Gambia-Senegal Sustainable Fisheries Project
USAID/BaNafaa

Year 3: Third Quarter Report

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1. Introduction

The USAID/ BaNafaa project is a five-year regional initiative supported by the American people though the U.S. Agency for International Development (USAID)/West Africa Regional Mission. It is implemented through the University of Rhode Island (URI)-USAID cooperative agreement on Sustainable Coastal Communities and Ecosystems (SUCCESS). The World Wide Fund West Africa Marine EcoRegional Program is a regional implementing partner. At the end of Year 2, The University of Rhode Island established an office presence in The Gambia and is working directly with local implementing partners, including TRY, NASCOM, TAGFC and the Water Resources Laboratory on some activities. At the end of Year 2, WASH and Climate Change funding was awarded in addition to previous fisheries activities under the biodiversity earmark. URI is working directly with local partners TARUD and GAMWORKS to implement WASH activities beginning in Year 3. A bilateral Climate Change Vulnerability Assessment was conducted by WWF in Year 3. Project activities are carried out in partnership with the Department of Fisheries (DoFish) and stakeholders in the fisheries sector in The Gambia and in Senegal. The focus is on sustainable fisheries management including the shared marine and coastal resources between The Gambia and Senegal. However, most field activities are in The Gambia. The Gambia - Senegal Sustainable Fisheries Project contributes directly to the achievement of the USAID West Africa Regional Office's Environment & Climate Change Response (ROECCR) Results Framework through contributions to multiple Intermediate Results.

This quarterly report describes progress made in Quarter 3 of Year 3 (April 1 – June 30, 2012)

1.1 Background

In West Africa, an estimated 1.5 million tons of fish are harvested annually from the region's waters, with a gross retail value of US$1.5 billion. In The Gambia and Senegal artisanal fisheries make up a majority of the fisheries landings and contribute significantly to income generation and local food security for coastal communities and for many communities inland where fish are traded. Some 200,000 people in the Gambia and 600,000 in Senegal are directly or indirectly employed in the fishing sector. Seafood products are a leading export of the region and generate as much as 20% of the gross value of exports. While the majority of seafood exports are destined for European Union (EU) markets, a growing volume of trade goes to the U.S. and other countries in the region.

Fish provides the main source of animal protein for the average rural family in the sub-region, where annual fish consumption can be as much as 25kg per capita. In many rural areas, fishing serves as a "social safety net" when farming turns unproductive due to depleted soil, drought, disease, or other factors.

In addition to direct socioeconomic benefits derived from fishing, a well-managed sector can benefit other aspects of the region's economy and quality-of-life. This includes a growing tourism sector and a number of globally and regionally significant parks and natural heritage areas. With annual tourist arrivals surpassing 120,000 in The Gambia and 400,000 in Senegal, a

growing number of tourists are taking advantage of the countries' ecologically significant reserves, parks, and protected areas—most of which have direct links to the fate of well-managed fisheries. These include but are not limited to the Sine-Saloum Delta Biosphere Reserve in Senegal and in The Gambia the Niumi National Park, the Baobolon Wetland Reserve, and the Tanbi Wetland Complex—all are designated Ramsar sites and contain globally significant wetlands.

Senegal and The Gambia are centrally located within the West African Marine Ecoregion (WAMER) that spans 3,500km of coast in western Africa (Mauritania, Senegal, The Gambia, Cape Verde, Guinea Bissau, and Guinea). Its most striking feature is the powerful coastal upwelling of cold water that create a tremendously productive food chain supporting incredible biodiversity in one of the most diverse and economically important fishing zones in the world. Over 1,000 species of fish have been identified, along with several species of cetaceans including dolphins and whales, and five species of endangered marine turtles. This immense productivity is further enhanced by several major river/estuary/delta complexes that provide additional influx of nutrients and sediments to the marine realm, adding to its biological productivity. The estuarine wetlands are globally significant breeding and over-wintering grounds for numerous migratory birds.

The ecoregion is also known as the Canary Current Large Marine Ecosystem (CCLME). Fish that spawn in northern nurseries seasonally migrate southwards (as do the fishermen) and provide food for human fishing communities along the way. In addition, recent satellite tracking has confirmed that green turtles lay eggs along the remote beaches of Guinea Bissau and travel northwards through Senegalese and Gambian waters to graze in the rich sea grasses of Mauritania. In short, the unique combination of climate and upwelling supports species and habitats that represent critical resources locally, nationally, regionally, and globally. Areas of international, regional and local significance within the WAMER are shown in Figure 1. The stretch from the Saloum Delta in Senegal, The Gambia River and the entire coastline of the Gambia, as well as the Casamance river system is one contiguous area that has regional biodiversity significance.

High levels of fishing effort, however, puts unsustainable pressures on limited fish stocks—only further exacerbated by recent improvements in fishing gear that increase fishing efficiency. As more boats search for fewer and fewer fish, the use of destructive, habitat-destroying fishing techniques such as bottom trawling, and beach seining have increased dramatically. Increased fishing has also led to increased capture of endangered marine turtles, juvenile fish, and expansion of the trade in shark and ray fins.

To address these threats, more integrated management approaches are needed at the local and regional scale, including approaches that move toward more sustainable fisheries utilization with less impact on the rich biodiversity of this region. Reducing overfishing through more sustainable harvesting practices will result in a healthier marine ecosystem, including higher biomass of standing stocks and more balanced species assemblages. In addition, promoting more sustainable use practices will help address the wasteful problem of incidental bycatch and capture of endangered species and will increase adaptive capacity of communities and fisheries to climate change.

Climate change is predicted to seriously modify coastal, marine and estuarine ecosystems and their human uses with social, economic and ecological consequences. In the Saloum, Sangomar Point has completely disappeared and the advancing sea is causing the progressive disappearance of mangroves in the Saloum estuary. Infrastructure in both the Saloum and in The Gambia are threatened by coastal erosion, menacing fisheries centers, and landing and processing sites. By one estimate, climate change will cause a reduction of fish catch in Senegal by 2% of GDP beginning in 2020.

It is therefore important to study the vulnerability of these ecosystems and productive human activities to identify appropriate adaptation measures that support sustainable socio-economic development and reduce the vulnerability of local populations. While the natural resources are trans boundary, resource management in The Gambia and Senegal is strictly national. An ecosystem-based approach to fisheries resource management and adaptation of fisheries to climate change needs to consider both countries and ensure bilateral cooperation and planning.

In short, at stake in a successful ecosystem-based approach to fisheries management is the ability of millions of people to sustain a resource-dependent existence while at the same time protect the overall ecological integrity and biodiversity of the region.

The current food security crisis in The Gambia and The Sahel has increased pressure on fishing communities and ecosystems. In January 2012, the Government of The Gambia declared the 2011/12 agricultural season a failure, seriously affecting more than 409,000 people in rural areas and another estimated 192,850 people living in the poorest urban areas who are still recovering from floods in previous seasons. They are vulnerable to food insecurity, rising food prices and additional economic pressure from helping relatives in affected rural areas. In early May 2012, the US Ambassador declared The Gambia an emergency and USAID/OFDA gave $500,000 in emergency funding. The Gambia food security crisis is taking place in the context of the larger Sahel wide food security crisis. Senegal is also severely affected and the crisis will potentially increase migration from Senegal to The Gambia in general and to the artisanal fisheries sector in particular, where 60% of fishing units at the Atlantic Coast fisheries landing sites are Senegalese owned.

1.2 The Gambia Fishery Context

There are two types of fisheries in The Gambia—artisanal and industrial. The total fish landed from both the artisanal and industrial sub-sectors were estimated at nearly 40,000 MT in 2006 and 47,000 MT in 2007. In 2006, the artisanal fishery contributed approximately 93 %.

In the mid 1960s The Gambia witnessed the transformation of the artisanal fishery from paddled canoes with simple fishing techniques to one with modern fish-capturing technologies and larger canoes with outboard engines, which resulted in an increase in fish landings. Decades of growth in the artisanal fishery combined with the activities of the industrial fishery has caused high levels of exploitation, especially of high-value fish, crustaceans and cephalopods. Production in the artisanal fishery has increased from 10,000MT in 1985 to approximately 40,000MT in 2007,

while industrial production has been declining. Reports of dwindling catch per unit of effort indicate that high-valued demersal species are under threat from high levels of exploitation. Regular assessments carried out by the Demersal Working Group of the FAO's Committee for Eastern Central Africa Fisheries (CECAF) also indicate that the major demersal fish stocks are either fully or overexploited. Pelagic stocks are also considered to be fully or overexploited regionally, but there are some indications that The Gambian stocks may not be fully exploited.

In 2007, a total of 32 industrial fishing vessels operated with a license in Gambian waters—15 shrimp trawlers and 17 fish\cephalopod trawlers. All industrial vessels operating in Gambian waters are foreign-owned and foreign fishermen dominate. These vessels land their catches in foreign ports where the fish is processed, packaged and labeled as products originating from those foreign ports. The absence of a deep water port is the reason that the industrial fleet does not land their catches in The Gambia as is required by fisheries licensing regulations. A deep water landing dock in Banjul is now under construction. This construction project was developed and supported by the Gambia Artisanal Fisheries Development Project supported by the African Development Bank and BADEA (Arab Bank for Economic Development).

The industrial fisheries sub-sector also includes industrial seafood processing plants that purchase fish from the artisanal fishery and provide permanent and part-time employment to between 1,500 to 2,000 people (mainly women). Presently, there are seven processing plants, three of which export to the EU. Two plants are temporarily closed due to lack of material (fish) and high operating costs. Lack of adequate fish for processing is an annual problem, especially when most Senegalese fishers return to Senegal for Ramadan and Tabaski (Islamic holidays). It is expected that the new deep water port in Banjul will reduce the problem of lack of material and the need to operate below capacity. Processing factories also suffer from unreliable provision and high prices for electricity—electricity represents the greatest cost for processing plants with The Gambia having one of the highest kilowatt hour cost of electricity in Africa. Another problem is the high cost of financing.

The artisanal sector, which is the major supplier of both food fish for the Gambian populace and raw material fish for commercial fish processing plants, provides direct employment to 1,410 head fishermen and 4,694 assistant fishermen. Considering fish buyers, processors, boat builders, fuelwood collectors, and other ancillary activities it is estimated that over 200,000 people are directly or indirectly dependent on artisanal fisheries for their livelihoods. Of the 1,410 head fishermen operating in the artisanal fisheries, 805 are Gambian nationals and 605 foreign. In the coastal area, however, foreign nationals—mainly Senegalese—form the majority with 249 head fishermen compared to 167 Gambians. The number of canoes and fishermen operating in artisanal fisheries steadily increased from 1983 to 1997, but thereafter and until 2006 declined. The artisanal subsector is highly diverse, incorporating marine, estuarine and freshwater fishing operations. The majority of the communities located along the Atlantic coastline and close to the River Gambia and tributaries engage in some form of artisanal fishing activity. The more prominent fishing communities are located along the Atlantic coast and include the coastal villages of Kartong, Brufut, Tanji, Sanyang, Gunjur and Bakau, and the riverbank villages of Albreda, Bintang, Kemoto and Tendaba.

Artisanal fishing crafts are predominantly dug-out canoes along the river, and planked open hull vessels (*pirogues*) of the Senegalese type along the marine coast. Most fishermen (74 %) own their canoes followed by joint ownership (14%). The Frame Survey revealed that 94% of the fishermen use canoes for fishing and the most common type of canoe used is dug-out (50%) followed by planked-dugout (37%). There are also 1,082 un-motorized and 625 motorized canoes.

Pelagics are now the dominant catch of the artisanal fishery. Gear used in the pelagic fishery includes surround gillnets and purse seine nets and the main species that are caught are shads (*Bonga*), sardinella, anchovies, mackerel, barracuda and jacks. Demersal species are caught by artisanal fishermen using set/bottom gillnets, drift nets, traps, and hook and line. Various species of croaksers, solefish, catfish, cuttlefish, threadfins, grunts and groupers are captured with these fishing gears. Stow nets and drift nets (*fele-fele*) are especially used by artisanal fishermen for catching shrimps in the estuary and tributaries.

With regard to fish market outlets, about 60 percent of fishermen sell fish catches through *Banabana* (fish dealers) and 31 percent sell directly to consumers. The rest sell through bidding. The artisanal fish catch is either sold among the local communities for processing (drying and smoking) or is transported and marketed in major towns and villages in the interior. Post harvest losses are high due to a combination of oversupply, lack of preservation and lack of market. The processed fishery products are transported and sold in inland markets, and some are exported to neighboring countries. A proportion of the artisanal fish catch of high value (shrimps, soles, sea breams, lobsters) are purchased by industrial seafood processing companies for export abroad. The Ministry of Fisheries and communities at the artisanal fisheries landing sites have indicated that Water and Sanitation are development priorities for the artisanal fisheries sector due to the lack of sanitary facilities and potable water sources at most landing sites. This situation poses a public health threat for users of the site and surrounding communities as well as a threat to the quality of fisheries products handled and processed at the sites.

The Gambia's fisheries sector operates under the authority and responsibility of the Minister of Fisheries, Water Resources, and National Assembly Matters through the Department of Fisheries (DoFish). The policy, legal and management framework for fisheries in The Gambia is provided by the 2007 Fisheries Act and the 2008 Fisheries Regulations. A draft Fisheries Management Plan for shrimp, sardinella and sole fish was prepared in 2009. The Fisheries Act mandates a Fishery Advisory Committee and Community Fisheries Centers as the institutional structure for inclusive oversight of the sector and also allows for decentralized fisheries co-management. The policy objectives of the fisheries sector as articulated in policy documents include:

- Rational and long-term utilization of the marine and inland fisheries resources
- Improving nutritional standards of the population
- Increasing employment opportunities in the sector
- Increasing foreign exchange earnings
- Increasing and expanding the participation of Gambians in the fisheries sector
- Improving the institutional capacity and legal framework for the management of the fisheries sector

The policy objectives of the fisheries sector are linked to key national development objectives that include: increased food self-sufficiency and security; a healthy population and enhanced employment opportunities for nationals; increased revenue generation and foreign exchange earnings; and the attainment of national social and economic development. They are designed to support key national development objectives as outlined in the Poverty Reduction Strategy Paper and The Gambia Incorporated Vision 2020, which are blueprints for national development and eradication of poverty.

1.3 Program Goal and Key Results

The goal of the USAID/ BaNafaa Project is to support the Government of The Gambia in achieving its fisheries development objectives by contributing to the following vision:

> *Artisanal fisheries and coastal ecosystems in The Gambia and selected stocks shared with Senegal are being managed more sustainably, incorporating significant participation of fisherfolk in decision-making, and attaining improved economic benefits for both men and women involved in the market value chain.*

USAID/BaNafaa builds on the on-going efforts of the Department of Fisheries in The Gambia, working with community fisheries centers and their management committees to improve fisherfolk involvement in the management of fisheries resources. More specifically, to further the development and implementation of the draft fisheries management plan for sole and other selected species. Sole is an important export commodity so this involves partnerships with export processing businesses as well. This is also a shared stock with Senegal. As gender equity is another important aspect of the project, USAID/BaNafaa is benefiting both men and women in the fisheries sector by also working with oyster harvesters—a women-dominated fishery whose importance is often under-recognized.

Key Results for the USAID/BaNafaa Project are to:

- IR 1: Strategies to increase social and economic benefits to artisanal fishing communities, and otherwise create incentives for a sustainable fisheries agenda in the WAMER identified, tested and applied
- IR 2: Institutional capacity strengthened at all levels of governance to implement an ecosystem-based, co-management approach to sustainable fisheries, and to prevent overfishing
- IR 3: Nursery areas and spawning areas for critical life stages of commercially important species and for associated marine turtles and mammals are protected
- IR 4: Change unsustainable and destructive marine resource use practices that threaten improved biodiversity conservation in the West Africa Marine Ecoregion

Project Strategies

- A participatory co-management approach that engages fisherfolk in decision-making.
- An ecosystem-based approach that looks not only at the fish, but protection of critical habitats and reduction of fishery impacts on threatened marine species
- Mainstreaming gender dimensions that provide opportunities for both men and women to benefit economically and participate in decision-making.
- A threats-based approach to coastal and marine biodiversity conservation.

Geographic Scope. The Project concentrates its activities on the marine and coastal resources and fisheries stocks shared among the Casamance, the Gambia River and Saloum Delta region—an area of regional biodiversity significance (see Figure 1). The majority of on-the-ground activities occur in The Gambia, where USAID/BaNafaa focuses on the artisanal nearshore fisheries along the Atlantic coastline as well as the estuarine- and mangrove-dominated portions of The Gambia River (see Figure 2 below). A sister project in Senegal, called the Wula Nafaa project, is working on fisheries management in the Saloum Delta and Casamance River. Together, these two USAID-supported initiatives are expected to have a significant impact on improved management of this biodiversity-rich area.

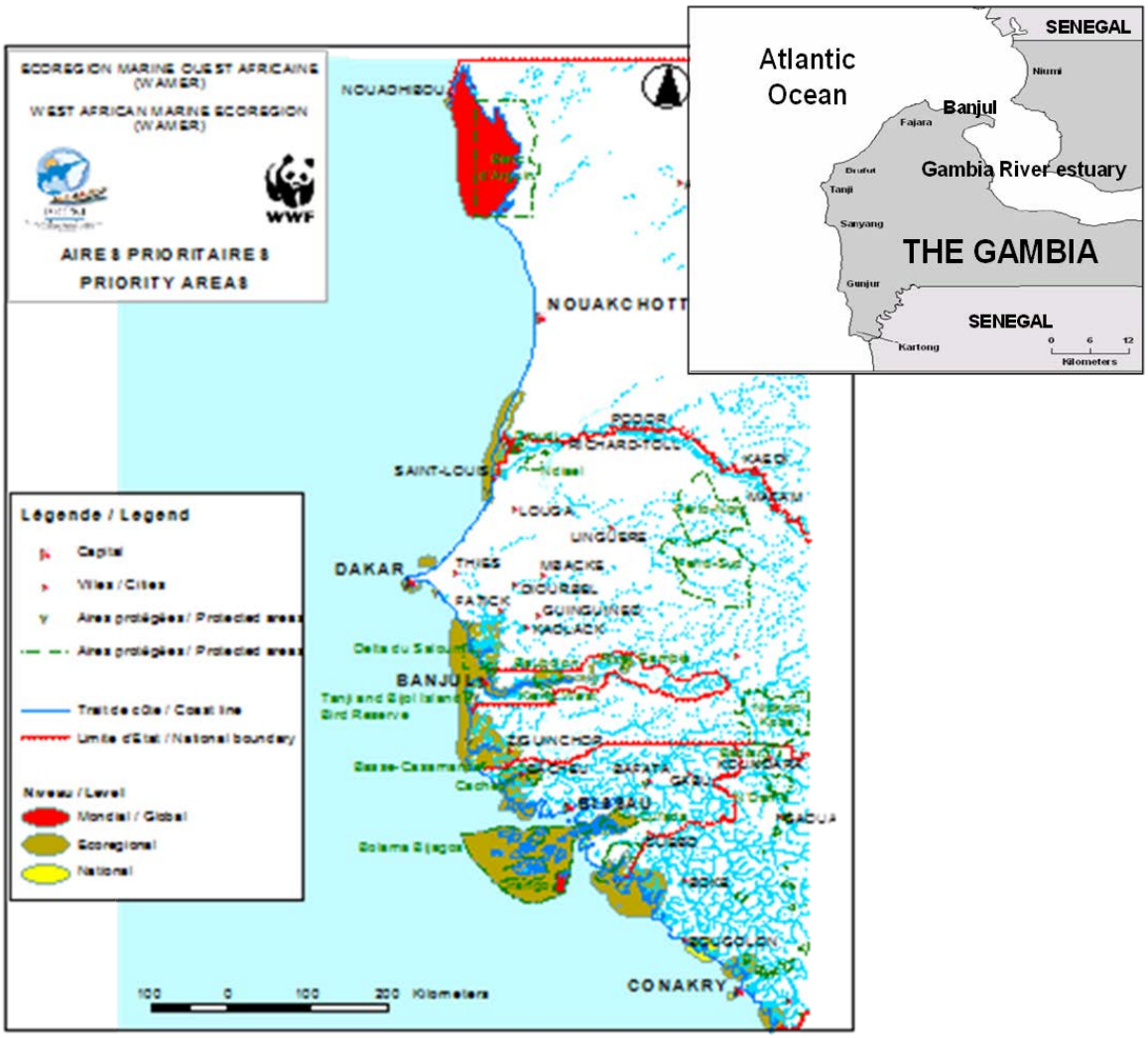


Figure 1: Areas of Biodiversity Significance in the WAMER and The Gambia River Estuary and Atlantic Coast

1.4 Rationale for Piloting Regional Demonstration Activities in The Gambia

The Gambia is the only country in West Africa that has enacted a fisheries legislation that makes it possible to adopt and implement a fisheries co-management plan under the Ecosystem-Based Fisheries Management (EBFM) approach. The Fisheries Act of 2007 is comprehensive legislation that addresses national as well as international fisheries issues in a holistic manner incorporating the FAO Code of Conduct for Responsible Fisheries and other relevant international fisheries conventions and protocols to which the country is a member or has assented to. Thus, a strong legal basis for the implementation of a co-management regime is already in place. The top-down approach to fisheries management is a thing of the past; now the fisherfolk and their communities are fully participating in all aspects of fisheries management including decision-making. Community Fisheries Centers have been established in major fish landing sites and are operating under a co-management arrangement with Government and other stakeholders. However, the fisheries co-management institutions need to be strengthened. The USAID/BaNafaa project has been providing the requisite leadership, financial and technical support. Much has been achieved yet more work is needed to achieve success and sustainability of a co-management approach that can serve as a model for other nations in the region.

The small size of the country and comprehensive fisheries legislation offer the unique opportunity to introduce the EBFM approach as a pilot and if successful the approach can be adapted in other countries where USAID is supporting sustainable fisheries development programs (Ghana and Senegal). The Gambia is a good model for fisheries co-management in West Africa and other regions with open access fisheries.

The USAID/BaNafaa project focus in the first 2 years of project implementation has been on the oyster and sole fisheries. As of January 2012, a co-management plan for the sole fishery was adopted. The sole fishery is also now closer to meeting the sustainability criteria for certification by the Marine Stewardship Council, and may be the first artisanal fishery in sub-Saharan Africa to get an Eco-label. Other countries in West Africa including Morocco, Mauritania, Senegal and Ghana are interested in the work being done under this project and eager to learn from this experience. The oyster fishery activities are uniquely focused on women harvesters which are typically neglected in fisheries development planning. The co-management plan for the oyster fishery, also approved in January 2012, gives exclusive use rights to the oyster fishery in the Tanbi wetland area to these women oyster harvesters who have now been organized into an area wide producer organization. Exclusive use rights to a fishery resource are rare in West Africa, let alone to women. This is the first case in sub-Saharan Africa where exclusive fishery harvest rights have been legally given to women harvesters.

Valuable lessons can be learnt from the implementation of the USAID/BaNafaa project, lessons that can guide the implementation of current and pipeline USAID Fisheries projects in the region. West African countries may also decide to revisit their fisheries legislations and make amendments incorporating provisions that will create a stronger enabling environment for the introduction of co-management and EBFM approaches to fisheries that can protect important marine bio-diversity assets, reduce their vulnerability to climate change and strengthen fish product food security through well managed resources.

The Legal Basis for Co-Management in The Gambia

Section 11 of the Fisheries Act gives power to the Minister of Fisheries to determine participatory rights in a fishery, such as allocations of the total allowable catch or of the total allowable level of fishing and this may include restrictions as to vessel type, gear type, seasons of operations, and areas in which fishing can take place; and any other restriction relevant to fisheries conservation, management and development.

Under Section 14, the Minister of Fisheries may, in the interest of conservation, management and sustainable utilization of fisheries resources, by Notice in the Gazette, declare any area of the fisheries waters and corresponding adjacent areas, including marine protected areas or reserves established under any other laws, to be Special Management Areas for purposes of community-based fisheries management, and the application of certain conservation and management measures and artisanal or subsistence fishing operations or any combination of the foregoing purposes or other specified purpose. The Notice published may specify the specified Special Management Area: the persons or groups of persons or types or classes of vessels that may be allowed to fish; the methods of fishing that may be used, the terms and conditions of fishing; and any other conservation and management measure that apply.

Section 15 stipulates that the Minister of Fisheries may, in consultation with the Local Authorities and where applicable, in accordance with the Local Government Act and other laws of The Gambia, establish a Community Fisheries Centre for the purposes of community-based fisheries management and may allocate the Management Areas or parts of them for which a Community Fisheries Centre shall be responsible under this Act and describe the rights and responsibilities of a Community Fisheries Centre in respect of the Special Management Areas or parts of them, taking into account the concerns of communities living within the immediate environs of the area to be declared as a Special Management Area.

The Fisheries Regulations of 2008, mandate that all fishing vessels must be registered and obtain fishing licenses as well.

2. Year 3, Quarter 3 Accomplishments

2.1 Intermediate Result 1

Strategies to increase social and economic benefits to artisanal fishing communities, and otherwise create incentives for a sustainable fisheries agenda in the WAMER identified, tested and applied.

No	Indicator	FY12 Target	Q1	Q2	Q3	Q4	FY12 to date
1	Number of businesses economically benefiting	250	122		0		122
2	No persons receiving econ. assistance packages (grants, training, etc.)	260	157		0		157
3	Number of people with improved access to loan capital	250	122		0		122
W1	Improved access to water and sanitation facilities	0	0	0	0		0
W2	Number of persons receiving Participatory Hygiene and Sanitation Transformation (PHAST) Training.	280	0	0	0		0
W3	Number of persons receiving training and outreach messages on hygiene promotion	1000	0	0	0		0
W4	Community water and sanitation committees established and trained with program assistance	2	0	0	0		0

Progress on Activities Contributing to This Intermediate Result:

Project activities described under the sub-headings below have contributed significantly and directly to this IR. The results of the strategies identified, tested and applied in economic and social terms and the degree to which they have influenced a broader sustainable fisheries agenda in the WAMER are preliminary at this stage. The quantification of number of businesses and persons benefitting, as reported in indicators 1-3 for this IR, are already exceeding targets specified in the Project Design. However, these numbers do not reveal the underlying complexity of the benefits and the degree to which they are sustainable. USAID/BaNafaa project activities have, to date, focused on creating the enabling conditions for longer term sustained benefits. WASH activities aimed at achieving the targets (W2-W4) for the fiscal year are underway. The progress made on key activities is described below.

a. Effective Sole Fishery Co-Management Plan and Support for MSC Certification Readiness

The potential both for advancing the sustainable fisheries management agenda and for social and economic benefits for artisanal fishing communities in the sole fishery in The Gambia is significant as progress is made towards Marine Stewardship Council certification and having the MSC eco-label. The activities of the USAID/ BaNafaa project in the sole fishery to date have been directed at supporting and building the capacity of the Government of The Gambia and other stakeholders to manage the Gambian artisanal sole fishery at a standard that can meet the eligibility criteria for MSC certification, although certification is not the objective of project support. The USAID/BaNafaa project has been the most significant partner of The Gambian Government in this effort. In 2010, the USAID/BaNafaa project entered into a Memorandum of

Understanding (MOU) with the Department of Fisheries (DoFish), The Atlantic Seafood Company and GAMFIDA to assist the Gambian stakeholders address the deficiencies outlined in the September 2008 MSC pre-audit report. One of the key activities is USAID/BaNafaa's support for the development of a Sole Fishery Co-Management Plan for the artisanal sole fishery.

The project has facilitated the setting up of community based sole committees (LACOMS) and a national co-management committee (NASCOM) and has contributed technical assistance for sole stock assessment, by-catch research, critical spawning area hotspot mapping using local ecological knowledge, value chain analysis, and vessel licensing and registration, as well as on stakeholder capacity building and the stakeholder consultation process for developing the co-management plan. Technical reports are posted on the CRC website. As a result, the organizational framework for fisheries co-management has greatly improved since 2009. The fishing communities are better organized with functional committees at local and national levels working to serve their collective interests. DoFish staff have been involved in all processes from the start. So have other government agencies such as the Gambia Navy, Gambia Maritime Authority, Local Government Municipalities, as well as fisheries non-governmental organizations GAMFIDA and NAAFO. These actors have worked towards consensus building on access limitations, closed and protected areas, mesh size regulations and responsible fishing practices, all of which are prerequisites for sustainable fisheries in The Gambia. Without USAID/BaNafaa project support, the Sole Co-Management Plan would not have been developed in this manner at this pace. Progress towards MSC certification, for which the Co-Management Plan is a significant milestone, would not be as advanced without the direct contribution of the USAID/BaNafaa Project. The Gambia is MSC's pilot country for its fisheries in transition program, which helps developing countries move towards sustainability. If certified, The Gambian sole fishery would be the first artisanal fishery to obtain MSC certification in sub-Saharan Africa.

Evidence that these strategies, the Sole Co-Management Plan and the MSC certification process, will increase social and economic benefits to artisanal sole fishing communities will be evaluated in later years. What we can say at this point is that: 1.) artisanal fishing communities have a greater say (including exclusive use rights) in the management of the fishery upon which their livelihoods are based and, 2.) the highly participatory process of developing the Sole Co-Management Plan has provided them with a better understanding of the fishery and of the importance of their participation in continued research and analysis in order to make informed and ecologically sound decisions on management measures. In an increasingly demanding international market, it is hoped that MSC certification could, at the very least, prevent The Gambia from losing its export market for Sole. The eco-label could also create increased demand for Gambian sole fish. With management measures in place to control over-exploitation of the fishery, the stage will be set whereby the economic benefits could increase and filter down to the fishing communities in terms of a potential increase in the price per kilogram of sole fish at landing points. The price per kg has remained unchanged at D20/kg (less than $0.75) over the past 3 years. Higher demand and higher prices in an environment of managed effort could also improve the economics of investment in technologies to reduce high post-harvest losses at the fishermen's level, further increasing economic benefits realized at their level without increased fishing effort.

Accomplishments Year 3, Quarter 3:

1. Approval of the Sole Fishery Co-Management Plan:

Following approval, signature and public launching of the Plan by the Minister of Fisheries, Water Resources and National Assembly Matters on January 17, 2012, gazetting of the plan for public notice has been delayed due to the turnover of Ministers following Presidential elections in November 2011. The previous Minister of Fisheries, Water Resources and National Assembly Matters, who signed the co-management plan was replaced in February 2012. The USAID/BaNafaa Project Manager met and briefed the new Minister, who promised in a public speech at the opening of the Bi-lateral Climate Change Vulnerability Assessment Stakeholder Workshop on April 10 to gazette the plan. On April 17, he was appointed Minister of Finance and replaced at Fisheries by the recent Minister of Foreign Affairs. In May, that Minister was removed and the post has remained vacant to date, with the Ministry overseen directly by the President's office and leaving the gazetting of the plan as a pending action as of July 2012.

2. Implementation of the Sole Co-Management Plan:

DoFish Capacity: USAID/BaNafaa continued to provide technical assistance to DoFish for the institutionalization of its stock assessment and database management responsibilities, following up on the quarter 1 technical assistance visit by the University of Rhode Island Fisheries Center technical specialists Dr. Kathy Castro, Barbara Somers and Najih Lazar. Training for two staff on-line in stock assessment and database work with distance support from URI is on-going. Joe DeAlteris visited The Gambia in May 2012 to support the on-line stock assessment training and to provide technical assistance for a new stock assessment as part of the co-management plan and to support MSC readiness. Preliminary findings of the new stock assessment indicate that for red and black sole the estimated level of fishing mortality may now be greater than the recruitment overfishing reference point. Current data indicating low percentages of larger fish in the population seem to support this finding. The overall catches of sole in 2010 do not appear to be excessive as compared to the 2006-2008 period, but the catches in 2011 appear to be higher. A larger data set for 2011 is currently being analyzed and the full stock assessment should be completed by October 2012.

Although these preliminary findings raise potential concerns about the status of the stock, the process put in place under the co-management plan for the sole fishery is working. The first stock assessment done by MSC was very rough and preliminary, based on little data. With USAID/BaNafaa assistance, DoFish has improved the data and is analyzing and sharing it in the context of a co-management plan. The co-management plan also provides the institutional framework for stakeholders to decide how to act on the findings. The 1 nautical mile (nm) seasonal closure was incorporated into the management plan as a precautionary measure, but might now be considered a significant management action. Additional adaptive management measures are also under consideration and may be needed if the full stock assessment indicates exploitation levels may be too high.

NASCOM Capacity: In quarter 3, URI/CRC conducted a preliminary assessment of the status of the institutional capacity of NASCOM following their formal registration with the

Government of The Gambia in January 2012 and the recent opening of a bank account in the Association's name. The assessment is the first step in preparation for the capacity strengthening seed grant to NASCOM planned for Year 3. The capacity gaps identified during this assessment are the basis for the seed grant activities developed with NASCOM. Activities include development and implementation of Standard Operating Procedures and a Business Plan, as well as training in USAID and URI requirements for financial and administrative management and reporting. The seed grant will be disbursed to NASCOM in Quarter 4.

NASCOM continued its outreach program in quarter 3, visiting each of the sole fish landing sites discussing the Co-Management Plan with LACOMS and encouraging LACOMS to formulate and/or improve their by-laws as they take on a more formal and active role in co-management of the sole fishery. Fishermen began complying with the 1nm seasonal closure of the entire Atlantic coast of The Gambia beginning on May 1, 2012. However, penalizing of violators will not be feasible until the co-management plan is gazetted, the final step required to make the plan legal and enforceable by law. NASCOM also plans to mark the 1nm area with buoys as indicated in the management plan. Under the seed grant to NASCOM, USAID/BaNafaa will support NASCOM to test various buoy models to determine the most durable and cost effective options for marking the area.

The on-board ice box pilot study that was planned for Year 3 through the USAID/BaNafaa grant to NASCOM is still being developed. However, funding of this activity will now be undertaken with part of the funds provided by Kaufland, the German Seafood Company that is providing a 25,000 Euro grant to NASCOM. The funds were raised during a sustainable seafood marketing campaign designed to support The Gambia to pursue MSC certification for the sole fishery. Another 25,000 Euro will be used to pay for the next MSC assessment. While improving the quality of fish that reaches processors for the export market, this activity is also important because reducing post-harvest losses before the catch is landed and sold could significantly increase returns to fishermen without increasing effort. The Kaufland funding to NASCOM will also be used to purchase 3 patrol boats for enforcement.

Gillnet Study: In April, Chris Parkins of URI/Fisheries Center visited the Gambia to work with USAID/BaNafaa staff and selected fishermen to continue the gillnet study started in 2011. The study continued during quarter 3 and the report will be finalized in Quarter 4. The purpose of the gillnet study was to explore meaningful management options for the artisanal sole fishery related to fishing gear. If fishermen in The Gambia want to use mesh selectivity as a management tool, it needs to have selectivity. The objective of the study was, therefore, to determine selectivity of the gillnet as now fished (as an entanglement net). A secondary objective was to determine the selectivity of the net, especially for catfish, if hung correctly. Preliminary results show that the control (entanglement) net caught all size fish (no selectivity). Hanging the net with a 0.5 ratio increased the mean size of fish capture, but the catch from this net may be so reduced that fishermen are not willing to use it. Future research might focus on mesh size as an option. Chris Parkins and Gibril Gabis also conducted further field testing of the Fish Identification Field Manual in April. A few corrections and refinements of the manual were made. It will be used as a guide in the fish biology course for DoFish.

Figure 2: Fishermen participating in the gillnet study

b. Effective Oyster and Cockle Co-Management Plan

The USAID/BaNafaa project has been the principal partner of the Government of The Gambia and the TRY Oyster Women's Association in the development of the Oyster and Cockle Co-Management Plan for the Tanbi. The Project has contributed technical assistance for PRA'S in the oyster harvesting communities, water quality surveys at oyster and cockle harvesting sites in the Tanbi Wetlands, a preliminary shellfish shoreline sanitation survey in Banjul, oyster spatfall studies, oyster aquaculture and cockle ranching, pilot action research and oyster value chain analysis. Technical reports are posted at the CRC website. The project has also facilitated the stakeholder consultation process for developing the co-management plan and for building the capacity of the TRY Women's Oyster Association to represent and act in the interest of its members.

Even before official approval, which provides for exclusive use rights and decision-making authority of TRY and its membership committees in their local areas, there are already tangible social and economic benefits to the women cockle and oyster harvesters and to TRY. The benefits can be better appreciated from the point of entry of the USAID/BaNafaa project. Barely five years ago, the cockle and oyster fishery was not recognized and did not feature in the national fisheries development program. Also, TRY membership is comprised of middle aged women, mostly widowed and uneducated and yet the bread winners of their families. The women suffered disproportionately from indebtedness and economic hardships during the closed harvesting season and a difficult and hazardous working environment during the harvesting season. Benefits can be summarized as follows:

- The work conditions of the women have improved. They now have access to proper working gear, including work boots, boats, life jackets, and improved harvesting and shucking tools, thus markedly reducing the work hazards.
- The women now wear gloves and uniforms for marketing their products, a practice which improves the hygiene of the product, differentiates the higher quality product and makes it easily visible in the market.
- Preliminary results of extending the closed season in 2011 to allow for more growth and larger oysters indicate that this more ecologically sound practice may also provide a 30% price increase on the market. This practice is institutionalized in the Co-Management Plan.
- Pilot aquaculture action research tested techniques for oyster rack and basket culture to increase production using local materials. TRY members have now seen the potential of the techniques and its costs and can decide whether they will pursue aquaculture with their own investments.
- In Year 1, 24 members of TRY visited oyster harvesters and processors in Senegal and the TRY Executive Director went to Tanzania to see oyster processing and livelihoods work. In Year 2, four members of TRY, including the Coordinator went on a study tour to Senegal on improved oyster processing techniques. Due to the favorable results of USAID/BaNafaa water quality testing work, development of fresh oyster markets locally and eventually internationally is also a longer term possibility.
- Training in enterprise development and the introduction of a microfinance program (initiated by TRY and supported by the USAID/BaNafaa project) have built the capacity of TRY members in basic financial and small-business management and provided access to credit to 250 TRY members in Year 2. The credit is designed to enable the women to engage in value added activities for oysters as well as in alternative livelihoods during the closed harvesting season. Many have now developed the culture of saving money for the first time in their lives.
- TRY members were trained in soap-making as an off season livelihood option.
- 30 daughters of TRY members are undergoing training in culinary and handicraft skills at the TRY Center as a means of earning money to supplement the family income (the young women are high school drop-outs because the parents could not afford pay school fees). (Not a directly USAID/BaNafaa supported activity).
- Through the fundraising efforts of TRY, the Ministry of Education, for the first time, awarded 17 school scholarships to the most deserving children of the oyster harvesters.
- With the technical assistance of USAID/Ba-Nafaa, TRY has developed a comprehensive business plan that includes sections on: Enterprise Sustainability, Market Segmentation, Marketing and Sales, Healthcare and Insurance, Financial Analysis, Cost and Revenue projections, Operating Procedures, and Plans for a Sustainable Building proposal to establish a permanent multi- purpose processing center for TRY. An application for land has been submitted to Government, reviewed and additional information requested.
- As USAID/Ba-Nafaa has supported strengthening TRY, other organizations have started to provide financial support as well. They include the Global Environmental Facility (GEF) through the National Environment Agency, the Banesto Foundation of Spain, the Friends of Gambia and Senegal based in America, the Association of Small-Enterprises, Women's Bureau and the Department of Community Development.

Accomplishments Year 3, Quarter 3:

1. Approval of the Oyster and Cockle Fishery Co-Management Plan: Approval, signature by the Minister of Fisheries, TRY and 4 Government Departments and agencies, and the launch ceremony for the plan was combined with the sole plan launch on January 17, 2012. Gazetting of the Oyster and Cockle Plan for public notice is also still pending due to turnover of Ministers. 2. Implementation of the Oyster and Cockle Co-Management Plan:

TRY Capacity: Along with the benefits of the Co-Management Plan, TRY and its members also have a significant obligation to responsibly and sustainably manage the oyster and cockle fishery. Thus, ensuring the institutional sustainability of the TRY Association and the social and economic wellbeing of its members is the principal focus of TRY's efforts at this stage in its development. The USAID/BaNafaa Project's capacity strengthening seed grant to TRY provides support for these objectives through support for the following:

- Further development of sound institutional processes and procedures.
- In accordance with the guidance provided in the business plan:
    - value added and market development for Oysters and Cockles, including the continued development of packaging and processing technologies and the establishment of processing facilities that meet sanitary and hygienic standards for Gambian, West Africa regional and international markets.
    - Tourism initiatives
    - Fundraising
- Awareness raising about the social, economic and environmental issues related to sustainable management of the oyster and cockle fishery.
- Strategic and measured expansion of TRY to serve additional oyster and cockle harvesting communities in The Gambia.

In addition, as TRY capacity has increased, financial support for housing for the Peace Corps Volunteer posted with TRY is now be managed directly by TRY through the seed grant rather than by USAID/BaNafaa directly.

Processing and Marketing: From March 1st – June 30 (the open season), TRY women members harvested and marketed oysters. The women reported increased oyster size, most likely due to the delayed start of the oyster season institutionalized in the Oyster and Cockle Co-Management Plan. Under the USAID/BaNafaa seed grant to TRY, a market survey was conducted by two employees of the Department of Parks and Wildlife. They have collected the data and are currently writing the final report. The purpose of the study is twofold; 1.) to better understand the characteristics of market demand and the needs of the clients who purchase oysters at the various TRY sales points, and 2.) to collect data on the size and weight of oysters sampled from various TRY sales points throughout the open season in order to better understand and track the status of the stock. However, this study did not get underway in time to get 4 full months of data this year. It will be repeated each year.

TRY also purchased oysters from members for centralized processing and sales from the TRY Center. TRY had planned to spend about GMD 50,000 to purchase oysters from the women members this season, estimating a profit of approximately GMD12,500 ($416). At the end of the

season (June 30), TRY had spent a total of GMD 23,410 for the purchase of 154.5 kg of oysters (12 kg of boiled oysters, 142.5 kg of smoked oysters). The profit made from the oyster sales was minimal, especially considering electricity costs for the freezers used to store the oysters for sale. For TRY Association to rely on oyster sales as one of its main sources of income, TRY needs to access adequate capital to purchase in volume sufficient to utilize freezers to capacity and to develop markets for the frozen product sufficient to support the purchase and resale of such volumes. As a result of its efforts to date, TRY has noticed an increase in interest and awareness surrounding the availability of frozen oysters at the Centre and selling frozen oysters at high prices in the off season may be a profitable option worth exploring. Greater efficiencies in the processes of handling, packaging and marketing the oysters are other areas for improvement.

The USAID/BaNafaa seed grant to TRY is also supporting a hotel and restaurant survey geared at opportunities to expand their markets. TRY staff Binta Gassama and Peace Corps Volunteer Fern Aguda-Brown have developed the survey with input from the USAID/BaNafaa team and will administer it in August. The survey will cover 15-20 hotels (mid-range and luxury) and 15-20 restaurants (mid-range and high end). The goal is to not only gather information about hotels and restaurants and their use of oysters and cockles, but to establish relationships with these businesses. These partnerships will be important for TRY's financial sustainability.

Annual Oyster Festival: The Fourth Annual Oyster Festival held on April 28, 2012 at the Kamallo landing site was another successful event. There were an estimated 250 guests. The President of The Gambia was holding an investiture event in Banjul the same day so he was not able to attend as he did last year. However, the Vice President of The Gambia, Aja Dr. Isatou Njie-Saidy made an appearance and she spoke on behalf of the Gambian Government praising the TRY women for their hard work and efforts. She has been a long standing supporter of TRY. The entertainment included traditional dancing and wrestling and the food available for sale received great reviews. Like last year, the Festival was very successful in promoting TRY's mission and purpose, as well as the work of the TRY women and the specific objectives of the festival, which were:

- To promote and celebrate TRY's work in the Gambia
- To remind and appeal for help from the Government in regards to the need for land to construct a permanent headquarter which will include a processing center
- To raise awareness about the trade of oyster harvesting and the women who rely on this trade
- To promote the purchasing of oysters at the multiple locations of sale, as well as promote awareness of the season and availability of oysters
- To promote and demonstrate the various ways of preparing oysters
- To raise funds for TRY's programs. This is the only objective that did not meet expectations this year as a net of only $465 was raised.

GRTS (Gambia Radio and Television Station) attended and videotaped many of the activities, which they then showed on their nightly news program. A freelance BBC radio reporter, Helen Scales, also attended and will use material she recorded for a BBC radio piece she is developing on sustainable fisheries management.

Figure 3: The women of the Kamallo landing site march and dance into the Festival arena.

Mangrove Reforestation: Additional mangrove reforestation activity will continue with GEF funding in July and August.

Aquaculture Action Research: An article titled Aquaculture in The Gambia was published in World Aquaculture. The article is authored by Dr. Michael Rice of URI, Ousman Drammeh, USAID/BaNafaa Project Manager, Famarah Darboe, Deputy Director of DoFish and Kanyi Babanding, USAID/BaNafaa staff. The article reviews aquaculture related to USAID/BaNafaa activities as well as other aquaculture activity in The Gambia. It concludes that,

"…aquaculture in Gambia is very much in its infancy stages but it holds great promise because the Gambian people value seafood in their diets and there appears to be general support by both the government and the public for farming fish and shellfish. Major constraints to aquaculture in Gambia appear to be scarce and expensive access to capital, relatively poor transportation and shipping infrastructure in the country and in the case of shellfish, relatively low market prices that make gear acquisition relatively expensive in relationship to the cultured crop. The forms of artisanal aquaculture that appear to hold the most promise for the country are those that can be incorporated into the regular routines of existing rice farmers in the case of aquaculture of tilapia and other freshwater fish, or the routines of existing shellfishers in the case of oysters and cockles. Although aquaculture is considered favorably by the Gambian government for its potential in building a Gambian export trade portfolio, the history of the faltering shrimp aquaculture in the country over almost three decades suggests that a number of barriers to business success remain in place."

Environmentally friendly aquaculture research and development is a management measure specified in the Oyster and Cockle Co-Management Plan. USAID/BaNafaa has been supporting this aspect with various action research pilots conducted by TRY members in their communities. The status of each is as follows:

- Floating basket culture of oysters showed positive growth rates after one season and was viewed positively by the women, especially due to the lower than expected effort on maintenance of the floating baskets. However, due to the relatively high cost of materials

compared to the volume and value of oysters, this technique does not appear to be profitable. USAID/BaNafaa has decided not to continue the pilot, but the women now know how it is done and some who are interested may use local, lower cost materials to construct baskets and continue the activity on their own.

- USAID/BaNafaa has not continued to fund scale up of rack culture of oysters piloted in the Tanbi in Year 2 due to the lack of a clear economic benefit unless the activity is subsidized. Aquaculture reduces pressure on the mangroves, could extend the harvest of larger, higher value oysters later in the season and could significantly reduce travel time to and from ever more distant harvesting sites as the season goes on, but the wild harvest is currently so plentiful it is not evident that aquaculture could produce comparable volume with comparable effort and cost/benefit. TRY has received a GEF grant that it will use to experiment with adjusted, potentially lower cost, lower labor rack culture techniques such as using squares cut from old tires as the substrate. A key will be to see if the costs of production of this method make aquaculture economically viable.

- Cockle redistribution in Kartong is showing enough positive results and strong motivation from the women to continue as part of the development of a Kartong Oyster and Cockle Co-Management Plan as anticipated in the Year 3 workplan. Additional experimental plots located lower in the intertidal zone were added in Quarter 3. Growth from the new plots is showing positive trends as shown in Figures 5 below. The drop in May might be due to harvesting by the women or poaching by others and will be discussed at the next meeting with the Kartong group. Figure 6 shows that transplanted areas show significantly greater biomass that traditionally harvested areas. Once cockles reach maturity they will be harvested and with the expectation of significantly greater yields per unit of effort for the women.

Figure 4: TRY Members in Kartong sample cockles at low tide.

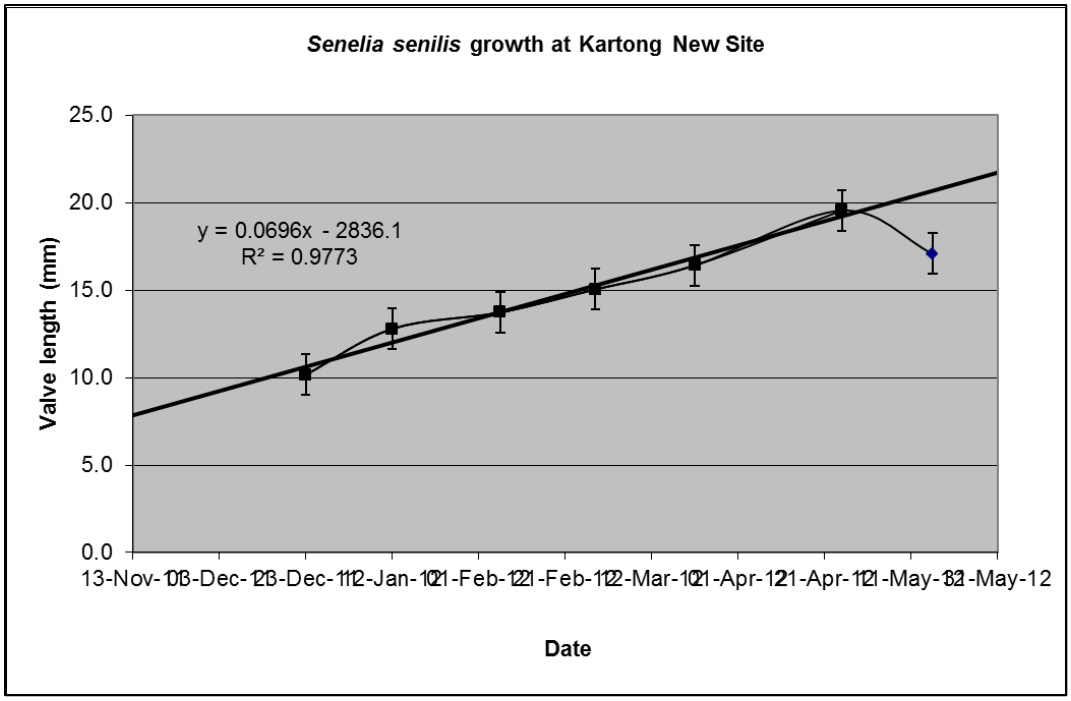


Figure 5:. Mean length of cockles in transplanted areas over time indicating strong growth

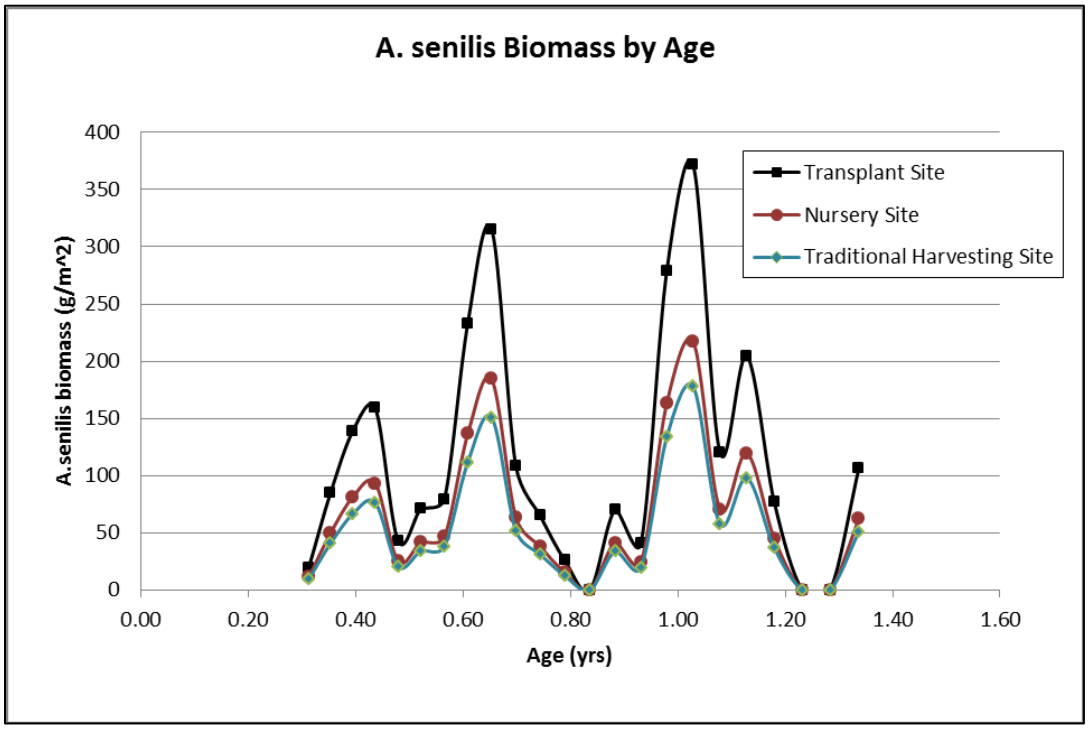


Figure 6: Comparison of biomass of cockles in transplanted and non-transplanted areas

Kartong Co-Management Plan Development: In addition to the Cockle redistribution action research discussed above, a Participatory Rural Appraisal (PRA) conducted in May with the TRY Kartong community will serve as the basis for development of a Kartong Oyster and Cockle Co-Management Plan. The report is being finalized. Since women from Senegal also cross the border to harvest in the Kartong estuary, they will be included in the management planning stakeholder engagement process.

Figure 7: TRY members from the Kartong Community participate in the PRA.

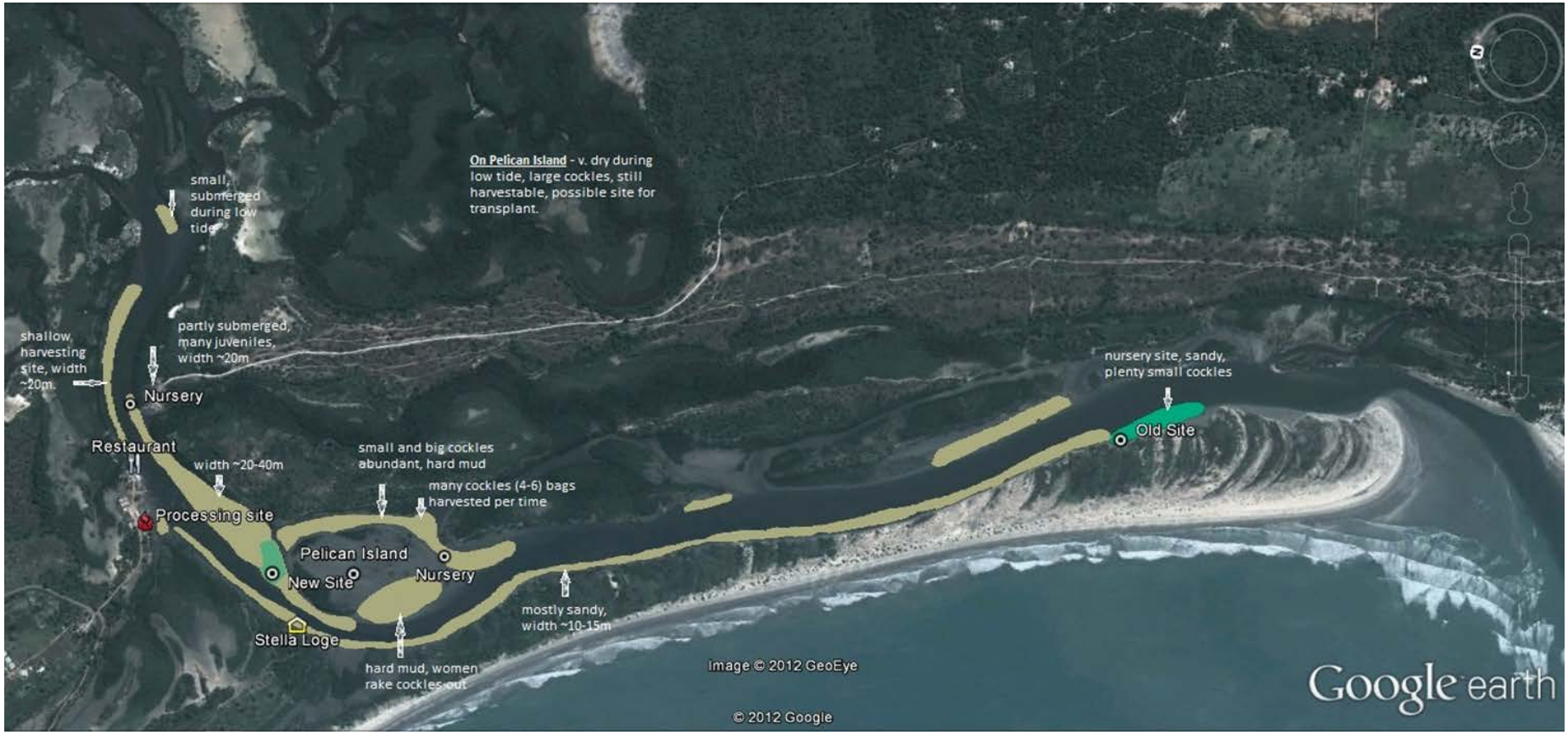


Figure 8:. Satellite Map of the Kartong shellfish harvesting area.

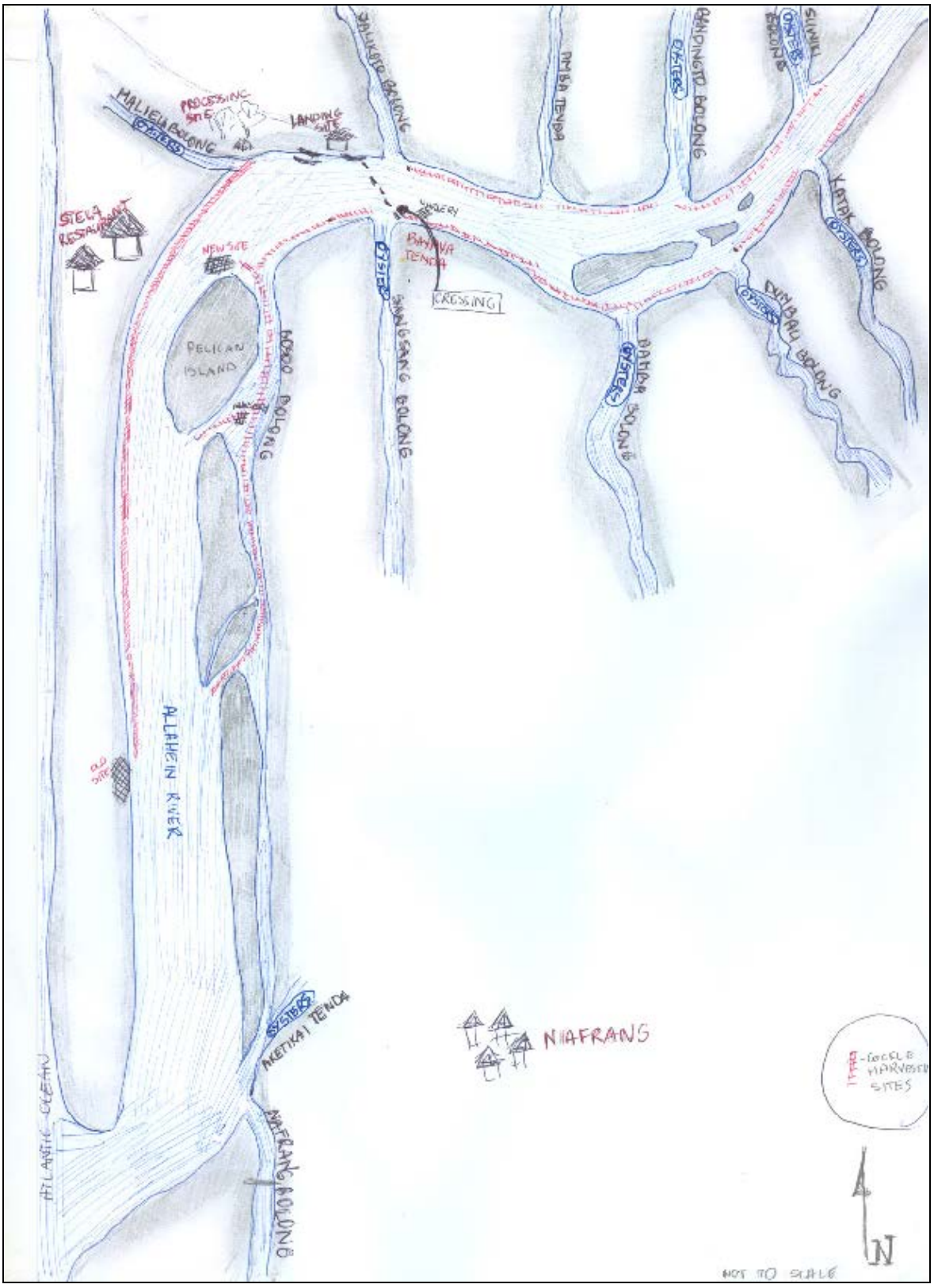


Figure 9: Community Map of the Kartong shellfish harvesting area.

Literacy training: Adult literacy and numeracy classes were on break from February through the end of June for the duration of the oyster harvesting season (March – June). They will resume in the middle of July when the women have more time.

Microfinance: A new 6 month cycle of microfinance loans was initiated in Year 3. This cycle is designed to reward and institutionalize the practice of saving. Women who were able to save 500GMD or more are eligible for new loans. Loans range in size from 500 – 5000 GMD determined by the amount of savings. Between October 2011 and January 2012, 122 TRY members took round 2 loans. This number has been revised downward from the semi-annual report following transcription of TRY's microfinance data to electronic format and an internal data quality review conducted in April 2012. Double counting of round 1and round 2 loans caused the confusion. Repayment of round 2 loans has been slower than anticipated. To date only 55 women have begun to make payments towards their loans and only 16 women have repaid in full. The FY 12 target of 250 may not be met as TRY is currently considering the redesign/handing over of its microfinance program to the National Association of Cooperative Credit Unions (NACCUG).

Skills Training of TRY Daughters: Alternative livelihood development is also a management measure specified in the co-management plan to reduce pressure on shellfish and mangrove resources. The Skills Class for TRY daughters is going very well and Haddy Kamara of the Community Development Office continues to come three days a week to work with the girls on tie-dye, batik, and crochet. In response to TRY's request to Action Aid The Gambia, TRY was granted GMD 100,000 ($3,448) to use specifically towards the girls skills program. TRY has decided to use a portion of this money to give small business loans to the girls of the skills class. Each loan was GMD 2,000 and the girls will have three months to pay it back. Many are using their loan money to begin tie-dye businesses under the guidance of Haddy Kamara.

TRY is now in communication with the National AIDS Secretariat (NAS) to work on getting a trained teacher on HIV/AIDS, STI's, and sexual and reproductive health, to hold classes with the girls two times a week beginning in September. The Peace Corps Volunteer working with TRY began classes with the girls in February 2012 but found it difficult to continue due to language issues. The NAS instructor will be able to communicate in local language and teach these sensitive topics in culturally appropriate ways. The PCV will work closely with the teacher in designing and preparing the lesson plans. TRY hopes to hold at least ten sessions with this current group of girls in September and October. When the next batch of girls comes, TRY hopes to continue partnering with NAS to implement health classes on these topics. TRY is also talking with NAS about expanding this health initiative to reach all TRY members.

Water Quality, Shoreline Sanitation Survey and a Gambian National Shellfish Sanitation Plan (GNSSP): Water quality testing to determine whether there are public health risks from contamination of oyster harvesting areas has continued in Year 3 at 16 oyster harvesting sites within Tanbi Wetlands and Western Region. Testing is conducted on a fortnightly basis and analyzed at the laboratory in Abuko. Total and fecal coliforms are determined by use of the membrane filtration method, using standard TC and FC media. Coliform counts are done using 25 mL of filtrate and reported as colony counts per 100mL of sample as is routinely reported in shellfish sanitary water quality literature (e.g. Graybow et al, 1981). The results of the study to

date show that both total coliform and fecal coliform counts were relatively low in all sample sites. The data from the Tanbi sites appears to be reasonably clean in comparison to U.S. NSSP Total Coliform water sanitation standards. However, the upcoming rainy season data will be the second year of data for this most vulnerable period and will be important to establish the consistency of results over time.

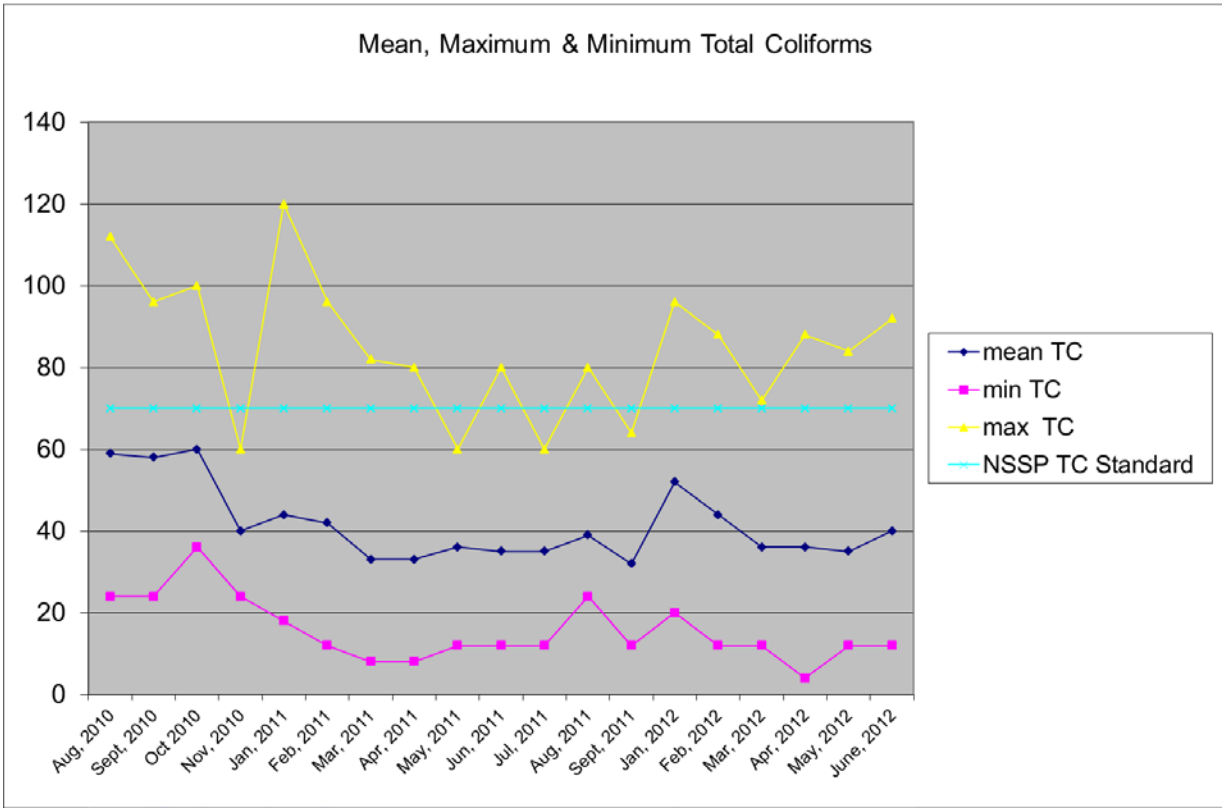


Figure 10:. Average Total Coliforms at oyster harvesting sites 2010 – June 2012.

In addition to water quality testing and the use of resulting data to manage the oyster fishery, shoreline sanitation survey techniques enable decision makers to identify areas of critical threat to shellfish sanitation. As planned for Year 3, Dr. Michael Rice of URI provided training in The Gambia to an inter-agency team on how to conduct the shoreline sanitation survey and the development of a Gambian National Shellfish Sanitation Plan (GNSSP). This training built on the June 2011 training provided on this theme to Gambian participants at URI, who then presented their work on a draft GNSSP to Gambian authorities. Participants in the January 5, 2012 seminar requested that the seminar be presented again to decision makers at the department, ministry and national assembly levels of the Gambian government so that a framework for an interagency Memorandum of Understanding (MOU) to form a Gambian National Shellfish Sanitation Program (GNSSP) could be discussed. The second offering of the seminar occurred on January 16, 2011. Dr. Rice gave a presentation of this work at NOAA's Milford Aquaculture Seminar in Connecticut in March 2012.

The project supported a shoreline sanitation survey of 15 TRY oyster harvesting sites where water quality is tested. The Results of the survey were discussed at an interagency meeting in February and documented in the "Report on Sanitary Shoreline Survey Within the Tanbi

Wetlands National Park and Other Shellfish Harvesting Communities."[1] To improve the sanitary conditions of the oyster harvesting sites and comply with US NSSP standards, the report recommends the following:

- Further develop the Gambian NSSP
    - Develop specific tasks required for Gambian NSSP
    - Develop G-NSSP standard operating procedures
    - Develop MOU that specify responsibility for each agency (Department of Fisheries, Department of Water Resources, Department of Health, National Environment Agency, Department of Parks and Wildlife Management, Department of Forestry, Governor of WCR, Brikama Area Council, Kanifing Municipal Council, Banjul City Council)
    - Develop funding mechanisms for interagency cooperation in developing and implementing the GNSSP
    - Attain "Observer Status" or membership in the Interstate Shellfish Sanitation Conference (ISSC.org).
- Identify and remediate the known fecal contamination
    - Define and map out shellfish growing waters and identify problem areas
    - Work with public health authorities in the development of programs to promote the adoption of composting/recycling toilet systems to not only promote public health and shellfish sanitation, but conserve freshwater supplies as well.
    - Establish a working group of all interested stakeholders to address the sanitary problems:
        - To construct the water and sanitary facilities at each site
        - To clean the waste along the shoreline and establish waste management programmes in these communities
        - Sensitize the surrounding communities on waste management and best sanitary practices and conduct regular training on Participatory Health and Sanitation Transformation (PHAST)
        - Create buffer zones along the intertidal zones to prevent human settlements
- Implementing water quality and sanitary shoreline surveys
    - Conduct baseline surveys and record results in spreadsheet
    - Conduct regular bi-annual sanitary shoreline surveys
    - Conduct regular bi-monthly water quality monitoring
    - Collaborate with all stakeholders and establish water quality classification zones

In addition to coverage of these issues by the local media, the results of the shoreline sanitation survey were acted on immediately by TRY. They requested a meeting with local authorities at Old Jeshwang, where a piggery was found to be threatening water quality at the oyster harvesting site. With the Department of Fisheries and the Vice President's office attending the meeting, a decision to move the piggery was reached.

[1] To be posted on the CRC website and in DEC in the coming weeks.

Figure 11: Heaps of ground nut shells obstructing stream water flowing into the mangroves at Kamalo

Figure 12: Settlements and rubbish dumping site along the storm runoff path at Faji Kunda

USAID/BaNafaa organized a meeting to plan the next steps recommended in the Sanitary Shoreline Survey Report on April 19th and specifically to engage stakeholders in taking action within their institutions to support the next steps. Representatives from Fisheries, Water Resources, Forestry, Parks and Wildlife, Livestock, Health, the National Environment Agency, Brikama Area Council, GAMFIDA, NASCOM, TRY, the Office of the Vice President and UNICEF attended. Strategies for getting high level government commitment to addressing the issues raised in the report, as well as drafting of institutional roles and responsibilities was covered. Of interest is that the links between a shellfish sanitation plan and climate change adaptation were identified and noted as one of the points for further development.

c. Water & Sanitation

In July 2011, the USAID/BaNafaa Project was awarded a Water and Sanitation add-on for $759,126 to support needed water and sanitation activities linked to the artisanal fishery and Community Fishery Centers (CFCs) and oyster landing sites. These centers are fish landing and public fish market sites where fish is taken from boats, washed and iced, sold, and in some cases,

smoked in adjacent processing facilities. Some catch is sold and transported to export processing plants. There are seven CFCs located along the South Atlantic coast and 11 CFCs in the major inland fishing villages along both banks of the River Gambia. The Ministry of Fisheries and specific CFCs have indicated that Water and Sanitation are development priorities for the artisanal fisheries sector and have expressed their interest in having the USAID/BaNafaa project provide assistance in this area.

The objectives of these WatSan activities are to improve water supply and sanitation at approximately seven public fisheries landing/processing facilities, including oyster harvesting/processing sites. This will provide direct benefit to the thousands of fishermen, oyster harvesters, women fish venders, small scale fish processers and other laborers that utilize these facilities daily. An added benefit is that clean water supply and sanitary facilities at these sites will also result in improved sanitary handling of seafood supply and result in safer and healthier seafood product that enters both the local food chain as well as processing centers for export. In addition, recent research on small-scale African fisheries suggests that addressing high priority fisher household vulnerabilities such as water, sanitation and health issues are likely to increase incentives for fishermen to engage in more sustainable fisheries management practices[2].

As of the end of Year 2, URI had established its in-country office at the TRY Center and recruited a WASH Coordinator, Dr. Bamba Banja, who has a strong background in fisheries and food safety and hygiene.

Accomplishments Year 3, Quarter 3:

WASH Needs Assessment: From December 2011 – March USIAD/BaNafaa implementing partner TARUD conducted the WASH Needs Assessment in 16 communities. A stakeholder workshop to review the results of the needs assessment, finalize the report, and prioritize sites was held on April 18th. The 43 workshop participants comprised stakeholders from the MoFWR&NAM, DoFish, NEA, Department of Water Resources, Department of Parks and Wildlife Management, Department of Health, Department of Community Development, USAID/BaNafaa implementing partner for facilities construction - GAMWORKS, TARUD, Local Government Authorities from Banjul City Council and Brikama Area Council, representatives from the seven (7) Community Fisheries Centres (CFCs), including at least one woman from each, representatives of TRY Oyster Women's Association, NASCOM, National Water and Electricity Company (NAWEC) and representatives of the Media.

Following discussion of the needs assessment findings, groups of participants conducted in-depth reviews of the ranking of sites proposed in the needs assessment report. After proposed adjustments were adopted in plenary, the final recommended priority ranking was as follows:

[2] Mills, D., et al. 2009. Vulnerability in small-scale African fishing communities. J. Int. Dev. DOI: 10.1002/jid.

No.	Site	Rank( ) and type of site	Comments
1	Brufut	(1) Fisheries	
2	Kamalo	(1) Oysters	
3	Sanyang	(3) Fisheries	
4	Jeshwang	(3) Fisheries and Oysters	
5	Abuko	(3) Oysters	
6	Kartong	(6) Fisheries and Oysters	
7	Tanji	(7) Fisheries	
8	Gunjur	(8) Fisheries	
9	Lamin	(8) Oysters	
10	Kerewan/Daranka	(9) Oysters	
11	Kubuneh	(10) Oyster	
12	Bato Kunku	(10) Fisheries	
13	Ebo Town	(10) Oyster	
14	Faji Kunda	(10) Oyster	
15	Mandinary	(14) Oyster	
16	Bakau	Fishery	ruled out due to mgt. capacity and erosion/sea level rise vulnerability
17	Wencho	Oyster	ruled out due to illegal squatting, health issues, govt. plan to relocate

Figure 13: Needs Assessment Site Mapping at Ebo Town.

The project will make every attempt to follow these recommendations and expects to intervene at the first 6 sites on the list. Stakeholders were informed that if serious constraints arise during implementation at a given site, the next site on the list may be chosen in its place.

WASH site development: In May, a task force visited each of the 6 intervention sites to inform them of their selection and to begin process of planning next steps for training, management, siting of facilities, environmental and technical reviews and cost estimates. Brufut and Jeshwang will most likely be the first two sites to be developed.

2.2 Intermediate Result 2

Institutional capacity strengthened at all levels of governance to implement an ecosystem-based, co-management approach to sustainable fisheries, and to prevent overfishing.

No	Indicator	FY12 Target	Q1	Q2	Q3	Q4	FY12 to date
4	Number of govt. agencies or management bodies strengthened or created	1	0	0	0		0
5	Number of government personnel, community leaders and private sector stakeholders trained in natural resources mgt	260	1	205	190		396
6	Improvements on a governance scorecard covering, goals, constituencies, commitment and capacity dimensions, including measures that legislation and regulations are being implemented and complied with, and budgetary investments by government in fisheries management[3]	Sole & oyster improving	na	Sole & oyster improving	na		Sole & oyster improving
7	Number of fishermen and women with collective or individual use rights (collective quotas or territorial use rights, saleable licenses)	810	0	810 500f 310m	0		810
8	Number of stakeholders participating in regional meetings and/or exchange visits	60	1	0	129		129
9	Number of workshops/meetings on policy reform for the artisanal fisheries sector held between Senegal and the Gambia	3	0	0	1		1
10	Number of reports documenting transboundary issues and alternative solutions	1	0	1	0		1
11	Number of policies laws, agreements or regulations promoting sustainable natural resource management and conservation that are implemented as a result of USG assistance.	2	0	2	0		2
CC1	Number of climate vulnerability assessments conducted as a result of USG assistance	1	0	1	0		1
CC2	Number of stakeholders using climate	30	0	0	44		44

[3] Scorecard based on governance indicators in UNEP/GPA Ecosystem Based Management Guide

	information in their decision making as a result of USG assistance						
CC3	Number of institutions with improved capacity to address climate change issues as a result of USG assistance	8	0	0	18		18

Progress on Activities Contributing to This Intermediate Result:

a. Sole and Oyster Co-Management Plans and Readiness for MSC Certification

As discussed under IR 1 above, the USAID/BaNafaa Project has been engaged in a process over more than 2 years with government agencies and non-governmental stakeholders to develop eco-system based co-management plans for the artisanal sole fishery and the cockle and oyster fishery in the Tanbi Wetlands National Park. The institutional strengthening of agencies and the training of personnel accomplished to date and applicable to this IR (indicators 4 and 5) are also described under IR 1 above and in the TraiNet Table in Section 3.4 below. Institutions strengthened with USAID/BaNafaa assistance as of the end of Year 2 (FY 11) included the LACOMS in 7 communities (Gunjur, Brufut, Sanyang, Tanji, Batokunku/Tujereng, Bakau, Banjul), NASCOM, GAMFIDA, NAAFO, TRY, and the Department of Fisheries.

Governance Scorecards for both the sole fishery and the oyster and cockle fishery have also been used since the beginning of the project to track progress in key categories as specified in indicator 6 for IR 2 above. The baseline score recorded in 2009 improved significantly for both fisheries in 2010 (evaluated at the end of Year 1 in December 2010).

Accomplishments Year 3, Quarter 3:

The Sole Fishery and Cockle and Oyster Fishery Co-Management Plans were approved and signed on January 17, 2012. FY 12 targets for indicators 7 and 11 under IR 2 have now been achieved, with 500 TRY members and 310 sole fishermen benefitting. Only the gazetting of the plans for 2 weeks public notice is outstanding. As discussed under IR, this remains a pending action as of July 2012.

In addition to on-going institutional capacity building support to TRY, DoFish and NASCOM in Quarter 3 as described under IR 1 above, strengthening of the The Association of Gambian Fisheries Companies (TAGFC) is also planned for Year 3. The President of TAGFC has been participating actively in sole co-management activities and will attend the URI Leadership in Fisheries Management Course in Rhode Island in July 2012.

Bi-lateral (Gambia/Senegal) Workshop on Artisanal Fisheries Co-Management. This workshop was held in Banjul on May 30 – 31. The report is forthcoming.

Figure 14: Bi-lateral Co-Management Workshop participants.

The workshop brought together artisanal fishers, women, fish mongers/dealers, fisheries non-governmental organizations, and government officials to deliberate on issues of common concern and interest, including migration, dual registration of fishing canoes, eco-labeling, cross-border trade in fish and impacts on local economies. Also to identify possible areas of collaboration to sustainably manage shared fish stocks including monitoring, control and surveillance. In addition, the workshop participants shared lessons learned concerning approaches for improved co-management of artisanal fisheries. These included institutional and legal frameworks, establishment of marine protected areas and reserves, and introduction of seasonal closures and effort control as management measures to respond to unsustainable resource exploitation as a direct consequence of open access, excess fishing effort and irresponsible fishing practices. Experiences were drawn from Cayar, Senegal, and the sole and oyster fisheries in The Gambia. Sessions were organized as follows:

Session 1: Lessons learned in co-management of artisanal fisheries.
Session 2: Organizational structures and functioning of community-based fisheries management organizations in Senegal and The Gambia.
Session 3: Balancing sustainability and open access.

Final vision and recommendations were as follows:

Vision: Sustainable use of fisheries resources in order to provide fish for the future generations, create employment, and economic benefits for all.

- Establishment of an ad hoc bilateral committee
- Convene a bilateral workshop once a year at alternate venues (next one in Senegal).

- Fisher representatives should be included in the national delegations in all future meetings on the bilateral (reciprocal) fishing agreement between The Gambia and Senegal.
- The workshop participants resolved to combat IUU fishing in all its forms, in the two countries.
- Both countries working together on research and data collection, and stock assessment will provide for more realistic picture of shared stock and allow for expertise sharing.
- "Twin" fishing villages to work together and enhance communication.
- Because fishers are migrating freely between the two countries, it is important for the two Governments to harmonize policies and legislations.
- Fishing gears and methods banned in one country should be banned in the other country.
- The workshop participants resolved to establish area and seasonal closures, as well as MPAs where appropriate for the purpose of conservation of resources.
- Fines from arrests and successful prosecutions of violators from artisanal fisheries regulations should be paid to the community where the offence was committed rather than to the Government Treasury, as is the case in The Gambia.
- Establish a free trade zone in fish and fish products. Products available in one country and needed in the other country can be traded freely (This was suggested).

To implement these recommendations, it was decided to establish an Ad-Hoc Bilateral Committee composed of eight members plus a member of USAID/Ba-Nafaa project. The Committee will prepare a work plan by October 2012. Membership is proposed as follows:

- A fisherman: Abdoulie NDiaye (Senegal), Alien Sarr (Gambia)
- A woman: Mam Penda Ndoye (Senegal), Haddyjatou Jallow (Gambia)
- NGO: WWF (Senegal), GAMFIA (Gambia).

b. Human Resources Training/Regional Meetings and Exchange Visits:

Degree training for DoFish staff: Another strategy of the *USAID/BaNafaa* Project is to develop the capacity of staff within the Department of Fisheries. One approach is to provide degree training for mid-career staff within DoFish. There is a strong cadre of approximately one dozen mid-career professionals who cannot be advanced through promotion within the civil service system as they lack the appropriate degree qualifications, in spite of the fact that they have ample experience and competencies. This creates a morale problem and is typically a problem for retaining highly skilled people within the Department. Most of these individuals have completed two-year diploma programs, but require a four-year degree to be promoted. Such degrees in fisheries are not available in The Gambia and require training outside the country. Individuals from DoFish with two years of study already completed have been selected to continue degree training to a four year level (i.e., the Project will provide support for an additional two years of education). Degree training at Nigerian universities is very cost effective. Two individuals have been nominated for these degree scholarships, were accepted for admission and began their studies in Year 2 (FY11).

URI Summer Courses: As documented in the TrainNet Table in Section 3.4 below the project has also invested strategically in selecting participants from key government departments and fisheries management organizations to attend Fisheries Leadership and other relevant

professional development courses offered by the Fisheries Center and the Coastal Resources Center at URI. Participation in these courses has been a critical factor in building a team of actors from various institutions who work productively together in The Gambia with common goals and approaches.

Regional Meetings and Exchange Visits: As documented throughout this report, regional meetings and exchange visits have been one of the most practical and effective strategies employed by the project to bring innovative approaches for sustainable fisheries management to The Gambia, as well as to share The Gambia's experiences with others.

Accomplishments Year 3, Quarter 3:

Degree training for DoFish staff: This training is expected to be completed by the end of September 2012.

PHE Training: In June 2012, Dr. Bamba Banja, USAID/BaNafaa WASH Coordinator and Faburama Darboe, Health Project Manager for TARUD attended the URI Summer Institute in Population, Health and Environment in Rhode Island. It provided the WASH team with project leadership, design, management and implementation capacity development as well as with a broader programming perspective.

Sharing the Co-Management experience outside The Gambia: As news of the innovative "firsts" that are happening in sustainable fisheries management in the Gambia spreads, institutional actors involved in the development of the sole and the oyster and cockle co-management plans have increasingly been solicited to share The Gambia's experiences in regional and international forums. Following is a brief list of some of the most recent and significant exchanges, none of which were funded by the USAID/BaNafaa Project (and thus not counted under indicator 8 above), but all of which involve the sharing of results made possible by USAID/BaNafaa assistance.

Translation of the two Co-Management Plans to French and distribution to Senegalese Government and other stakeholders working with the USAID/COMFISH Project in Senegal. The French version is also posted on the URI/CRC website.

In April 2012, Ousman Drammeh, USAID/BaNafaa Project Manager presented The Gambia Co-Management experience at a Fisheries Governance Dialogue hosted by the USAID/Integrated Coastal Management and Fisheries Governance Project in Ghana implemented by the University of Rhode Island. One of the recommendations of this dialogue was that Ghana amend its fisheries legislation to explicitly mention co-management.

Kathy Castro of the URI/Fisheries Center made a presentation on The Gambia's Co-Management experience at the World Fisheries Conference in Scotland in May 2012.

TRY was notified in March 2012 that it was selected as one of the top 25 winners of the UNDP Equator Prize, with a $5,000 award. TRY was selected from 800 applicants. The Executive Director traveled to Rio+20 in Brazil in June to accept the prize. All of the twenty-five winners

attended Community Aldeia, an eight day conference from June 13 – June 20 on sustainable development organized by the UNDP Equator Initiative. The objectives of the conference included:

- Sharing experiences and best practices among participants
- Providing training and workshops in different areas of interest
- Meeting and interacting with global and national policy makers and programmers
- Celebrating the Equator Prize winners and the achievements of each group and organization.

During the conference, Fatou met and conversed with people from all over the world involved in environmentally sustainable projects. Not only was she able to gain new information and ideas, but she also shared and promoted TRY, its projects and its successes thus far. TRY is looking at the ways in which to incorporate the knowledge and ideas brought back, including product labeling and marketing, registering Tanbi Wetlands National Park as an Indigenous and Community Conserved Area (ICCA) and bag making out of plastic bags for the Skills Training Class among other ideas.

Figure 15: Fatou presents on TRY Association during Community Aldeia in Rio on Friday, June 15, 2012.

"Upon hearing the news of receiving the Equator Award, the women cheered and clapped at the TRY Centre, quickly forming a circle around one woman who began dancing in celebration, slowly at first and then faster to the excited claps of the women. I knew if I could bring just a small sliver of their energy, their laughter, and their relentless determination with me to Rio, the participants of Community Aldeia and the international community would easily understand why TRY received this Award. The women knew I would be carrying with me the TRY name, their efforts, and their stories and that I would share these with individuals from all over the world. By receiving this Award, the women understood they were being recognized for their years of labor, which has been passed down through numerous generations, for their years of quietly providing for their families amongst many hardships, and for their most recent efforts of coming together and working for common goals under TRY Association.

Receiving this Award will increase international awareness of TRY's efforts in The Gambia, which will hopefully lead to future partnerships, friendships, and possibly funding opportunities. Locally, we hope

Gambians will increasingly recognize TRY as a legitimate organization which produces quality products, and, more importantly, we hope they take national pride in the organization and in the TRY women.

The psychological effects of receiving this Award, however, far surpass the international recognition, the potential networking, and financial benefits. It has helped to inspire confidence in each individual woman of TRY as well as in the women as a group. It reminds them that in their quest to improve their lives, they are doing it responsibly and sustainably, and therefore admirably. The Award also increases the trust they have in themselves, in each other, and in the Association. This confidence and trust building brings the women together as a stronger unit with a stronger voice."

Fatou Janha, Executive Director, TRY Oyster Women's Association, from Rio de Janeiro, Brazil, June 21, 2012

c. Assessment of the Cross Border Trade in Sole.

The value chain for sole identified the fact that an unknown quantity of sole is transshipped into Senegal and much of this transshipment is not being fully captured by the DoFish statistics (and distorts Senegal sole capture statistics) and the implications for marketing an eco-labeled product is also a concern in terms of traceability requirements as well as proper stock assessments based on landings. Sole is loaded into trucks coming from the Casamance but reported as caught in Senegal and then transshipped to Senegal for eventual processing and export. This illegal trade can have significant impacts on trying to accurately assess landings of sole caught in Gambian waters as well as have impacts concerning eco-labeling. Eco-labeling may help curtail this trade, but other measure might be identified to bring this illegal trade into the open. Therefore, additional assessment of the cross border trade is needed to fully understand market context and opportunities for improved marketing that benefits more fully Gambian fishermen, processors and exporters. Since cost differences in the two countries have been cited as key reasons for the lack of processing activity in The Gambia and exports to Senegal, the assessment has been designed to also look into the comparative cost structure for processing plants and exports to Europe in the two countries.

Accomplishments Year 3, Quarter 3:

A lead consultant from Senegal and a secondary consultant from The Gambia were contracted to conduct the study. In addition, three individuals were contracted to collect data at 3 border crossing sites. The draft report was completed in February. A validation meeting of Gambian stakeholders reviewed the report and produced a final report with recommendations for follow-up actions. Although data collection on illegal trade was not successful due to the timing of the study during a period of particularly low movement of product, the study found significant differences between the Gambian and the Senegalese context at all levels in the sole value chain. The differences create an unfavorable competitive environment for The Gambia. The report concluded that the competitiveness, profitability and sustainability of the Gambian fish processing industry depend on the issues of 1) financing, 2) utilities reduction costs, 3) infrastructure improvements, 4) associated industries, 5) the supply of raw materials**,** 6) information on sole trans-shipment, and 7) creation of an interagency Committee. The key recommendation is to draft a cabinet paper to engage discussion of these issues at the highest levels within the Government.

Cross border trade issues were discussed at the bi-lateral co-management workshop on May 30 – 31 in The Gambia. The recommendations and action plan resulting from that meeting is a first step in airing these issues bi-laterally. Drafting of a Cabinet Paper in The Gambia is the next action to be undertaken. This will happen in Year 4.

d. Bi-Lateral (Gambia/Senegal) Climate Change Vulnerability Assessment

Climate change impacts present additional challenges for fisheries management — to the ecosystem, coastal communities and fisheries infrastructure. Studies of the WAMER predict that changes in climate will drive changes in the migration and abundance of commercially important fish species, and affect fishing communities, landing sites, and critical estuarine ecosystems. Consideration of climate change is part of the underpinning of an ecosystems-based approach to fisheries management. In Year 2, the project with WWF-WAMER convened a regional workshop in Senegal with a focus on building awareness of climate change issues in fisheries and MPAs and strategies for incorporating these issues into fisheries and marine conservation decision-making. The workshop was attended by representatives from each of the 7 countries of the Commission Sous-Régionale des Pêches (CSRP) that includes Cape Verde, Gambia, Guinea, Guinea Bissau, Mauritania, Senegal and Sierra Leone. Objectives of the workshop included:

- Consolidate information on regional climate change initiatives in coastal areas and marine ecosystems
- Assess climate change issues in fishing communities and marine ecosystems and actions taken to date across each of the CSRP countries. Identify similarities of key issues and responses across the countries.
- Identify needs and opportunities for mainstreaming adaptation considerations and actions into national, sub-national and local level strategies and initiatives
- Define a plan of action for follow-up to the workshop

The take home message was that coastal and marine areas are already affected by multiple stressors with climate change becoming a more serious threat when coupled with these other anthropogenic impacts. It was concluded that anticipatory adaptation to accelerated negative environmental changes does not need to wait for specific climate scenarios, but is more reliant on examination of current vulnerabilities and the range of possible no-regret strategies. Workshop proceedings are posted on the CRC website.

In July 2011, the USAID/Ba-Nafaa project received approval for a US$155,440 add-on component for a bilateral fisheries climate change vulnerability assessment of the Saloum Delta and Gambia River estuary area. The assessment is designed to consolidate existing information and collect new data where gaps exist.

Accomplishments Year 3, Quarter 3:

In October 2011, USAID/BaNafaa contracted an interdisciplinary team coordinated by WWF-WAMPO to conduct a Bi-lateral Vulnerability Assessment. The objective was to assess the vulnerability of central coastal Senegal (Saloum) and The Gambia marine and estuarine

ecosystems and fisheries communities to climate change. USAID's "Adapting to Coastal Climate Change: A Guidebook for Development Planners" was a key reference document. Local experts compiled, reviewed and analyzed the considerable body of work already available on the actual and potential impacts of climate change in the study area. In some cases, limited additional data was collected and analyzed. The five components of the study were:

- The inundation vulnerability study by Pr. Isabelle Niang from the University of Dakar.
- The GIS vulnerability study by Malick Diagne from Centre de Suivi Ecologique, Dakar.
- The socio-economic vulnerability study by Cheikh Tidiane Sall.
- The Mangrove vulnerability study by Richard Dacosta from Wetlands International.
- The Fish species vulnerability study by Famara Darboe, Assistant Director of Fisheries, The Gambia.

The individual studies and a consolidated report were completed in April 2012. A bi-lateral workshop attended by 44 participants was held on April 10-11, 2012 in The Gambia to review the findings of these reports and their recommendations among the technical specialists and a broad group of 18 government and civil society stakeholder institutions from Senegal and The Gambia.

The vulnerability assessment concludes that significant degradation of landscapes with its consequence on communities' livelihoods and coastal and marine ecosystems is occurring in this zone since the early 1960s. Climate change (sea level rise, coastal erosion, mangrove degradation soil salinization), among other causes, is a major driver of these changes. Coastal and marine zones such as The Gambia and Saloum estuaries and coastal areas are among the most vulnerable. Key findings include:

- In the scenario of a 2m inundation level by 2100 (associated with a 20-49cm sea level rise), 52% of the Saloum Delta area will be inundated and the City of Banjul, the village of Albreda and 90% of the mangrove in The Gambia Estuary will be inundated. Islands will vanish, as well as more than 2/3 of human settlement living on islands in the Saloum Delta.
- Reduced precipitation (35% drop) and less regularity of rainfall (1 year in 5 flooding) will result in salt intrusion, less exposure of the mangrove ecosystems to fresh water, less organic matter discharge to the ocean and subsequently increased mangrove die-back, disturbed fish biological processes (food chain and reproductive state) and loss of rice fields and orchards.
- The whole coastline open to the ocean is exposed to coastal erosion. The sandy nature of the beaches make the coastal zone very sensitive to increasing intensity of wind and waves.
- Livelihoods in the study area are heavily dependent on fisheries, agriculture and other ecosystem-based activities, including tourism. Value added and alternative livelihoods are limited for the most climate change vulnerable communities.
- Positive examples of adaptive capacity include two ecosystem-based fisheries co-management plans recently approved in The Gambia, mangrove restoration activities in several communities in both countries in recent years, and pilot alternative economic activities in The Saloum, such as salt production, that capitalize on changing conditions.

Participants considered how this body of knowledge, although it is incomplete and evolving, can serve as a foundation for adaptive action to reduce the vulnerability of the study zone's fisheries, fishing communities and coastal ecosystems which are of significant local, national, bi-lateral, regional and global importance. Priority vulnerability "hotspots" within the study area , priority socio-economic activities and priority climate change adaptation measures within the scope of the USAID/BaNafaa Project were identified as shown in Figure 16 below.

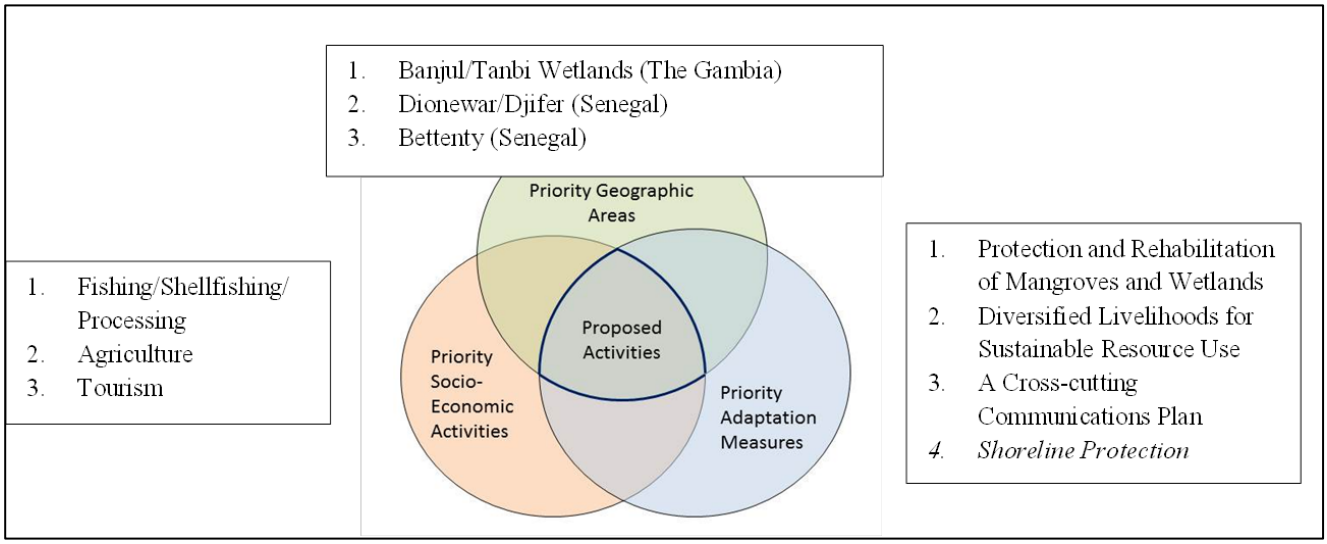


Figure 16: The scope of the USAID/BaNafaa Project

The area wide vulnerability assessment provides the basis for the strategic focus of USAID/BaNafaa Climate Change Adaptation (CCA) activities proposed in an add-on request submitted to USAID/WA on July 27, 2012.

2.3 Intermediate Result 3

Nursery areas and spawning areas for critical life stages of commercially important species and for associated marine turtles and mammals are protected

No	Indicator	FY12 Target	Q1	Q2	Q3	Q4	FY12 to date
12	USAID EG 8.1 Hectares in areas of biological significance[4] under improved management:	158,332	0	121,245	0		121,245
	• Hectares covered by fisheries management plans	6000	0	6304	0		6304
	• Oyster fishery areas designated and allocated as community managed and no-take areas						

[4] The entire area from the Saloum Delta in Senegal, The Gambia and Casamase rivers, and adjacent marine coastline has been identified as an area of regional bio-diversity significance in the West Africa Marine EcoRegion.

Progress on Activities Contributing to This Intermediate Result:

a. Sole and Oyster Co-Management Plans and Readiness for MSC Certification

Traditional Ecological Knowledge obtained from the fishers at landing site level and also from community meetings and training workshops as part of the co-management planning process has confirmed that the sole fish come annually from deep waters to shallow waters and into the estuary to spawn, and juveniles tend to stay in shallow waters close to the shore until they are mature enough to go inhabit deep waters. This fact is true for most species and the fishers have asserted that the spawning periods for the majority of marine fish species is between May and October (the onset of the rainy season and the end of the rainy season in The Gambia). The consensus among fishers to declare area closure for all fisheries of 1 nautical mile from the shoreline for 6 months (1st May to 31st October) each year is a management measure that will allow fish to spawn and juvenile fish to grow without being targeted for capture. This management measure is reflected in the sole fishery co-management plan that will be officially launched by the Minister of Fisheries in January 2012. It should also be noted that by-catch studies for the sole fishery showed that marine turtles and mammals are not at risk from the sole fishery in The Gambia. These studies are posted at http://www.crc.uri.edu/index.php?actid=423 .

In the Oyster and Cockle Co-Management Plan, seasonal closure for oyster harvesting is specified during the spawning season and has been extended for longer than was previously practiced to reduce the take of juvenile oysters. The co-management plan also specifies gear restrictions that are designed to reduce damage to mangroves during the harvesting process. The Shoreline Shellfish Sanitation Planning process, including water quality testing and a comprehensive Shoreline Sanitation Survey for the Tanbi undertaken in Year 3 provides critical information about pollution hotspots in this protected mangrove ecosystem.

In addition, as reported in Year 2, a 22 page report on Assessment of Cetaceans in the Gambia has been produced by the ICAM project following surveys conducted between January and April 2011. The report describes the project and study area, existing information, monitoring methods, the data collected, interpretation of the data, difficulties encountered during monitoring, evaluation of methods, and recommendations for the assessment. The report concludes that the Bottlenose Dolphins (*Tursiops truncates*) are currently the most abundantly found species in the river waters. Information from phase 1 and 2 indicate that cetacean sightings occur more often in the coastal waters with a variety of species being sighted. A total of 5 species have been documented: Atlantic Humpback Dolphin (*Soura tenszii*), Bottleneck Dolphin (*Tirsiops truncates*), Clymene Dolphin (*Stenella clymene*), Long-Beaked Common Dolphin (*Delphinus capensis*) and the Short-Finned Pilot whale (*Globicephala macrorhynclus*). The objectives of the assessment are to develop and implement a cetacean action plan, and build the capacity of DPWM staff to assess and conserve biodiversity. To achieve these objectives the following actions have been or will be implemented: regular boat-based surveys of coastal waters and the river; coastal beach surveys; data collection of cetacean strandings and by-catch; the evaluation and analysis of baseline data; and the establishment of outreach programs for schools and communities.

Accomplishments Year 3, Quarter 3:

See accomplishments for the development and implementation of the sole and oyster co-management plans under IR 1 above. The FY12 anticipated results for indicator 12 under this IR have been achieved with the approval of the co-management plans in January 2012 and documented in the semi-annual report submitted in April.

2.4 Intermediate Result 4

Change unsustainable and destructive marine resource use practices that threaten improved biodiversity conservation in the West Africa Marine Ecoregion.

No	Indicator	FY12 Target	Q1	Q2	Q3	Q4	FY12 to date
12	USAID EG 8.1 Hectares in areas of biological significance[5] under improved management: • Hectares covered by fisheries management plans • Oyster fishery areas designated and allocated as community managed and no-take areas	158,332 6000	0 0	121,245 6304	0 0		121,245 6304
16	Number of vessels registered/licensed	0	0	0	0		

Progress on Activities Contributing to This Intermediate Result:

a. Sole and Oyster Co-Management Plans and Readiness for MSC Certification

Community meetings and training workshops have been major activities of the Ba-Nafaa project. At the start of the project, it was discovered that a good number of fishers (particularly in Brufut and Sanyang fish landing sites) were using sole fishing nets with mesh sizes of 72 and 76 mm, below the legislated 80mm mesh size limit. Because the Department of Fisheries was lacking the means to enforce the regulation, attitudinal change had to come about through awareness creation and sensitization on how harmful this practice can be and how it will affect fishing livelihood security in the near future if fishers continue to put short-term financial gains ahead of their long-term interests by using small mesh size nets that will not sustain the resource base. Two years hence, from Banjul to Kartung, all sole fishers are using fish nets with mesh sizes not less than 80mm. Some are using 84mm and 86 mm mesh size nets. The large mesh size nets reduce the catch of juvenile sole fish. They only catch adult/mature fish, so the threat of catching juvenile sole fish has been completely eliminated by the fishers willingly agreeing to abandon the use of smaller mesh size nets. When fishers become cognizant that their practices are threatening their future survival, they are motivated to change because of their affinity to the environment and the profession; this is the only profession they know and would like/prefer to be engaged in.

The Ba-Nafaa project has conducted a 12 months (consecutive) participatory catch study of the sole fishing net and a catalog of the species has been produced. The study has shown that the

[5] The entire area from the Saloum Delta in Senegal, The Gambia and Casamase rivers, and adjacent marine coastline has been identified as an area of regional bio-diversity significance in the West Africa Marine EcoRegion (WAMER)

sole fish net does not catch ETP (Endangered, Threatened and Protected) species. In the 12 months of the study, not a single turtle or other threatened species was found in the sole fishing nets in the four major sole fishing landing sites of Brufut, Sanyang, Gunjur and Kartong, where the study was conducted. The use of the recommended mesh size or above has now spread along the coastal area and up the river to Tendaba, the farthest point along the river where sole fish is caught.

In the oyster fishery, the women used to chop down the mangrove roots and take them to the processing sites where the oysters are removed and the roots are dried and used as fuel wood to boil or smoke the oysters. Now they have been sensitized and they know the importance of conserving the mangroves. The ongoing activities of the women on mangrove reforestation confirm that the women now know the importance of the mangroves to the continued availability of oysters and that reforestation and preservation reduce the threat to security of their livelihood.

Artisanal vessels operating along The Gambian Atlantic coast were registered in Year 2 (FY11).

Accomplishments Year 3, Quarter 3:

The measures discussed above are now institutionalized in the Approved Co-Managements Plans for sole and for oysters and cockles. They stand as models for other sectors, areas and countries in the WAMER and beyond.

3. Project Management

CRC/URI has now established its own in-country office in The Gambia, primarily to manage the WASH component that began in Year 3, but also to implement directly some of the fisheries work with local partners previously managed under the WWF sub-contract. A WASH Coordinator, Dr. Bamba Banja started on September 1, 2011. An administration and Finance Assistant was recruited and started on November 1, 2011. The WASH Coordinator is supervised by the USAID/BaNafaa Project Manager and provided oversight by the U.S. based USAID/BaNafaa Team Leader.

The WWF National Program Coordinator in The Gambia serves as a senior advisor to the project. Mat Dia was in this position until November 1, 2011. Alagie Manjang on secondment from the Department of Parks and Wildlife is currently interim.

The Project has benefitted from direct collaboration with Peace Corps volunteers based in Kartong, in Banjul at TRY and in Banjul at the USAID/BaNafaa office. A Gambian student intern Albert Jammeh, who is studying at the University of Cheikh Anta Diop in Dakar, Senegal spent 2 months in December and January learning and assisting the project on Climate Change activities.

3.1 International Travel

This international travel schedule does not include travel between The Gambia and Senegal, which for planning and management purposes is considered local travel. The following list captures all international travel other than within and between The Gambia and Senegal.

First Quarter Actual

- Kathy Castro, Najih Lazar and Barbara Somers traveled to The Gambia from October 29 to November 7, 2011. In addition to participation in the final stakeholder meeting on the sole co-management plan, they provided technical assistance to the Department of Fisheries for the institutionalization of its role in stock assessment and database management, including assessment of organizational structure, staffing, staff training and planning for an adequate Department of Fisheries budget to support these functions sustainably.

Second Quarter Actual

- Mike Rice: Shellfish Sanitation - January, 2012
- Karen Kent: Management Plans launch event - January 2012.
- Chris Anderson: January 2012 – Sole & Oyster Economic Fisheries Indicators application of World Bank tool in the developing country context.
- Dr. Bamba Banja: to Ghana for the USAID Environmental Compliance Training March 2012.
- Brian Crawford: March 30 – April 1, 2012, monitoring visit add-on from Senegal trip.

Third Quarter Actual

- Karen Kent + Hilary Stevens: April 2012 Bi-lateral Climate Change Vulnerability Assessment Stakeholder workshop in The Gambia. Karen for WASH Needs Assessment Stakeholder workshop.
- Chris Parkins: Gillnet study April 2012.
- Kim Kaine: Administrative oversight of new URI BaNafaa office and staff. TraiNet support – April 2012.
- Joe DeAlteris: May 2012, stock assessment training and technical assistance for compiling data for MSC application by The Gambia.
- Kathy Castro: Bi-lateral Workshop, May 2012
- Dr Bamba Banja, USAID/BaNafaa WASH Coordinator and Faburama Darboe, TARUD WASH Project Manager: June 2012 to URI for PHE Summer Institute.

Fourth Quarter Anticipated

- Karen Kent to The Gambia for evaluation and workplanning.
- Kathy Castro to The Gambia for evaluation and workplanning.

3.2 Environmental Monitoring and Compliance

Based on the revised initial environmental evaluation (IEE) approved in 2011 for the project and in accordance with the Year 2 (FY11) Annual Report, monitoring and mitigation schemes are in

place to ensure no significant environmental impacts are occurring for those actions identified in the IEE with a negative determination subject to conditions. Key activities being conducted this year that have conditions and that will require monitoring and/or mitigation plans include:

- Fisheries management plans
- Water and sanitation improvements at landing sites

Status on these activities will be included in the annual Environmental Monitoring and Mitigation Report submitted to USAID. Dr. Bamba Banja, USAID/BaNafaa WASH Coordinator, attended the USAID Environmental Compliance Training in Ghana in March 2012 and is immediately applying what he learned to the implementation of WASH and other Project activities. Dr. Banja conducted a debriefing presentation of the Ghana training in The Gambia in April 2012. It was attended by 2 staff each from WASH implementing partners TARUD and GAMWORKS as well as by Fatou Jahna, TRY Director, Ousman Drammeh, USAID/BaNafaa Project Manager and Karen Kent, USAID/BaNafaa Team Leader.

3.3 Branding

The USAID/BaNafaa Project provides information through many existing channels, including presentations at meetings, conferences, outreach sessions and other forums, print media—e.g., peer-reviewed articles in professional journals, locally produced Information, Education and Communication (IEC) materials, pamphlets, brochures, policy briefs, guides, and PowerPoint presentations. The main target audiences include local communities, local government agencies, national policymakers, grassroots NGOs, and other donors. Acknowledgement is always given to the generous support of the American people through USAID in all Project communications and materials. Also recognized are partnerships and support from local government ministries, agencies and departments who participate in various activities of the Project.

Synopsis of Communication Items Affected by USAID Marking/Branding Regulations (ADS 320/AAPD 05-11)

Item	***Type of USAID marking***	***Marking Code***	***Locations affected/ Explanation for any 'U'***
Press materials to announce Project progress and success stories	USAID logo (co-branded as appropriate)	M	Primarily a Gambian audience
Project brief / fact sheet	USAID logo (co-branded as appropriate)	M	Primarily a Gambian audience
PowerPoint presentations at meetings, workshops and trainings	USAID logo (co-branded as appropriate)	M	Primarily a Gambian audience
Brochures/posters on environmental issues	USAID logo (cobranded where/as appropriate)	M	Primarily a Gambian audience
Landing or marketing site facility improvements	USAID logo / stickers (cobranded where/as appropriate)	M	Primarily a Gambian audience
Project Office/room within WWF/Gambia office in Banjul	Project sign in English and local dialect name as well *(USAID/BaNafaa*) but no USAID identity used	M	Primarily a Gambian audience

Item	*Type of USAID marking*	*Marking Code*	*Locations affected/ Explanation for any 'U'*
CRC Project Office/room within TRY/Gambia office in Banjul	Project sign in English and local dialect name as well *(USAID/BaNafaa*) but no USAID identity used	M	Primarily a Gambian audience
Fisheries management plans		PE	Primarily a Gambian audience
Project vehicles, office furnishings and computer equipment purchased for project administration by WWF	No USAID identity used	U	Standard exclusions under USAID marking guidelines/policies

Marking Codes: M = Marked, U=Unmarked, PE = Presumptive Exception, W=Waiver

3.4 TraiNet Data on Trainings Conducted during the Reporting Period

The Ba Nafaa Project Office compiles information on all training events as required by USAID, This information is submitted to CRC where the data is entered into the TraiNet electronic reporting system. A summary of trainings conducted to date is provided in the following table.

Training program	*Location*	*Start date*	*End date*	*Participants*			*Estimated Cost*
				Male	**Fem**	**Total**	*US $*
Study Tour to Sine Saloum	Senegal	12/16/2009	12/18/2009	1	31	32	3,507
Co-management Training on Sole Fishery	The Gambia	1/25/2010	01/26/2010	37	3	40	2,188
Co-management Training on the Oyster Fishery	The Gambia	02/01/2010	02/02/2010	2	51	53	2,373
Aquaculture training	The Gambia	01/12/2010	02/05/2010	60	0	60	2,696
Training on Entrepreneurship (study tour to Baddibu)	Gambia	03/18/2010	03/19/2010	2	11	13	600
Stock assessment training	The Gambia	03/15/2010	03/22/2010	14	5	19	3,144
Training on Improved Processing & Packaging	Gambia	30/4/2010	12/4/2010	0	300	300	750
Coastal Adaptation to Climate Change	US	4/6/2010	25/6/2010	2	0	2	26,000
Cayar Study Tour	Senegal	13/6/2010	18/6/2010	11	4	15	4,500
Oyster Aquaculture Training	Gambia	17/6/2010-	28/6/2010	1	36	37	750
Water Quality Assessment Training Workshop	Gambia	23/6/2010	23/6/2010	18	5	23	100
Fisheries Leadership	US	16/8/2010	3/9/2010	3	1	4	32,000
Biostatistics course	Gambia	09/20/2010	09/27/2010	10	2	12	5,832

Training program	*Location*	*Start date*	*End date*	*Participants*			*Estimated Cost*
				Male	**Fem**	**Total**	***US $***
GRAND TOTAL YEAR 1				***161***	***449***	***610***	***$84,440***
Micro-credit and enterprise development	Gambia	25/10/2010	2/11/2010.	0	250	250	1,290
Climate Change workshop	Senegal	3/22/2011	3/25/2011	52	8	60	50,900
Study tour to Tanzania on res. mgt and livelihood development	Tanzania	2/7/2011	2/12/2011	0	1	1	2,145
Water quality and shellfish sanitation	USA	5/21/2011	6/5/2011	3	0	3	15,910
Fish stock assessment	USA	5/21/2011	6/12/2011	3	2	5	34,387
MPA-PRO Certification Training	Kenya	6/13/2011	6/17/2011	1	0	1	3,000
BS Degree Training – Fisheries technology	Nigeria	5/15/2011	8/28/2012 on going	1	0	1	10,000
BS Degree Training – Fisheries technology	Nigeria	8/29/2011	On going	1	0	1	10,000
TRY members to FENAGIE	Senegal	09/2011	xx	0	4	4	2,759
GRAND TOTAL YEAR 2				***61***	***265***	***326***	***130,391***
CUMULATIVE GRAND TOTAL TO DATE END YEAR 2				***221***	***714***	***936***	***$214,831***
October 11 – March 12							
PHE workshop	Senegal	12/4/2011	12/07/2011	0	1	1	1,174
Training of the Facilitators for WASH Needs Assessment	The Gambia	12/27/2011	12/29/2011	8	2	10	1,128
TRY literacy training	The Gambia	11/2011	On-going	0	30	30	TBD
Shellfish Sanitation Shoreline Survey Training	The Gambia	1/5/12	1/11/12	8	0	8	TBD
Shellfish Sanitation Shoreline Survey Training	The Gambia	1/16/12	1/16/12	25	5	30	TBD
USAID Environmental Compliance Training	Ghana	3/19//12	3/23/12	1	0	1	1,811
Stock Assessment	The Gambia	1/20/2012	On-going	2	0	2	TBD
TRY Microfinance training	The Gambia	2/6/12	2/24/12	0	67	67	TBD
TRY hygiene/food handling training	The Gambia	1/31/12	2/1/12	0	90	90	TBD
Total				***44***	***195***	***239***	***$4,113***
April – June 2012							
Bi-lateral Climate Change Vulnerability Assessment Workshop	The Gambia	4/10/2012	4/11/2012	35	9	44	TBD
WASH Needs Assessment Stakeholder Workshop	The Gambia	4/18/2012	4/18/2012	25	13	38	TBD

Training program	*Location*	*Start date*	*End date*	*Participants*			*Estimated Cost*
				Male	**Fem**	**Total**	***US $***
Shellfish Sanitary Shoreline Survey Report Stakeholder Workshop	The Gambia	4/19/2012	4/19/2012	17	4	21	TBD
Bi-lateral Fisheries Co-Management Workshop	The Gambia	5/30/2012	5/31/2012	60	25	85	TBD
Population, Health Environment URI/Summer Institute	USA, Rhode Island	6/4/2012	6/22/2012	2	0	2	TBD
Total				***140***	***51***	***191***	

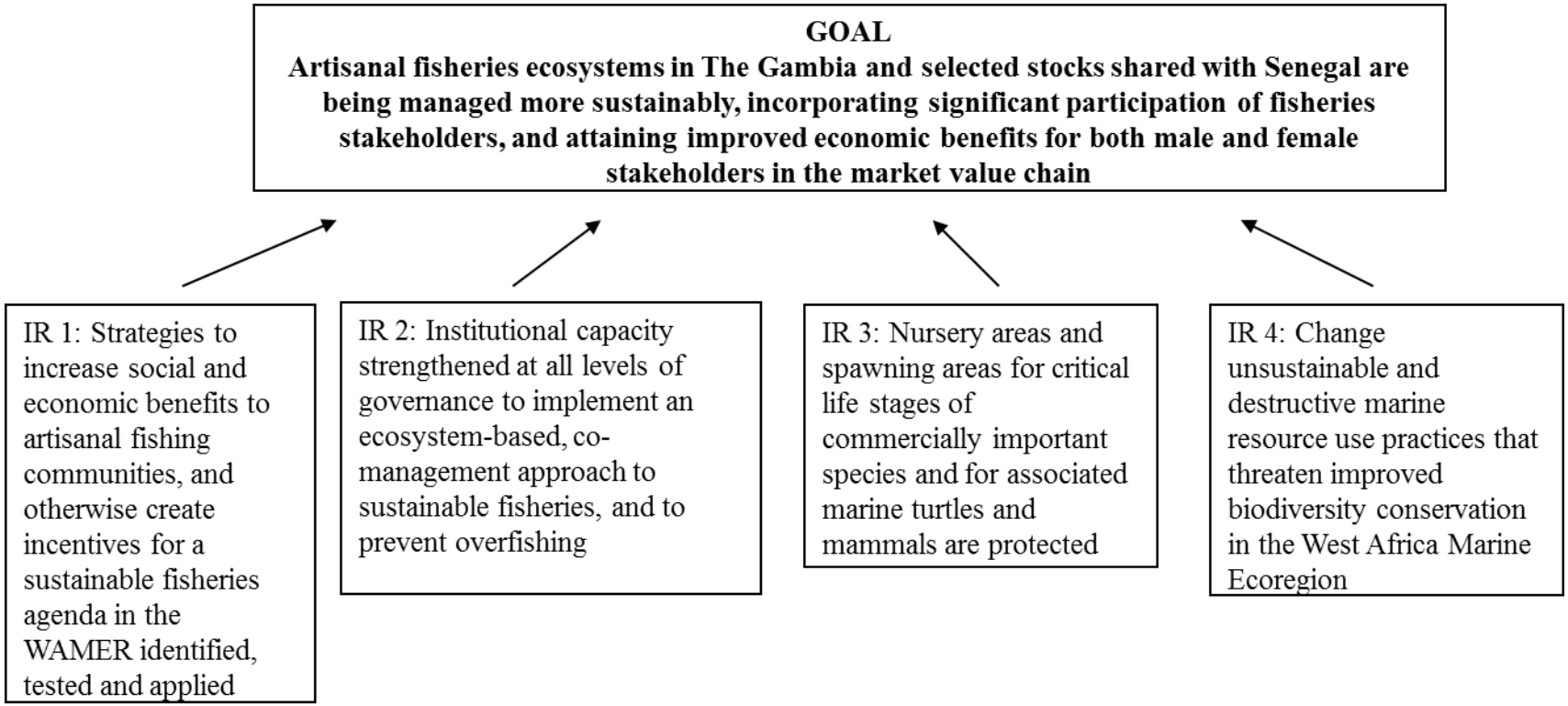
4. Estimated Financial Status

The following table shows a pipeline analysis of expenditures in relation to obligations through June 30, 2012.

AMOUNT SUB-OBLIGATED		2,645,995
(total federal outlays as of last SF 425/voucher)		
Expenditures		
Period Covered In Last SF 425	Thru March 31,2012	1,905,466
Estimated	April to June 2012	203,251
Encumbered as of March (unliquidated obligations)		90,965
TOTAL EXPENDITURES (Amt on SF 425 + Recent Expenditure)		$2,199,662
BALANCE OF SUB-OBLIGATED FUNDS REMAINING		$446.333

Appendix A. Results Framework & Life-of-Project (LOP) Targets

The Project Results Framework below is organized by Project Goal and IR. The Gambia - Senegal Sustainable Fisheries Project contributes directly to USAID West Africa Regional Office's Environment & Climate Change Response (ROECCR) Results Framework, specifically IRs ROECCR IRs 1 and 3.



	Indicator	Adjusted LOP Targets
IR 1		
1	Number of businesses economically benefiting	125 businesses (gender disaggregated)
2	No persons receiving economic assistance packages (assets, grants, training, etc.) [6]	220 persons
3	Number of people with improved access to loan capital (e.g. benefiting from new or strengthened savings & credit associations)	115 people w/ access to capital (gender disaggregated)
W1	Improved access to water and sanitation facilities	56,000 persons
W2	Number of persons receiving Participatory Hygiene and Sanitation Transformation (PHAST) Training.	280 persons
W3	Number of persons receiving training and outreach messages on hygiene promotion	1000 persons
W4	Community water and sanitation committees established and trained with program assistance	7 committees
IR 2		
4	Number of govt. agencies or management bodies strengthened or created	13
5	USAID EG 8.1 Number of government personnel, community leaders and private sector stakeholders trained in natural resources mgt	200 people trained (gender disaggregated)
6	Improvements on a governance scorecard covering, goals, constituencies, commitment and capacity dimensions, including measures that legislation and regulations are being implemented and complied with, and budgetary investments by government in fisheries management[7]	Qualitative increases on score card criteria for Gambia EB-fisheries mgt
7	Number of fishermen and women with collective or individual use rights (collective quotas or territorial use rights, saleable licenses)	600 people w/ use rights (gender disaggregated)
8	Number of stakeholders participating in regional meetings and/or exchange visits	130 persons (gender disaggregated)
9	Number of workshops/meetings on policy reform for the artisanal fisheries sector held between Senegal and the Gambia	6 events
10	Number of reports documenting transboundary issues and alternative solutions	4 reports

[6] Business income is difficult and costly to measure so a qualitative definition of benefiting will be used. Benefiting defined as reduced costs or increased prices (e.g. reduced fuel wood used in processing, price premium for MSC certified sole), or facility infrastructure improvements, or improved product quality, packaging or labeling, or training and/or certification in HACCP.

[7] Scorecard based on governance indicators in UNEP/GPA Ecosystem Based Management Guide

11	Number of policies laws, agreements or regulations promoting sustainable natural resource management and conservation that are implemented as a result of USG assistance.	2
CC 1	Number of climate vulnerability assessments conducted as a result of USG assistance	1
CC 2	Number of stakeholders using climate information in their decision making as a result of USG assistance	30
CC 3	Number of institutions with improved capacity to address climate change issues as a result of USG assistance	8
IR 3 & 4		
12	Hectares in areas of biological significance[8] under improved management: • Hectares covered by the fisheries management plan defined as the range of fishing fleets targeting these species • Oyster fishery estuarine and mangrove areas designated and allocated as community managed zones, including no-take areas	FMP Areas: • Sole = 12nm seaward = 158,332 ha Community managed oyster zones: • Tanbi wetlands 6000 ha
IR 4		
16	Number of vessels registered/licensed	1000 artisanal vessels targeting sole
GOAL		
17	USAID EG 8.1 Hectares under effective mgt (Key biological reference points in the FMPs for, sole, oyster)[9]	No targets set but progress towards BRPs will be tracked.

[8] The entire area from the Saloum Delta in Senegal, The Gambia and Casamase rivers, and adjacent marine coastline has been identified as an area of regional bio-diversity significance in the West Africa Marine EcoRegion (WAMER)

[9] Criteria for effective management will be evidence of progress towards Biological Reference Points (BRPs) established in the fisheries management plans and to be collected by The Gambia Dept of Fisheries and Fisheries Management Committees.