an emphasis on their functionality and a redefinition of the roles and missions between these two levels.

A national reporting back session shared the results and recommendations of this study, co-chaired by DPM, DEEC and COMNACC. At the national workshop held on February 14, 2014, there were sixty (60) participants from 45 institutions. COMNACC’s Adaptation and Vulnerability Group granted technical approval for this report.

The next step was an extensive information and awareness-building initiative across the regions to share the study results and the action plan for integrating climate change effectively into Senegal’s fishery policies. In the three regions of Dakar, Louga and Fatick where these reporting back sessions have taken place, they brought together about 224 persons from all the local technical services for fisheries and environment, the administrative and local authorities as well as the local stakeholders. Year 4 (FY 2015) will focus mainly on pursuing these reporting back and awareness building sessions in the other regions of Senegal.

Supporting local implementation of the national strategy for adaption to climate change: This section presents the activities carried out to develop stakeholder and institutional capacity on climate change and to implement sustainable adaptation measures.

Building capacity for stakeholders to better address climate change: Apart from the reporting back sessions conducted at the strategic level with COMNACC, and the training exercises on adaptation to climate change, the project organized a series of training initiatives on climate change. These training sessions, designed for different types of stakeholders, began in the second year of project activities and continued this year. In fiscal 2014, we trained project facilitators on climate change to permit replication in grassroots communities and facilitate the development of collaborative strategies in the coastal areas. Thereafter, a teaching/learning guide for training on climate change and fisheries was prepared for stakeholders on the ground. The project also continued to replicate training on climate change for the CLPAs in Saint-Louis, Cayar, Rufisque/Bargny, Yenne/Dialaw, Sindia Nord, Sindia Sud, Joal/Fadiouth, Sine-Saloum, Ziguinchor and Kafountine. In all, the replication activities reached 919 people.

ICC training for the CLPAs involved in sardinella and bonga management plans also continued this year mainly in the Saloum area (Missirah, Toubacouta, Djirnda, Bassoul, Niodior and Pikine) and reached 214 stakeholders. This has increased attention to climate change issues in the consultations for sardinella and bonga stock management. These stakeholders are now able to establish the link between climatic variations and some of the environmental changes observed in local communities (coastal erosion, flooding, rising sea levels, frequent sea storms, disruptions in the seasonal migration of fish stocks, and changes in fish distribution areas).

Assessing coastal community vulnerability to plan and implement adaptation strategies: At the beginning of fiscal 2014, three adaptation plans that had already been approved by the CLPAs were granted validation. This made it possible to start implementing some adaptation strategies in four (4) CLPAs: Rufisque/Bargny, Sindia Nord, Sindia Sud and Joal/Fadiouth. It is important to note that these strategies are geared towards implementing the National Strategy for Adaptation to Climate Change in the fisheries sector and in coastal areas (PANA). The adaptation plans will improve the response to climatic variations in local communities. Some activities are planned in this regard and mainly include steps to find themes for:

Developing capacity for fisheries practitioners through radio programs on CC: This activity began with a collaborative assessment exercise to identify areas of empirical knowledge that can contribute to improve environmental resource management and safety at sea for stakeholders in the fisheries sector. Based on these areas, 47 radio programs were broadcast this year to develop the capacity of fisheries practitioners and disseminate endogenous knowledge and good practices that enhance community adaptation. These radio programs covered topics such as: the causes of climate change and its impacts on fisheries; fishing and climatic variations: what strategies for enhancing community adaptation; climate change and endogenous knowledge: how elderly persons can share their experience with the youth for adaptation to climate change; bad fishing practices; maritime safety and attendant tools; how to organize crews; the roles and responsibilities of crew members; hygiene on processing sites; the importance of establishing hygiene committees on the new sites.

Four (4) community radios (Côtière in Joal/Fadiouth, Jokko FM in Rufisque, Kondaf FM in Ndayane and Cayar FM) were involved in this process. All the stakeholders gave positive feedback on these radio programs as genuine tools for raising awareness, providing information and encouraging discussions at the community level.

Developing capacity for women processors in 8 local communities: Women play a vital role in the artisanal fisheries sector and are most often vulnerable to climatic variations. This is why the USAID/COMFISH project and APTE worked in partnership to develop the capacities of women fish processors to enable them to cope with climate change. The capacity development initiative consisted in building awareness, establishing collaborative hygiene committees on each site, and helping to develop and validate codes of good conduct for hygiene. Through these efforts, eight (8) hygiene charters were developed and equipment provided for maintaining hygiene. The sites selected for these activities covered the CLPAs in Joal-Fadiouth, Rufisque/Bargny, Sindia Nord and Sud. The initiative

is one in many efforts to implement collaborative adaptation plans using clean technologies and methods to process fishery products.

The eight (8) processing sites that received capacity development activities have all reported successful outcomes. The women are more aware they need to maintain hygiene on the processing sites. They place value on delivering finished products. And they have stronger organizational capacity to improve their working conditions and thus address the adverse effects of climate change.



Photo 25 & 26: Working session with hygiene committees in Guero and Khelkom

Promoting access to and dissemination of weather information for the safety of goods and seafarers: With climate change and the frequent cases of extreme weather conditions even at sea, fishing communities are increasingly at risk. It is in this respect that the project tested an SMS-based alert system together with ANACIM, which directs and coordinates Senegal's sector-based weather forecast policy. Following this test phase, appreciated highly among the stakeholders, the project and ANACIM agreed to: (1) train fisheries practitioners to use weather information; and (2) establish an SMS-based alert platform across Senegal's coastal communities. This system is highly important because it offers an early warning system that improves maritime safety for artisanal fishermen. In all, 244 stakeholders have completed this training in the CLPAs at Dakar-Ouest, Hann, Pikine, Rufisque, Bargny, Yenn /Dialaw, Mbour, Sindia Nord, Sindia Sud and Joal /Fadiouth.



Photo 27 & 28: ANACIM training session

The project has a Memorandum of Understanding with ANACIM until FY 2015. The MoU requires ANACIM to continue training stakeholders in all the coastal communities in Senegal, to establish a reliable and functional platform for sending alerts in real time to artisanal fishermen along the coast from Saint Louis to Kafountine, and to improve the marine weather forecasts and observation system in Senegal.

The project's other components (local conventions and management plans) contribute also to increase climate change resilience in coastal communities. This has been documented in a study entitled "the USAID/COMFISH project's contribution to increased climate change resilience in coastal ecosystems and communities". The work is now being reviewed for validation.

Enhancing the scientific database to support policy/decision making and action plans. To better understand the risks facing the coastal environment with the looming threat of climate change and its potential impacts on coastal and fishing communities, the project deemed it necessary to build a strong scientific knowledge base that could be used to support decision making and develop an action plan. This year the project mainly updated the geographic information system with a mapping of its new intervention areas. All these outcomes are being used to develop the National Adaptation Plan for fisheries, local conventions, collaborative management plans for fisheries resources, and local adaptation plans for increased climate change resilience in the sustainable management of fisheries resources and coastal and marine ecosystems.

2.4.2. Gender

The project continues to support the women in Cayar so as to "improve the techniques for processing and storing fishery products". This year, the project put the emphasis on inaugurating the processing plant it has built, monitoring its activities and especially promoting the products to increase their visibility and marketability. In the first two years, there was enough work on capacity building for women to improve their ownership of the project and the visibility of its main activities. During this period, the activities for functional literacy, using modules on the project's key activity areas, for consolidation of existing rules through focus group discussions and the framing of a code of good conduct; and for promoting discussions on a regular basis went a long way in strengthening beneficiary ownership and support for project objectives. These capacity development initiatives have established the skills base and experience to sustain the project's activities in Cayar. After achieving some of the major objectives of the project and its financial partner (USAID/COMFISH), such as empowering women through sustainable resource management and building resilience to climate change, the project team focused this year on consolidating those gains.

The emphasis in the first two quarters was on completing and inaugurating the fisheries processing facility, and on devising strategies to market its products by organizing a market prospecting tour and refining the marketing strategy.

At the same time, the project set up a "revolving credit" fund for the women to begin implementing the action plan that was prepared during the microfinance training workshop.

In the field of functional literacy, several meetings were organized with the instructors. This year the project decided to build on the achievements the instructors had made during the first three years of activity. The work of the instructors and the modules for functional literacy were used to help develop a manual of good practices for artisanal processing of fishery products.

2.4.2.1. Completing, inaugurating and technically monitoring the processing plant

The building phase: The inauguration of the processing plant funded by the project took place on April 23, 2014. USAID Director and Senegal's Minister of Fisheries and Maritime Affairs were there to witness the event. Prior to this, the project team had been working hard to ensure the finishing touches ended properly, as all major construction work had ended the year before. These activities lasted the whole quarter from October to December. The team focused on the suggested improvements and recommendations from partners visiting the construction site. These improvements were often very useful and showed that allowing site visits from the onset was a good idea. Although not on the committee, fisheries experts were often invited to monitor work progress and share their views. This proved to be very useful in improving the initial plan in keeping with the required standards, and it also gave partners sharper insights to the project.

After the bricklaying phase, the contractor installed water and electricity. The project sunk a small well on the premises of the processing plant to give the women free access to water and the possibility of distributing it freely also. But as the water is not treated, it cannot be used to clean the fisheries products from the plant. Hence, the project recently installed a private system from ASUFOR to give the women access to safe drinking water.

The national electricity corporation, SENELEC, was invited at the same time to make sure the power supply system is in proper working order.

The project team made sure environmental monitoring was done on a regular basis. The measures taken in line with USAID principles on environmental monitoring were assessed constantly as construction work progressed.



Photo 29: Reception area.
Photo credit: APTE, 2014



Photo 30: Storage and packaging area.

Equipment

To choose equipment, APTE always preferred to use a collaborative approach. This area was reserved for the consultant, a fisheries technologist hired to help monitor and oversee work progress and to ensure the processing plant functions properly. But the women's opinion was very important for validating any choices made. After construction work ended a year before, the concern was to work together with the women in identifying all the material they needed to install in the different parts of the processing plant. For equipment such as ovens and racks for drying fish, the women were shown prototypes, so that they could share their comments and make corrections before the models were finalized.

Ovens and racks for drying fish. These are the two key tools for production. The ovens are used to roast and smoke fish, while the racks are used to dry it.

The processing plant has four ovens. Modern prototypes of these ovens were designed with the fish technologist, and then modified slightly following the women's advice. The ovens have different sections built in reinforced concrete with an iron grid top. There is a chimney on the covers to evacuate smoke upwards.



Photo 31: Fish roasting ovens with chimney.



Photo 32: Women on inauguration day



Photo 33: Fish set for roasting in ovens. The fish is cleaned, weighed and placed carefully on the ovens' grill racks.

There are 20 racks for drying fish. These racks were designed in a collaborative manner. Prototypes were shown to the women, who then suggested changes and improvements based on their needs. The fisheries technologist first proposed racks that were slightly inclined at the top to let water drip quickly from the fish so that it dries fast. The beneficiaries refused this proposal and the APTE team had to follow their decision. The racks are made of wood with poles mounted for installing mosquito nets to prevent insects from making contact with the products.



Photo 34: Racks for drying fish.



Photo 35: Racks for drying fish.

The ovens and racks for drying fish are designed in a simple manner that suits the women's production needs no matter the quantity involved. They are improved versions of traditional ovens and racks for drying fish, which makes it easier for the women to understand how to use them. Installing this equipment has enabled the women to produce huge quantities of products and to meet the quality and hygiene requirements for such products.

Production equipment: Shortly before the inauguration, the equipment identified for each area of work was received at the processing plant. All the equipment was identified by the women and the fisheries technologist. It was necessary to have this equipment to begin testing production in the plant. The material was delivered with accessories such as gloves, boots, masks, knives, scissors and packaging materials.



Photo 36: Trays for packing products.



Photo 37: Containers for fermenting and washing products. Photo credit: APTE 2014



Photo 38: Electronic scale installed at the reception. Photo 39: Cutting table equipped with taps



Photo 40: Dustbin with wheels



Photo 41: Display table

Conducting production tests at the processing plant: After the equipment was installed, production tests were organized to demonstrate the plant's functionality before the official opening ceremony. These tests were meant to show the plant could begin working on its first productions as required. The trial runs were to be an opportunity also for the women to test the "sequence of steps", particularly its equipment and product conveyance system. A total of 15 women attended training with the fisheries technologist. The Cayar Fisheries Service was there as well. These tests consisted mainly in roasting fish, with the production of "keccax", and fermenting fish, with the production of "gej". The tested products were presented at the inauguration.



Photo 42: Women in the reception hall prepare fish for packaging under the supervision of the fisheries technologist

Opening the processing plant: The opening ceremony was a major opportunity for APTE to showcase to donors and fisheries authorities the key activities carried out for women fish processors since the beginning of the project. This was why the project team, in partnership with the fisheries department, worked hard to raise awareness among the fisheries authorities to convince them to attend the ceremony. Accordingly, the team made several attempts to meet with these authorities (Minister of Fisheries, Department of Fisheries, DITP, etc.) and explain to them the significance this event would have and the important role it could play in promoting artisanal fish processing and the women who work in the fisheries sector.

These efforts were very successful. The Minister of Fisheries and Maritime Affairs and the Director of USAID in Senegal were there to preside over the event. The other dignitaries at the event were the Director of USAID/COMFISH, the Regional Representative of WWF in Senegal, the Mayor of Cayar and a host of religious and traditional leaders in Cayar. The patron of the ceremony was the First Lady of Senegal, who sent a powerful delegation including Members of Parliament and elected members of the Social and economic Council.

The Minister of Fisheries delivered an address, commending the Cayar fisheries model as an example of sustainable fisheries management that he would be promoting across Senegal. The Director of USAID praised the women fish processors for their hard work and reaffirmed the commitment of the American people to supporting development initiatives, and particularly the development of fisheries which is reserved mostly for women.

There was also a group of women at the ceremony from Tambacounda region, where the women fish processors had been on a market prospecting tour. The opening ceremony kicked off production activities at the improved fisheries processing plant.



Photo 43 & 44: Opening ceremony. Minister of Fisheries beside Head of USAID Mission

2.4.2.2. Technical monitoring to the processing plant

From the onset, a fisheries technologist was hired to monitor work at the plant and ensure it functions properly. Regular visits were organized with him, the women and the fisheries service to the construction site to monitor work progress. Once the construction work ended, he was responsible for supervising production tests, training the women on quality control and issuing recommendations for maintaining product quality for all the commodities from the plant. The consultant did all this work, because he was responsible for providing support throughout until the women acquired the skills necessary to run the plant as required.

At the same time, just after the opening ceremony, a letter was sent to DITP (Department of Industries for the Processing of Fisheries Products) for them to inspect the plant. This is usual procedure for any fish production entity in Senegal that wants to obtain approval from the State or to get a license.

DITP carried out the inspection mission in the month of July. APTE and the fisheries service in Thies received the inspection report at the end of September. The report included the license number of the plant (see annex on Licensing request). The corrections proposed will be included by APTE and the work will be supervised directly by DITP and the fisheries service. This license means that the women will be able to export their products everywhere except to the European Union, which still does not accept products processed by artisanal means on its territory.

With regard to administrative oversight, an accountant is working already with the women to handle their income receipts and spending, pending the preparation of the business plan that is scheduled to take place in November before the beginning of the major production season.

The table below shows the productions from the plant since the opening ceremony (end of April, May and June).

Product	Weight (kg)	Turnover (FCFA)
Keccax	6,720	2,266,800
Gej	20	28,000
Total		2 294 800 FCFA

The prices per kilogram stated for the sales listed on the table are not fixed. For example, a kilogram of *keccax* was sold on the opening day at 1000 FCFA to the visitors at the plant. For the other persons present, such as the women from Tambacounda and those from Guediawaye, there was a special promotional price at 350 FCFA per kilogram.

This table shows that the plant can generate considerable income. It attracts several traders who are wholesalers. But mechanisms need to be found to ensure the plant functions all year round. This year, the scarcity of fish observed in the zone each year from June affected production, causing it to drop considerably in August and September.

Conducting microbiological analyses on products from the processing plant: At the very beginning of the project, analyses were done on the major processing site to assess the overall quality of processed products, particularly *keccax*. This study was supposed to give the project team a baseline situation on the quality of processed *keccax*, so that it can compare this initial situation with the quality of *keccax* from the plant once it is built.

These analyses were done between the end of August and the beginning of September by the same laboratory that did the previous two analyses.

The main objective of this study was to assess the microbiological quality of the raw material and the sardines roasted and dried at the processing plant.

The work consisted specifically in taking sardine samples, conducting microbiological analyses on these different products; and interpreting the results of the analysis.

The results expected were a sampling plan for the matrices mentioned above; an assessment of the level of contamination for each matrix; and a request for the FRA from the Ministry of Trade.

The methodology consisted in doing a comparative analysis of the samples taken during the field visits and the laboratory tests.

Breakdown of the samples taken on the site

Products considered	Number of samples taken	TOTAL
Fresh sardines	10	33
Sardines without the skin	9	
Finished "keccax" products	7	
Finished products after one week of storage	7	

The microbiological analysis of the samples was conducted at the HIDAOA laboratory at EISMV in Dakar. The bacteriological screening test looked for germs indicating food security and those attesting to the hygiene standards of the production processes.

Interpretation of the results: From the different parameters analyzed, (total aerobic mesophilic flora (TMAF) at 30°C), fecal coliforms and ASR, salmonella, and Staphylococcus), the highest contaminants were found in the samples of fresh sardines (raw material), where they exceeded the microbiological criteria (MC). After roasting and drying the fresh sardine samples, a drop in the level of contaminants was observed. This may have been because the total flora displayed high sensitivity to the heat used in processing the sardines after they were washed and put in the oven for roasting, which

explains why their number dropped so sharply. The results of this study show an absence of salmonella and Staphylococcus in the samples.

Generally, *keccax* is of good microbiological quality because its level of contaminants is average and does not exceed the norm.

From the conclusions of this study, one can affirm clearly that the microbiological quality of the products obtained in this new processing site is satisfactory. Despite the deplorable quality of the raw material, the levels of contaminants in the finished products fall within the accepted standards. Therefore, the women who have no control over the conditions of landing and handling fish at the dock must insist on washing the raw material to reduce the contaminants at this level.

The project team was waiting to get the results of the analyses before taking steps to obtain the FRA trade authorization issued by the Ministry of Trade.

Organizing a training session on HACCP: This activity was on the list of things to do for technical monitoring of the plant, and it was to be conducted by the fisheries technologist. Apart from this, HACCP is one of the points under DITP recommendations for obtaining a license.

The training took place on September 22 and 23, 2014 for 25 women fish processors. HACCP normally requires a quality controller who checks the entire production chain. However, the women going to work in the plant are also required to have the skills to better coordinate compliance with this mechanism, which plays a key role in developing products from the plant. HACCP can be placed on product labels as a certification of quality. This explains why it has a vital role in the certification process.

During the training, the consultant introduced and defined the mechanism for the participants. He also explained the steps to take to obtain HACCP, before leading the women through practical exercises on how to control critical points in the production chain.



Photo 45: participants and trainer



Photo 46: group picture after the training

2.4.2.3. Pursuing capacity development for women

Organizing functional literacy classes: As we pointed out in the quarterly reports, literacy classes were strongly disrupted by preparations for the opening of the processing plant. Beside this, an evaluation meeting is organized each year before classes begin to discuss what modules to introduce and to plan how to run the sessions. This year, a meeting was organized with the instructors, supervisor and project coordinator. The meeting recommended that the classes this year should capitalize on the gains of previous sessions. The project had succeeded to give women modules that were specifically on the artisanal fish processing sector. The important point about these modules was that the content contributed significantly to build awareness of the good practices for processing fisheries products.

During this meeting, the participants agreed to design a syllabary based on the knowledge acquired in Cayar on good practices for processing fishery products. This work was prepared by the literacy class supervisor who did the writing. He worked with the instructors on the various topics covered during the courses and with publishers. The syllabary has been designed and edited as a book.

It is an educational document that will be used by all women fish processors in the coastal area, and also by those who want to learn to read and write while familiarizing themselves with the good practices for artisanal processing of fish.

What is left at present is to print out the document as planned for next year. The book is also going to be presented to the Department of Literacy Education to see how they can support in promoting its use.

Supporting the establishment of the revolving credit fund: The revolving credit fund began in February 2014 with seed capital worth a million (1 000 000 FCFA) from APTE. This was done in the presence of officials from the fisheries department (Chief of Service and Chief of Post) and after APTE and the women’s group signed a Memorandum of Understanding on how to manage the fund. The money was shared between two EIGs according to the number of members they each had. For the first distribution, 56 women from the “Mantoulaye Guène” EIG shared 750 000 FCFA, while the 25 women in the “Awa Gueye Kebe” EIG shared 250 000 FCFA.

The MoU provides that a 10% interest rate be withheld for each sum received. This interest may seem high, but it is very flexible for the women because banks and mutual credit funds, on the contrary, calculate interest according to the refund rate. The women pay back every month.

It was agreed that all the funds should be shared equally in the first tranche.

In April, the credit fund bagged an additional 500 000 FCFA. The money earned from selling overalls to the women is reinvested also in the credit fund. Every month, the refunds are redistributed to the women immediately.

When each loan recipient will be getting the sum of 50 000 FCFA, the remaining amount from each refund will go into the savings fund.

The table below summarizes the transactions done since the credit fund began (statement as at September 10, 2014).

Name	Initial sum (APTE funds) FCFA	1st increase (Comfish funds) FCFA	2 nd increase (funds from sale of overalls) FCFA	Profit (September) FCFA	Loan grants in September FCFA	Beneficiaries (September)
“Mantoulaye Guène” EIG	750 000	350 000	105 000	1 110 600	2 322 300	53 persons
“Awa Gueye KEBE” EIG	250 000	150 000	50 000	306 380	702 000	52 persons
TOTAL	1 000 000	500 000	155 000	1 416 980	3 024 300	105 persons

This table shows that the revolving credit fund has recorded significant accomplishments. The project team noted that women on the ground are displaying enthusiasm and full commitment to refunding the loans they have contracted. Additionally, the objective set at the beginning of the initiative to strengthen women’s capacity for financial self-reliance is being achieved. The amount of funds that have been recovered in 7 months of activity show that the system put in place is effective. Another

advantage is that all the women have access to credit without difficulty. The “Awa Gueye Kebe” EIG has already increased its membership.

The management system in place has been deemed satisfactory, for no weaknesses have been noted so far.



Photo 47: Women keep a book of all the credits given Photo: 48 Beneficiaries are identified with their ID number

Prospecting in Dakar and Tambacound : Prospecting for clients was the logical next step for the project to take after the marketing plan on the APTE action plan. APTE deemed it necessary to take the women fish processors towards potential clients. Keccax is a well-known food item in the eating habits of the Senegalese and there is a market for it. However, women do not fully understand the sales channels and make poor sales as a result. The number of middlemen in the sector considerably cuts down the profit margins of the producers. This is why the regions of Dakar and Tambacounda were selected.

The visit in Dakar took place on February 17 2014. The women were given a warm welcome by the women’s group called “*Khelcom Réseau*“, which is based in Guediawaye in the outskirts of Dakar. The members of this network wanted to sell processed products from Cayar after they heard of the work done by the women in Cayar through a presentation on the products from the project coordinator.

Thereafter, APTE facilitated the meeting between the women. Those from Cayar brought samples of their products in different forms of packaging. The women from *Khelcom* were satisfied with the quality of the products. Both groups of women discussed the modalities for getting the products, the prices and the transport arrangements involved.

The visit to Tambacounda region took place from February 23 to 27, 2014. There were four women fish processors and one fisheries official on the visit, including a journalist from Cayar community radio which covered the entire visit.

Tamba was not chosen by accident. The region is located in the Eastern region of the country, 467 km away from Dakar. It has no coastline and the demand for fresh and processed fish is very high. Tamba is also a buffer zone between 3 neighboring countries: The Gambia, Mali and Guinea Bissau. It could therefore play an extremely important role in trade on fishery products between Senegal and these countries.

The Tamba visit included several meetings (CRD, visits to markets, trade fairs, etc.).

During the opening of the processing plant, the women from Tamba and Guediawaye were also present. They used this occasion to place their first order for Cayar products.

Developing a “marketing strategy” : The marketing strategy is the main activity that supports the sale of products from the processing plant. A good marketing strategy is necessary for the visibility of the plant. This marketing strategy has been developed to showcase the potential of “keccax” from Cayar, especially the one processed at the plant. This keccax is considered to be of better quality.

The strategy is based on a market survey that analyzes aspects of segmentation, demand, competition, advantage, etc. It is a complementary tool to be used with the business plan that will be developed.

Supporting participation in trade fairs: Since the Cayar women started their activities after the opening ceremony, they have been invited to take part in 3 trade fairs. They have been to all these fairs at the request of the fisheries authorities that take a particular interest in the plant.

The women received the first invitation in the month of May to attend the regional economic forum organized by the Chamber of Crafts in Thies. This invitation came from the Thies regional fisheries service that is based in Joal. They wanted the women from Cayar to represent the region with an exhibition of their fishery products. APTE provided support for the women to be there, and the group eventually was the only representative from this region where the country’s biggest processing sites are based. In the presence of the Minister of Trade and the Governor of Thies, the regional fisheries service commended the women for taking part in the fair, and praised the USAID/COMFISH project for its support.

The second trade fair was organized by USAID/YAAJEENDE in Matam to promote trade relations between the traders working with YAAJEENDE and the EIGs in the agriculture and food sector. The traders visited Cayar last year and liked the products they saw during the discussions they had with the Cayar women. After this trade fair, they ordered 1,250 kg of “keccax”. This order has already been delivered.

The Cayar women took part also in an international trade fair on fishery products in Busan, South Korea. This time, it was COSEC (Council of Transporters in Senegal) that invited the group on the recommendation of DITP. The collaboration between APTE and DITP, which has been going on since the project started, made it possible to get this invitation from such highly important partners.

The next work plan will make the corrections set out in DITP recommendation after the issuance of the license: to prepare a business plan for the plant; conduct studies on the plant’s production and its impact on the well-being of women; support technical monitoring and functionality for the plant; support marketing activities; support literacy and facilitate focus group discussions with the women. In terms of communication, the project plans to publish the good practices guide on a large scale and translate it to Wolof for use in facilitating focus group discussions in m’bars.

2.4.3. Governance/Decentralization

Supporting the implementation of Local Conventions for sustainable fisheries management

Collaborative supervision: the program focused on collaborative supervision of fishing areas by providing support for CLPA collaborative supervision teams to conduct supervision trips out at sea. There were 40 trips this year in the Joal Fadiouth, Sindhia Sud, Mbour and Sindhia Nord CLPAs. The teams on these trips reported several cases of fishermen breaking the rules adopted in local conventions and the fishing code.

Organizing CLPAs

The CLPAs concerned with this activity were those in Rufisque/Bargny and Yene/Dialaw. Meetings were organized with officials from the coordination committees and advisory councils to set up five technical committees in each of the two CLPAs. These were the awareness, information and

communication committee, the environmental and fishery resource management committee, the conflict prevention and settlement committee and the finance and social action committee. As in the other CLPAs, each committee is going to be run by a chairperson and a secretary. The meetings also re-energized the coordination committees of these two CLPAs with the renewal of persons holding positions and the appointment of other people to fill the vacant positions.

Disseminating Local Conventions

Disseminating local conventions is an activity that goes on throughout the implementation process. This year, the project used two (2) methods to reach the largest possible number of stakeholders, namely:

Awareness building meetings. These meetings were on the application of local conventions. They took place at the CLPAs in Yenne/Dialaw, Rufisque/Bargny and Cayar. Nine (9) of these meetings were organized altogether in various CLPA decision-making bodies to ensure wide dissemination of local conventions.

Radio programs. The project produced 43 radio programs across its intervention area via its network of partner radios (La Côtère in Joal Fadiouth, Dunya FM in Mbour, Kondaf FM in Ndayane, Cayar FM and Jokko FM in Rufisque). These programs were anchored by the radio station managers and CLPA community extension workers. They covered two main areas: local conventions and climate change. A range of different subjects were addressed also in the course of the year, including:

- Stakeholder roles and responsibilities in implementing local conventions;
- The upstream approach to hygiene and quality in the sector;
- Collaborative supervision (organizing crews; roles and responsibilities of crew members);
- The roles and responsibilities of the CLPA; the importance of renewing the decision-making bodies;
- Hygiene on processing sites; the importance of creating hygiene committees on the sites;
- Deep-sea diving and its impacts on resources and other areas of activity (lobster pots);
- Maritime safety and weather indicators (equipment and its uses, orientation guides and weather markers);
- The roles and responsibilities of delegates from different decision-making bodies for a functional CLPA.

Developing financial and administrative manuals for CLPAs. After training CLPAs on administrative and financial management, the project this year began to develop a manual for administrative and financial management of CLPAs (FAM for CLPAs).

FAM for CLPAs is a document that presents the roles and responsibilities of CLPA component bodies (advisory and coordination council, executive bureau, technical committees and colleges or local fisheries committees), their work tools, and how they relate to one another. On how to use CLPA operational resources, the FAM also sets out the procedures and tools for handling funds mobilized inside these CLPAs. It defines FAM as a system of organization with procedures and tools that enables a local natural resource management structure to take control of its own management initiatives.

The project organized a meeting in Mbour to share the document with the secretaries of different CLPAs in the presence of CLPA focal points at the DPM. At the meeting, the amendments proposed by these technicians were included. The meeting recommended also that this document should be shared with all the stakeholders involved to generalize its use in all the CLPAs in Senegal.

Starting to mobilize resources in CLPAs. This year the program gave support also for CLPAs to mobilize resources internally after the training they received on administrative and financial

management practices. The participants in the training workshop suggested some useful activities the CLPAs could do to make that happen. In order to help the CLPAs identify internal funding sources, and to sensitize the local actors to the need to mobilize resources for CLPAs to work properly, the program hired a consultant to have meetings and discussions with the actors on the ground, so that he can gather the ideas and suggestions they have. Their proposals will be implemented after the ICC validates them in the CLPA and the administrative authorities give their approval.

Developing new conventions in the Ziguinchor and Kafountine CLPAs: The project conducted several activities to develop local conventions in the new intervention areas.

- Signing MoUs between the CLPAs and the USAID/COMFISH project

The USAID/COMFISH project and the CLPAs signed MoUs to formalize their partnership for developing and implementing local conventions. These documents were later validated by the ICC in each CLPA and approved by the administrative authority at the head of the CLPA.

- Establishing extension workers and training facilitators and CLPA secretaries

In terms of training, the project team put the emphasis this year on developing the capacity of the community facilitators hired by the project, the CLPA secretaries and the community extension workers hired by the CLPAs in Saint Louis, Kafountine and Ziguinchor to support them in developing local conventions.

Each CLPA is taking steps to have community extension workers. This is in alignment with efforts to strengthen CLPA capacity with resource persons able to continue the project's work after the main implementing partner withdraws. The extension workers will have a key role in developing local conventions. This was why the project trained the extension workers in the Kafountine, Ziguinchor and Saint Louis CLPAs on the techniques of facilitation, the techniques of developing local conventions, and the role of extension workers in CLPA support.

The training of community facilitators and CLPA secretaries falls under efforts to develop capacity for facilitation among CLPA representatives. Two (2) community facilitators and three (3) CLPA secretaries attended this training. The trainers covered several areas during the sessions, including: facilitation techniques, organizing farmers, the missions of the CLPA in applying collaborative management, and the objectives of the USAID/COMFISH project.

- Identifying stakeholders and reviewing fishing gear to develop new Local Conventions.

The surveys that were being conducted to establish a baseline situation for the CLPAs in Saint Louis, Ziguinchor and Kafountine have now been completed. The findings are that the Saint Louis CLPA has many more fishermen (3847) than the Kafountine CLPA (538) and the Ziguinchor CLPA (405) respectively. This is due to the importance of fishing activity in Saint-Louis. The number of wholesalers also is far higher in Saint Louis (460) than in Kafountine (289) and Ziguinchor (271). Kafountine nonetheless has a high number of wholesalers because it is near countries in the sub-region (The Gambia and Guinea Bissau). Indeed, these wholesalers control the bulk of sales on fishery products sent from the sub-region by countries like Guinea Bissau.

The number of artisanal fish processors is highest in Kafountine (553), followed by Saint Louis (459) and Ziguinchor (41). The high volume of activity in Kafountine results from the zone's isolated nature, and from the presence of many people from the neighboring countries who come there to harvest, process and export some targeted species back to their home countries. In terms of service provision, Saint Louis has the highest number of service providers in the fisheries sector (821), followed by Kafountine (471) and Ziguinchor (177).

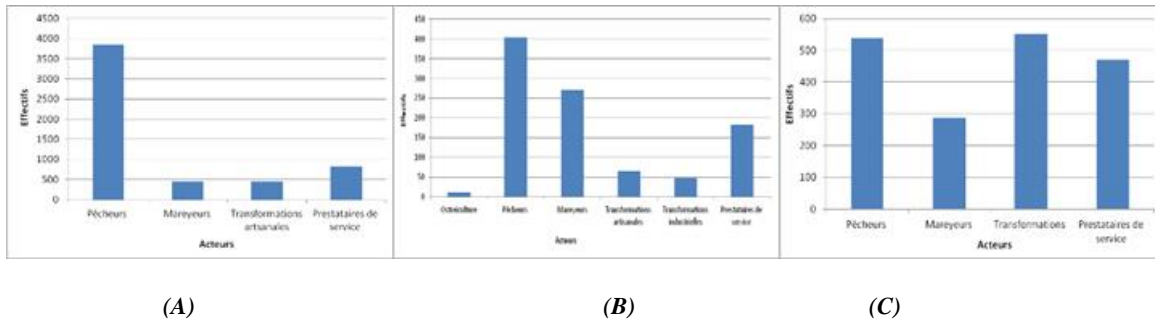


Figure 7: Distribution of stakeholders across the CLPAs in Saint-Louis (A), Ziguinchor (B) and Kafountine (C)

As concerns fishing gear, the surveys identified 12 types, namely: surface shrimp driftnets, fixed shrimp nets, surface driftnets, underground driftnets, encircling gillnets, driftnets, purse seine, beach seines, single lines, longlines, trammel nets and hoop nets.

Saint Louis has more longlines (338) than purse seine (166); Ziguinchor predominantly has fixed shrimp nets, followed by driftnets, and; Kafountine mostly has driftnets (11267), followed by underground driftnets.

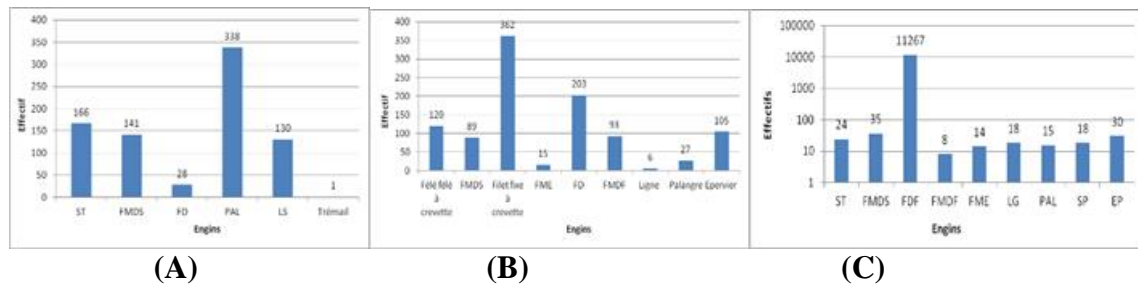


Figure 8: Distribution of fishing gear across the CLPAs in Saint-Louis (A), Ziguinchor (B) and Kafountine (C)

- Organizing focus groups to develop management rules

The objective of these focus groups was to identify the blockages preventing various stakeholders from plying their trade, and to gather the stakeholders' ideas for sustainable fisheries resources management. This is usually a vital stage during efforts for negotiating and setting rules for the management of local conventions. For the CLPA in Saint Louis, the project organized 10 focus group meetings, against thirty (30) in the Ziguinchor and Kafountine CLPAs. At the end of these stages, reporting back sessions were organized to validate the information gathered and the management rules proposed by the stakeholders. The three local conventions were therefore validated by the ICCs of the three CLPAs, and approved by the relevant administrative authorities.

The actors at the grassroots and the technical services displayed true dynamism all along this process for developing the Local Convention of Saint Louis, validating it at the CLPA, and getting it approved by the District Officer of Saint Louis District.



Photo 49: Local Convention validation

- Validation workshop on the Local Convention of Saint Louis

For the CLPAs in Ziguinchor and Kafountine, there was some delay in the process, but the Local Convention documents have received the technical validation they require and the dates of the validation workshop have already been chosen.

Supporting efforts to operationalize the Boudie/Balatacounda consultation framework (Siedhiou region)

In the reporting period, the project provided assistance to implement the action plan prepared by the consultation framework for the protected fishing area established by the USAID Wula Nafaa project. Eight (8) community extension workers were hired to continue building community awareness of good fishing practices in the area and the need for compliance with the management rules. The project channeled its support also to village supervision committees that traveled out to sea on supervision missions. They made 10 trips in the course of the year, inspecting 385 canoe boats during those trips.



Photos 50 & 51: collaborative supervision in Boudie Balantacounda (Sedhiou)

Contributing to establish and operationalize CLPAs

The project has already developed the TOR for this activity. But because of the institutional nature of CLPAs, which are entities established by the State, the TOR were submitted for technical validation from DPM since June 2014. Prior to this, WWF worked with the resource persons who initiated the Mbour District's CLPA network to explore with them the overarching goals of the network and the accomplishments it has recorded at the local level. The project is merely waiting for DPM's formal validation of these TOR to begin the brainstorming phase and to commission all the field activities for networking the CLPAs in Senegal. Therefore, the work done in Mbour district will be a major contribution to this activity.



Photos 52 & 53: Workshop on CLPA networking in Senegal, Ngaparou, August 19 and 21, 2014

The CLPA networking workshop took place in Ngaparou on August 19 and 21, 2014. The event was organized by the Department of Marine Fisheries and brought together representatives of CLPAs from all the regions in Senegal as well as USAID/COMFISH project partners. The participants' debates and discussions pointed to the need for a network, whose mission would be to play a more active role in fishing and fisheries resources management as a body set up by the public authorities.

Contributing to establish a stock-based CLPA consultation framework

To help develop a collaborative management plan for sardinella fisheries, the project continues to encourage dialogue between stakeholders targeting the same fishing areas. The major steps it has taken include:

The establishment of CLPA consultation frameworks: a part of the project's agenda for framing local management plans is to assist CLPAs to have a consultative mechanism for dialogue and the pre-validation of collaborative management plans for sardinella fisheries at both the district and regional levels. To finalize these activities for creating the sardinella consultation framework, the project has selected representatives of the CPLAs in Dakar and Thies.

The consultation model the project has submitted to DPM for validation is presented in the figures below. They represent small district consultation mechanisms for CLPAs in Thies.

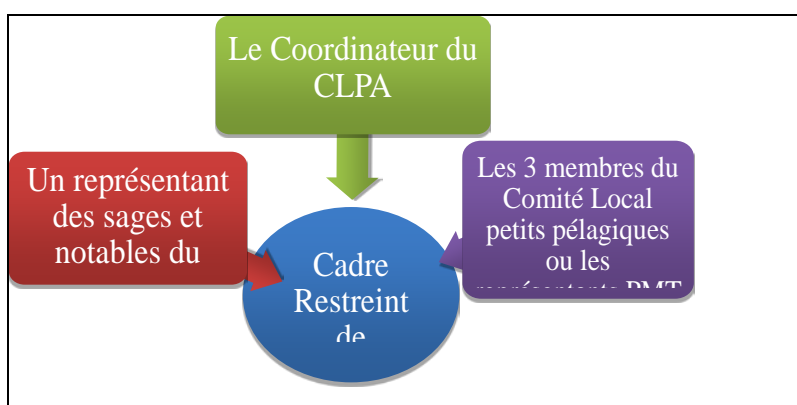


Figure 9: Restricted Consultation Framework on Sardinella



Figure 10: District Consultation Framework

These proposals will be validated progressively along with the collaborative management plans.

2.4.4. Communication/awareness building

In communication, fiscal 2013-2014 was a year of several achievements in disseminating local conventions and collaborative management plans, developing capacity for stakeholders at the grassroots, and raising the project's visibility among partners and the wider public.

Supporting the dissemination of Local Conventions and establishment of collaborative management plans

For the project to continue supporting efforts to develop and implement collaborative management plans initiated last year in its partner CLPAs, it renewed the MoUs with partner community radios such as La Côtière (Joal), Radio Dunya (Mbour) and Kondafé (Ndayanne/Sinda), and also signed two (2) new MoUs with Jokko FM in Rufisque and Cayar FM in Cayar, both of them community radios.

160 radio programs produced on climate change and fishing: A direct outcome of renewing and/or signing these MoUs was that 160 radio programs were produced in fiscal 2014 on a range of areas, including climate change in the fisheries sector (climate change effects, maritime safety and weather markers, deep-sea diving and its impacts on resources, preventing sand extraction, the dwindling fisheries resource base, stock management, good/bad fishing practices, the functioning of local conventions, the roles and responsibilities of crews). A full list of the subjects covered in these

programs is annexed. The main objective of the programs was to foster lasting behavior change and thereby avert the looming threat of climate change on fisheries.

In line with the MoUs, these radio programs were produced weekly. A selection committee picked the topics in a collaborative manner with the support of facilitators from the project. The selection committee is made up of representatives of CLPAs/stakeholders and local fisheries services. The committee discusses, selects, validates and communicates to the partner radios the topics it has validated for program production.

Unlike what the project team set out to achieve in the 2013/2014 annual work plan, no MoU was signed with local television networks in its activities. The reason is that these so-called parallel networks operate illegally and are not recognized by ART (Senegal's Telecommunications Regulation Agency). After making these findings, the team discussed with stakeholders/CLPAs and the local fisheries authorities on the ground, and decided instead to design and disseminate posters on key rules in the local conventions of the CLPAs involved, so as to help implement these processes. The project took this option because signing MoUs with the so-called parallel networks would have had legal consequences and damaged its credibility before partners.

Assessing the impact of radio programs on stakeholders' behavior: The project, in line with the annual work plan and the partnership agreement with its partner radios, conducted a mid-term impact assessment from May 19 to 23, 2014. The exercise was to measure how far the radio programs were making a difference among the stakeholders, and how well the radios were following the terms of the MoU. The assessment showed that:

- Grassroots community members show more interest in the project's radio programs, and the programs are progressively affecting behavior at the grassroots as evidenced by the number of calls from listeners (10 on average) during the programs and the compliance with some management measures in the local conventions, such as those on sand extraction.
- The airtime, topics covered and guests in the programs truly match the listeners' expectations. However, the assessors suggested as follows: rebroadcast programs to reach fishermen who are at sea when the programs are broadcast; increase transport allowance for resource persons invited to programs from distant communities.
- Increase the number of programs with Radio Dunya or do more with Rando FM, as this latter covers 2 CLPAs (Mbour and Sindia Nord), and organize special and/or local programs as stated in the partnership agreements.
- Get women to play a more active role in presenting some programs (on hygiene, sanitation on fish processing sites, and declaration by women in the fisheries sector...).
- Provide certain gadgets to enhance stakeholder involvement in various programs by organizing contests.

Developing stakeholders' communication skills and radio program presentation techniques

In order to improve communication between stakeholders on the ground, while also improving the quality of radio program productions for greater gains in behavior change for these stakeholders, the USAID/COMFISH project organized a training workshop from March 20 – 21, 2014. This workshop on good practices for preparing and presenting radio programs brought together twenty participants including community extension workers, representatives of the local fisheries service, radio presenters and facilitators from the project. The workshop enabled the participants to discuss and share good practices for preparing and presenting radio programs, to better their communication skills and improve communication between community extension workers, facilitators, representatives of community radios and the project's communication officer.

Improving project visibility

In the reporting period, vigorous efforts were made to increase the project's visibility, particularly by producing and distributing several materials on the project and also by facilitating media coverage of its flagship activities.

Production and distribution of materials

- **Production of 3 project factsheets.** To raise the profile of initiatives in the project's flagship components such as climate change, local conventions, establishment of management plans, improvement of techniques for processing and storage of Cayar fishery products, the project produced three (3) factsheets on each of its components. The objective of producing these factsheets was to give partners access to information on the context, objectives, expected outcomes, approaches, major activities and results achieved in each component as well as the partners involved in implementing them. The project made these factsheets available to its major partners and to media practitioners, and continues to use them during workshops and other meetings.
- **Installation of 8 billboards in the project's intervention areas:** In order to enhance the visibility of CLPA and project activities in the establishment of sardinella management plans, 8 billboards were made and installed in the project intervention areas covered by the CLPAs in Joal, Mbour, Sindia Nord, Sindia Sud, Rufisque/Bargny, Cayar, Yen/Dialaw and Saint Louis.

In addition, 2 signboards bearing the name of the project were made and placed at the offices of the CLPAs in Rufisque Bargny and Mbour, which the project renovated recently with the support of the American people.

- **Distribution of New Year greeting cards and other paraphernalia.** At the beginning of fiscal 2014, the project sent partners the New Year greeting cards and other paraphernalia it had made (planning calendars, diaries, tea cups...). It used this occasion also to reaffirm its gratitude to partners for the candid spirit of cooperation they displayed in implementing its activities throughout 2013, and its readiness to continue collaborating with them.
- **Production and distribution of 2 audiovisual productions, one print and photo report.** In the same vein of raising the profile of the flagship achievements in the project's major components, the project team this year produced 2 video films and a print and photo report written on these intervention areas.
- **Video reports:** the first video report covers the development and implementation of local conventions in at least 4 project intervention sites (Joal, Mbour, Cayar, Rufisque/Bargny). The second deals with the impacts of climate change and the adaptation strategies in the fishing communities situated in three (3) project intervention sites (Rufisque/Bargny, Joal and Sindia). The objective of these reports is to visually document the project's accomplishments in these areas. The project has distributed electronic and DVD versions of these videos to its partners and other target groups.
- **Photo report:** The photo report was shot in Joal, Mbour, Cayar, Sindia and Rufisque/Bargny. It focused on the different effects of climatic variations (coastal erosion and adaptation techniques...) on fishing infrastructure, fisheries resources (species targeted by the project), fishing gear, stakeholders at work, including women fish processors, and the project's key achievements on the ground (octopus pots, the modern processing plant in Cayar...). The photos have also been distributed to the major partners and will be used in various communication mediums (PowerPoint) and to decorate the meeting rooms of CLPAs and other partners.

- **Print report:** A print report was produced on the process of developing and implementing local conventions in the fisheries sector, the effects of climate change on fishing and the adaptation strategies in fishing communities within the project coverage area (Sindia, Joal, Rufisque/Bargny, Mbour and Cayar). This report has already been published four (4) times in Senegal's national daily, *Le Soleil*, and via other online sites. The project has made newspaper clippings from the press articles that were published, and then organized and archived them in its records. There are other still unpublished articles based on the report that could be put online in the coming year.

Media coverage

The 2013/2014 fiscal year also had its high moments in media coverage of the project's key activities:

- *Workshop on the diagnostic study* of existing consultation frameworks on climate change, fishing and the marine and coastal environment in Senegal; and *the Kafountine CLPA installation ceremony*, organized respectively on February 14 at the Department of Environment and Classified Established (DEEC) and on March 7, 2014 in Kafountine, Casamance. The workshop on climate change consultation frameworks was covered by media outlets such as *RTS*, *Sen TV*, *Le Soleil*, *le Quotidien* and *RFM*. As for the Kafountine CLPA installation ceremony, it was covered by 2 television channels (*RTS*, *Ziguinchor TV*), 2 radios (*Zik FM*, *RFM*) and 1 daily newspaper (*Le Quotidien*).

The project also played a facilitating role to enable *Global Waters*, the USAID/Washington newsletter, and the daily newspaper, *Le Soleil*, to publish two (2) press articles respectively on the project's support to the Cayar women processors and on the improved fisheries processing plant.

Below are some links to press articles on the activities above.

Climate change

1. http://www.lesoleil.sn/index.php?option=com_content&view=article&id=36291:peche-et-developpement-durable--une-etude-preconise-une-gestion-efficiente-des-res
2. <http://www.dakarecho.com/economie/agriculture/item/5141-changement-climatique.html>
3. http://article.wn.com/view/2014/02/15/Peche_et_developpement_durable_Une_etude_preconise_un_e_gesti/

Kafountine CLPA installation ceremony

4. <http://www.lequotidien.sn/index.php/economie/item/29149-gestion-durable-des-ressources-halieutiques--kafountine-installe-son-clpa>
5. http://www.scoopsdeziguinchor.com/article.php?id=%203000&id_rubrique=3

Improved processing of Cayar fishery products

6. http://www.lesoleil.sn/index.php?option=com_content&view=article&id=36676:sechage-et-braisage-du-poisson-echange-dexperiences-entre-les-femmes-de-tamba-et-de-kayar&catid=241:regions
7. <http://www.usaid.gov/global-waters/january-2014/bridging-gender-gap>

- *Inauguration of the Cayar modern processing plant.* The Cayar modern processing plant was inaugurated by the Minister of Fisheries and Maritime Affairs and by USAID on April 23, 2014. The objective of setting up this plan is to contribute towards the empowerment of women, food security and the sustainable management of Senegal's fisheries resources. To raise the profile of this event in the public eye, an information and/or press pack, including a press release and factsheets on the project and its activities in Cayar, were prepared and made

available to the press and to the partners present at the ceremony. The activity was covered by 4 television channels (*RTS, Sen TV, Walf* and *TFM*), 5 radio stations (*Cayar FM, Sud FM, RFM, RTS Radio, Zik FM*), 4 daily newspapers (*L'obs, Le Soleil, Le quotidien, Walf*) and online media outlets.

Below are some hypertext links (video and print) to the online press.

Video links

<http://www.youtube.com/watch?v=zDnNWEw6Y0Y#t=564>

- Hypertext links

1. <http://www.aps.sn/newsedit/spip.php?article127486>

2. http://www.aps.sn/articles.php?id_article=127613

3. http://www.lesoleil.sn/index.php?option=com_content&view=article&id=38862:haidar-el-aly-invite-les-pecheurs-au-respect-du-code-de-la-peche&catid=51:economy&Itemid=63

4. <http://www.enquetepius.com/content/securite-alimentaire-kayar-%C3%A9trenne-son-unit%C3%A9-de-transformation-de-produits-halieuitiques>

5. http://www.senenews.com/2014/04/24/code-de-la-peche-es-maritimes-haidar-el-aly-prone-le-respect-des-regles_79988.html

6. <http://www.actu24.net/societe/article/gestion-durable-des-produits>

7. <http://www.lindependant.sn/index.php/economie/item/399-inauguration-d-une-unite-de-transformation-des-produits-halieuitiques-a-cayar-mercredi/399-inauguration-d-une-unite-de-transformation-des-produits-halieuitiques-a-cayar-mercredi.html>

8. <http://afryka.fr/senegal-inauguration-dune-unite-de-transformation-des-produits-halieuitiques-a-cayar-mercredi/>

9. <http://fr.africatime.com/senegal/articles/code-de-la-peche-haidar-el-aly-prone-le-respect-des-regles>

- *USAID field visit*: June 23 – 28, 2014 was covered by 2 journalists respectively from *Lobs* and *APS*

See media coverage on the story above via the links below:

1. http://www.aps.sn/articles.php?id_article=130141

2. http://www.aps.sn/articles.php?id_article=130139

3. http://www.aps.sn/articles.php?id_article=130204

4. http://www.aps.sn/articles.php?id_article=130203

5. http://www.aps.sn/articles.php?id_article=130298

6. http://www.aps.sn/articles.php?id_article=130321

7. http://www.aps.sn/articles.php?id_article=130305

In the course of the year, the project's partner community radio stations also provided media coverage of the major project activities on the field (ceremonies for handing over cleaning equipment in the

project's different intervention areas (Rufisque/Bargny, Nianing, Joal, and Ndayanne), roundtable on collaborative supervision in Mbour.

Other communication activities

In addition to the activities mentioned above, the project also carried out other equally important communication activities:

- **Improving communication with partners**

To ensure that all the project partners get regular information updates on the life of the project, the project team this year updated its comprehensive partner address book and distribution list. This update is done whenever the need arises and on an annual basis to improve communication with all the project partners.

- **Project presence on social networks**

To ensure project activity visibility on social networks, the project team created and moderated a Facebook page on its activities. However, the USAID communication department requested the project to suppress this Facebook page in order to harmonize project communication with USAID for more efficiency by feeding the USAID Facebook page.

2.4.5. Science/Technology

The ELEFAN program, length-frequency based stock assessment software, was finalized on the basis of a contract between USAID/COMFISH and the University of British Columbia. The final product was tested and delivered in several copies to the University of Rhode Island, and then distributed to our partners (DPM, CRODT, IUPA, IFAN and WWF). The objective of this project was to provide a simple stock assessment tool and to train fisheries scientists, managers and other partners on these assessment and management methods based on collecting fish length in a collaborative manner with fisheries practitioners. This made it possible to assess the state and productivity of the USAID/COMFISH project's priority fish stocks, and to help in training students at Cheikh Anta Diop University in fish stock assessment and fisheries management. IUPA organized a workshop to train partners on the use of this software, making it possible to produce scientific reports and publications together with project partners. These efforts provided the necessary information for assessing the state of sardinella, bonga, octopus, thiof and shrimp resources. The USAID/COMFISH project continues to work partners, particularly IUPA and CRODT, to upgrade data and results on bonga and to help in developing the capacity for scientific research.

Fishing gear selectivity: Experimental fisheries have been initiated in Sine Saloum to study the selectivity of fishing nets used to capture bonga. This is done as part of a participatory research initiative with fisheries practitioners. This participatory research and bonga fisheries management approach will enable fishermen to validate the research methodologies used and to learn from their work experience in the fishing domain by taking their proposals into account.

2.4.6. Project management

Revamping the activities for local initiatives on the sustainable management of Thiof, Cymbium and Octopus fisheries resources that were initiated under the COGEPAS project. The goal of this meeting was to take stock of the local initiatives implemented on the Petite Côte by the COGEPAS project, with a view to developing an action plan the project can use to revamp activities for the sustainable management of these fisheries.

The meeting discussions focused on: the review by CLPA stakeholders, the initiatives on the three species (octopus, cymbium and thiof), the update on local initiatives and the development of the action plan to revamp fisheries management activities. A plan of action was developed at the close of the

meeting discussions, and all those present asked the project to support the implementation of this plan by providing the necessary technical and financial support.

Contributing to implement biological rest periods and to immerse octopus pots. The launch day was organized in October 2013 at a village called Pointe Sarene. The event brought together various CLPAs from the Mbour district, the regional head of fisheries services, the district head of fisheries services, chiefs of post, the DPM director's representative, representatives of the project and those of PRAO. This initiative began with the support of the Japanese Agency for International Cooperation. A total number of about 5000 pots were immersed in the four (4) CLPAs in Mbour district (Joal Fadiouth, Sindia Sud, Sindia Nord and Mbour). The USAID/COMFISH project gave further support to the process with a contribution of 1,000 pots.



Photos 54 & 55: Immersing octopus pots

Brainstorming and discussion workshop on collaborative management initiatives: the project organized this workshop jointly with Fénagie Pêche and the Regional Inspectorate for Fisheries to create a space where the participants can do a collaborative in-depth review of Octopus and Cymbium management measures, and the conditions for handling and storing octopus in the beach environment. The workshop allowed the participants to assess the steps taken for the management of small pelagics (night fishing); propose corrective action depending on the shortcomings identified and review the system for monitoring, controlling and supervising ongoing activities. The projects, NGOs and institutions involved in sustainable fisheries resources management all took part in the proceedings. The USAID/COMFISH project contributes each year to organize this meeting, and also to apply the recommendations made during the proceedings. The objective of the workshop is to contribute in improving octopus management and development measures, management of *Cymbium* and management of small pelagics in Mbour district.

Coordination meeting in Joal: to ensure good planning and coordination of field activities, a coordination meeting was organized with the secretaries of CLPAs in the project's intervention zone, contract partners and the USAID/COMFISH project team (facilitators, the Joal Fadiouth team and the Dakar team). This meeting made it possible to review activities for April and May and to plan the activities from June to September.

2.4.7. Lessons learned

- *Fisheries service.* Involve the fisheries service at the highest level, in efforts to adopt an internal fundraising system for CLPAs
- *Fisheries stakeholders.* Local stakeholder ownership of the radio programs initiated by the project adds significant value to the overall goals of the project. The airtime is often used by CLPA secretaries general and the stakeholders themselves to disseminate the activities that concern them directly
- *Value chain.* Support women fish processors in the intervention areas (through training). Once the stakeholders are well trained on their roles, they can ensure rational management of the fisheries resources they depend on for their livelihoods

ANNEXES

A1: Results Framework – FY 2014

	End-of-project targets	Year 2014 target	Q 1 results	Q2 results	Q3 results	Q4 results	Total	Completion rate	Remarks
IR 1: Institutional and stakeholder capacity strengthened at all levels of governance to implement an ecosystem-based, collaborative management approach to sustainable fisheries, to prevent overfishing, and to increase climate change resilience									
1. The synthetic index for CLPA management effectiveness on USAID/COMFISH project sites increases by 75% in 2016	Index score increases by 75% (0.07)	Index score increases by 40% (0.056)	Na	Na	Na	Na	Na	Na	The results of the study will be available in FY15.
2. Number of persons who received short training courses on food security and productivity with the assistance of the USG	4 790	1 900	M= 119 F= 27 Tot= 146	M=321 F=45 Tot=350	M= 1799 F= 1062 Tot= 2861	M= 777 F= 315 Tot= 1092	M=3016 F=1449 Tot= 4465	235%	169 workshops were held this year. 32.4% of the people trained were women.
3. Number of written and audiovisual materials produced to strengthen the capacities of collaborative management institutions and fisheries actors	23	10	0	11	2	1	14	140%	<p>Quarter 2: 5 MoUs between COMFISH and community radios, 4 factsheets and 1 manual for replicating training on climate change, 1 manual for advisors in the Kafountine CLPA.</p> <p>Quarter 3: 2 factsheets regarding Local Conventions and the enhancement of better management techniques in Cayar have been produced this quarter. Meanwhile, the radio shows are still being aired in the intervention areas through the project’s radio station partners ((la Côtière in Joal Fadiouth, Dunya FM in Mbour, Kondafé FM in Ndayane, Cayar FM and Jokko FM in Rufisque) on subjects related to fishing, such as</p>

									the best practices or climate change. Quarter 4: A booklet for the literacy workshops
4. Number of research institutes and academic institutions, government departments, consultation frameworks and NGOs which have strengthened their capacities with the assistance of the USAID/COMFISH project	20	18	1	24	12	34	71	394%	USAID COMFISH conducted capacity building activities for 71 organizations this year. The completion rate is high due to the presence of various organizations during events co-organized with the DEEC, COMNAAC or ANACIM.
IR 2: Strategies, policies and best practices identified, tested and applied to strengthen resilience to climate change and address destructive and unsustainable marine resource uses that threaten biodiversity conservation in the West Africa ecoregion									
5. Number of action plans and/or projects developed to support the fisheries management process	13	3	0	1	2	1	4	133%	Quarter 2: - A strategy on MPAs, sponsored by the project at the development stage, was validated by the Minister Quarter 3: - An action plan was developed as a result of the training in organization and community dynamics aiming to support the implementation of the skills acquired during the training - Strategies proposed for climate change adaptation Quarter 4: - An action plan for octopus, thiof and cymbium management
6. Number of technical studies that contribute to enhance the management plans of sustainable management units	16	5	0	1	5	3	9	180%	Quarter 2 : - Study on the information dissemination in the fisheries sector Quarter 3: - Report on climate change in the Sine Saloum area - A guide on participatory monitoring - A participant's handbook on organization and

									<ul style="list-style-type: none"> - community dynamics - Elefan in R : a stock assessment software - Report on hygiene and salubrity in transformation sites <p>Quarter 4:</p> <ul style="list-style-type: none"> - Financial and Administrative Management manual - Census report on fisheries stakeholders in the project's CLPAs - Study on land use mapping and fisheries site geolocation in Saint-Louis, Ziguinchor and Sedhiou
7. Number of synergy areas created in the process of establishing sustainable management units	9	3	1	0	3	2	6	200%	<p>Quarter 1:</p> <ul style="list-style-type: none"> - Synergy with WWF in order to put in place consultation frameworks on sardinella <p>Quarter 2:</p> <ul style="list-style-type: none"> - 3 synergy areas have been created this quarter, namely with APTE, the Alliance and also through scientific support from CRODT. <p>Quarter 4:</p> <ul style="list-style-type: none"> - Cooperation with ANACIM - Cooperation with DPSP
8. Number of policies/regulations and administrative procedures analyzed	44	18	0	0	8	8	16	89%	The same policies/regulations and administrative procedures have been analyzed. However, this year, 8 new policies were analyzed while developing the Local Convention for Cayar, and 8 other policies analyzed for the local convention of Saint Louis.
9. Number of policies/regulations and administrative procedures developed and presented to the public/stakeholders for consultation	21	5	0	0	0	2	2	40%	<ul style="list-style-type: none"> - The Local Convention for Ziguinchor - The Local Convention for Kafountine
10. Number of policies/regulations and administrative procedures submitted	20	9	0	0	0	0	0	0%	The policies officially submitted for adoption are accounted for in indicator 11.

officially for adoption (legislation/decree)									
11. Number of policies/ regulations and administrative procedures instituted with the assistance of the USG, and that have been approved	18	8	2	2	0	3	7	87.5%	<p>Quarter 1:</p> <ul style="list-style-type: none"> - The local convention Rufisque/ Bargny - The local convention of Yenne/ Dialaw <p>Quarter 2:</p> <ul style="list-style-type: none"> - The local Convention of Cayar - Strategy on AMPs <p>Quarter 4:</p> <ul style="list-style-type: none"> - Cooperation Agreement with Kafountine CLPA - Cooperation Agreement with Ziguinchor CLPA - The Local Convention of Saint Louis has been approved.
12. Number of policies/ regulations and administrative procedures approved, and which are implemented	12	3	0	3	8	0	11	366%	<p>Quarter 2: Implementation of Local Conventions has started in Yenne/Dialaw, Rufisque/Bargny and Cayar with sensitization of stakeholders through the distribution of 300 documents and community radio programs. Meetings to revamp commissions were organized in Rufisque and Yenne.</p> <p>Quarter 3: The implementation of the Local Conventions continues to take place in the primary zones. While waiting for the validation of the Local Conventions for the new zones, the approved health and sanitation agreements are being implemented.</p>
13. Number of new technologies for fisheries resources put in place	12	4	0	0	3	1	4	100%	<p>Quarter 3:</p> <ul style="list-style-type: none"> - The Local Convention of Cayar - The Cayar transformation unit has been completed and inaugurated. - The ELEFAN in R software: stock assessment <p>Quarter 4:</p> <ul style="list-style-type: none"> - The Local Convention of Saint Louis
14. Number of actors who have adopted new rules for collaborative fisheries resources management	47,940	10,000	0	0	7,271	5587	12,858	128%	This number represents the number of women involved with the health and sanitation agreements and who are implementing them, the stakeholders of the Local Convention of Cayar for quarter 3 and of

										Saint Louis for quarter 4. Saint Louis wasn't included in the annual target.
15. Number of producers and others who have applied new technologies or management practices with the assistance of the USG (indicator 4.5.2-5 of the FTF)	40,000	32,608	-	20,940	5,833	5,587	32,360	99%		The CLPAs in Mbour, Joal and Sindia comply with the rules in the local conventions. Some 20940 stakeholders are concerned. Are also included the beneficiaries of the Local Conventions of Cayar (quarter 3) and Saint Louis (quarter 4)
16. Number of hectares in areas of biological significance and/or containing natural resources under enhanced management with the assistance of the USG	1,070,156	395,952	0	511,112	Na	92,602	603,714	152%		Regions for which Local Conventions have been signed.
17. Number of hectares in areas of biological significance under enhanced management with the assistance of the USG	413,655	62,055	0	0	17,100	49,396	66,496	107%		MPAs located in regions for which Local Conventions have been signed.

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

18. Number of individuals who have received training on climate change with the assistance of the USG	2,400	660	0	H=48 F=8 Tot=56	H=660 F=517 T= 1177	H=421 F=187 T= 608	H=1129 F=712 T= 1841	278%		1841 have been trained this year in regards to climate change, including 39% of women.
19. Number of vulnerability assessments conducted with the assistance of the USG	6	Na	Na	Na	Na	Na	Na	Na		There were no vulnerability assessments planned for this year.
20. Number of laws, policies, agreements, MoUs or regulations on climate change proposed, adopted or implemented with the	6	3	0	3	8	0	11	183%		Quarter 2: Implementation of adaptation plans began with the dissemination of the rules of local conventions and indigenous knowledge, support to establish and/or revamp committees for collaborative surveillance,

assistance of the USG									introduction of an early warning strategy, the provision of weather information, etc. Quarter 3: The 8 health and sanitation agreements are being implemented in the related sites.
21. Number of persons who have strengthened their capacity to adapt to the impacts of climate variability and change with the assistance of the USG	17,990	6,700	146	366	2,861	1,092	4,465	67%	This indicator takes into account all the stakeholders affected by the implementation of adaptation plans.
IR 4: Increased social and economic benefits to artisanal fishing communities provide incentives to a continued sustainable fisheries agenda and increased climate change resilience									
22. Number of private food security companies (for profit), producer organizations, water users associations, women's groups, associations of men and women entrepreneurs, and CBOs who have received assistance from the USG	52	44	10	6	37	3	56	127%	Quarter 1: 10 CLPAs located in the departments of Mbour, Rufisque, Dakar and Thiès have received various trainings in the first quarter. Quarter 2: 3 other CLPAs (Kafountine, Ziguinchor and Saint-Louis), the Boudie/Balantacounda consultation framework and 2 fish processing groups from Cayar have also received support from the project. Quarter 3: During this quarter, the Mbour and Rufisque/ Bargny CLPAs headquarters have been renovated while the CLPAs of Mbour, Joal/Fadiouth, Sindia Nord and Sindia Sud as well as Sedhiou have benefitted from material support (for instance cleaning equipment) and from capacity building in participatory surveillance. Quarter 4: 3 CLPAs have received trainings on weather forecast information

23. Number of households that are benefitting directly from the assistance of the USG (indicator 4.5.2-13 de FTF)	10,331	10,100	Na	Na	4,295	1,139	7,402	73%	7,402 households have been identified in total in the Foundiagne, Cayar, Dakar- Ouest, Hann, Pikine and CLPAs and in the new regions (Saint- Louis, Ziguinchor, Kafountine). 9,131 households had already been identified during FY13, hence a grant total of 16,533 households.
24. The number of fisheries stakeholders on the project sites who have perceived an improvement in their well-being from the assistance of the USG	Na	Na	Na	Na	Na	Na	Na	Na	The results of the study will be available in FY15.

A2: Financial report

Budget Line Items	Total approved budget	2014 Approved Annual Budget	Quarterly Spending of Current year				Total spent this current year	Total spent since the beginning of the project	Balance of the year	Total balance since the beginning of the project	% of annual budget spent	% of total budget spent since the beginning of the project
			Jul-14	Aug-14	Sep-14	Total Quarter3						
(a)		(b)	(c)	(d)	(e)	(f) = (c)+(d)+(e)	(g)	(h)	(i)=(b)-(g)		(j)=(g)/(b) * 100	h=(i)/(b)*100
a Personnel	\$1,144,880	\$291,805	\$12,677	\$41,129	\$27,422	\$81,228	\$290,155	\$1,016,561	\$1,650	\$128,319	99%	89%
b. Students	\$245,697	\$4,000	\$0	\$0	\$0	\$0	\$989	\$4,489	\$3,011	\$241,208	25%	2%
c. Consultants	\$2,150,476	\$656,164	\$78,634	\$54,371	\$92,140	\$225,144	\$850,471	\$3,007,653	-\$194,307	-\$857,177		140%
d. Other Direct Costs	\$1,466,199	\$175,904	\$2,027	\$2,492	\$3,111	\$7,630	\$80,972	\$642,530	\$94,932	\$823,669	46%	44%
e. Subcontracts	\$2,853,939	\$275,000	\$0	\$8,980	\$78,182	\$87,162	\$247,736	\$1,034,367	\$27,264	\$1,819,572	90%	36%
f. Travel	\$1,179,753	\$502,336	\$35,103	\$33,901	\$28,927	\$97,931	\$178,603	\$585,526	\$323,733	\$594,227	36%	50%
g. Equipment	\$110,071	\$0	\$0	\$0	\$0	\$0	\$0	\$103,463	\$0	\$6,608	0%	94%
h. Tuition	\$49,848	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$49,848	0%	0%
i. Total Direct Charges	\$9,200,863	\$1,905,209	\$128,441	\$140,873	\$229,782	\$499,095	\$1,648,927	\$6,394,591	\$256,282	\$2,806,272	87%	69%
j. Indirect Costs	\$2,298,847	\$423,854	\$4,480	\$40,594	\$8,236	\$53,310	\$356,248	\$1,383,191	\$67,606	\$915,656	84%	60%
k. Totals (sum of 6i-6j)	\$11,499,710	\$2,329,063	\$132,921	\$181,467	\$238,018	\$552,406	\$2,005,176	\$7,777,783	\$323,887	\$3,721,927	86%	68%

A3: EMMR table

Category of Activity	Environmental threats	Mitigation Measures Taken	Who is responsible for monitoring?	Sources of Verification	Monitoring Method	Frequency of Monitoring
1. Education, technical assistance, training, etc.	No environmental impacts anticipated as a result of these activities.	Ensure the training material include aspects of climate change.	Project Manager	Education, technical assistance, training and other materials and reports	Review of materials	Quarterly
2. Reduce post-harvest losses and improve product quality	<p>Improved facilities could result in disturbance to critical resources and sensitive ecosystems, changing access to water by animals, people and vegetation, or degrading water resources, sedimentation of surface waters soil erosion, or contamination of groundwater and surface water</p> <p>Increased harvests and threat to overfishing due to increased demand from improved quality</p> <p>Potential impacts of water supply & sanitation activities included damages to natural or sensitive ecosystems, depletion of freshwater resources, creation of stagnant water that could create breeding opportunities for water-borne disease vectors, contamination of water sources causing increased human health risks</p> <p>Land use change, degradation of water quality, increased human health risks from contamination of water, soil, and food by human pathogens, degradation of estuarine and marine and surface shallow groundwater water quality adversely affecting both human and ecosystem health</p>	The technical monitoring construction committee is functional. The purpose of this committee is to monitor the evolution of construction and to evaluate its compliance with validated plans. It organizes a tour of the site every 15 days. During these visits questions are raised and improvement measures proposed.	Project Manager	<p>Construction plans/ designs and photos of all facilities constructed</p> <p>Mgt. plan, MSC cert. or other evidence of measures to prevent overfishing</p> <p>Construction plans/ designs and photos of all facilities constructed</p>	<p>Review of materials and site inspection</p> <p>Review of materials</p> <p>Review of materials and site inspection</p>	Quarterly
3. Enhance fisheries value chains	Increasing the value of fish and product eco-labeling can give incentive to increase fishing effort and contribute to overfishing.	No value chain activities	Project Manager	Management plan, MSC certification or	Review of materials	Quarterly

Category of Activity	Environmental threats	Mitigation Measures Taken	Who is responsible for monitoring?	Sources of Verification	Monitoring Method	Frequency of Monitoring
				other evidence that measures are being taken to prevent overfishing		
4. Improve fishing community resilience to climate change	<p>Alteration of nearshore sediment patterns resulting in displaced or accelerated erosion of beachfronts from inappropriate construction</p> <p>Natural habitat destruction or degradation, degradation of marginal lands land water; marine pollution from soil erosion or use of agricultural chemicals; reduced water availability from water storage or diversion for irrigation; bio-diversity loss from land fragmentation, conversion to agricultural use, or introduction of exotic species</p> <p>To be determined through environmental screening processes</p>	TBD	Project Manager	TBD via env. screening	TBD via env. screening	Quarterly