Sustainable Coastal Communities and Ecosystems Program (SUCCESS)

A component of the Integrated Management of Coastal and Freshwater Systems Program (IMCAFS)

Year 3 Workplan

October 1, 2006 – September 30, 2007

Leader with Associates Cooperative Agreement
for
Sustainable Coastal Communities and Ecosystems (SUCCESS)

A component of
The Integrated Management of Coastal and Freshwater Systems (IMCAFS) Program

Year 3 Workplan

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(Cooperative Agreement Number: EPP-A-00-04-00014-00)

A partnership between:

Coastal Resources Center
University of Rhode Island
and
United States Agency for International Development
Bureau for Economic Growth, Agriculture and Trade
Office of Natural Resource Management

In association with:

University of Hawaii Hilo, Pacific Aquaculture and Coastal Resources Center
Western Indian Ocean Marine Science Association (WIOMSA)
EcoCostas
Universidad Centro America
and
Conservation International
The Nature Conservancy
World Wildlife Fund
The Sea Grant Network

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Table of Contents

List of Figures

I. Introduction

On September 30, 2004, the University of Rhode Island (URI) was awarded a United States Agency for International Development (USAID) Leader with Associates (LWA) Cooperative Agreement in Coastal Management, Fisheries and Aquaculture for a five-year program with core annual funding of $750,000. This is *the Sustainable Coastal Communities and Ecosystems* (SUCCESS) Program.

The Coastal Resources Center (CRC) at the URI is the Leader of this Agreement. The Pacific Aquaculture and Coastal Resources Center at the University of Hawaii (PACRC/UHH) is the sub-recipient. The Program's strategic partners are the Sea Grant Association of Universities, through the Rhode Island Sea Grant College Program; the Nature Conservancy (TNC); World Wildlife Fund (WWF); and Conservation International (CI). Regionally, the partners include the Western Indian Ocean Marine Science Association (WIOMSA) based in Zanzibar, Tanzania; the University of Central America (UCA) based in Nicaragua; and EcoCostas, a non-governmental organization (NGO) based in Ecuador.

The Program's overarching goal is to help the people of a place improve both their quality of life (health, income, education) and their physical environment through good governance. The Program has four major components.

1. Achieving Tangible On-the-Ground Results
2. Increasing Capacity through Training Linked to On-the-Ground Activities
3. Establishing Regional Learning Networks Supported by Effective Knowledge Management
4. Applying Science to Management and Good Governance

In each region where the LWA Program operates, these components come together to make a coherent, mutually re-enforcing set of strategies. These strategies ensure that community-based demonstrations of successful natural resources governance are connected to supporting actions and policies at the provincial, national and regional scales. This integrating, cross-sectoral and multi-scaled approach has proven to be adaptable to a very wide range of settings.

In addition to these four primary Program elements, we are working to promote US global leadership in ICM by advocating internationally for sound coastal governance and a stewardship ethic within coastal ecosystems. Further, the SUCCESS Program integrates across a number of cross-cutting themes including:

- Gender mainstreaming
- Health and HIV/AIDS
- Volunteers for Prosperity

These topics are highlighted in various USAID policies, and are topics in which CRC and its partners have developed skills and experience.

This Year 3 workplan covers work activities that will be implemented between October 1, 2006 and September 30, 2007. It lists by Program element the accomplishments achieved relative to

the goals and objectives programmed in the first year and maps out the key objectives and tasks for this second year. It describes the management structure for implementation of the work, key management issues, challenges and constraints that were faced while implementing the Program in the first year and adjustments made in our strategy. It also includes a brief description of the SUCCESS Associate Award focusing on tsunami rehabilitation in one district of Thailand, and the rebuilding of sustainable livelihoods for those affected from the disaster. The Performance Monitoring Plan (PMP) and Report is included as Annex A of the workplan. It lays out the Program's logical framework, monitoring and reporting procedures, and describes indicators and targets (annual and Life-of-Project) for each category of result.

A. Program Strategic Context

The Development Challenge

Coastal regions (coastal watersheds, their associated estuaries and inshore marine waters) are where human populations and their supporting infrastructure are increasingly concentrated. Here, the major development challenge is the absence of resilient governance institutions capable of effectively and efficiently addressing the many inter-related issues central to the forging of sustainable forms of development and ecosystem health. Such institutions must be capable of implementing the planning and decision-making structures that are sustained over the long-term and that operate as nested systems that link actions at the community level with similar actions at the scale of a province, nation and region. While the number of governance initiatives addressing coastal issues more than doubled in the decade following the Rio Conference in 1993, their impacts are modest. The challenge today is to work with existing programs, and launch new ones that:

- More clearly define their goals
- Attach greater importance to strengthening institutional capacity
- Place greater emphasis on partnership, participation and ownership in programming external assistance
- Produce tangible socioeconomic results in the short-term to assist in building constituency and political support
- Pay more attention to absorptive capacity constraints
- Improve donor coordination

These are the necessary features of aid highlighted in the recent USAID White Paper on its development challenges[1].

The priority issues that must be addressed through long-term governance processes in the coastal regions of developing nations are remarkably constant:

- Reducing Poverty
- Efficient use and equitable allocation of fresh water
- Optimizing the sustained contributions of estuarine and marine ecosystems to food security

[1] US Foreign Aid: Meeting the Challenges of the Twenty-first Century. Bureau for Policy and Program Coordination, U.S. Agency for International Development. January 2004.

- Promoting justice, transparency and accountability in public and private institutions
- Achieving greater equity, including gender equity
- Improving quality of life of coastal people including health improvements by combating HIV/AIDS

Since the inter-relationships among these issues are complex and occur in a context of constant change, it is essential that governance systems practice adaptive management.

USAID Strategic Interests

USAID has stated that "development progress is first and foremost a function of commitment and political will directed at ruling justly, promoting economic freedom, and investing in people" (USAID, 2004). The SUCCESS Program is constructed around this fundamental truth and therefore places the establishment of flexible and resilient governance systems at the core of all of its work. In SUCCESS, the central challenge is to create sufficient governance capacity at a suite of interconnected spatial scales to sustain forward progress towards unambiguous coastal management goals. These goals are defined with the people of the places and respond to their values, their needs and how they believe the principles of democracy must be adapted to their culture and heritage.

Development Hypotheses

Nearly three decades of experience in a wide diversity of settings has convinced CRC and its partners that the design, administration and evaluation of coastal governance initiatives in all settings is made more efficient and transparent when structured within the Orders of Outcomes framework[2].

The ultimate goals of coastal management are (1) healthy, productive ecosystems, (2) an acceptable quality of life for their associated human populations, and (3) a governance system that is equitable, transparent and just. These are defined as Third Order outcomes and must be defined in specific terms for a specific locale. Sustained progress towards Third Order goals requires first creating the necessary enabling conditions (the First Order) and then implementing a plan of action (the Second Order). The Second Order is signaled by specified changes in the behavior of user groups, relevant institutions and – often making the necessary investments in infrastructure. Attainment of Third Order goals in human-dominated, typically stressed coastal ecosystems at the large scale (thousands of square kilometers) typically requires decades of sustained effort[3]. Third Order goals have been documented at the community scale (ten to hundreds of square kilometers) within the span of three to ten years. Verifying and refining the Orders of Outcome framework requires probing a set of hypotheses that include:

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[2] See: Olsen, S.B. 2004. The orders of outcome in integrated coastal management: A framework of progress markers to more sustainable forms of coastal development. Sea Technology. pp. 41- 46. and; Olsen, S.B. Editor. 2003. Crafting Coastal Governance in a Changing World. University of Rhode Island, Coastal Resources Center, Narragansett, RI. USA.

[3] Olsen, S.B. and D. Nickerson. 2003. The Governance of Coastal Ecosystems at the Regional Scale: An Analysis of the Strategies and Outcomes of Long-Term Programs. Coastal Management Report #2243. University of Rhode Island Coastal Resources Center. Narragansett, RI.

- The practice of *adaptive* governance requires documenting change on topics of central importance to the initiative as this relates to a governance baseline. Our premise is that preparing such *governance baselines* is an efficient strategy for assessing the existing capacity and for framing goals in terms that reflect the heritage of a place. Such baselines must document the status of the Third Order variables that will subsequently be used to assess progress towards the goals of an initiative.

- In young programs, our hypothesis is that the first threshold of achievement requires assembling *all* the enabling conditions (unambiguous goals, commitment to a course of action, capacity to implement and constituencies that support the program). An associated premise is that early actions that demonstrate tangible benefits of the program's approach are crucial to sustained progress[4]. When framed in this manner, First Order outcomes require a highly participatory approach to governance that addresses issues of equity, transparency, corruption and efficiency in the planning and decision-making process.

- A third hypothesis is that sustained progress can be achieved only if a governance system is constructed from the outset as a *nested system* in which the approach and actions are reflected across a range of spatial scales that link a coastal community to supportive policies and procedures at the national scale. The importance of institutional frameworks was recently identified as an important factor promoting sustainability of coastal management programs[4].

- Finally, the SUCCESS Program is predicated on the assumption that sufficient experience now exists in the practice of effective and equitable coastal governance that makes it necessary to invest in the codification of good practices and their dissemination through networks of well trained extensionists grounded in the culture of a region.

B. Program Description

The hallmark of this Program is active engagement with coastal people at the grass roots level. CRC and its partners believe that if the needs of coastal people are to be met in a rapidly changing world, it is essential to create a network of institutions in the regions where SUCCESS operates that have the knowledge and skills to analyze problems and opportunities, develop the tools and practices that respond to priority issues and then widely disseminate them. The SUCCESS Program applies the Sea Grant model for building institutions that link extension with applied research and education. The aim is to create in each region where SUCCESS operates, a permanent capacity-building resource that responds to the needs of its coastal ecosystems and the human populations they contain.

[4] Christie, P., K. Lowry, A.T. White, E.G. Oracion, L. Sievanen, R.S. Pomeroy, R.B. Pollnac, J.M. Patlis and R.L.V. Eisma. 2005. Key findings from a multidisciplinary examination of integrated coastal management process sustainability. *Ocean and Coastal Management* 48: 468-483.

Summary of Overall Expected Results

The Program's overarching goal is to help the people of a place improve both their quality of life (health, income, education) and their physical environment through good governance. SUCCESS will apply a mechanism for developing and refining innovative approaches and new models for addressing the complex issues posed by the urgent needs for both development and conservation in coastal ecosystems. SUCCESS hopes to play a catalytic role through modest field programs, linked to regional networks of practitioners and linked series of training courses that will demonstrate the benefits of integrated approaches to coastal governance. Four interlocking components of the Program will deliver a coherent capacity-building program aimed at institutions operating at a range of spatial scales, starting at the program field sites.

1. The first "layer" of the SUCCESS design is a global network of incubators, grouped by region, that are serving as living demonstrations of the benefits of just governance and the effective application of coastal stewardship practices. These incubators will initially operate at the community scale where they will demonstrate and document the benefits of applying a suite of actions that together can generate, at a small-scale, the Third Order outcomes of improved quality of life in the context of healthy ecosystems. The incubators will be placed in a wide diversity of settings in Latin America (LA) and East Africa (EA). All incubators will be working to apply and refine known good practices in coastal land use and livelihoods, including (but not limited to) fisheries, mariculture and tourism.

2. The second "layer" is the regional networks of coastal management practitioners that draw together the many ongoing, but typically isolated, projects and programs in the two regions. Projects and programs will be invited to participate in the networks if they have attained sufficient maturity to offer insights on "what works, what doesn't and why" within their setting. Participating programs will be requested to generate governance baselines that organize their past experience and future aspirations in a common format using standardized terms. This will be the basis of a knowledge management system available to all members of the network.

3. A series of linked training courses will be offered in each priority region and countries that brings together practitioners at the incubator sites with participants in the regional network. Completing a sequence of courses and demonstrations of professional competence will be the basis for certification. Courses will have a strong learning-by-doing theme and will be conducted at one of the field sites that are conducting pertinent activities.

4. The research undertaken through SUCCESS will be directed primarily at better understanding the linkages and interdependencies between the actions associated with the different Orders of Outcomes and probing how sustained progress is influenced by the conditions that are present in a given locale.

In the regions where the SUCCESS Program operates, these components come together as a coherent, mutually reinforcing set of strategies. The approaches developed and refined through SUCCESS are designed for replication in other USAID coastal countries after adaptation for differences in the context, scale, complexity, and governance capacity in a specific locale.

Key Principles and Approaches Employed

- The ***values that underpin coastal governance*** — participation, transparency, accountability, equity and involvement of marginalized groups — are essential to building constituencies.
- ***Government commitment***, including provision of human and financial resources, is essential to successful, long-term coastal governance in any place.
- ***Pilot projects*** can catalyze the enabling conditions and behavioral changes that, when sustained, can produce a harvest of improved societal and environmental conditions.
- Successful programs ***set clear, unambiguous goals*** for the social and environmental outcomes that the Program is working to achieve.
- ***Individual and institutional capacity*** is the foundation for translating the principles of coastal stewardship and participatory democracy into an operational reality.
- ***Good practices*** – refined and adapted to the needs of the place – must guide the actions, and linkages among actions, that bridge planning and implementation.
- ***Improved human well-being*** is inextricably linked to the health of coastal ecosystems.
- A ***nested governance system***—where management power and responsibility is shared across scales and throughout a hierarchy of management institutions to address the cross-scale nature and complexity of management issues—is essential to success.
- ICM must address ***social and environmental change in ecosystems*** and link the impacts of watershed activities to processes in estuaries and along the coastlines.
- It is time to ***codify how best to achieve the changes in values and behaviors*** that are essential to the practice of coastal stewardship.

Technical Program Elements and Life-of-Program Results

On- the- Ground Results

The incubator sites have been selected because of their on-going efforts to apply and refine good practices at the community scale. At these sites in Nicaragua, Ecuador and Tanzania, SUCCESS will emphasize tangible actions that demonstrate the benefits of applying selected ICM practices to community development, mariculture and fisheries. Once an initial threshold of First Order enabling conditions are in place in these communities, the SUCCESS Program expects to see and measure in its five years:

- Local capacity at the district or municipal level is sufficient to sustain implementation of ICM district action plans, including monitoring, evaluation and adaptive management as evidence that Second Order outcomes are being achieved.
- Local capacity at the community level is sufficient to see Second and Third Order outcomes including, for example, monitoring and surveillance of nearshore fisheries resources, and adoption of more participatory planning and decision-making procedures at the community level.
- Sustainable natural resource-based, small-scale enterprises in mariculture, fisheries or tourism are benefiting local households.
- Good practices are being applied to shorefront development and sanitation.

- Progress is being documented towards a permanent nested system of governance that can sustain the enabling conditions that catalyze on-the-ground results.
- A core group of community ICM extension agents is established.
- A community of local ICM practitioners is practicing active learning and adaptive management in program implementation.

While the above mentioned Life-of-Program results apply generally across all three of the field sites selected, more detailed Life-of-Program results for each site have been identified during Year 1 as part of initial phase of workplan activities. This required careful scoping of the local context and capacity of local partners to carry out the work. In addition, it was undertaken in a participatory manner with the local partners at each site. As a result of this process, initial 18-month operational plans were prepared and approved for each country site.

Within each country, activities span more than one site. In Tanzania, we are working in the village of Fumba on Zanzibar Island located within the Menai Bay Marine Conservation Area, as well as in the districts of Mkuranga and Bagamoyo on several mariculture and resources management initiatives. In Ecuador, we are working with communities surrounding the Cojimies estuary and the Mache-Chindul Ecological Reserve. In Nicaragua, activities span the Padre Ramos estuary and Estero Real. Quantitative targets were set for the Life- of -Program at each site and this is reflected in the program results framework and detailed performance monitoring and reporting plan attached as Annex A. For more background information on each site and specific tasks, see Section III.

Training

Training agendas are tailored to the needs of the place as defined through activities at the community level and by the regional networks of ICM practitioners. In the initial year, the courses were targeted at a core group of professionals working at the on-the-ground field sites with open enrollment for a limited number of participants from each region. A central purpose of the training program is to widely disseminate and apply ICM good practices that are now known and to create multidisciplinary teams of extension agents with the knowledge and skills required to apply such practices in a diversity of settings. SUCCESS will also work to create the larger institutional context for the next generation of practitioners at universities, and within selected governmental institutions and nongovernmental organizations (NGOs).

Specifically this element of the SUCCESS Program will deliver the following over the Life -of -Program:

- A series of at least 10 training courses are implemented in the two regions (LA and EA) on a range of topics including ICM, mariculture and fisheries for at least 200 participants.
- Curriculum materials and extension bulletins on at least five topics in ICM, mariculture and fisheries are written and published in both English and Spanish (and Kiswahili as appropriate), with content that draws from the regional training courses. These materials are accessible as both hard copy documents and electronically through the CRC knowledge management system (described below).

- At least two institutions in each region are made capable of sustaining regional training initiatives after the SUCCESS Program concludes.
- Partner regional institutions have a full-time, experienced capacity building specialist on staff who is leading – vs. co-leading, as initially will be the case – the regional training effort.
- A cadre of at least six regional trainers has been established in each region and is actively participating in the design and delivery of the suite of courses.
- There is a certification program that is endorsed by multiple agencies in both regions and which has at least 10 individuals (between the two regions) who have either received or are in the process of receiving their certification.

The capacity building effort is designed as a sequence of inter-connected training courses. Initial courses covered the basics of ICM practice and how to "do" good extension. Subsequent sessions will build sophisticated skills in practices identified by the regional networks as those needed to address specific topics of concern/interest for the field sites. Successful completion of the full suite of training courses qualifies participants for ICM certification. This certification would be issued in the name of the CRC, EcoCostas, WIOMSA Partnership with endorsements from respected national and regional agencies, NGOs, universities and private sector companies. Where possible, links will be made to larger professional certification programs and to international organizations and university degree programs. A feature of the training component is a strong learning-by-doing theme. Throughout the suite of courses, trainees will undertake and report on early actions at their home sites and will share the experiences and lessons learned as they apply the skills and practices from the training to their work on-the-ground.

Regional Networks and Knowledge Management

ICM programs and practitioners are often isolated from other efforts in their own country and unaware of programs elsewhere in their region. Information of practical usefulness to ICM practitioners is often hard to obtain. The result is that programs often reinvent the wheel, or worse, repeat mistakes that others have learned to avoid. This is inefficient and breeds frustration and cynicism. Program success is higher when practitioners have ready access to the information they need and when they participate as members of regional associations of peers. We believe therefore, that the regional networks organized by this LWA will accelerate the rate of and improve the probability of program success. They feature peer-to-peer exchanges and peer assessments, sustained collaborative learning and action among network participants in a given region and globally.

The SUCCESS knowledge management (KM) components are designed as web-based layered systems that are demand-driven and designed to assist in problem-solving and the dissemination of good practices on a wide range of coastal ecosystem governance topics. They combine face-to-face interactions with web-based materials. The networks' knowledge management elements provide for documenting, archiving and making available the Program's working and final documents in a variety of formats. Documentation is supported by electronic services including internal and external websites, CD-ROMs, and electronic collaborative workspaces for Program teams. CRC uses open source servers and software and a database-driven system for its public and restricted-access websites. This allows Program teams to upload and manage their own content, permitting information services to focus on maintaining core systems, databases and

programming that meet the needs of different work groups. This approach is low cost, flexible and readily extensible.

Specifically, the SUCCESS Program will put primary emphasis on building web-based KM systems for the two regional networks and promoting creation of Sea Grant-like programs. SUCCESS Program resources are too small to support regional meetings of practitioners – an essential complement to a web-based system. Funding for such events are a priority target for leveraged funding and program alliances. This is already occurring through the Avina-supported Latin American Network for Collective Action and Learning for the Governance of Coastal Ecosystems. Specifically we expect the Program to:

- Collaborate with, or establish, not less than two regional networks of ICM practitioners with parallel agendas for collaborative learning and action;
- Establish and maintain two functional web-based KM systems – one in Latin America operating in Spanish and a second in East Africa operating in English with Kiswahili sub-elements;
- Encourage peer to peer exchanges and collaboration;
- Build Sea Grant-like programs of linked programs in education, extension and research at selected universities in the two regions linked specifically to the on-the-ground field initiatives, and;
- Provide easy access to documentation of tangible expressions of the successful application of ICM in specific geographic locales.

Science for Management

The wealth of scientific information available to coastal managers in the U.S. is not present in most developing countries. Where scientific capacity does exist, too often it is not applied to planning and decision-making on natural resource issues. The SUCCESS Program seeks to strengthen this link and thereby increase understanding of the relationships between human activities and the condition of the coastal environment and its resources. The focus is on applying and analyzing the conditions and the practices that contribute to effectively linking among the three Orders of Outcomes as nested coastal governance systems emerge at the incubator sites and across the two regions. A second priority is to apply and refine simple and robust techniques for forecasting the impacts upon estuaries of changes to the quality, quantity and pulsing of fresh water inflows. The science for management program element is not seen as a series of stand-alone activities but is integrated into all aspects of SUCCESS, particularly with the on-the-ground field sites, knowledge management as well as monitoring and evaluation.

Specifically, the SUCCESS Program anticipates that after five years:

- Local stakeholders will be generating baselines and implementing goal-based monitoring of social and environmental variables as the basis for assessing progress toward stated ICM goals.
- Good practices in ecosystem-based fisheries and aquaculture are being applied and their impacts are being documented at the community scale.

- Testing and refining governance hypotheses that underlie the Program will codify the knowledge that emerges from field programs and strengthen emerging good practices.
- Techniques for forecasting change within estuaries are being applied in several sites and are influencing planning and decision-making within watersheds.

Global Leadership

CRC and its partners will continue to play an active role in advocating globally for sound coastal governance and a stewardship ethic within coastal ecosystems. On-the-ground field sites will serve as tangible demonstrations and examples of how ICM can and should be carried out successfully. The regional networks in themselves provide important fora for promoting collaborative approaches to learning and action. The experience and energy generated by SUCCESS will be showcased in appropriate regional and global events. Linkages to the global Millennium Goals will be drawn. Major findings and conclusions will be reported in appropriate journals and more popular media. The CRC Director is a member of the Science Steering Committee of the Land-Ocean Interface in the Coastal Zone (LOICZ) program of the International Biosphere Geosphere Program that, in its second decade, will be working to link the latest coastal research to policy-making and coastal management. CRC is also an active participant in such United Nations-sponsored programs as the United Nations Educational Scientific and Cultural Organization (UNESCO) International Oceanographic Commission and the Global Plan of Action on Land Based Sources of Pollution. In all these venues, CRC and its partners will be advocating for the pragmatic and learning-based approach to coastal governance that lies at the core of the SUCCESS Program.

Cross Cutting Program Elements

A priority set of cross cutting issues link across the incubator sites, the regional networks and the training courses. These common themes are as follows:

- Partnerships and alliances
- Gender mainstreaming
- Nested governance structures and procedures
- Health and HIV/AIDS
- Livelihoods and Economic Growth

These themes give substance to the integrated approach to development challenges that is the hallmark of the SUCCESS Program. They are topics that are highlighted as important in recent statements of USAID policy and are all topics in which CRC and its partners have developed skills and experience in recent years.

Volunteers for Prosperity

By the end of the Program, the volunteer program element would expect to see that U.S. professionals have offered technical assistance to various aspects of the Program and its clients, including field assignments in the countries and regions where the Program works. We expect that such assignments will be for an average of two to four weeks in Nicaragua, Tanzania or

Ecuador, or in areas where regional training courses are implemented. Assignments to other countries would be determined based on the origin of the Associate Awards. The anticipated total per person level of effort would be 70 hours to 160 hours depending upon the nature of the assignment and the length of stay of the volunteer.

- At the end of five years, CRC will have provided international opportunities to at least 10 US professionals to work on-site on technical elements of the SUCCESS program.
- Volunteer opportunities will be initiated and coordinated through the Leader with Associates Award on a small-scale and will grow in volunteer numbers as Associate awards are received by CRC.

II. The Program Results Framework

The SUCCESS Program will use its Program Results Framework (Fig. 1) as a basis for tracking progress and performance across its Life-of-Program Results.

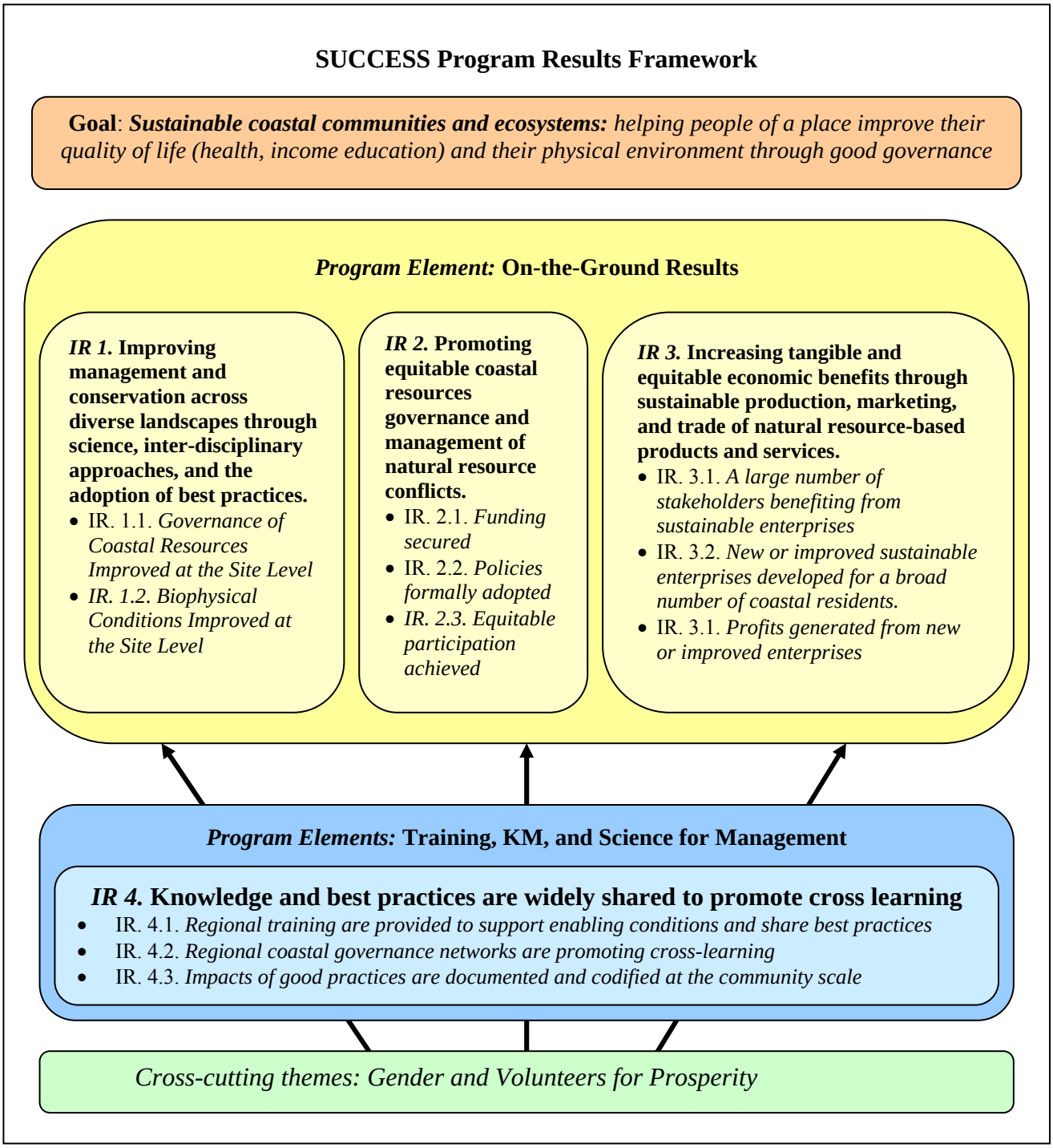

Figure 1: The SUCCESS Program Results Framework

The SUCCESS Program Results Framework guides our planning and program management. It consists of the Program Goal, Intermediate Results (IRs), and indicators (with associated performance targets) which span the four major program elements of SUCCESS. The SUCCESS Results Framework mirrors the USAID Results Framework. Activities carried out through the SUCCESS Program will feed into the overall USAID Results Framework, and will track selected USAID indicators. The complete Results Framework, with indicators and associate performance targets and results to date are presented in the Performance Monitoring Plan (PMP) Report, Annex A.

III. Year 3 Activities

A. On-The-Ground Results: Year 3 Budget: $ 406,823

In Tanzania

Scale of intervention: District level
Lead Implementing Organization: WIOMSA
Other Partnering Organizations: Institute of Marine Science, University of Dar es Salaam, TCMP, UHH
Activity Coordinator: Aviti Mmochi
US Liaison: Brian Crawford

Background

The need to better manage Tanzania's coastal ecosystems and conserve marine biodiversity is urgent. The nation's 1,424 kilometers of coastline include important bio-diverse assets such as estuaries, watersheds, mangrove forests, beaches, coral reefs and seagrass beds and rare species of wildlife—all of which are threatened. Pressures include increasing populations, widespread poverty, poorly planned economic development, under-resourced government institutions, and weak implementation of existing policies and laws. Within this already-challenging context, it becomes increasingly difficult to improve coastal resources management and to improve the quality of life for coastal people when growing numbers of Tanzania's coastal population are HIV positive and when a lack of gender equity permeates coastal resource-based enterprises. Yet against this backdrop, Tanzania has made substantial progress in developing the enabling conditions for sustainable management and conservation of its coastal resources.

One of the more significant milestones in Tanzania was approval of the National Integrated Coastal Environment Management Strategy (ICEMS), adopted in 2002 by the Tanzania cabinet. There have been a number of supporting policies and strategies developed in the last several years as well. This includes best practice guidelines for mariculture, tourism, environmental monitoring and district action planning, and the seaweed development strategic plan. These policies help set the stage for sustainable economic development, which can contribute to the government's objectives on poverty alleviation while ensuring environmentally sustainable development.

The national ICEMS and related policies and guidelines provide an overarching framework for implementation on the ground, and this process has begun. District action plans are being implemented—with support of the National Environmental Management Council (NEMC) and related national agencies—in Pangani, Bagamoyo and Mkuranga. District ICM committees have been formed to coordinate action plan implementation. In these districts, most of the enabling conditions necessary to achieve rapid progress on second and third order outcomes (changes in behaviors, social, economic and environmental improvements) are present. Implementation emphasizes activities such as collaborative fisheries management in addition to enterprise development opportunities linked to the coast's rich cultural heritage and natural resources. This includes development of small-scale enterprises in tourism and mariculture, among others.

The challenge now is how to harvest these investments and move from policy and planning to much-needed execution, while connecting the national governance framework to local actions.

Continued and strong support for Tanzania's efforts in coastal management has come from the United States Agency for International Development (USAID). This includes the agency's support for development of the ICEMS, which calls for "*implementing the national environment policy and other policies in conserving, protecting and developing Tanzania's coast for use by present and future generations*". Since 1997, the Coastal Resources Center (CRC) at the University of Rhode Island (URI), has partnered with USAID and Tanzania's National Environment Management Council (NEMC) to achieve a long-term goal to establish a sustainable ICM program in Tanzania—one that makes ICM the business of national level government and uses decentralized mechanisms at the district and local levels. These activities have been implemented through the Tanzania Coastal Management Partnership (TCMP), an institutional arrangement created by CRC/URI, USAID and NEMC and in 1997. CRC has also worked with WIOMSA previously on regional training programs in ICM funded through USAID/REDSO. CRC has also worked with other donors including the World Bank and private foundations—in mainland Tanzania as well as in Zanzibar—on a number of coastal resources management initiatives. CRC's work continues to be supported by USAID with a new five-year cooperative agreement signed in September 2005. CRC was also awarded USAID Washington funding for a two-year, cross-sectoral program integrating HIV/AIDS, gender, and population dimensions into ICM district-level initiatives in Tanzania. This is called the PEACE Project. These two projects, along with small, complementary strategic interventions from SUCCESS, are helping to sustain CRC's long-term efforts in Tanzania to ensure that a national coastal management program is a permanent feature of the governance landscape in Tanzania.

Currently, there are a number of other planned and on-going ICM initiatives along the mainland Tanzania coast that complement and support the implementation of the National ICEM Strategy. These initiatives include: Tanga Coastal Zone Conservation and Development Program; Kinondoni Integrated Coastal Area Management Project; Sustainable Environment Management Through Mariculture Activities (SEMMA); Marine and Coastal Environment Management Project (MACEMP); Kinondoni Integrated Management Project; World Wildlife Fund (WWF)-Eastern African Marine Eco-region Program; Rufiji, Mafia, Kilwa Seascape Project (RUMAKI); and the Mangrove Management Project. The Marine Parks and Reserves Units (MPRU) with its existing Marine Reserves (of Maziwi and Dar es Salaam) and Marine Parks of Mafia Island and Mnazi Bay and Ruvuma Estuary also contribute to the framework for marine and coastal resources management in Tanzania. In Zanzibar, the World Bank MACEMP program will also be active and is now underway.

It is essential that activities carried out by the SUCCESS Program are synergistic and complementary to these project initiatives and recognize that the coastal management governance and donor assistance landscape is quite advanced in Tanzania in comparison to the other SUCCESS field sites. In particular, SUCCESS is working in sites in Zanzibar and the mainland where there are overarching ICM policies in place and where local visioning and planning has already been carried out. Therefore, the SUCCESS Program does not need to start with a process of building a nested system of ICM governance as one already exists, albeit weak.

While the SUCCESS Leader award funds are small in comparison to the other donor initiatives, strategic interventions have the possibility for a high likelihood of adoption and replication or scaling-up by these other programs. In addition, the USAID Mission funded project will be revisiting the district action plans in 2006 and therefore, the SUCCESS Leader award can use this as an opportunity to revisit the district's vision and adjust activities accordingly, if necessary, rather than implementing a separate visioning activity. Thus, the SUCCESS Program is concentrating on livelihood development through mariculture particularly in the mainland sites, as it is considered to have high potential but is still relatively undeveloped. Governance frameworks are well advanced in the SUCCESS Program's selected districts and they have already identified mariculture as a priority.

In Zanzibar, the Menai Bay Conservation Area has a draft management plan but specific issues concerning wild shellfish harvests and culture are not specifically addressed. SUCCESS activities in Menai Bay are in accord with a number of proposed strategies identified in the draft General Management Plan. These include:

- Promote alternative income generation activities, including mariculture, establishment of fish aggregating devices (FADs), agriculture, tourism related enterprises beekeeping and handicrafts to broaden the income base and lessen involvement in unsustainable resource use activities.
- Identify critical areas, habitats and sites by extending existing knowledge on the distribution of marine biodiversity; the status and distribution of species and habitats considered to be endangered, threatened, or critical—whether internationally, nationally or locally.
- Separate other incompatible activities from critical habitats through the zoning scheme and limit pressure on specified-use zones through permitting.
- Develop Village Environmental Agreements (Plans) in conjunction with communities by which to co-ordinate development of sustainable resource use.

Therefore, SUCCESS activities will need to be linked closely to the vision already set forth in this plan. This includes grow-out bivalve aquaculture as currently practiced in Fumba and many adjacent villages, and managing the wild harvest through small-scale, community-managed no-take zones. In addition, the floating method of seaweed culture has been introduced in Bweleo and also adapted for integrated seaweed-shellfish culture as well as pearl production. If this is successful, it is necessary to make a zoning plan for the various activities in a participatory process with the villages, the districts involved and the Menai Bay Conservation Authority.

In all cases, the SUCCESS Program will demonstrate how mariculture development needs to be linked to other related management issues. For instance, this might includes ways to avoid use conflicts in Bagamoyo and protect wild brood stock harvests of bivalves in Zanzibar. An underlying premise to SUCCESS efforts is that concentrating on economic and livelihood development mentioned above is not sufficient for sustainable development and management. Such efforts must be complemented with related resource management strategies to achieve dual objectives of improvements in both quality of life and the environment.

Links to USAID Mission Priorities

SUCCESS activities directly link to the USAID Tanzania Mission's strategic objective for improved resources management and conservation. SUCCESS activities in the Bagamoyo and Mkuranga districts directly support and link to implementation of district ICM action plans. In the Fumba, Zanzibar site, the Program is working with women within the Menai Bay Conservation Area on improved management of the wild harvest of bivalves. Another Mission focus is on ensuring that national policies are being implemented. Here too, SUCCESS is playing an important role—by assisting the sites/districts to make operational both the national mariculture guidelines and the national seaweed development strategy. The mariculture guidelines and seaweed strategy were developed with support of the USAID Tanzania Mission and contribute to the poverty alleviation and environmental management priorities of Tanzania. The SUCCESS Program links directly, as well, to the Mission's emphasis on livelihood development as the Program focuses on helping communities develop natural resources-based enterprises that will improve quality of life. This includes providing technical and business support services to groups of mariculture farmers on culture technology and post-harvest handling as well as providing advice on micro-financing, delivering training on entrepreneurship, and offering marketing assistance. In addition, the Program is helping partners develop strategies for how to utilize pilot demonstration farms to promote adoption of finfish, seaweed farming, and bivalve culture.

Accomplishments to Date

In February of 2005, four sites were selected in Tanzania for the SUCCESS Program—all involving mariculture activities. In the Fumba Peninsular on Zanzibar, groups of women are collecting and growing in small impoundments several types of bivalves including pearl oysters, *Anadara sp.* and clams. While most of this production is used for local consumption, some is sold. At this site, the Program is assisting with improving production systems and marketing. During Year 1, it became clear that the grow-out impoundments are dependent on the harvest of seedlings from wild stocks inside the Menai Bay Conservation area. This required developing a wild harvest management strategy.

In September, 2005, the shellfish farmers experienced shellfish die-offs in the impoundments—a result thought to be associated with factors related to low water depth. Efforts are now directed at shifting the impoundments to deeper waters and developing methods suitable for these deeper waters. The women shellfishers are being taught swimming to enable them to move and work more comfortably in deeper waters. During the second East African mariculture workshop, participants were trained on pearl production. A May 2006 training on how to make jewelry from shells resulted in participants immediately crafting jewelry. The villagers are currently developing registered economic units, with leadership in place, and bank accounts opened. Plans are underway to train these villagers/units on entrepreneurship and bookkeeping. In April 2006, seeded pearls were planted on floating-lines and are surviving. A meeting was held in May 2006 regarding the need to establish no-take zones for cockles in the peninsular. It was agreed that the consultations will be continued with the intention of developing village bylaws to be approved by the district and Menai Bay Conservation Area.

The second Tanzania SUCCESS site is in Bagamoyo district, where a group of seaweed growers are establishing their own farms and marketing independently to seaweed buyer—thereby breaking the dependence on buyers for capital inputs for farming. The Program is working with this group to establish a pilot floating farm as an alternative to the off-bottom peg-and-line method that is plagued with problems of die-off and disease. Since they are growing *E.* cottonii, which is more environmentally sensitive, the deeper water floating farm is expected to reduce disease problems and die-off. Deeper waters provide more stable temperature and salinity regimes, which are thought to be the main causes of seaweed die-offs. The pilot farm has been constructed and seedlings set out on lines. Initial results indicate faster growth and more healthy seaweed than the traditional stake method. The Program has also provided three boats—one each for Mlingotini, Pande and Kondo villages—to assist the farmers in reaching deeper waters and for carrying seaweed back to land. SUCCESS has signed agreements with the farmers that 1) provides farmers with a boat and other production materials, and 2) agrees to allow SUCCESS to use the plot and farmer assistants for demonstration purposes. While the pilot floating method started at Mlingotini, this off-bottom method has now been adapted to Pande village and the seaweeds are growing well. The Program has facilitated successful growth of seaweed not only in Pande but in Changwahela, where previous exercises failed.

The last two SUCCESS Tanzania sites are in Mkuranga district, where the Program is working with farmers on a demonstration tilapia farm and pilot milkfish pond. A team of two professional volunteers visited the milkfish farm in June 2005 and assisted with redesigning the pond layout and engineering. In July 2005, there was a milkfish harvest of 340 kg from an approximate 1 ha pond, and which sold at a price of Tsh 1142/kg (approx. $1/kg). This demonstrates the production capability as well as the marketability of farm-raised milkfish in Tanzania. Construction of fish ponds has been completed and fingerlings stocked. At the tilapia site, the Program assisted a farmer to obtain a wind-driven water-pumping system to reduce production costs and make the operation more economically viable. The windmill saved some fish from mortality during a severe drought from October 2005 to April 2006. Unfortunately, the stocked fish were washed away by overflowing in the rainy months of May and June. Based on the experience, the Program is recommending that the stocking of the ponds be done after the main rainy season in May and harvesting be done before the dry months of January-February. Local teams involved in providing extension services to all these sites participated in the first regional training course on mariculture extension. In addition to the country-specific workplans that were prepared for these sites in March 2005, each site was evaluated during the training course and updated action plans were prepared for each.

Governance baselines were completed for each of the above mentioned sites. Training on the baselining method was provided by the CRC monitoring and evaluation specialist in a small participatory session with the TCMP, PEACE and SUCCESS program managers and the Bagamoyo district ICM coordinator. Lastly, annual and Life-of-Program targets were set for each Program indicator in each field site.

Selected highlights of the Program to-Date (October 2004 through Sept 2006)

- 285 persons (141 enterprises) benefiting from equitable and sustainable natural resource based enterprises
- Individual capacity built for 82 persons, through implementation of four training courses, that support better ICM enabling conditions and best practices
- 58 percent of participants involved in coastal resources and conservation planning were female, achieving more equitable participation for this traditionally disadvantaged group
- 80 percent of sustainable enterprise beneficiaries are female, achieving more equitable distribution of benefits for this traditionally disadvantaged group
- Sida/SAREC through WIOMSA has provided 12,000 USD in complementary funds for research on water and soil quality for shellfish farming and the suitability of the farmed shellfish for human consumption and also research on the availability, seasonality and abundance of milkfish fingerlings in Bagamoyo and Mkuranga costs.

Selected Program Highlights in Year Two

The floating method for seaweed farming was adapted to shellfish farming and pearl production. The seaweed farming technique was also transferred to Fumba Peninsular and some of the lines have both seaweed and shellfish. Since April 2006, a total of seven settings have been put in place for seaweed, shellfish and pearl production. Seaweed farming has been initiated in Pande where it has failed to take off for years. The three 1 ha milkfish ponds—two in Mkuranga and one in Bagamoyo—were completed and the farmers are now collecting and stocking fingerlings. Baseline ecological data has been collected for all the sites and two scientific studies are being conducted—one in Fumba Peninsular on water quality and one in the mainland coast that is trying to evaluate the occurrence, abundance and seasonality of milkfish fry and fingerlings. The Program also funded an MSc student to facilitate meetings to formulate a community-based zoning and management plan for cockles in Menai Bay. The plan includes identification of no-take zones, and outlines a policy on the management and monitoring to detect changes in abundance and sizes. A guidebook for pearl production was published. It was a first for Tanzania and probably the only one in Africa as well. In all the sites, monitoring is being conducted to determine the economic feasibility of SUCCESS activities. This information can also help inform training and extension activities.

Year 3 Task Objectives

1. Promotion of sustainable, low-tech, mariculture practices appropriate in the East Africa Region as diversified livelihood options for coastal communities

The East Africa coastline provides tremendous potential for mariculture activities that can both raise household incomes in coastal communities and increase food security. Much of this potential remains untapped except in a few selected commodities such as seaweed farming. Reasons for the lack of progress in developing mariculture in the region are varied. They include

concerns about environmental impacts and cultural acceptability, challenges in developing technologies appropriate to the local context, and a lack of attention to marketing and economic feasibility as well as production feasibility. The SUCCESS Program is focusing efforts on a number of selected mariculture products that are low-impact, and offer the best potential for adoption by and benefit to local communities. This includes shellfish, pearl, tilapia and milkfish farming. In addition, the Program is working to improve technologies to address several key constraints for additional expansion and improved production in the established seaweed farming sector and alternatives to inter-tidal/sub-tidal farming, which suffers from occasional die-offs. While Program activities are currently being piloted in Tanzania, the potential for eventual expansion region-wide is substantial, with attempts already underway in Mozambique, Kenya, Mauritius and Madagascar.

1.1 Piloting sustainable low cost techniques for milkfish farming in East Africa

The Program is adapting to the East Africa context those milkfish farming technologies that have proven successful in Asia. This includes working with three cooperating entrepreneurs who have expressed interest in milkfish farming to convert a portion of their existing salt ponds to milkfish ponds. Pond construction and fingerling stocking was completed at each site in Year 2. The chosen pond design is a more simplified design than that used in Asia and it addresses the higher tidal ranges found in East Africa. In Year 3, Program priorities are several. First is to assist these new milkfish farmers in learning how to manage water quality and stocking densities and how to properly harvest and market a large supply of commercially saleable fish. Also, cost benefit analysis will be conducted looking at actual costs, cost effectiveness, and rate of recovery (financial).

Another issue being addressed is the supply of fingerlings and harvesting of fingerlings from the wild. Securing enough fingerlings is difficult and current government policy does not allow fishing by using small mesh nets. In Year 3, the Program will develop a policy paper on milkfish farming and advise the government on issues that would allow careful and controlled harvesting of fingerlings from the wild for stocking purposes and on other good management practices (pond siting, land tenure, area zoning) that are consistent with the national mariculture guidelines and which at the same time would ensure environmentally and socially responsible expansion of milkfish farming within the country.

Harvest and marketing are critical issues for this year in order to assess more fully overall feasibility and potential. Lastly, the Program will integrate pilot farming experience with policy initiatives to ensure environmentally sound and equitable expansion—should pilot activities demonstrate appropriate feasibility.

With the construction of three commercial 1 ha milkfish ponds completed, the task in Year 3 is to stock and monitor the water management process and growth of the fish to market sizes. This will be followed by harvesting and marketing the products. The information obtained will facilitate completion of a guidebook for milkfish farming. The milkfish guidebook will be launched in an extension meeting to scale-up the activities at the farmers' level and also at regional level. Currently, milkfish farming is being carried out in abandoned salt pans.

Monitoring of soil and water quality in the ponds and outflow areas is also being conducted as a best practice to ensure negligible impacts on the surrounding environment.

The results expected include having tangible demonstrations of Best Management Practices for Milkfish Farming in East Africa and for three entrepreneurs and associated groups to be realizing benefits from increased income from milkfish farming.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
In Mkuranga**:**	
• Conduct monthly extension visits to two farmers at the two pilot farms	On-going
• Provide technical assistance on water management (visit by Edwin Requintina)	November 2006
• Assist with harvest methods and document marketing of Moshi farm (Bagamoyo) and Mkadam farm (Mkuranga)	January 2007
In Bagamoyo:	
• Conduct monthly extension visits to advise, document and assess farming practices	On-going
• Provide technical assistance in water management (visit by Edwin Requintina)	November 2006
Policy	
• Conduct study on fry and fingerling abundance and seasonality (leveraged funds from MASMA)	On-going
• Conduct assessment of fry and fingerling collection methods (Requintina TDY)	November 2006
• Prepare policy brief on milkfish farming (two day working session at TCMP)	November December 2006
• Meet with Department of Fisheries to discuss milkfish farming issues (jointly implemented with TCMP through the Coastal Working Group)	May 2007
• Write up milkfish farming economics and marketing report	April 2007

OUTPUT(S)

- Report on results of milkfish farming trials/pilots
- Policy brief on milkfish farming

1.2 Conduct Regional and National Outreach on Milkfish Farming

Assuming pilot pond trials demonstrate viability of milkfish farming, the next step will be to scale-up from ongoing pilot farms. In anticipation of such scaling-up, an extension strategy will be developed. The strategy will include finalization of a guidebook to milkfish farming in Tanzania. This guide has been drafted and the experience emanating from the Tanzania trials will be incorporated into the content of the guide before it is finalized and published. The guide, along with the pilot/demonstration farms, will serve as the basis for an initial extension training

course for other potential farmers and extension personnel. These activities are expected to result in improved knowledge and skills of 20 participants (at least 30% female) to develop and promote milkfish farming activities in their area/country.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Complete draft milkfish guide integrating results from the pilot fish ponds	February 2007
• Implement a national/regional training on sustainable, low-tech milkfish farming for coastal extension agents in the East Africa region with emphasis on Kenya, Tanzania, and Mozambique (Requintina trip as a resource person) in Bagamoyo	July 2007

OUTPUT(S)
- Guidebook for milkfish farming
- TraiNet forms

1.3 Tilapia Farming

Tilapia is indigenous to Africa and especially East Africa. Largely because of its high fecundity and stunted growth as a result of overcrowding, tilapia have remained a subsistence crop. There are several methods of controlling the reproduction rate including sex separation, polyploidy, all males' hormonal inducement, thinning and conversion to marine tilapia. At Mkuranga in Mfurumwambao village, 10,000 *Tilapia nilotica* from Kingolwira fish hatchery station in Morogoro have been stocked. The fish are being distributed to nine ponds of a total size of 3800 m2. Two ponds will have all males, two ponds all females and the remaining ponds will have mixtures. The sex-selecting and stocking is ongoing.

This activity is being phased out by the end of the second quarter of Year 3 as a result of successful completion of Years 1 and 2 assistance activities and as a result of other donor and national groups placing significant effort on tilapia farming extension (including the Aquaculture CRSP). Hence, the Program will work to advance the idea that any further extension support to farmer groups should be provided by the Fisheries Department.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
<u>In Mkuranga:</u>	
• Conduct meeting to decide marketing strategies	November 2006
• Oversee harvesting and marketing	December 2006-January 2007
• Meet on handing over site responsibilities to the Department of Fisheries	May 2007

OUTPUT(S): None

1.4 Seaweed Farming

The floating-line method of seaweed farming has proved to be more productive than the traditional peg-and-line method. Contrary to the peg-and-line method, which has six to seven cycles per year of harvests, the floating method completes eight cycles per year. The method has already been successfully introduced in Pande and Bweleo. Already, in what seems to be diffusion of this new technology, the Fisheries Department has provided the Pande farmers with materials for construction of three more rafts. In Year 3, *dema* traps will be introduced into the seaweed farming to capture herbivorous fish attracted by the seaweed to both reduce loss of seaweed and provide additional income to the farmers. The catch statistics will be monitored. In addition, carrageenan content will be compared between the floating farm method and the off-bottom method to determine whether the quality of seaweed (percent carrageenan) differs between the two production methods.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
In Bagamoyo	
• Complete the comparative economic analysis of floating and off-bottom seaweed farming methods: one trip to Bagamoyo by Mmochi, Shalli and Flower for two days	January – February 2007
• Meet with District Fisheries extension agents and the Fisheries Department regarding expansion of floating farms	July 2007
• Analyze carrageenan content: four samples each, for four seasons for Mlingotini and Bweleo (Flower)	August 2007
• Produce 10 *dema* traps each for Pande, Changwahela and Kondo	Ongoing
• Assess *dema* traps to capture fish feeding on the floating-line system and conduct routine monitoring	From September 2006
In Fumba:	
• Conduct extension visits (Flower in conjunction with Nariman's visits for shellfish) to monitor and provide technical assistance on seaweed floating-line system	On going
• Write up seaweed farming economics study	December 2006

OUTPUT(S)

- Seaweed economics report
- Report on comparative carrageenan content
- Report on *dema* trap catch statistics

1.5 Shellfish Farming Menai Bay

A number of women in Menai Bay are dependent on shellfish collection as a means of livelihood. With time however, the number and sizes of shellfish collected has been decreasing and these women are now forced to go further out into Menai Bay to collect. A potential

alternative for harvesters is shellfish farming. Shellfish farming experiments started in the Menai Bay villages of Fumba and Bweleo in 2004. SUCCESS took over the activities in 2005 by looking at the economics of shellfish farming. During the year, there were shellfish die-offs in shellfish pens that were thought to be associated with their shallow depth. SUCCESS embarked on shifting the shellfish enclosures to deeper waters and finding alternative methods of farming. In Year 2, the floating-line method of seaweed farming was experimented with for adoption to shellfish farming. In Year 3, monitoring will be continued in expectation of seeing the harvest of shellfish farmed on the rafts. Some of the lines have both shellfish and seaweed in the same rafts. In Year 3, the Program will deploy better marking floats to hopefully avoid or minimize what to-date has been damage to the farms from boats that could not clearly see the markings.

SUCCESS is also working on half-pearl *(mabe)* production. Community groups have been trained in implantation of half-pearl nuclei and in floating farm cultivation methods. In Bweleo, there are already 34 bivalves with an average of five seeds each. The target is to have more than 100 pearl oysters implanted and to realize first harvests in Year 3. This activity also links to the entrepreneurship activities described below.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
Pens	
• Monitor mortality and growth (Nariman, Ngowo, assistant)	Ongoing
• Move additional pens to deeper water	October 2006
Pearl, Shellfish and Floating Farms	
• Monitor growth and mortality of edible shellfish and seaweed	On-going
• Monitor survival and nacre production in pearl oysters	On-going
• Conduct additional implants of pearl oysters (target of 100 individuals by December of 0-2 species)	December 2006
• Conduct partial harvest of half-pearls and conduct community training on processing for jewelry	March 2007

OUTPUT(S)

- Report on shellfish farming (Feb)
- Report on pearl production (May)

1.6 Developing capacity for entrepreneurship of women groups

The women in the Fumba Peninsular villages of Fumba, Bweleo and Nyamanzi now own property in the form of articles provided by SUCCESS and used to polish unfinished shells, in the form of half-pearls donated to them, and in the form of the "finished product" shells that they have polished and prepared for sale. It is important for the women to form a registered economic unit and build capacity in entrepreneurship and bookkeeping. This will ensure sustainability of these activities. In Year 3, SUCCESS will monitor and evaluate the costs and returns in shellfish farming, pearl production and shell-polishing as well as facilitating formation of the economic groups into formal associations, and building their entrepreneurial skills.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Develop terms of reference for entrepreneurship training (Haws)	October 2006
• Conduct training on entrepreneurship	April 2007
• Produce and market shell handicrafts	Ongoing
• Produce packaging and advertisements	April 2007
• Conduct extension visits	Ongoing

OUTPUT(S)

- TraiNet forms
- Report on shell-craft activities and sales

2. Promoting community-based and district scale resource management and zoning policies

A number of activities are competing for space in Mlingotini and Menai Bay leading to several incidences of conflicts between fishermen and seaweed farmers in Mlingotini. Therefore, in order for the development (if successful) to be sustainable, adequate management and zoning policies must be developed. These policies have the potential to reduce conflicts and ensure sustainable management of the resources. For the policies to be effective, however, the communities in question need to know and understand the need for policies and assist in their enforcement. Zoning activities are planned for Menai Bay and Mlingotini Bay.

2.1 Zoning plan for seaweed farming in Mlingotini Bay

Activities in Year 3 are aimed at working on zoning areas for seaweed farming, fishing and boat traffic channels and mooring areas to reduce user conflicts, especially between seaweed farmers and fishers. A base map of the Bay has been drafted with existing sea uses identified.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Complete existing use map with proposed use zones	November 2006
• Modify base map on existing uses of areas in the lagoon including seaweed farming areas, boat paths and anchorages through village and district meetings	
ˆ Discuss the zones at village level: three village meetings with the maps from Muhando	January 2007
ˆ Discuss zonation scheme at district level: one meeting	March 2007
ˆ Conduct combined district/village zoning meeting: one meeting	TBD if needed
• Prepare village by-laws, submit to village councils for approval	May 2007
• Submit draft zoning plan to district council for endorsement	July 2007

OUTPUT(S)

- Zoning plan approved by village council and endorsed by District Authority including associated use zone map

2.2 Establishment of improved harvest practices (no-take zones) for cockles in Menai Bay

For sustainable collection of cockles from the wild, the SUCCESS Program is developing no-take zones. Village meetings have been held, which have identified no-take areas, rules penalties and roles of village management committees. Community monitoring has started with baseline information already collected and maps are being drawn indicating the no-take zones. In Year 3, a goal is to have village by-laws formally passed and the no-take areas also approved by the Menai Bay Conservation Authority through incorporation into the draft management plan. Community monitoring will be continued to assess impacts of no-take areas, looking specifically for the expected recruitment effect. The Program is supporting one local MSc student to facilitate community meetings and continue the community-based monitoring program.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Generate GIS map with no-take zones plotted	October 2006
• Draft by-laws for three villages using TCMP Bagamoyo no-take by-laws as examples	November 2006
• Submit by-laws and map to village councils for approval	December 2006
• Approve map and incorporate no-take areas into the MBCA draft management plan	September 2007
• Conduct community-based monitoring	March 2007

OUTPUT(S)

- Map designating no-take areas
- Village by-law concerning zoning scheme management
- Draft section of MBCA management plan w/ no-take areas incorporated
- Report on the no-take zones

2.3 Development of a zoning plan for the mangrove estuary in Mkuranga to plan orderly and environmentally appropriate milkfish farming expansion

In anticipation of future expansion through adoption by other salt pan owners, SUCCESS is making a map of the estuary in Mkuranga district for future use in zoning for milkfish mariculture. However, zoning work in this area will not start until other management planning activities in Mlingotini and Menai Bays are completed, which is projected to occur in Year 4.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• GIS map created	October 2006

OUTPUT(S)
- GIS map

3. Science for Management:

3.1 The Learning Agenda
(see Science for Management section for details)

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct microenterprise surveys in Tanzania	April 2007
• Support and participate in this activity lead by CRC team with field assistants provided by WIOMSA (Shali)	April 2007

OUTPUT(S) (see science for management section)

3.2 Threats Assessment
(see Science for Management section for details)

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct Tanzania biodiversity threats assessment (Julius and Mmochi, with R. Volk and E. Torell)	November 2006

4. Certification
(see Training section for detail of East Africa activities)

5. KM
(see Knowledge Management section for detail of East Africa activities)

In Nicaragua

Scale of intervention:	Municipality level
Lead Implementing Organization:	Centro de Investigación de Ecosistemas Acuáticos de Universidad Centro America (CIDEA – UCA)
Other Partnering Organizations:	The EcoCostas-CRC regional network for assistance in governance baselines and design/delivery of training courses; the Pacific Aquaculture and Coastal Resources Center at the University of Hawaii; Sea Grant network; Peace Corps and local NGOs for diversification of livelihoods and health (LORNICA, OIKOS, SIFE); and governmental institutions such as the Ministry of the Environment and Natural Resources (MARENA) and PYMES (IDB-supported initiative for development of small and medium size businesses).
Activity Coordinator:	Agnes Saborio
US Liaison:	Maria Haws

Background

The Center for Research and Development of Aquatic Ecosystems (CIDEA) is an operating unit within the University of Central America. It began as a five-year project, initially funded by the Japanese development agency, and has evolved into a professional center with several laboratories at the University and a field station at Puerto Morazan. CIDEA was able to raise millions of dollars to support activities on campus and in the Gulf of Fonseca. CIDEA was a primary recipient of USAID post-Hurricane Mitch reconstruction funding and successfully implemented a Sea Grant extension initiative as part of that effort. CIDEA employs six extension agents and works closely with marine and coastal resource users in the Gulf. CIDEA has good scientific and research capacity including water quality, pathology and analytical laboratories.

Since the mid-1980s, shrimp aquaculture has grown to be one of the most important sources of income in the Gulf region of Nicaragua. By 2002, approximately 9,000 hectares were in shrimp aquaculture—with approximately 4,000 hectares operated by large producers and about 5,000 hectares operated by 130 shrimp cooperatives. On average, there are 13 associates in each cooperative with a total involvement of approximately 1,200 families. Despite CIDEA's efforts to assist small-scale shrimp producers, a growing number of issues have made it clear that shrimp farming at the artisanal scale is becoming less viable. Small shrimp farmers have difficulty accessing loans, often face high interest rates, have limited financial management capacity, high input costs, and excessive fees for bringing shrimp to the sole processing facility that sets the local price for shrimp. These factors, combined with falling prices for shrimp on world markets, have made the cooperative shrimp farms unprofitable. Therefore, farms are being sold to the foreign-owned, large-scale operators or are being abandoned. CIDEA has concluded that what is needed is a diversified mariculture industry for small pond holders, one that is less dependent on shrimp farming or that improves the efficiency of small shrimp farming operations.

CIDEA has been working to develop the capacity and infrastructure to support development of alternative livelihoods for inland and coastal areas. CIDEA has nearly completed construction of a freshwater demonstration site, "La Polverosa", which will host research and demonstration activities for tilapia culture and ornamental fish (all are endemic cichlids). SUCCESS has not contributed to the demonstration site to date, but the Program may use the site to demonstrate the feasibility of and train farmers in tilapia culture as an alternative livelihood option in Year 3. CIDEA also provides extension and laboratory services to industry and natural resource management initiatives including aquatic pathology and diagnosis, water quality analysis, nutritional analysis and freshwater and saltwater wet laboratories. CIDEA is also engaged in a number of applied research efforts such as documenting the presence of bivalves that have commercial potential and assessing issues related to the threatened cockle fishery (original funding for initiation of these efforts was from Japan). The Padre Ramos efforts were begun in collaboration with the Portuguese NGO Oikos, with funding from the European Union (EU). Findings from their applied research agenda are directly applicable to informing the SUCCESS efforts and applied research is being continued as part of the project's efforts.

CIDEA is currently working in four large estuarine areas in Nicaragua: Padre Ramos, Estero Real, and Aserradores and Realejo in the areas of ecosystems monitoring, alternative livelihood development, aquaculture and natural resources management. CIDEA is also contributing to issues of regional and national importance such a the national Code of Practice for Shrimp Farming, management and monitoring of the Estero Real and creation of a Masters Degree Program in ICM.

Links to USAID Mission Priorities

Economic Freedom: Open, Diversified, Expanding Economies

This USAID Strategic Objective (SO) is directed at providing support to enhance competitiveness of Nicaraguan businesses emphasizing market-oriented approaches for small-and-medium-scale producers and increasing market access to take advantage of the Central America Free Trade Agreement (CAFTA). SUCCESS is providing technical assistance to aquaculture producers, working to diversify aquaculture products and evaluating possibilities for coastal communities to utilize previously under-exploited natural resources and skills to engage in new productive businesses. Products and services for local use and export that are either under study or are being supported include small farm-produced shrimp, shellfish, bread bakeries and alternative tourism services. In the case of aquaculture, emphasis is being put on production of ecologically sustainable products and improving sanitation to allow aquaculture products to compete in the various markets. Capacity building in production skills, business management, marketing and financing is included in these efforts. CIDEA is also helping build natural resources management capacity in the coastal areas most likely to be affected by pending regional and national projects such as the Millennium Challenge Corporation’s improvement of the Pacific Corridor Highway which links Honduras, Nicaragua and El Salvador. Transportation improvement offers increased opportunity for commerce, but also opens rural areas to resource extraction. SUCCESS is laying the groundwork for poor coastal communities to position themselves for the increased access to local areas.

Just and Democratic Governance: More Responsive, Transparent Governance

This SO aims to support development of more transparent, responsive and accountable governance. SUCCESS contributes to stronger governance in the arena of natural resources management through enabling coastal communities and local governments to develop skills and capacity to better manage resources and to engage in public dialogue on questions of resource management, conflicts and equitable use. Additionally, means to allow local communities to access opportunities and markets are being developed where they have been inhibited by systemic disincentives, weak governance, gaps in policy and regulation and corruption. For example, at the two SUCCESS coastal sites, management of fisheries and aquaculture resources is a chronic problem due to issues of regulatory gaps, lack of enforcement, corruption, insufficient data, encroachment by non-residents, lingering impacts from Hurricane Mitch and other forces with which community members must grapple daily in order to protect, harvest, or market their products. Environmental management relies heavily upon the ability of local government and civil society to understand management principles and methods, and to work with the central government towards laws and practices that are appropriate, just and acceptable to local peoples. In this way, local ability to manage and sustainable use resources contributes to decentralization and strengthening of civil society.

Investing in People: Healthier, Better Educated People

This SO targets maintaining and improving gains in basic education, health care, food security, reproductive health and HIV/AIDS prevention. SUCCESS contributes to this through working in food-insecure communities to maintain the natural resource base for food production, generate alternative livelihoods, optimize current resources use and improve the ability of communities to manage their resources and revenues. There is an explicit emphasis on working with women as heads of families to build capacity for income generation and reinvestment for priority family needs. Additionally, CIDEA has strong ties to the Puerto Morazan health clinic and school and is assisting them with education and health initiatives. Among these is the establishment of a water harvesting system at the CIDEA training center as a model for the community. CIDEA is also coordinating with a local NGO, Lorrnica, to provide health supplies and food to poor families in the area. Health issues related to natural resource utilization such a poisoning from shellfish consumed during red tides and food-borne diseases from shellfish are also being addressed.

Accomplishments to Date

In April 2005, two areas along the Pacific Coast of Nicaragua were selected as SUCCESS Nicaragua sites. One is the Estero Real Estuary, which is a major watershed in Nicaragua and is distinguished by its extensive mangrove systems, high level of biodiversity and as a major economic area where most Nicaraguan shrimp ponds are located. The estuary and surrounding areas support fishing, agricultural and tourist activities. However, Hurricane Mitch significantly impacted the physical attributes of both the estuary and surrounding communities in 1998 and recovery is not yet complete. The second site, Estero Padre Ramos, is a large coastal lagoon located on the northwest Nicaraguan coast and is encircled by numerous rural communities that depend on fishing, cockle gathering and related activities. This lagoon, although listed as a Protected Area under a co-management scheme, faces serious environmental threats.

Communities are impoverished with some traditional livelihoods being eliminated under the management plan. These communities have little access to services, markets or other opportunities. In Year 2, work was expanded to include two new estuary areas, Asseraderos and El Realejo. All estuarine areas in Nicaragua have regional importance, as national boundaries are porous and citizens of El Salvador and Honduras heavily utilize the estuary systems, as well as most of the Nicaraguan coast, for fishing and other extractive activities.

Governance baselines were completed for the communities around the two estuaries in Year 2. Baselining served to bring together community members, collect critical information, identify key issues, and establish the beginnings of consensus-building for community management and livelihood activities.

Initial activities focused on evaluation of opportunities to establish alternative livelihood efforts for coastal communities surrounding the two estuaries. Stakeholders around the estuaries have traditionally depended on fisheries, bivalve collection, and small-scale agriculture for their living. However, overexploited fish and bivalve stocks, removal of mangroves by shrimp farms and increased pressures by immigrants from elsewhere have combined with rapid local population growth to make income generation and food security increasingly tenuous in the area. Each of the coastal communities confronts different opportunities and challenges. Thus, options for new forms of livelihood required careful evaluation and feasibility studies, particularly as most options were unfamiliar to residents. By the end of Year 2, the most feasible alternatives that emerged were tilapia production—using either new ponds or converted shrimp ponds, hammock and bread production and alternative tourism. Tourism and retirement settlements (mainly by U.S. citizens) are growing rapidly along the Nicaraguan coast—creating possible opportunities for the smaller communities to engage in eco-tourism.

CIDEA is working with two large groups representing cooperatives, women's groups and community groups (FINCAMAR and AGROPESCA) to identify and establish opportunities for eco-tourism, "green" shrimp culture and other agricultural activities. The SUCCESS work with shrimp culture best management practices and tilapia culture in shrimp farms is part of a larger CIDEA-coordinated effort to address shrimp industry issues with funding. This work is funded by Oikos and includes mangrove management and improvement of shrimp-postlarvae capture.

The black cockle (*Anadara similis* and *A. tuberculosa*) holds great economic importance as a major fisheries species on the Nicaraguan coast. Not only is it a major target species for fisheries (often by women), but is an important part of the generally protein-poor rural diet. Nicaragua also has dozens of other bivalve species with commercial potential, but bivalve culture is almost non-existent. A key part of the evaluation phase for alternative livelihoods and natural resources management is the applied research that CIDEA has been conducting for several years on bivalve populations and cockle culture, the latter focused on whether cockles could be grown in fish ponds. This work has been instrumental in determining that diverse and completely un-exploited potential exists to culture various species of bivalves. Many of these species have high market values in Nicaragua. Illegal extraction and export of bivalves to El Salvador and Honduras also exists and represents both a challenge in terms of management and an opportunity in terms of potential commercial value if brought under legal management and commercialization schemes that bring more benefit to local communities. CIDEA worked

successfully with collaborators to evaluate the potential for bivalve culture, develop low-cost low-technology culture methods, provide training in culture methods, identify marketing channels and develop initial recommendations for co-management strategies to protect the declining cockle populations.

There are also public health issues associated with the bivalve fishery. In Year 2, sudden occurrences of red tide, which makes shellfish poisonous or deadly to eat, appeared along the Nicaraguan coast, causing great concern among coastal residents who had little knowledge or experience with red tides. CIDEA was able to provide a rapid response to stakeholders by disseminating information on red tides and advising residents not to consume shellfish taken from affected areas. Other public health issues associated with cockles and other bivalves are the propensity for these shellfish to filter out and accumulate water-borne pathogens that can cause potentially fatal illness, such as *Hepatitis A.*, *Salmonella*, *Vibrio* spp. and *E. coli*. The problem with contaminated shellfish may be increasing as coastal populations grow and increasingly pollute coastal waters.

In Year 2, work began in the Aserradores Estuary to test co-management strategies such as no-take zones for the blood cockle fishery. This work will continue in Year 3. It will serve as a model to other estuaries which suffer from overfishing and lack of adequate management regimes. A program of monitoring estuarine waters for *E. coli* and blood cockle tissues for Hepatitis A virus was also begun as a prelude to identifying areas for safe collection and cockle culture. Hepatitis is epidemic in Nicaragua and may be carried by contaminated cockles, which are widely consumed in the country and also in Honduras and El Salvador. The results from this work will provide the basis for a shellfish sanitation plan to ensure food safety.

Improved management of estuarine and forest areas in the watershed areas is also clearly a critical need if the traditional livelihoods such as cockle culture are to be maintained or revived and if the regional ecosystems are to be preserved in functioning form. A key part of this is developing institutional ties and agreements for coordinated strategizing and actions. CIDEA has led the way with development of agreements with multiple institutions including municipal, national, community-based organizations (CBOs), NGOs and international organizations. Among the key partnerships are those with MARENA (Ministry of the Environment and Natural Resources) and SELVA, an NGO charged by MARENA with implementing co-management of Padre Ramos.

CIDEA was invited by the national government to participate in development of a management plan for the Estero Real, given their extensive past efforts in management and the ample database developed as a result of long-term monitoring. CIDEA has long-standing partnerships with the shrimp industry association (ANDA) and individual shrimp farmers. CIDEA contributed to the National Code of Conduct for Shrimp Farming, which was adopted by the industry and now awaits adoption by the government. CIDEA continues to provide technical support for implementation of best management practices.

CIDEA has also been working with Peace Corps-Nicaragua to integrate two volunteers into their SUCCESS activities and to learn from successful Peace Corps initiatives in other parts of the country such as in micro-financing and community banks. CIDEA has also been tapping into the

Sea Grant network, primarily with Dr. Maria Haws (Hawaii Sea Grant) and Dr. John Supan (Louisiana State University Sea Grant) for technical information and assistance. Five national and international volunteers are also assisting.

An important vehicle for achieving the SUCCESS Program objectives is development of a local and national network of extension agents and specialists who can be utilized as resource persons for the technical elements of the SUCCESS work such as the livelihoods and management efforts. While CIDEA is already well staffed with six extension agents active in various sites along the Pacific coast, expanding and strengthening the extension team is key to achieving desired outcomes. CIDEA is also working with other educational and technical specialists to develop a Masters degree in integrated coastal management as none exists at this time in the region.

Selected highlights of the Program to-Date (October 2004 through Sept 2006)

- Communities in four estuary systems are benefiting from efforts in natural resources management and alternative livelihood efforts. A total of 6,974 hectares of biologically significant natural resources are progressing towards improved management.
- Over $142,674 has been leveraged in support of program activities.
- 44 persons (82% women) and four new enterprises are benefiting from equitable and sustainable natural resource-based enterprises.
- Individual capacity has been built for 148 persons, through implementation of 11 training courses that support better ICM enabling conditions and best practices.
- CIDEA contributed to national policy and management of key resource areas by assisting in drafting a National Code of Conduct for Shrimp Farming and development of the Estero Real Management Plan.
- The basis for shellfish farming in Nicaragua and Central America was developed through research with native species.
- Best Management Practices to improve production efficiency and reduce environmental impacts are being adopted by small-scale shrimp farming cooperatives in Padre Ramos, emphasizing methods to reduce environmental, economic and production risks.

Selected Program Highlights in Year Two

Four new enterprises were developed or supported: alternative tourism, bread-making, hammock manufacture and jewelry-making. Entrepreneurship training, development of business plans and feasibility studies contributed to creation of small businesses and entrepreneurial capacity in poor coastal communities. Contributions to the profitability and competitiveness of the small-scale shrimp sector were made through training and implementation of best management practices (e.g. lowering water exchange rates) and contributions to development of a National Code of Conduct, which was adopted by the industry. The Code of Conduct is now under review by the national government for possible adoption as national policy. Tilapia culture in shrimp ponds, could offer an alternative or supplemental crop to small-scale shrimp farmers who are suffering economically. CIDEA has successful built a strong network of institutional and individual partners to create an effective extension delivery system to the coastal area which includes government, NGOs, educational and volunteer partners. Training and capacity building by the

extension partners covered diverse topics including integrated coastal management, alternative livelihoods and natural resources management. CIDEA also completed innovative research into bivalve culture using local species which established the basis for future development of a bivalve culture industry. Although biologically feasible, further bivalve culture efforts as part of SUCCESS have been put on hold due to social and economic issues. Progress was made establishing a pilot site to test co-management strategies for the black cockle fishery, which is an economic mainstay of the coast, but which suffers from many regulation and enforcement gaps. Several efforts involving water quality monitoring and shellfish sanitation contributed to management efforts and public health. A plan to offer a Masters Degree in ICM has been approved by UCA and is now in the curriculum development stage. It will contribute to the international efforts to develop certification for ICM practitioners. CIDEA also made contributions to community health and food security through participation in water, food and health programs with NGO partners.

Year 3 Task Objectives

1. Promotion of sustainable, low-tech, mariculture practices appropriate in the Central American Region as diversified livelihood options for coastal communities

The Nicaragua and Central American coastline provides tremendous potential for sustainable mariculture activities that can both raise incomes of households in coastal communities as well as increase food security. Much of this potential remains untapped except for a few selected commodities such as shrimp farming (large- and small-scale), although this is notable as shrimp is an important international export commodity.

The reasons for the lack of progress in developing mariculture in the region are varied. They include concerns about environmental impacts and cultural acceptability, challenges in developing technologies appropriate to the local context, lack of basic and applied research, as well as a lack of attention to marketing and economic feasibility in addition to production feasibility. The SUCCESS sustainable mariculture initiative has two foci: 1) improvement of small-scale shrimp culture; and 2) piloting of mariculture activities that offer alternatives to or that supplement shrimp culture. The principal activities include implementation of best management practices for shrimp culture that address a wide range of management practices that affect environmental quality and operational efficiency. The testing of tilapia culture in shrimp ponds will move forward as a potentially more sustainable and viable alternative to shrimp.

Small-scale shrimp culture is economically important in Nicaragua and Honduras; it represents an important export commodity and is the basis for the local economy. Benefits from this small-holder activity accrue to cooperatives, women's groups and artisanal fishers who also culture shrimp, but the profitability of this important activity has been decreasing as small-scale producers are acutely affected by increasing costs of inputs (e.g. fuel and feed), lower farm gate prices due to consolidation of the regional industry and continued farm management issues such as diseases. In the 1980's, when shrimp farming took off in Nicaragua, small-scale farmers produced nearly 90% of the shrimp; they now account for only 5%.

CIDEA-UCA has a long history of working with the shrimp sector in Nicaragua and leading regional efforts to implement shrimp farming best management practices (BMPs) with the goal of reducing risks of all types (i.e. environmental, economic) and increasing production efficiency to improve the competitiveness of the small-scale farms in particular. Implementation of BMPs is more important to the small-scale producers than ever, given the recent national adoption of a Code of Practice by the National Association of Aquaculturists (ANDA), the pending approval of the Code of Practice by the Nicaraguan Government, increased stringency of US Food and Drug Administration regulations for shrimp imports and certification efforts at the processing plant level. Unless small-scale producers can conform to new, more rigorous standards, the remaining producers are likely to go out of business. CIDEA-UCA will continue to work with small-scale farmers to improve their management and improve their competitiveness on a national and international scale. CIDEA also continues to support the national industry by providing technical support to ANDA and the government. CIDEA is uniquely qualified to do this given their accredited laboratories, extension program and personnel who have been accredited by the Accreditation Committee of the Aquaculture Certification Council to certify shrimp farms. Some personnel have also been trained in HACCP by Independent Surefish Inspection, Seafood HACCP Alliance and the Association of Food and Drug Officials.

Efforts are also being made to find alternative or supplemental crops for shrimp, analogous to work being done in Ecuador with development of the chame fish for cultivation in shrimp ponds. Given the fluctuating salinity levels of most shrimp ponds, tilapia is an ideal candidate since it is one of the few fish culture species that can tolerate a wide range of salinity. Tilapia is also common in the region and has a high farm gate price as local and export demand rises. CIDEA-UCA will implement pond trials at their training and demonstration aquaculture center in Puerto Morazan to demonstrate tilapia culture in shrimp ponds and train local farmers. If proven successful, there is hope that coastal Nicaragua could become a major tilapia production and export center, following in the footsteps of other Central American countries such as Costa Rica.

Bivalve culture is another promising area given the numerous, high value species in the region. CIDEA has recently completed extensive research on the biology, ecology and culture of local bivalve species, including cockles, but further culture trials are on hold in favor of increased effort for management of the bivalve fishery and outcomes of a shellfish sanitation survey to help locate clean bivalve grow-out sites. Some activities to finalize collection of key biological data on bivalve species will continue in Year 3 to inform management efforts and future culture.

1.1 Continue the implementation of best management practices (BMPs) to improve environmental sustainability, operational efficiency and to reduce production risk at Fincamar and Agropesca

Fincamar and Agropesca are large associations of cooperatives, collectives, family farms and small businesses in the Padre Ramos estuary area. Shrimp culture is a major economic activity in the area. The implementation of BMPs at Fincamar and Agropesca is based on good management practices developed and promoted by various international organizations including the World Bank, the Network of Aquaculture Centers in the Asia-Pacific/NACA, WWF and the Food and Agriculture Organization (FAO). These BMPs are intended to address a wide range of issues associated with the sustainability of shrimp farming.

The goal of these good management practices is to prevent, mitigate or compensate for negative environmental impacts caused by shrimp farms or hatcheries so that operations are developed in a manner that is environmentally and socially responsible. Sustainable shrimp culture can thereby continue to make a significant contribution to food security, economic development and help improve the quality of life for small-scale shrimp producers and their communities.

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CIDEA has been working with two large associations of small-scale farmers that have shown commitment to implement the BMPs despite their financial limitations. Efforts in Years 1 and 2 focused on building technical capacity for improved methods in shrimp culture. Best management practices are intended to lower environmental, economic and production risks of all types. Many BMPS may resolve several types of problems simultaneously. For example, precise adjustments of feeding rates and lowering protein content of feeds help reduce water effluent quality, improve water and soil within ponds (thereby, perhaps lowering risk of disease, and reduce feed costs). A key part of implementing BMPs is the requirement that the farmer be capable of routinely monitoring a variety of biological and physiochemical parameters to obtain the information needed to prevent problems and accurately make management decisions such as when and how much to pump water, feed, fertilizer and treat diseases.

For Year 3, the goal is to continue with BMP implementation while helping the two associations implement monitoring systems that track key parameters (e.g. water quality, pond and effluent, survival, and growth) during the culture cycle to evaluate the effectiveness of the implementation of BMPs, improve pond management, maintain environmental quality and to enhance business management of the operation. The Portuguese NGO Oikos is co-sponsoring this activity.

As mentioned previously, one important consideration is the economic limitations of the small-scale shrimp farmers—economics which constrain small farmers' abilities to implement and fully adopt these practices. For example, adjusting feeding rates costs little to implement and relies mainly on the technical capacity of the farmer. However, some other BMPs that benefit the environment (e.g., constructing settling basins to reduce sediments in pond effluents entering the ecosystem) have high costs with little if any financial benefit for the farmer. For this reason, CIDEA will also work with the farmers to seek additional funding that would enable them to implement the costlier BMPs to further improve production and reduce environmental risks.

CIDEA will continue supporting the Nicaraguan government, which is currently reviewing the Code of BMPs which CIDEA and the National Association of Aquaculturists developed in 2006. If adopted by the government, CIDEA will assist in dissemination of the Code of Practice and associated BMPs to shrimp farmers throughout Nicaragua. This will be done through holding a series of informative meetings and publication and dissemination of the BMP materials.

CIDEA has also been working to develop a layman-accessible publication on mangroves and their management in coordination with EcoCostas. This is of relevance to shrimp farmers whose farms are located near mangroves, and other users such as fishers, fire-wood gatherers and those beginning ecotourism efforts.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
BMPs	
• Provide technical assistance through extension visits to continue implementation of BMPs (as possible within economic constraints of the farms) at Rosita farm and Cristo Rey in Fincamar and Agropesca	On-going through YR 3
• Provide water quality monitoring equipment and other items to shrimp farmers working to implement BMPs (costs partially supported by OIKOS)	October 2006
• Provide technical assistance and extension support to monitor and track key parameters over the culture cycle, including production and environmental data	October 2006-onwards
• Provide support to the farms in securing financial support for implementation of other BMPs through meetings with donors, government agencies and financial institutions	On-going during YR3
Policy	
• Provide support to the Nicaraguan government on outreach for adoption of BMPs once the Code of Conduct is approved at the national level. Hold joint meetings with other institutions promoting BMPs for awareness-raising and dissemination of BMPs to ANDA members, unions of cooperatives, and independent shrimp farmers	On-going once the Code of Conduct is approved by government
• Develop and distribute an instructive calendar with information on BMPs for shrimp culture	December 2006
• Print and distribute BMPs once approved by government	On-going once the Code of Conduct is approved by the government
• Publication and distribution of the mangrove manual	October 2006

OUTPUT(S)

- Report summarizing technical, economic and environmental data on the entire production cycle for each of the farms, including detailed records on key parameters with analysis that allows small producers and technical assistance providers to make decisions about management
- Calendar 2008, with practical information on BMPs for shrimp culture
- Summary of activities conducted to support the government and ANDA with dissemination of BMPs and the Code of Practice (e.g., meetings to present the Code of Practice and BMPs)
- Printing of the Code of practice and BMPs for shrimp farming (once approved)
- Mangrove management manual

1.2 Demonstrate feasibility of growing tilapia in shrimp ponds as an alternative or supplemental crop for shrimp culture

Tilapia offer a high-value, easy-to-culture alternative or supplemental crop for small-scale shrimp farmers currently caught between lower farm gate prices for shrimp while inputs (fuel, feed) continue to climb. The small-scale shrimp sector is a major part of the Pacific coast economy and a mainstay for small villages. Keeping small-shrimp farmers in the aquaculture business by developing an alternative/supplemental crop can maintain or increase the economic well-being of the coast. Tilapia culture on a commercial scale is expanding throughout the rest of Nicaragua, opening up processing, handling and marketing channels for export.

In Year 3, and pending the outcome of the environmental review, tilapia may be stocked in six small, experimental ponds at the CIDEA-AdPesca aquaculture demonstration and training farm in Puerto Morazan and a training course will be delivered to local shrimp farmers to familiarize them with tilapia culture and the goals of this work. A simple tilapia culture manual will be prepared as part of the training. A comparison of three stocking densities is part of the experiment. The tilapia will continue to be grown-out with water quality, feed consumption, feed conversion, growth and survival being carefully monitored. All results will be closely documented as the basis for the final feasibility analysis. The first harvest is expected six months after stocking, resulting in pan-sized tilapia for local sale. If this harvest is successful, some of the tilapia may be grown out for harvest at a larger size for filleting and sales in larger markets. At the end of the experiment, a public meeting will be held to present the results to the stakeholders. Final harvest is expected no later than June 2007, leaving time in Year 3 for planning and replication of the demonstration if indications are positive.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Demonstrate culture of tilapia in small shrimp ponds	August 2006 – July 2007
• Monitor critical parameters such as water quality (temperature, salinity, dissolved oxygen, pH, etc), growth rates, survival and food conversion rates	August 2006 – July 2007
• Publish tilapia manual (with financial support from Japan)	December 2006
• Compile results and conduct preliminary analysis	April - June 2007
• Prepare final analysis and report	July2007
• Conduct educational visits by stakeholders to learn from the demonstration and discuss options for replication	Continuous
• Present results to public	September 2007
• Publish technical summary of results	September 2007
• Plan for replication (contingent on successful results of trials demonstrating technical, economic and marketing feasibility)	After July 2007

OUTPUT(S)

- Comprehensive document with the results of trial, including the stocking density results
- Shorter outreach publication summarizing the results for stakeholders
- Tilapia culture in shrimp ponds manual

1.3 Continue technical support to other forms of alternative livelihoods

Technical support will be continued to coastal communities for the implementation or continuation of alternative livelihoods in order to help mitigate pressures on natural resources. The alternative livelihoods are considered as complementary, or as replacements for activities which cannot be continued due to the degraded status of the natural resources in question or changes in regulations—for example, women shrimp post-larvae collectors who can no longer legally collect post-larvae in the Padre Ramos protected area. The alternatives which have been demonstrated and supported so far at Puerto Morazan and in the protected area of Padre Ramos are: hammock manufacture, bread-making, shell handicraft, tilapia culture and alternative tourism. Although shell handicrafts were a successful venture, this activity is not being continued in Year 3 due to dissolution of the original group and lack of interest on the part of other groups.

Emphasis in Year 3 will be on continuing small business training and support for implementation and effective management of the activities. Technical assistance will be provided to continue capacity building for the production of goods or offering of services on a commercial basis, using lessons learned during the first phases of operation and from exchange visits with similar, successful businesses. The exchange visits are being coordinated in collaboration with Pymes, a business development initiative for small and medium businesses in Nicaragua supported by the Nicaraguan Government and IDB. Small grants will continue to be offered to support business development for the existing alternative livelihoods where indicated.

1.3.1 Support the AltaGracia women's cooperative to produce and sell hammocks

The women's group Cooperative Altagracia received training in hammock-making in Year 2 and provided with materials to make the first hammocks. Training was given in Entrepreneurial Vision (small business training) in cooperation with SIFE. Hammock-making generates sporadic income which proved to be of less interest to the women's group than the regular income that bread-making would generate. Difficulties were also encountered in sourcing materials that were of sufficiently low cost so as to make the efforts profitable.

Based on this, the priority in Year 3 is on bread-making since it represents a steadier stream of income for the group and the initial feasibility analysis was positive. Hammock-making work will resume when the bread-making has been solidly established. The only work proposed for Year 3 for hammock-making will include sourcing lower cost materials, finalizing the feasibility study and testing of the market with some initial product.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Finalize feasibility study for hammocks and present to Altagracia Cooperative	October 2006

OUTPUT(S)
- Feasibility study

1.3.2 Continue technical assistance to women's group producing bread

In Year 2, the women's group Cooperative Altagracia received the Entrepreneurial Vision (small business) training through cooperation with SIFE and initial training in bread-making. Materials were also provided to cover an existing outdoor bread oven. A feasibility study was conducted and presented to the group. Year 3 activities will focus on further development of business management skills, learning to make bread on a more commercial scale, and follow-up to improve production and marketing.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct second phase of small business training in coordination with SIFE	November - December 2006
• Conduct short training and follow up to commercial bread-making	November 2006 - February 2007
• Document the experience	November 2006 March 2007
• Conduct exchange visit with other bakeries to observe the commercial production process with subsequent improvements in the productive process used by the cooperative (in coordination with Pymes)	April 2007
• Provide assistance in record keeping of costs and sales	On-going

OUTPUT(S)
- Copy of training materials and photographs
- TraiNet materials

1.3.3 Continue technical assistance to alternative tourism development in protected areas coastal areas

The Association Fincamar is located in Chinandega, El Viejo Municipality, along the coast of the Padre Ramos Estuary and along the northeast and southeast of the Protected Area. It covers an area of 245 hectares, of which 40 ha are dedicated to shrimp culture. The membership of Fincamar consists of various cooperatives, small and medium-cale agriculturists, cattle farmers, shrimp farmers, craftsmen, restauranteurs and boatmen—all brought together with the vision of starting alternative tourism. The groups that make up Fincamar are organized in various forms—

cooperatives, associations and collectives— representing 67 organizations. Direct and indirect beneficiaries in these groups are estimated at 220 persons in Padre Ramos and 400 in Santo Tomas. At this time, the cooperatives and collectives that are working with the SUCCESS Program include: Cristo Rey (10 members); Mario Carrillo (15 members); Altagracia (12 members); Rosita Farm (4 members); and Gonzalez (4 members).

In Years 1 and 2, a series of studies and community exercises were conducted to evaluate the feasibility of alternative tourism and to identify resources, sites and personnel for tourism. Training in entrepreneurial vision (small business training) was also given to members of Fincamar to prepare for the development of tourism in coordination with SIFE.

In Year 3, efforts will focus on further technical support and training in tourism and business management. An exchange visit will also be held for Fincamar members to travel to a rural hostel in northern Nicaragua to observe a similar form of alternative tourism in coordination with Pymes. Tourist trails and sites will be defined, developed and interpretative materials and signs created. Local tourist guides will be trained in and begin to practice how to serve as a guide along an aquatic trail to be established within the Padre Ramos area. Tourist guide training is being conducted in coordination with a specialist from the AVINA Foundation. The area proposed for the aquatic trail is rich in bird life and nesting areas, mangroves, dry tropical forests and has interesting economic activities to observe such as shrimp farming and cattle ranching.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Provide technical assistance on various themes—tourism, customer service, guiding, basic food service and hygiene, sales, language and communication) etc.	October 2006 – February 2007
• Deliver short training to develop local tourist guides	March 2007
• Define and map out an aquatic tourist trail that will permit initiation of tourist activities led by the trained, local guides; begin trial tourist activities using aquatic trail	April-June 2007
• Identify, lay out and create interpretative materials for other tourist trails and tourist sites	April-June 2007
• Produce map of the resources and sites with information describing points of interest to the tourist	June 2007
• Present results	August 2007

OUTPUT(S)

- Tourism interpretive materials including a map of tourist sites with descriptive information
- Photographs
- Training materials

1.4 Promoting community-based and municipality scale resource management and zoning policies

CIDEA is supporting development of improved cockle fisheries management in Nicaragua. The black cockle fishery (as well as other bivalve fisheries) is an important source of income and food for coastal communities. Cockles and other bivalves are widely exported throughout the country, and perhaps illegally, to other Central American countries. In Years 1 and 2, a series of investigations was conducted to identify areas of extraction, collect basic biological data such as information on abundances and sizes, evaluate the feasibility of cockle and other bivalve culture, and to begin evaluation of co-management strategies in Padre Ramos and Aserradores. This work is largely targeted at gaining a better understanding of the biology, ecology and fishery of the black cockle so as to develop better co-management strategies as current laws and informal practices do not provide adequate protection for the cockle, nor provide for rational management of the fishery.

Year 3 activities will focus on working with the El Realejo and Asseradores communities to test and demonstrate improved co-management methods for the black cockle and to raise awareness among the stakeholders as to basic cockle biology and ecology. If proven effective, these experiences may serve as a model for improvement of the national regulations governing the cockle fishery. Additional activities will be continued to collect information relevant to managing the fishery such as continuing to monitor cockle growth rates in Padre Ramos.

1.5 Alternative forms of management for the cockle fishery in Aserradores and El Realejo

In Year 2, CIDEA presented a plan to MARENA and SELVA to test alternative co-management strategies for the black cockle fishery in Padre Ramos, where previous work had established a database on cockle abundance, harvest and other parameters. Since permission was not formally granted to conduct the work in Padre Ramos, it was decided to relocate efforts to the neighboring estuary areas of Aserradores.

Approximately 48 cockle gathers in Aserradores have since been participating in community meetings during which basic management concepts were taught, monitoring protocols developed and information provided on the status of the cockle population. Three no-take zones and fishing areas were also identified, selected and boundaries marked by the community as the basis for testing the use of no-take zones to maintain cockle populations. This work will continue in Year 3 including participatory research with the community to monitor cockle populations in the no-take and fishing zones. A committee for management will be established at Aserradores, consensus on rules and penalties will be developed in the community, and if possible, stakeholders will sign this agreement and submit it to MARENA for endorsement. The latter step is complicated as most community stakeholders are illiterate and therefore reluctant to sign documents of any type, particularly if the government will be involved. While CIDEA will work to promote the concept of eventually having a written agreement endorsed by MARENA, development of voluntary and verbal agreements will be the first step in community adoption.

Governance baselining is also taking place in Asseradores, as was done in Padre Ramos and Puerto Morazan, in support of future management actions. The basis for similar work is also

occurring in another estuary, El Realejo, but the community has not reached consensus as of this workplan as to whether they will participate in the management activities. If a consensus is reached by early Year 3, this work may be included in an amendment to the workplan.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Map the Aserradores area showing the general management area and no-take zones	October 2006
• Supply MARENA with maps of the study area to comply with prerequisites for obtaining the research permit	October 30, 2006
• Meet with the community to establish the Management Committee and agreements on the voluntary measures for management	September 2006
• Develop rules that govern the management regime for the long-term, and establish penalties for violations of the agreement that will be voluntarily adopted by the community at community meetings	July 2007
• Promote the concept of formal, written acceptance of the rules and penalties by the community with subsequent endorsement by MARENA; note that success of this activity is entirely dependent upon the community agreement to pursue this strategy	August-September 2007
• Conduct sampling to determine the population density in all the study zones (baseline)	September 2006
• Conduct extension visits to the trial areas to work with the community to assure the continuation of the management regime in the no-take and fishing areas	December 2006 - June 2007
• Conduct sampling after six months from start of the study and analysis of data	April 2007
• Conduct short event to support resource management: "Biology of the black cockle"	February 2007
• Conduct short event to support resource management: "Importance of the mangle ecosystems in the maintaining of the conch population"	April 2007
• Work with cockle buyers (consolidators) to develop a record- keeping system to estimate collection volumes in study area	October 2006
• Visit cockle collectors in the Maderas Negras area in Aserradores estuary to disseminate results of the study	November 2006
• Conduct sampling after 12 months from start of study and data analysis	September 2007
• Meet with the community to evaluate results of the research including discussion of results of the sampling and compliance with commitment (verbal) to adopt the management system.	May 2007 and September 2007

• Install sign in Aserradores that includes name of the research project, its participants and its management guidelines	December 2006
• Continue and finalize governance base line for Aserradores	December 2006-February 2007

OUTPUT(S)

- Map of management area including no-take and fishing zones
- Document formalizing establishment of community-based management committee
- No-take areas marked in the water
- Signs near no-take zones explaining regulations and penalties
- Research permit awarded by MARENA
- Minutes from short events
- Report on trial results
- Governance baseline for Aserradores

1.5.1 Other activities related to cockle management

A few selected activities to inform or support cockle management will be conducted. For several years, CIDEA has been monitoring cockle growth rates in an established trial in Padre Ramos. This work will be continued to the previously planned termination date in 2007. A student will also be conducting short studies to determine minimum sizes for harvest based on sexual maturity and to design an easy-to-use size gauge for use by the cockle collectors in the field.

Tasks and Milestones	Date
• Continue the collection of growth rate data for cockles in the established trial in Padre Ramos	October-December 2006
• Based on the final results of the shellfish collection area water quality study and Hepatitis A detection in cockle tissues, conduct a basic market study to evaluate the possibility of marketing cockles taken from "clean" areas to high-end markets	September 2007
• Involve a student in investigation to determine size at maturity for cockles (to determine harvest sizes) and develop a measuring gauge for use in the field by cockle collectors	September 2007

OUTPUT(S)

- Report with results of 12 months of monitoring cockle growth rates in Padre Ramos
- Report on size at maturity and recommended size limits for collection

1.6 Science for Management: Water quality of shellfish collection areas and microbial analysis of shellfish meats to improve public health and decision-making for cockle fisheries management

Water- and food-borne gastrointestinal illnesses are epidemic in Nicaragua and appear to be on the rise, although data is scarce and unreliable as it depends on irregular reporting from public health clinics. Bivalves can be a significant source of bacterial and viral gastrointestinal illness, including *Hepatitis A, Salmonella, Vibrio spp.* and *E. coli*. Bivalves are a major source of food for coastal residents, particularly in poor communities, where they represent an ever-present source of protein (although increasingly scarce) that can be resorted to when other foods are in short supply. Shellfish are commonly eaten raw in Central America. Not only can contaminated shellfish affect the coastal communities, they are widely marketed throughout Nicaragua and allegedly, are exported to other Central American countries. Knowledge of the frequency of contamination, seasonality, locality and other information on shellfish-borne diseases is key to improved fisheries management, future shellfish culture efforts, and efforts to improve public health in already very vulnerable populations.

In Year 2, CIDEA was given a small grant to monitor populations of the most commonly consumed cockles (*Anadara tuberculosa* and *A. similis*) and shellfish collection waters in the estuaries of Padre Ramos, Aserradores and El Realejo in the Department of Chinandega. Water quality monitoring began in June 2006 and will be completed by May 2007. Advanced PCR methods are also being developed and applied to test for the presence of Hepatitis A in tissues of the same species of cockles.

The results of this work will enable CIDEA scientists to precisely map the occurrence of shellfish-borne diseases along key parts of the coast during the wet and dry seasons. The information will help inform decision-making regarding where bivalve collection can safely be conducted at various times of year and help in planning for the location of future shellfish farms.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct monthly water quality monitoring	June 2006 – May 2007
• Conduct laboratory analysis of water samples	June 2006 – May 2007
• Communicate with MARENA and the Ministry of Health regarding results of the analysis	August 2007
• Disseminate results to cockle collectors	August 2007

OUTPUT(S)

- Protocols developed, published and shared
- Results published on the sanitation of shellfish collection sites and the presence of Hepatitis A in tissues
- Photographs and maps produced

In Ecuador

Scale of intervention: Municipal level
Lead Implementing Organization: EcoCostas
Other partnering organizations: University of Hawaii at Hilo
Activity Coordinator: Emilio Ochoa
U.S. Liaison: Maria Haws

Background

Ecuador was one of three countries targeted by the USAID/CRC Coastal Resources Management Program initiated in 1985. Ecuador's National Coastal Resources Management Program (PMRC) was launched by Executive Decree in 1989 and continued to receive support from USAID and CRC through 1993, when a major loan to support an initial phase of implementation was negotiated by the government of Ecuador and the InterAmerican Development Bank (IDB). CRC, primarily through its NGO partner EcoCostas, continued to support the program through the first IDB loan and during the three-year gap between this and a second IDB loan that became operational in early 2005. ESPOL (a technical institute of higher education on the coast), a partner of CRC and EcoCostas, has been an important player in supporting the PMRC and developing ICM for the Ecuadorian coast.

One of the recent joint activities between PMRC, CRC and EcoCostas was the execution of a "macro-zoning" study that: 1) in consultation with local stakeholders set the development and conservation priorities for each of the coastal provinces; and 2) has generated consistent sets of geographic information systems (GIS) maps as a basis for further planning and management at the municipal and provincial scales.

In November 2004, EcoCostas designed and implemented a training session for the staff responsible for implementing the work funded by the second IDB loan. Through current support from the EcoCostas-CRC regional network funded by the Costa Rica-based Avina Foundation, CRC and EcoCostas have also supported activities in Galapagos. This included an analysis of the many problems facing management of the recently created marine reserve surrounding the islands. Partners in PMRC, Galapagos and ESPOL all have a strong interest in collaborating to achieve the goals of the SUCCESS Program.

The Cojimies Estuary, located on the northern coast of Ecuador is one of the few estuaries not brought under a management regime as a result of prior PMRC coastal management efforts.[5] The area was isolated due to the lack of roads until 2000, was preserved in a relatively pristine state until 1980, and was the last estuary to be heavily effected by the Ecuador´s essentially unregulated shrimp industry. In 1999, the estuary had more than 13,907 hectares of shrimp farms, and 1,863 hectares of mangrove forest. During 2000-2002, it lost 416 additional hectares of mangroves.

Beginning at the end of the 1990s, the PMRC worked on reforestation of mangroves and bivalve cultivation trials with three local bivalve collectors groups. The bivalve populations decreased

[5] The PMRC's second International Development Bank (IDB) loan now includes the entire coastal zone of Ecuador

drastically in the interior of the estuary in 2002 and are now found only in the areas adjacent to the ocean. Around the year 2000, the shrimp industry in Ecuador was struck by the white spot disease, which created an economic crisis in the area. Economic changes in the project area have continued since then with the opening of the coastal highway, which has facilitated the extraction of lumber from the nearby Mache-Chindul Ecological Reserve and the surrounding forests. Mache-Chindul Reserve was one of the few coastal forest ecosystems left fairly intact until the 1990s, though now this is quickly changing. Like the estuary, the forest area—although designated a national reserve—is not truly protected nor managed in any sense, and is increasingly threatened by increasing human settlement and forest industry.

In summary, the current status of the Cojimies Estuary and the Mache-Chindul Ecological Reserve is that of an ecosystem in imminent peril due to extreme destruction of the mangroves, drastic reduction in freshwater flows to the estuary from its seven rivers (only four of which still flow year round), mass mortalities of cockles in the estuary since 2002, a prolonged crisis of the shrimp industry, alterations in water quality due to pesticide use and sediments, shifting of leadership to younger less-experienced men and women, deforestation and invasion of the Ecological Reserve by squatters anticipating future purchases of land by an NGO proposing to manage the reserve.

In addition to the SUCCESS initiative, in 2005 EcoCostas secured other support to address the urgent resource management issues and social challenges in the Cojimies area. For example, EcoCostas received support from USAID/Ecuador to characterize the 21 micro-watershed areas in the Mache-Chindul reserve and received a request from a local group (Project Nuevo Milenio) for assistance in sustainable agriculture practices on the land that they are occupying and for which they are currently seeking legal recognition of ownership from the government. EcoCostas also received support from USAID for a chame culture demonstration project.

In 2006, EcoCostas signed an agreement with the PMRC for the characterization of the water quality in the Estuary of Cojimies and for a feasibility study for a chame cultivation training center. The water quality study will be done in cooperation with the Ecuadorian National Center for Coastal Resources at the Superior Polytechnic School of the Coast (CENAREC-ESPOL), and an advisory committee lead by two PhDs. has been formed to lead the study.

The study will take samples from a number of stations in the estuary and rivers, shrimp ponds, near communities and at the mouth of the estuary. The objectives of the study are to:

- Characterize the salinity profile of the estuary,
- Identify which areas may have water quality problems including those that could affect fisheries or other activities, and
- Estimate freshwater flows and changes into the estuary.

EcoCostas has digitalized 80% of the topographic maps in the coastal zone of Ecuador (not including the Galapagos) produced by the Ecuadorian Military Geographic Institute on the scale of 1:50,000. It has characterized the coastal watersheds in two large areas and is in the process of completing the digital mapping of the whole coastal zone. EcoCostas is currently processing its government certification that attests the maps are in accordance with acceptable mapmaking

standards for Ecuador. This work is essential to support the decentralization initiatives of the Ecuadorian Government (being supported by USAID) to enable coastal municipalities in planning and zoning for land use, and to support development of management plans and policies.

Given current conditions, the Cojimies area, and the northern Ecuadorian coast urgently need concerted efforts towards local and regional management of natural resources and stabilization of the economic base. Before this can happen, certain preconditions are necessary such as promotion of alternative livelihoods, leadership-building to promote change, formation of locally based working groups, strengthening of local government, improved understanding of ecosystems function, and establishment of linkages between local and national governments. This is an agenda wherein "Democracy and Governance" are strongly tied to conservation of biodiversity and alternative livelihood development.

Links to USAID Mission Priorities

SUCCESS activities directly link to the USAID Ecuador Mission's strategic objectives (SOs) and focus areas in several ways.

With respect to improved resources management and conservation, SUCCESS activities in the Cojimies area address several USAID priority areas. First, the work builds the basis upon which to create local and institutional capacity to manage an estuary area and forest reserve—both of which are important to maintaining biodiversity. Focus areas include promotion of best management practices for various fields (e.g. shrimp farming, chame culture, agriculture) and income-generating alternative livelihoods. Development of alternative livelihoods takes an integrated approach through development of small businesses, while at the same time working to create alternatives that are socially and environmentally sustainable. For example, initiatives in eco-tourism, honey production and family gardens will diversify sources of income, particularly for women, and utilize local resources not currently fully accessed. Preliminary work is being conducted to prepare for efforts in business management, micro-financing and connecting producers with markets in anticipation of future production.

The initiative also speaks to USAID's emphasis on reducing overexploitation and extraction pressures on the natural resources, and on encouraging the overall effort towards decentralization and strengthening of local governments. The Cojimies area includes territory in the provinces of Manabi and Esmeraldas, both of which are affected by their proximity to Columbia. The SUCCESS efforts will coordinate with and build governance capacity with the Esmeraldas and Manabi province-level governments to complement the estuary community-level efforts in management and development, as well as to eventually increase local satisfaction with government performance. Where possible, formation of private-public partnerships is encouraged, such as the work with the shrimp farming industry.

EcoCostas also worked with USAID/Ecuador in support of three additional projects that complement the SUCCESS efforts: 1) a chame culture project; 2) a watershed characterization and assessment for the Mache-Chindul Forest Reserve; and 3) a self-assessment for partners involved in the USAID-funded Galapagos Islands conservation initiatives. EcoCostas is also

working with Peace Corps[6] Ecuador to place volunteers in the estuary communities to collaborate with the various SUCCESS activities and to help transfer models such as community banking, which Peace Corps has pioneered in other areas of Ecuador.

Accomplishments to Date

EcoCostas has made a long-term commitment to the Cojimies Estuary area and hopes to eventually develop there a Special Management Area (SMA or ZEM in Spanish)—as has been done elsewhere in Ecuador under the PMRC. This is not likely to be completed within the lifetime of this Program owing to the low level of local capacity and low governance capacity in the area. EcoCostas is working to establish the preconditions necessary to get to the point where planning for development of a locally-support SMA can occur. In Years 1 and 2, SUCCESS began building local capacity within the estuary communities for management and on forming a local promoters group. In Year 3, the focus will be on continuing this capacity building with the local communities and the Promoters Group in ICM techniques and concepts.

Initial activities focused on evaluation of opportunities to establish alternative livelihood efforts in the coastal communities surrounding the Cojimies Estuary. Stakeholders around the estuary have traditionally depended on fisheries, bivalve collection, and small-scale agriculture for their living, a situation which has changed radically since 1990—with development of the shrimp industry and the cutting of timber from surrounding forests. Due to the overexploitation of fish and bivalve stocks, removal of mangroves by shrimp farms and rapid population growth, income generation and food security for local people have become increasingly tenuous. Each of the coastal communities confronts different opportunities and challenges. However, new options for livelihood diversification require careful monitoring, and feasibility studies, particularly as most of these livelihood options are unfamiliar to residents.

EcoCostas is currently working in four communities bordering the Cojimies estuary. With the members of *Nuevo Milenio*, a group based near the town of Mache, SUCCESS Ecuador has been working to convert an abandoned shrimp farm into a chame farm. Chame (*Dormitator latifrons*) is a hearty local fish that can live out of water for up to three days, making it an ideal aquaculture fish. Chame may be an alternative crop for abandoned or shrimp ponds with management problems, so this pilot is viewed as a possible model for beginning a new industry in Ecuador and offering an alternative to shrimp culture. The farm is worked on by 14 members of the group. This pilot project contributed the initial information about the management of chame during the stocking, cultivation and harvest including information about feeding, diseases and commercialization. With the information collected in the first cycle, adjustments are being made to the management in the second trial.

In *Chamanga*, support is being provided to a local group on beekeeping and a small chame pond. For the beekeeping, EcoCostas has provided intensive training to one of the group members in honey production so that he may serve as the future local trainer. Extension visits are being made by a beekeeping expert from Atacames (who is one of the technical advisors of the local promoters group) and through a small grant to buy better beekeeping equipment. The Chamanga

[6] EcoCostas conducted a training in Integrated Coastal Management for Peace Corps personnel in Machala in 2000.

beekeeper is now working with three other members of the group—all of them women—who have shown interest in beekeeping. In Year 3, further efforts will be made to improve their skills in beekeeping to the point at which they can function autonomously, and the three new beekeepers can start their own beekeeping businesses.

In *Bolivar*, during the last rainy season, extension support and a small grant was provided to a group of local cockle collectors to develop small family gardens. The idea was to work on a collective garden, but internal tensions did not allow for the completion. Instead, group members about possibilities for developing an ecotourism project in Bolivar as part of a tourist trail.

In *Mompiche*, EcoCostas has been working with one volunteer and one local promoter to conduct an initial study evaluating the potential for ecotourism in the area. Two prolonged visits for rapid evaluations of potential ecotourism options in the Mompiche-Portete-Bolivar corridor were carried out by volunteers from the Volunteers for Prosperity program managed by the Coastal Resources Center and from the EcoCostas Volunteer Program.

Training in extension methods and initial development of an extension network for the area occurred in Year 1. EcoCostas also worked with Peace Corps to begin placing Peace Corps volunteers (PCVs) in the Cojimies communities to assist with extension efforts. In August 2006, the Assistant Peace Corps Director for Habitat Conservation asked EcoCostas to formally apply for a volunteer who could potentially be placed in the SUCCESS Program area in the upcoming months. Two PCVs placed in the zone will be incorporated into Program activities as possible.

From the start of the SUCCESS Program, it established its physical presence in the estuary area by establishing a small office, which is rapidly becoming a community meeting place and thereby supports community efforts. The EcoCostas-led extension agent, Mr. Guillermo Prado, is the field office manager and resides in Cojimies and oversees activities there.

By the end of Year 1, the most feasible alternative livelihoods that emerged were chame production (using either new ponds or converted shrimp ponds), honey production, family gardens and eco-tourism. Tourism is rapidly growing in Manabi and Esmeraldas due to their relative proximity to the capital, Quito. An opportunity for smaller communities to get involved in eco-tourism was also found to have possibilities. Accompanying this are efforts to transfer successful models for community banks and micro-financing to these small communities. In Year 2, there was growing community interest in the integrated culture of short cycle crops (Yellow Passion fruit) with cacao in the *Nuevo Milenio* project and farms in Maldonado and Bolivar.

Vision for the Estuary

By 2014, communities surrounding the estuary will sustainably manage the basic resources of the estuary; they will have diversified their livelihoods; they will have developed small, sustainable businesses; they will have improved their health and education; they will have improved their basic infrastructure; and they will have developed ways to work together with the various layers of local government.

Improved management of estuarine and forest areas in the watershed is also clearly a critical need if the traditional livelihoods are to be maintained or revived while regional ecosystems are maintained in a functioning form. During Year 1,

EcoCostas began working with local communities to raise awareness and build consensus as to the priority natural resource management needs as well as institutional issues associated with improved governance and management capacity. The principle mechanism used to do this has been through the group of local promoters, which is made up of ten people from five communities and two technical advisors, one from the Technical University of Esmeraldas and the other from the Agricultural High School of Quinindé.

The group of Promoters was a key part of developing a vision for change in the estuary, which was conducted through a series of workshops in the communities and later a general estuary-wide meeting. Other efforts conducted during the workshops included identification of livelihood diversification options, preparation of the first versions of the extension manuals for chame and small gardens, assistance with the implementation of community census in Bolivar, Daule and Chamanga, validation of the maps of the same three communities, and developing the first draft of the Governance Profile. Emilio Ochoa, Director of EcoCostas, was one of the originators of the baselining methods and has been training his staff as well as community members in the methods. The baseline report for the site was completed in the first quarter of Year 2.

During Year 2, the group of promoters has grown and now includes 14 people from seven communities including promoters working in ecotourism, youth environmental education and sustainable agriculture. Various promoters are leading in different areas: Santiago Yin leads the beekeeping project in Chamanga and also works on chame, Walter Peña leads the chame project at *Nuevo Milenio* and is exploring possible cooperation with INIAP to plant cacao. Fanny Mina helps the local people and EcoCostas to identify small business opportunities. Angel Chévez leads the EcoClub environmental education project with schools in the area (there are eight clubs which were formed in Year 2 with the help of InWEnt a program funded by the German foreign assistance program). Linney Castro has organized the local leaders in Mompiche (a community with beautiful beaches) to discuss tourist activities.

In Year 2, EcoCostas made contact with shrimp sellers in the area—Jóse Garcia (an aquaculturalist with a degree from ESPOL) and his uncle Mr. D´Mera—who together sell about 50% of the shrimp produced in the area. Mr. Garcia was contacted through one of the promoters and participated as an instructor in one of the SUCCESS-Ecuador trainings.

The local promoters frequently invite other local leaders to work with them, and they maintain dialogue with other producers of honey, chame, shrimp and other agricultural products. They also are in contact with various government departments (Ministry of Environment, local governments, Institute of Agricultural Development, and the Institute of Agricultural Research) and NGOs (including the Muisne-based Ethos). This group effectively integrates the diverse stakeholders of the area and is helping to build local constituency for the local management of the estuary and nearby areas. In order to build the constituency on the local and national levels, EcoCostas has signed cooperation agreements with the three local women´s groups (based in Bolivar, Daule and Chamanga) and the group of producers *Nuevo Milenio.* EcoCostas is also planning three projects with the Ethos and the Municipality of Muisne for outside financing, which is currently awaiting approval. EcoCostas has obtained $61,435 USD from USAID-Ecuador, PMRC and InWEnt. EcoCostas has hosted two foreign volunteers in ecotourism and small business. EcoCostas has also been cooperating with one company from Guayaquil and one

Ecuadorian branch of a company from the United States (NEWS-Ecuador) for environmental and community health. A Program Advisory Team of experts in science (with two PhDs and two MSc's) has been formed and is exploring opportunities to work together in the SUCCESS Program area with The Nature Conservancy/Quito and CENAREC-ESPOL. This team is the beginning of an advisory group for the future management of the estuary.

A Project Monitoring Plan was developed which includes the Cojimies site. Lastly, annual and Life-of-Program targets were set for each Program indicator for the site.

Selected highlights of the Program to-Date (October 2004 through Sept 2006)

- US$ 83,877 in funds leveraged in support of Program activities in the zone of the Program
- Individual capacity built for 169 persons, through implementation of eight training courses, which support better ICM enabling conditions and diversification of livelihoods
- Three volunteer professionals fielded in support of program activities (one from US, and the others from the EcoCostas internship program) with a time commitment valued at US$ 7,467
- Eleven new enterprises have been created
- 32 percent of sustainable enterprise beneficiaries are female
- A local group of promoters has been formed, trained and are actively supporting Program activities in four communities

Selected Program Highlights in Year Two

Capacity Building for Integrated Coastal Management

EcoCostas has worked to establish the basic conditions for integrated coastal management in this previously unmanaged zone, which has high value to biodiversity and conservation for the Ecuadorian coast. One of the first activities executed upon EcoCostas' entry into the Program area, was development of a governance baseline in collaboration with key institutional and community stakeholders which identifies issues, challenges and is the basis for development of joint management strategies. EcoCostas has worked to develop relationships with the key local and national governmental agencies that have jurisdiction over the areas: the Municipalities of Muisne and Pedernales, the provincial councils of Esmeraldas and Manabi, the Mayor's Office of Muisne and the Ministry of the Environment. EcoCostas has also formed and trained a group of local promoters, who are charged with helping to move forward the early exercises in management and alternative livelihoods. Members of the local promoters group are drawn from producers, leaders of community organizations, leaders of the Parochial Committees and teachers. The local promoters have been assisted to establish contact with key agencies to engage them in local activities, and eventually to form a local Development Committee for the estuary. EcoCostas has also worked to augment the scientific database and capacity for management. A Scientific Committee has been formed to guide the water quality monitoring efforts, work with the Promoters Group and guide other technical work. Geographic Information Systems (GIS) maps have been provided to the communities and local government offices for use in decision-making. Environmental awareness-raising has also been conducted with the school-based EcocClubs being a key part of this effort. It is hoped that by establishing basic conditions and

capacity during the first two years, future management efforts will now move forward much more rapidly.

Beekeeping

Santiago Yin, one member of the Chamanga group of local cockle collectors, attended the first SUCCESS-Ecuador extension training in July of 2005. Santiago went back home, built several bee hives and began capturing hives. He captured 10 wild hives near Chamanga and since June, has been moving his hives between various sites within a radius of 20 kilometers around Chamanga to test how well the hives do in each site. He has since had the first harvest of six liters of honey. In August, the SUCCESS Program brought in a beekeeping expert (Alfredo Lajones from the Universidad Técnica Luis Vargas Torres de Esmeraldas) to show Santiago improved methods of keeping his bees and the Program invested in improved beekeeping technology.

In addition to providing local small business opportunities, the beekeeping activity will encourage the conservation of local forests. Bees require flowers to produce honey and Santiago and the other interested stakeholders understand the importance of preserving the local forests which provide his bees with the nectar they need to produce their honey. This is especially true for the local mangrove forests, which contain some of the few trees in the area that flower throughout the year. Three women from the community group based in Chamanga are now assisting Santiago who is passing on to them his skills in beekeeping with the hope that these women too will soon begin keeping their own bees. There are also stakeholders from the communities of Salima and Nuevo Milenio that have expressed interest in honey production.

Chame Aquaculture

In August of 2005, EcoCostas received SUCCESS Program supporting monies from USAID/Ecuador's Small Projects fund to develop a chame (*Dormitator latifrons*) culture demonstration project which would serve to supply fingerlings to other local projects while increasing local knowledge in cultivating chame.

Chame is a species of fish that was extremely abundant in the extensive coastal wetlands that form during the rainy season. The little that is known about the ecology and biology of this species suggests that it plays a key role in estuarine and wetlands ecology, as it is a detritivore and plays a key role in cleaning the benthic habitats of wetlands and shrimp ponds. This species has nearly disappeared in most regions of Ecuador along with the seasonal wetlands which have been greatly reduced in size due to development and reduction in freshwater flows. Currently, chame is only found abundantly in the few coastal estuaries that still have sufficient freshwater flows, such as the inland areas of the Cojimies Estuary. In these areas, chame is still found in the remaining freshwater wetland areas and shrimp ponds. In the case of shrimp ponds in low salinity areas, chame is almost always present and this has resulted in the development of a natural form of polyculture.

Chame is popular in much of the Province of Manabi, south of the SUCCESS Program area, but is not yet cultivated extensively. It is always purchased live and consumed as a whole, cooked fish. EcoCostas chose to work with the *Association Agroartesanal El Carmen*/AAEC (the producers of *Nuevo Milenio*), a group of local farmers living near the town of Mache, about 30

minutes south of San José de Chamanga. In November of 2005, they stocked 36,000 chame fingerlings in their 2.6 ha converted shrimp pond. After feeding and taking care of their chame for several months, they had their first harvest on the 27th of May, 2006—a total of 1,086 pounds, which sold for a total of $775. For their second harvest, in early August 2006, they sold 1,235 pounds for a total of $975. A third and final harvest is expected at the end of November 2006 with a projected harvest of 1,000 pounds. This activity has caught the attention of the Program for the Management of Coastal Resources (PMRC), which has given EcoCostas $4,000 in supporting funds to finance a study to assess the viability of creating a chame training program at the site. In Year 3, SUCCESS will continue to build local partners, skills in chame cultivation and commercialization.

Reforestation through Passion fruit and Cacao

In Year 2, the multi-cropping of passion fruit and cacao emerged as an exciting opportunity to both improve land use and as a strategy to provide short-term and long-term livelihoods. Further work in Year 3 will be pursued. Passion fruit is increasingly in demand in Ecuador, is easy and inexpensive to grow, and produces continuously for 36 months after the first eight months of growth. Cacao, another high value crop with consistent consumer demands, begins to produce just at the time passion fruit production begins to decline as the vines age. Thus, multi-cropping of the two is a strategy to assure both rapid and long-term economic benefits for local families. Additionally, the establishment of cacao trees in an area which was heavily logged for over 20 years is one of several measures that will be taken to restore a forest habitat. Combined with methods such as planting of ground cover crops, this will help maintain the integrity of the watershed area of the river Mache, which is a principal tributary of the Cojimies Estuary.

The producers of *Nuevo Milenio* and a member of the local promoters group (Walter Peña) initiated contact with the governmental Institute of Agricultural Research (INIAP) to find technical assistance for cacao production. These activities can be implemented in Year 3, pending clarification of certain key issues. Information currently being clarified includes whether the land of *Nuevo Milenio* lies within or outside the boundaries of the Mache-Chindul Ecological Reserve and the legal status of the land used by *Nuevo Milenio*.

Medicinal Plants

An activity has been completed to identify and develop a register of approximately 100 commonly used medicinal plants in the area with the help of expert Alfredo Lajones. In Year 3, the Program will continue its efforts to collect further information on local medicinal plants and will prepare gardens with medicinal plants in two sites: at the Agricultural High School of Chamanga (where one of the Ecoclubs operated during Year 2); the other will be in Nuevo Milenio. The registry will contribute to the biodiversity goals of the SUCCESS Program by promoting the conservation and use of local plant. As well, it will help sustain the local practice of traditional medicine and the generation of income through sales of medicinal plants and products made from these plants (e.g. teas, infusions, and mixtures with honey). The register of plants and their uses will be published on the EcoCostas website.

Year 3 Task Objectives

1. Promotion of diversified livelihood options for coastal communities in the Cojimies estuary to raise incomes and promote more conservation oriented practices

Beekeeping, chame aquaculture, small gardens and ecotourism were the livelihood diversification options identified during Year 1 as having the greatest local interest and probability of success. In Year 2, the focus was on chame aquaculture, beekeeping and small garden production. As a result, there are now groups working actively on chame production, on beekeeping and family gardens during the last rainy season. Steps are also being taken to develop multi-cropping of passion fruit and cacao to reforest part of Nuevo Milenio's lands and to develop small-scale ecoctourism in the Mompiche-Bolivar area.

In Year 3, EcoCostas will build on the successes in chame aquaculture and beekeeping, while beginning to work with interested groups in small-scale ecotourism. Initial emphasis for the small garden production area will be on recording the details of the previous year's activity and assessing whether further effort is feasible. The development of cacao and passion fruit are subject to change based on the information gathered about the legal status of the land.

1.1 Develop diversified mariculture technologies using indigenous species (chame)

In Year 2, implementation of chame aquaculture activities began with *Nuevo Milenio* and with the Chamanga group (cockle harvesting group in the past years). *Nuevo Milenio* has had two successful harvests which generated over $1,500 in sales and they hope to have a third harvest in November. The Chamanga group is planning their first harvest for September/ October 2006. The information obtained from these trials will be used to refine the bio-economic analyses and business plans.

During 2006, shrimp production was on the upswing as producers have learned to manage around the various diseases that affected the industry. Thus, nearly 100% of the ponds are being put back into full production this year. Average shrimp production per hectare in the Cojimies area is now 1,500 pounds/ha, which is approximately 50% better than the production obtained before white spot disease struck in 1999. Nuevo Milenio began trials using shrimp and chame in the same pond in March 2006, rather than attempting monoculture of chame—given the new hope for improved shrimp production. One thousand chame were stocked and 1,200 pounds were harvested in 100 days. The results indicated to Nuevo Milenio members that rather than pursuing monoculture of chame at this time, a mixed polyculture would be the best strategy in the future.

In Year 3, the focus will be on monitoring and documenting results from the various chame ponds in the Cojimies area and in neighboring wetlands areas such as La Segua and Pedernales. EcoCostas will work with stakeholders to seek out and develop new markets (local and regional); and work with a larger group of local stakeholders to further develop local chame production. If this larger-scale feasibility study is positive, a more formal chame training program will be developed to serve regional needs.

Extension assistance will continue to promote the sharing and improvement of methods. Meetings will also be held with exiting and potential producers in the northern coastal region (Muisne, Tosagua, Chone, Cojimies and Atacames) to share information from previous trials and to promote the exchange of information.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Integrate the information obtained from the *Nuevo Milenio* trials into a single document with the economic analysis, adding a revised business plan. Post to the internet and distribute to stakeholders.	December 2006
• Continue to monitor and document chame development; evaluate the production economics and variations in price during the year in the wetlands and ponds stocked with chame and shrimp.	On going
• Research and document marketing channels for chame.	On going
• Identify existing and potential means to export chame.	May 2007
• Conduct extension meetings with chame producers for exchange of information and experiences.	June 2007
• Develop a strategy to work towards development of a funded regional training program with input from the PMRC-funded feasibility study.	July 2007

OUTPUT(S)

- Integrated document with bio-economic information and analysis for chame
- Report on marketing channels for chame
- Strategy developed to work towards a funded training program for chame
- Report on monitoring of chame production methods including documentation of the experiences of the stakeholders

1.2 Expand beekeeping livelihood to additional women beneficiaries

In Years 1 and 2, EcoCostas worked with SantiagoYin, a local farmer, to develop his capacity in beekeeping, which he began using wild hives after an initial training course in 2005. A small grant and further training was provided to Yin on the condition that he serve in the future as a local promoter and assist others. With the help of a specialist in apiculture, Mr. Yin has been conducting trials to determine the best areas around Chamanga in which to locate hives. Yin is currently working with several members of the local women's group and others to teach them what he has learned about beekeeping. In Year 3, work will focus more on the women's production to help them to build their capacity and start their own beekeeping businesses. In addition, SUCCESS will provide assistance with improving honey processing, producing other bee products and improving the ability to market the honey. This will include improving the packaging and labeling of the product.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Improve product quality through technical assistance to use centrifuge/filters for processing	On going
• Mr. Yin and two others will take part in an internship at a beekeeping facility and visit other honey projects in order to strengthen their technical capacity in honey production and processing.	February 2006
• Award small grants to women and others (in Sálima y Nuevo Milenio) who successfully complete bee training to establish hives (with bees contributed by Mr.Yin)	March 2007
• Locate buyers in nearby, larger towns such as Pedernales and Esmeraldas	April 2007
• Conduct extension meeting on beekeeping to exchange information	April 2007
• Improve packaging and create labels	May 2007

OUTPUT(S)

- Report on beekeeping economics and marketing
- Report on the extension meeting on beekeeping

1.3 Document impacts of backyard gardening activities and preparation of medicinal plant gardens

In Year 2, EcoCostas worked with the cockle harvesting group in Bolivar and the Agrarian High School in Chamanga to begin small-scale gardening for home consumption and sale. They also worked with stakeholders in Bolivar and Nuevo Milenio to identify and create a register of commonly used medicinal plants. Medicinal plants are an important part of local culture, particularly since many residents have little access to modern medicine. These plants also represent an important form of biodiversity. Sales of medicinal plants can generate income and be used to produce a variety of products such as teas.

In Year 3, follow-up assessment will be made of the impacts of the previous year's gardening program and determine if and how it is most feasible to continue support for family gardens. The register of medicinal plants will be finalized and will include scientific and common names, photographs and explanation of traditional uses. EcoCostas will support the preparation of two gardens of medicinal plants identified in Year 2. One site will be the Agrarian High School in Chamanga, which was successful in family gardening and chicken-rearing in Year 2. One aspect of the work with the school, which also has an Ecoclub, will be to use the plants as an example of the importance of protecting plant biodiversity and habitats. Posters will be prepared for use in local schools and the Ecoclubs. The second site will be at Nuevo Milenio were there is interest in integrating the plants into a commercial garden with orchids and ornamental plants. It is also expected that of the groups that began gardening in Year 2, the Bolivar group will promote the addition of medicinal plants to the garden at the health clinic.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct follow-up assessment of Year 2 gardening efforts to determine if further efforts are warranted.	February 2007
• Prepare gardens in at least two communities with the medicinal plants.	January 2007
• Complete the register of medicinal plants and publish on the web.	March 2007

OUTPUT(S)

- Report on the feasibility of continuation of gardening activities
- Register of medicinal plants
- Report on the progress of the gardens with medicinal plants

1.4 Establish low impact eco-tourism enterprises as an income generator and to promote improved conservation ethics among local residents

A rapid evaluation of potential ecotourism possibilities along the Mompiche-Portete-Bolivar corridor was conducted in Year 2 with assistance of an EcoCostas volunteer. This area has good beaches, surfing spots and several attractive barrier islands including Jupiter Island. The area increasingly attracts tourists with varied interests. The evaluation briefly described the current situation of the communities, identified human and physical resources and training needs. The report shows the greatest potential is in Boliva. In Year 3, a participatory rapid appraisal will be conducted to identify strengths, weaknesses, opportunities and threats (SWOT analysis) and define a strategy to move forward with implementation of tourist activities. In Mompiche, the focus will be on identifying and describing one or two nature trails. To better develop local capacity to benefit from the tourist industry, a training program will train local residents as guides to take groups on tours of the trails or other local attractions. Coordination with the Environment Ministry will be sought for the guide training.

Also identified in Year 2 as an opportunity for tourism was the appearance of two new barrier islands that have formed at the mouth of the estuary in the last ten years. These islands have large beach areas and are nesting grounds for turtles and birds. While local communities wish to use the barrier islands as tourist attractions, uncertainty as to their legal ownership must be resolved before investing in activities centered around the islands. The Program, in coordination with the communities, will produce a detailed map of the islands, determine the legal status of these islands, and define their potential ecotourism uses.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
Conduct a Participatory Rapid Appraisal (PRA) to identify SWOT for the Mompiche-Portete-Bolivar corridor	October 2006
Map newly formed islands and define legal status of these islands	December 2006
Form a local group to work on development of ecotourism options	February 2007
Identify and describe nature trails	March 2007
Survey the diverse tourist population of the area to assess needs and interests	April 2007
Conduct two trainings for guiding, customer service and logistics	May-June 2007

OUTPUT(S)

- Report on the PRA for Mompiche-Bolivar area
- Map of islands and report on their legal status
- Report describing potential tourist trails

2. Reforestation strategies using high value crops

During Year 2, discussions were held with INIAP to collaborate on cacao cultivation. A rapid feasibility study was completed for the cultivation of yellow passion fruit with *Nuevo Milenio*, with the help of a small business volunteer who visited the Program from May to June 2006. While the initial results were excellent, before investing SUCCESS Program funds, several issues must be clarified. First, it will be necessary to confirm that the land of *Nuevo Milenio* is not inside of the *Reserva Ecologica Mache-Chindul*, and that the reforestation would not affect any protected forest areas. It will be necessary also to conduct an environmental screening and review. Early in Year 3, work to clarify the land issues surrounding the *Nuevo Milenio* will be executed, and if indications are positive, work can move forward with testing the new crops. If not positive, this work will be discontinued as part of the SUCCESS Program.

2.1 *Nuevo Milenio* land issues and environmental screening and review

The producers of *Nuevo Milenio* form part of the *Asociación Agro artesanal El Carmen,* which was formed legally in 1999 for producers and technical experts from diverse fields to promote the ecologically-compatible development of the area. The producers are interested in combining reforestation, soil conservation and short- and long-term crops. The yellow passion fruit will begin to produce rapidly and will last for three years, while the cacao, a long-term crop, develops. The cacao will be ready for production at about the time when the yellow passion fruit vines slow their production. Cacao is native to the American tropics and aside from it's potential to generate long-term revenues, it is also an excellent way to restore forest habitats and promote soil conservation. Soil conservation and organic agriculture methods will be integrated into these efforts.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Obtain verification from the Ministry of the Environment that *Nuevo Milenio* is not part of Mache-Chindul Ecological Reserve.	November 2006
• Investigate issues of land tenure for Nuevo Milenio	November 2006
• If land issues are positively resolved, determine whether an environmental screening is needed; if so, conduct the screening	December 2006
• Develop the passion fruit and cacao cultivation areas and monitor results	January – August 2007
• Agriculture specialist will make two visits to teach and monitor use of organic cultivation methods	January- August 2007
• Agriculture specialist will make two visits to teach and monitor use of soil conservation practices	January - August 2007

OUTPUT(S)

- Official pronouncement of the location of *Nuevo Milenio* in relation to *Reserva Ecologica Mache-Chindul*
- Report on legal status of the *Nuevo Milenio* lands
- Environmental screening and review
- Report on the status of the passion fruit and cacao cultivation efforts and good practices

3. Natural Resource Management

Environmental education activities that began in Year 2 with funds from InWEnt will be completed as a means to raise awareness about issues directly related to Program activities and estuary management. Several studies that will provide information for management strategies will also be completed. These include water quality monitoring, a biodiversity threats assessment, a governance study on shrimp farming, and a study of potential effects of pesticides on bivalves, in collaboration with several partners such as the PMRC, CRC and CENAREC.

3.1 Build skills and capacity of local promoters

The group of local promoters is the most important link with local communities, local governments, and local producers in the Cojimies area. These local leaders will be essential to any attempt to develop a management plan or special management area in the Cojimies Estuary. It is essential to build their skills in a wide range of areas, including the understanding of the functioning of ecosystems and the basics of coastal management. For this reason, a workshop in ICM will be held. It is also hoped that one of the members of the local promoters group can attend a permaculture course in Brazil. The latter possibility was explored in Year 2 during a visit to the Permaculture Center of Manaos where discussions were held with the Director. This is an opportunity to strengthen the local promoters group and subsequent agricultural initiatives, as currently there are no trained local personnel in the area who can support these activities.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct ICM workshop to kick-off natural resources initiatives and present alternative management practices	February 2007
• Ensure attendance for one member of the local promoters group at the Permaculture course	May 2007

OUTPUT(S)

- Report on workshop
- Report on attendance to the permaculture course

3.2 Environmental awareness-raising and constituency-building

During Year 2, EcoCostas received a grant of 1,200 Euros from InWEnt to implement the EcoClubs activity, which teaches environmental education to boys and girls in area schools and also helps raise awareness among teachers who are key community leaders. In Year 3, work will continue with the EcoClubs. Focus areas will be promotion of conservation campaigns, environmental management and local health. At the end of Year 3, a field trip will be organized for members of the most dedicated EcoClubs and selected members of other finalist clubs.

Shrimp farming has increased throughout Ecuador in the last year, including in the Program area. Shrimp farmers are showing more prudence in the use of chemicals, which creates an interesting opportunity to improve local shrimp cultivation practices to make them more environmentally friendly. Beginning with the contacts made during SUCCESS Years 1 and 2, the Program will unite a group of producers and a marketer of shrimp who are interested in improving the current practices of shrimp mariculture in the area of the Comities Estuary for the first workshop with this sector. This group will share international and national experiences. EcoCostas will work to facilitate a group consensus to begin using some best management practices on a pilot scale.

There are several other important activities planned for Year 3. A workshop will be held with the bivalve collectors of Bolívar, Daule and Chamanga to present the results of the water quality and pesticide study and explore management opportunities. Lola Herrera (URI) will lead a biodiversity threats assessment. And, taking advantage of the profile of the Program area prepared by EcoCostas, a team comprised of Emilio Ochoa, Stephen Olsen, and Lola Herrera will conduct a detailed analysis of governance, with a focus on the shrimp industry during Year 3. Maria Haws and selected local aquaculture specialists will advise on this effort.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Provide continued support to EcoClubs	Through September 2007
• Disseminate and diffuse materials produced during this year	On going
• Complete biodiversity threats assessment	January 2007
• Visit of URI team to complete governance case study for the shrimp industry	January 2007
• Hold initial workshop for shrimp farmers on good management practices	March 2007
• Conduct outreach workshop for concheras on alternative management methods (as follow up to promoters' workshop)	April 2007

OUTPUT(S)

- Report on EcoClubs activities
- Report on work shop for shrimp farmers on best management practices (BMPs)
- Report on biodiversity treats assessment
- Governance case study for the shrimp industry

3.3 Study to determine the effects of pesticides on the bivalves in the estuary

A major uncertainty in the Estuary is the cause of the declining numbers of bivalves found by local bivalve collectors. Previously, the bivalve fishery was an important source of livelihood for local people. Local people strongly believe that pesticides from the local shrimp industry are to blame. Other possible causes are increased levels of sedimentation, over-harvesting and habitat loss, or a combination of these. It is necessary to study—with the participation of the local communities—possible causes of the decline, and find solutions and develop strategies to restore bivalve populations to become the local economy mainstay they have been in the past.

The study will utilize local bivalve collectors to collect a sample of about 30 bivalves from the part of the estuary most strongly affected by pesticide use, preferably at the time when they would be most affected. A control sample of bivalves will be taken from an area currently unaffected by shrimp farm pesticides, possibly the San Lorenzo estuary in northern Esmeraldas.

A laboratory in Guayaquil will prepare slides from the samples. If the government gives permission to ship the samples, these slides will be sent to URI for analysis by a molluscan pathologist. If permission for the samples to leave Ecuador is denied, the molluscan pathologist will be flown to Ecuador to analyze them there. Results will be shared with local communities.

The results of this study will also be integrated with those obtained from the Estuary water quality monitoring financed by the PMRC that will be completed in May 2007.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct study on pesticides effects on bivalves in estuary	February 2007
• Conduct analysis of samples	March 2007
• Publish final report, conduct stakeholder meetings to share results	April-May 2007

OUTPUT(S)

- Report on study of pesticides on bivalves in the estuary

3.4 Water quality monitoring for Cojimies Estuary

During Year 2, EcoCostas was awarded funds ($42,000) by the PMRC to conduct water quality monitoring in the Cojimies Estuary for management purposes. Information will also be collection on physical changes in the Estuary and species of fish, mollusks and crustaceans. EcoCostas will be using a water quality probe donated by the YSI company.

Water sampling methodology has been developed in coordination with the PMRC and a specialist from the Escuela Superior Politécnica del Litoral (ESPOL). A panel of experts will assist in interpreting the results and making recommendations for management and outreach based on this information. The baseline information obtained from this study will be key to biodiversity conservation, improving fisheries and aquaculture practices, and in preparing a management plan for the estuary. SUCCESS will provide support to this work by facilitating the execution of the field work and with outreach to the local stakeholders.

The final publication of the results will take the form of an Atlas of the Cojimies Estuary to be used for outreach with schools, producers, fishers, municipalities and other organizations.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
Conduct water sampling in Cojimies Estuary	November 2006 and February 2007
Data analysis and preliminary draft of report	March 2007
Final report	May 2007
Atlas to conduct stakeholder meetings for sharing results	July 2007

OUTPUT(S)

- Report on water quality in the estuary
- Atlas for outreach to stakeholders

B. Training

Scale of intervention: Regional, national, and local scales
Lead Implementing Organization: CRC, EcoCostas, CIDEA/UCA, WIOMSA
Other Partnering Organizations: Sea Grant Universities, TNC, CI, WWF
Activity Coordinators: Julius Francis/Aviti Mmochi-Tanzania; Agnes Sabrio-Cotze, Nicaragua; Emilio Ochoa, Ecuador
US Liaison: Lesley Squillante

Background

Coastal management has been practiced internationally for over three decades. As the number of coastal projects has increased, so too has the number of training courses targeting coastal practitioners. Unfortunately, these courses are too often designed as "one-off" events that fail to link to real issues and actions on-the-ground or to specific changes in the thinking, behavior, and skills needed to address the fundamental issues and driving forces pushing many coastlines to increasingly unsustainable forms of development. In contrast, the SUCCESS Program training curriculum draws from and contributes to the work on-the-ground. Further, the Program is investigating the interest in and feasibility of linking a series of these courses into a certification program in integrated coastal management (ICM)—one that helps ensure that coastal practitioners have a comprehensive understanding of ecosystem governance and a full suite of both technical and management skills that qualify them to undertake the complex task of coastal management. A further complement to the training courses and certification program is the production of extension bulletins/manuals that both draw from and feed back to the issues and topics covered in the training and certification program. These bulletins and key training materials are incorporated into the SUCCESS knowledge management (KM) system.

A real strength of the SUCCESS training is that the Program's partners—the University of Hawaii (UHH), WIOMSA, the University of Central America (UCA), and EcoCostas —also bring extensive experience and skills in training and extension.

Accomplishments to Date (October 2004 – September 2006)

Because the content of the SUCCESS training courses and their linked extension manuals are so closely tied to the specific context and needs of each place, details on progress on local-level deliverables are included in the country by country On-the-Ground Results sections of this workplan. The following text focuses on regional-level and cross-cutting aspects of the capacity-building related tasks and milestones of the SUCCESS Program which include regional (vs. local) training programs, development of a certification program for those working in coastal management, and dissemination of selected training materials on the CRC and partner websites.

Selected Highlights from the Program to Date *(October 2004 through Sept. 2006)*

- 23 training courses (exceeded original target of 22, due to change in focus in Years 1 and 2 from regional level to almost exclusively local-level courses)
- 399 individuals (out of 500 total targeted for Life-of-Program) trained

- 36% of those trained were women—exceeding the life-of-Program target of 30%
- Nine publications documenting good practices in ICM produced, with four to five of these in the category of formal extension "how to" manuals

Selected Program Highlights in Year Two

Certification

The idea of a certification program to bring the knowledge and skills of coastal managers to a level of professional standards progressed in Year 2 from a concept to an initiative with the endorsement and commitment of the field partners, with region-specific "models" in mind, and with emerging plans of action for piloting such a program over the next 18 months.

This built from desktop research results and an electronically distributed survey[7], which provided input from individuals in the SUCCESS regions on the interest in, feasibility of, and benefits and constraints of an ICM-related certification program. Findings of the survey included:

- In most cases trainings are conducted without any prior needs assessment
- Most trainings are one-time events
- Courses are not adequately documented so other trainers can replicate them
- Few courses are site-based
- Course content for any one topics varies greatly in quality and the delivery mechanisms
- Courses are not accredited to any recognized body within and outside region, and therefore certificates from these courses are not helpful for promotion or professional advancement

This input was summarized and presented at the annual SUCCESS team meeting in October 2005 where the decision to move ahead with the initiative was unanimous. The Ecuador and Nicaragua SUCCESS partners took the lead in mapping out a plan-of-action for their region with the thought that once the LAC region had vetted a model, that model could be used as the basis for East Africa as well. During the course of Year 2, however, it was realized the better plan—owing to differences in context, and needs in each region—is to roll out the initiative in both regions in tandem. Those plans are outlined in the section on Year 3 Objectives (below).

Training-Linked Extension Manuals

Multiple extension manuals were drafted in Year 2—on the topics of milkfish farming, home/family gardening, chame farming, business management and marketing, and half-pearl *(Mabe)* farming. Of these, the half-pearl *(mabe)* farming and jewelry-making manual was the only one in final form and being distributed by year's end. However, all the other manuals were well along in development and slated for publication and dissemination early in Year 3. These

[7] CRC conducted a www-based survey (Survey Monkey) distributed to coastal practitioners in East Africa and Latin America. Responses were received from 47 individuals and those results were used to craft the position paper that will help decide a "go" or "no go" decision regarding the ICM certification program

manuals "translate" much of the hands-on training delivered locally at the sites into these valuable, easy-to-use, step-by-step "how to" guides.

Year 3 Task Objectives

Because the content of the SUCCESS training courses and their linked extension manuals are so closely tied to results-on-the-ground in each SUCCESS region, details on Year 3 tasks and deliverables for training and the topics and production of extension manuals are included in the country-specific On-the-Ground Results sections of this workplan. The following text section focuses on cross-cutting regional-level training courses, certification, and dissemination of outreach and extension materials.

1. Regional Training

In Year 3, SUCCESS will revisit its original goal of having more regional vs. local-only trainings, yet without eliminating the latter. This will broaden the reach of the SUCCESS Program, its lessons learned, approaches, best practices, training materials, etc. beyond the SUCCESS sites. This supports the "global" nature of the Program and maximizes potential for more far-reaching impact from training. This also provides an opportunity to "market" the ICM Certification Program and to link materials between these trainings and that Program.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
Ecuador	
• No regional courses planned for Year 3	
Nicaragua	
• No regional courses planned for Year 3	
Tanzania	
Milkfish Farming training (*see section III A.1.2, On-the-Ground Results*) Tanzania—it is expected that this year more than half of the participants will be from Tanzania. Since the activity is also linked closely with the pilot farming sites in Tanzania, a detailed task description is provided under the On-the-Ground Results section) of the Tanzania section of this workplan	July 2007

OUTPUTS/DELIVERABLE(S)

- 1 regional training/extension course curriculum and materials on milkfish farming

2. Certification

In Year 3, the goal is to bring the certification initiative to a point where it has identified and secured programmatic partners, identified potential funders, developed core curriculum and marketed the program such that it has received a core of applications that makes it possible to move ahead with such a Program.

In Latin America, the certification program is being linked to efforts in selected universities to strengthen their curricula in ICM and ecosystem-based management. Each university has the responsibility to set its own standards for courses and degrees. The certification program will be administered by a Board, comprised of recognized experts in ecosystem governance and ICM drawn from the region and elsewhere. Individuals holding a certificate will have met rigorous program standards and commit to abiding by the principles of socially responsible governance. Those who pass the certification examination agree to abide by the Board's professional standards and code of ethics. To become certified, individuals need to meet requirements in education, examination, experience and ethics. In Year 3, the standards and content of the certification program for Latin America will be developed in detail. In addition, assistance will be provided to a team at the University of Central America in Nicaragua that is developing a Masters program in ICM. This will encourage the development of a prototype university degree program designed specifically to complement the certification process.

One of the priority activities for East Africa in Year 3 is to start planning for a complementary but slightly different model of a professional certification program. Such a program, if successfully implemented, will go a long way towards addressing the concerns highlighted above. As a first step to introduce the concept in the region, the certification program in Eastern Africa will focus on Marine Protected Areas (MPA) managers. This decision was based on the following considerations:

- Marine Protected Areas are recognized by the governments of the region as well as regional organizations and regional frameworks such as the Nairobi Convention as an important component of any management strategy for sustainable use of the coastal environment.
- There are a number of organizations with ongoing training programs ranging from a two-week general course to exchange programs to very specialized course but nothing that provides a certification linked to performance/professional standards.
- Currently there exist a number of training tools such as manuals and toolkits that could be used for general or specialized courses. These could be drawn upon as resources—i.e., help in avoiding a recreation of the wheel.
- There exists a pool of managers trained through different programs who could serve as well-skilled instructors/resource persons.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
Nicaragua	
• Assemble and organize curriculum materials for both certification courses and the ICM Masters degree to be offered by the University of Central America (UCA).	October 2006
• Develop at least one module for the UCA Masters program	November 2006
• Continue working with selected members of CRC/EcoCostas regional network to assess interest in the certification program and the strengthening of related university curricula	On-going
• Finalize certification concept paper including the full description of standards and requirement	March 2007

Tanzania	
• Contact potential partners to socialize the certification concept	October 2006-February 2007
• Develop meeting agenda and planning	January 2007
• Develop an implementation plan prior to meeting for certification	December 2007
• Implement meeting with partners and participants from Mozambique Kenya, Tanzania and South Africa, Madagascar, Seychelles	February 2007
• Start initial implementation activities	March 2007
• Finalize concept paper for certification with the East Africa strategy included	June 2007

OUTPUTS(S)

- East Africa: partner endorsement of concept and implementation plan
- East Africa: support-building/socialization meeting
- Nicaragua: one module on ICM/ecosystem governance linked to UCA Masters program
- Nicaragua: revised/adapted certification concept paper outlining the model for the LAC approach to certification linked to Masters degree program

3. Dissemination of Extension Materials

In Year 3, the SUCCESS Program will make accessible a select suite of its training and extension materials on the CRC theme-based web system and develop a more detailed communications and dissemination strategy for SUCCESS materials overall.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Working with partners, develop overarching communications and dissemination strategy for SUCCESS materials	February 2007
• Identify listserves and other distribution lists to which SUCCESS can announce availability of these documents	December 2006 then on-going
• Post selected training materials on CRC theme-based knowledge management web system	December 2006 then on-going
• Distribute at Summer Institute and other SUCCESS and non-SUCCESS partner training courses	March 2007 then on-going

OUTPUTS(S)

- Written strategy paper
- Web-loaded training materials (selected)

C. Regional Networks and Knowledge Management Year3 Budget: $ 140,640

Scale of the Intervention: local, regional and global
Lead Implementing Organization: CRC
Other Partner Organizations: WIOMSA, EcoCostas
Activity Coordinator(s): Bob Bowen, Julius Frances, Emilio Ochoa, Lesley Squillante
Activity Team: Bob Bowen, Lesley Squillante, D. Robadue, E. Torell, J. Frances, E. Ochoa

Background

The goal of the SUCCESS Program, through the Regional Networks and Knowledge Management activity, aims to enable and enhance the exchange of information, knowledge and lessons learned among the SUCCESS colleagues, partners and the wider group of coastal management professionals. Coastal management projects in many developing countries have very little opportunity or experience in sharing information with each other, even in a one-to-one relationships. By establishing email and web-based tools for collaboration and sharing information, the SUCCESS Program has, over the past two years, provided email and web-based support tools to begin linking individual project participants to a common pool of information and shared learning materials.

SUCCESS partner networks are the EcoCostas-CRC Network (ECCNET) in Latin America and the Western Indian Ocean Marine Science Association (WIOMSA) in East Africa. These networks are at different stages of development with the WIOMSA network significantly more robust than the ECCNET network. The goal in FY 2007 is to assist in the development of information and knowledge sharing within these two networks. Accomplishing this goal requires that we develop in our network members a commitment to and capability for exchanging information on the practice of coastal management, specifically targeting the most relevant individual ICM themes in each region. The opportunity for SUCCESS is to work to enhance and understand robust, reinforcing networks at different stages of development.

Accomplishments to Date

Development of a thematic knowledge management system on the CRC website began in Year 2. The system currently available allows the posting of information relating to the ICM themes and approaches CRC has engaged in during the SUCCESS Program. Themes or approaches are extended with three additional levels of information gathered from the CRC portfolio of Program experience. This system will be deployed on the main CRC website and initially contain extended ‘lessons learned’ information for the mariculture work conducted by the SUCCESS Program as well as other CRC projects.

The CRC SUCCESS Program assisted in establishing the EcoCostas-CRC Network and currently operates a listserv of 20+ coastal management practitioners in the Latin America and Caribbean region that use the list to exchange information relating to ongoing projects.

Establishment of a web-based knowledge management system (KMS) for East Africa progressed with a planning meeting at WIOMSA in February 2006. WIOMSA will consider hosting an effort to build a web forum for mariculture. It would provide for a moderated discussion on mariculture and would be organized around specific topics relevant to the CRC/SUCCESS approach. CRC will assist with this system as it develops and work to integrate the system into CRC initiatives on the mariculture theme. The desire is for this system to connect with efforts in Latin America to build out a South-South exchange of information on small-scale, community-based mariculture information.

During the Fourth Western Indian Ocean Marine Science Association (WIOMSA) Scientific Symposium held in Mauritius in 2005, an informal meeting took place to discuss the possibility of establishing an aquaculture network in the Western Indian Ocean region. There was unanimous interest in this initiative amongst participants who very enthusiastically provided a range of perspectives for the forum.

This initiative was followed by an intense electronic debate and exchange of views and opinions on a range of aquaculture issues relevant to the region and globally. In one way, this reflects the relevance and need for a forum debating aquaculture issues in Western Indian Ocean (WIO) region, but also represents an early opportunity to discuss what objectives and functions the network should stand for in order to best serve the region. WIOMSA decided to facilitate the establishment of aquaculture forum in the Western Indian Ocean (WIO) region, through commissioning a consultancy to initially prepare the terms of reference and other related aspects that are necessary for the operation of the Network.

The consultant recruited by WIOMSA consulted widely and found that there was unanimous agreement on the need to establish a regional mariculture network, the aim of which would be to promote the development of sustainable aquaculture industry in the Western Indian Ocean region [that contributes to poverty alleviation and social and economic development of coastal communities] through facilitating sharing of information on best practices, collaboration and building partnership amongst different stakeholders, and advocating appropriate policies and practices as well as capacity-building on relevant aspects of the sustainable development of the industry. The WIOMSA Board of Trustees is currently considering what role the Association should play in formally establishing the network and the limits/levels of what should be its financial support.

Selected highlights of the Program to-Date (October 2004 through Sept 2006):

- Established web-based system to track indicator data generated in field sites to support the SUCCESS Monitoring and Evaluation program
- Established email listserv to link network of coastal management practitioners in Latin America
- Constructed a multi-tier data system for disseminating information on theme-based topics of importance to ICM (initial focus is on mariculture)

Selected Program Highlights in Year 2

The web-based tool for the SUCCESS Monitoring and Evaluation program enables SUCCESS field partners in Latin America and East Africa to enter indicator data directly into a web-based data system. The system gathers both the indicator data and the evidence required to approve the data. The system uses multiple defining factors in aggregating the data into a report.

Year 3 Task Objectives

1. Development of a web-based knowledge management system

Activity Coordinator(s) *and Team:* ***Bob Bowen, J. Frances****. D. Robadue and E. Ochoa*

The development work in Year 3 will focus on cross-linking CRC-based activities with that of networks of collaborators in the East Africa and Latin America regions. KM content for one additional theme will be input into the system.

The WIOMSA group will begin establishing an online, web-based, discussion forum on the region's mariculture activities. This forum will be established with moderators facilitating the discussion in several topical areas of mariculture important to the region. A database of documents will be established and made available over the website at http://www.wiomsa.org/ and linkages will be made between this effort and the CRC-based mariculture KMS. The KM work with the EcoCostas-CRC Network (ECCNET) of coastal management practitioners in Latin America will scale back this year. Work developing a regional learning network in Latin America was funded through a grant with the Avina Foundation that has not been extended. The SUCCESS program will, however, work to extend the existing email listserv connecting the 20+ coastal management practitioners in Latin America by enabling a web-based discussion group.

1.1 Develop a website for information sharing and dialogue among mariculture practitioners in the East Africa region

A number of priority activities were proposed for implementation by the network once established. However, in the short-term, for the purpose of building support and a constituency for the network, it was proposed that few strategic activities be initiated this year. The selected activities are in line with what was originally planned under "Development of a web-based knowledge management system". For this year, activities are to set up a discussion forum in the WIOMSA website. The forum, which will discuss issues of concern in relation to mariculture development in the WIO region, will be moderated by a selected coordinator. In addition, information on on-going small-scale mariculture initiatives in the WIO region will be collected and a database on these initiatives will be built on the website.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Load one additional thematic topic on ICM national and site-based approaches into the website	June 2007
• Software upgrades to the WIOMSA website (through WIOMSA leveraged resources)	December 2006
• Identify and contract regional experts for document collection (Kenya, Tanzania, Mozambique, Madagascar)	February 2007
• Develop document management system on WIOMSA website	May 2007
• Start a moderated forum discussion on mariculture	March 2007
• WIOMSA Website online and functioning	May 2007

OUTPUT(S)

- Website with discussion forum on mariculture
- Database up and running and functioning

1.2 Upgrading the Latin American discussion group forum

The EcoCostas-CRC Network (ECCNET) currently communicates through a single listserv email list. This list contains 20 plus members from coastal management programs throughout Latin America and several members of the CRC community. This communications venue will be augmented in Year 3 to include a complementary web-based discussion forum. Software will be installed on a CRC server and members of ECCNET will be provided accounts on the system. Discussion on this forum will be facilitated by CRC staff and colleagues of the SUCCESS Program to enhance the inter-group communications on a selection of ICM topics relevant to Program activities. This will sync with the themes-based KM system also being developed through the SUCCESS Knowledge Management and Learning Networks activity.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Configure Web-Forum	March 2007
• Add ECCNET members to forum and make operational	May 2007

OUTPUT(S)

- Operational online web-forum (March 2007)
- Active forum discussion on Mariculture (May 2007)
- Active forum discussion on Small-scale Fisheries (September 2007)

2. Enhancements to the Monitoring and Evaluation Data system

The web-based Monitoring and Evaluation (M&E) data system currently allows SUCCESS partners to login from remote field offices like Dar es Salaam, Tanzania and Managua, Nicaragua to enter and modify indicator information. The current system has one structured report format whereby the M&E Officer can login and generate a structured report based upon

the status of the evidence files, date, and/or location. The task in Year 3 will include modification and streamlining of some of the code running the system, and documenting and developing additional formatted and structured reports. Additional effort will be made to ensure the partners are trained and using the system.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Documentation of code	February 2007
• Enhance and streamline M&E system code	January 2007
• Develop additional reporting formats	March 2007

OUTPUT(S)

- Code documentation
- User document for the M&E system

3. Disseminating the SUCCESS Experience and Tools

Activity Coordinator *and Team:* ***Lesley Squillante****, Bob Bowen and Don Robadue*

Two new tasks will contribute to making the SUCCESS Program more visible and making its on-the-ground results, success stories, case studies, project profiles, training materials, and extension bulletins more widely accessible. The first of these tasks is to design, populate, and announce a SUCCESS website. This will be linked to not only the CRC website, but to a new "umbrella" site that will explain the overarching IMCAFS initiative and share both the SUCCESS-specific and the GLOWS-specific experience. While the SUCCESS site will be developed by CRC independently, the creation and update of the IMCAFS site will be a collaborative effort of CRC and Florida International University (FIU), leader of the GLOWS Program. The second task is to develop and distribute electronically an IMCAFS newsletter. This too will be a joint effort of CRC and FIU. There will be three issues yearly with each issue being theme-based. The content will cover not only interesting aspects of SUCCESS and GLOWS work related to the issue theme, but research findings, project briefs, announcements, etc. related to that theme but generated by individuals, groups, projects external to the SUCCESS and GLOWS Programs.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
SUCCESS and IMCAFS Websites	
• SUCCESS design completed (includes CTO approval)	October 2006
• SUCCESS site populated and announced	November 2006
• IMCAFS website design completed (FIU taking lead)(includes SUCCESS and GLOWS CTO approvals)	October 2006
• IMCAFS website populated and announced	November 2006
IMCAFS Electronic Newsletter	
• Finalize design, select themes for first three issues, compose initial mailing list, and announce letter (all jointly with FIU)	November 2006
• Deliver first issue of newsletter	December 2006
• Deliver second issue	May 2007
• Deliver third issue	September 2007
• Deliver survey to assess recipient satisfaction and suggestions for improvements, and topics of interest for future issues	September 2007

OUTPUT(S)

- Three issues of the IMCAFS newsletter
- New SCCESS and IMCAFS web page designs

D. Science for Management — Year 3 Budget: $ 77,400

Scale of the Intervention: Latin America and East Africa Regions
Lead Implementing Organization: CRC and UHH
Other Partner Organizations: EcoCostas, UCA, WIOMSA and the Sea Grant Network
Activity Coordinators: Maria Haws (in-country action research) and Elin Torell (cross-portfolio learning)

Background

CRC has been an active contributor to the global dialogue on best practices in ICM since the late 1980s. The development of the Policy Cycle and Orders of Outcome frameworks has been instrumental to this work. Early versions of the five-step Policy Cycle were developed in the early 1990s as the organizing framework for CRC's international training courses offered through the Summer Institute in ICM. The policy cycle was subsequently adopted by GESAMP (1996) in its paper *The Contributions of the Sciences to Integrated Coastal Management*. The Orders of Outcomes Framework first appeared in a manual for assessing progress in ICM (Olsen et al, 1999) and was further developed in a series of articles (Olsen, 2002 and Olsen 2004). The two frameworks were applied to a review of large-scale, long-term programs in coastal governance (Olsen and Nickerson, 2004) and to case studies on CRC's international programs (Olsen, ed.) published that same year. These studies showed that to achieve and sustain Second Order outcomes, sites need to assemble all enabling conditions (unambiguous goals, commitment to a course of action, capacity to implement and constituencies that support the program). First Order outcomes require sustaining a highly participatory approach to governance that addresses issues of equity, transparency, corruption and efficiency in the planning and decision-making process. In 2004, CRC pioneered a governance baselining method, which included assessing the enabling conditions, through the regional network in Latin America and built it into a web-based knowledge management system.

Accomplishments to Date

In Year 2, governance baselines were finalized for each field site. This process included the use of the five-step Policy Cycle and the Orders of Outcome frameworks to help organize the baselining exercises. A program-wide learning agenda was developed and discussed during the SUCCESS annual partner meeting of July 2006. The learning agenda will focus on two questions related to microenterprise development:

1. What are the characteristics of successful (and not successful) microenterprises?
2. What are the impacts (both monetary and non-monetary) of the SUCCESS Program's microenterprise support efforts for those involved?

In collaboration with colleagues at the Florida International University, a learning agenda for IMCAFS was identified. Three background papers related to the linkages between freshwater and coastal ecosystems were developed and presented at the annual partners meeting. During this meeting, however, it was decided to continue with the learning agenda at a more place-specific

level and make Tanzania and the Wami River the first place in which to concentrate joint learning agenda efforts.

Science for management activities are also integrated into the on-the-ground efforts in each SUCCESS Program field site. Descriptions of those activities are included in the respective country sections of this workplan.

Year 3 Task Objectives

1. Microenterprise learning agenda

In Year 3, there will be an evaluation of the impacts of the SUCCESS livelihood activities and an investigation of the factors of success. An impact assessment involving six field sites (Bagamoyo, Mkuranga, and Fumba in Tanzania; Estero Real in Nicaragua; Cojimies in Ecuador; and Ranong Province in Thailand) will be conducted. The focus of the field-research will be in Tanzania and Thailand, where data will be collected through a survey instrument to assess the impacts of the livelihood projects. In Latin America, where the microenterprise components are less far along, efforts will be limited to conducting qualitative cases studies only.

The survey analysis will compare the impacts between 1) different forms of microenterprise and microfinance programs (to evaluate if they have met the objectives they were intended to meet), 2) different forms of livelihood projects (mollusks, seaweed, honey, paprika, etc.), 3) different forms of ICM schemes, and 4) different contexts. The final analysis will make recommendations for adapting microenterprise schemes to benefit resource users and lead towards ICM success.

The surveys will be complemented by two or three qualitative case studies from SUCCESS field sites, including those in Ecuador and Nicaragua. The case studies will promote understanding, and will illustrate and triangulate the data collected as part of the quantitative survey work. These cases should help illustrate how context influences microenterprise development and success in different places. The case studies will be selected in consultation with the SUCCESS field partners to reflect the multiple experiences of the SUCCESS microenterprise activities in the field, illustrating the broad range of microfinance and types of enterprises that are being implemented.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct microenterprise surveys in Tanzania and Thailand	April 2007
• Collect data for microenterprise studies	April 2007
• Analyze data collected to assess microenterprise impacts	May 2007
• Produce report on microenterprise impact assessment	August 2007

OUTPUT(S)

- Microenterprise impact assessment report

2. Biodiversity Threats Assessments

A second task for Year 3 is to conduct biodiversity threats assessments for each SUCCESS country. Working with partners in the field, the assessment will identify existing and anticipated direct and indirect threats to biodiversity in each site and current biodiversity conservation efforts that are addressing these threats. This information will be used to recommend conservation goals and targets related to the priority threats, suggest investments/activities to fill gaps, and address the priority threats, and if necessary, recommend adaptations to the current SUCCESS goals and activities in each site.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Conduct Tanzania biodiversity threats assessment	November 2006
• Conduct Nicaragua biodiversity threats assessment	January 2007
• Conduct Ecuador biodiversity threats assessment	January 2007

OUTPUTS

- Tanzania biodiversity threats assessment
- Nicaragua biodiversity threats assessment
- Ecuador biodiversity threats assessment

3. Develop model governance baseline

A third task in Year 3 will be to revisit the governance baselines for Ecuador and Nicaragua. Although the baselines were completed for all sites in the Year 2, these baselines fall short of serving as models. For the purpose of advancing the SUCCESS Program's governance learning agenda and creating model baselines that could be used to showcase the method, the decision was made to revise the Ecuador baseline and one of the Nicaragua baselines (Estero Real) in Year 3.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Revision of Ecuador governance baseline	March 2007
• Revision of Nicaragua Estero Real governance baseline	September 2007

OUTPUT(S)

- Revised Ecuador governance baseline
- Revised Estero Real governance baseline

E. Global Leadership Year 3 Budget: $0

Background

CRC and the SUCCESS implementing partners are active in regional and international forums, conferences and workshops on ICM, and have been an influence on the framing of international priorities and agendas for ICM. CRC and the SUCCESS partners will continue to be active in these fora and share experience and advice concerning the application of ICM principles in a wide range of settings.

Year 2 Accomplishments

Stephen Olsen, CRC's Director is participating in the Scientific Steering Committee (SCC) of the Land-Ocean Interactions in the Coastal Zone (LOICZ) Program as part of the International Geosphere Biosphere Program (IGBP). In this role, he has been tasked to help the program shift focus to include consideration of the human dimensions of change in coastal ecosystems that focus upon the linkages between governance and the dynamics of coastal ecosystem change. CRC was contracted by the IW-Learn Program of the Global Environmental Facility to prepare a prototype training module on the Governance and Socio-Economics of Large Marine Ecosystems. An initial workshop for senior professionals was delivered in April 2006 and a Handbook on this topic is being widely distributed. Olsen was asked by the UNEP Global Program of Action (GPA) to prepare a document that sets forth how the Orders of Outcomes framework developed by CRC and its partners can be the basis for a sequence of indicators that trace the evolution of an ecosystem governance initiative from planning through implementation and on to the achievement of its environmental and societal outcomes. A third report, the result of three-year collaboration with TNC and USAID on methods for managing freshwater inflows to estuaries was in the last phases of production at the close of Year 2. In mid 2006, Olsen was appointed to the National Academies Committee on International Capacity Building for the Protection and Sustainable Use of Oceans and Coasts. In Latin America, Olsen continued in his role of Leader of the Avina Foundation-sponsored regional network of coastal and marine governance practitioners.

The SUCCESS Program was tapped to lead a desktop study on the status of small-scale artisanal fisheries in coastal developing countries. The goal of this effort was to identify the priority challenges and opportunities in these fisheries and to make recommendations to USAID Washington as to which of these the agency's experience could best be applied and to which USAID investment (Washington and Missions) could best be made. Findings from the draft version of the report were presented in September 2006 to an audience that included but was not limited to other USAID Washington bureaus as well as to various U.S. government agencies (NOAA, State Department, USFW), the World Bank, TNC, WWF, CI, and representatives from the private sector. This presentation was the first in a series of USAID Washington-hosted seminars on the topic of creating *secure* small-scale fisheries.

Year 3 Task Objectives

Dissemination of CRC-USAID Approaches to Ecosystem Governance. The approach to ICM developed through the CRC's cooperative agreements with USAID is both a philosophy of development, and a collection of good practices. As interest in ecosystem based management (EBM) grows, CRC is finding it useful to present this approach within this broader EBM conceptual framework. In Year 3, CRC will continue to attend a variety of international conferences and other gatherings where a discussion of the Center's experience and approach can add value to the efforts of others. At the Ministerial Conference being organized by the Global Plan of Action in Beijing in October 2006, Olsen will present the "marker" for assessing progress in EBM and a short paper on the linkages between coastal habitat protection and ICM. Olsen will also participate in the Symposium on ICM being sponsored by the Norwegian Institute of Marine Research in June '07. However, details of that participation are still under negotiation. Olsen is a member of the Steering Committee.

Application and Refinement of Analytical Methods. Pending funding from the Tinker and Avina Foundations, CRC will be applying the governance baselining methods to document a series of mature case studies of the evolution and outcomes of coastal and marine management initiatives in Latin America. This work will complement and amplify the baselines that will be expanded in Year 3 for the SUCCESS sites in Nicaragua and Ecuador. While the Latin American case studies trace the evolution of coastal governance over a decade or more, a second initiative will apply similar methods to an analysis of the outcomes of the tsunami reconstruction process in South Asia. The scope of this effort will be decided in November 06. With funding from LOICZ, an initial international workshop on the governance baselining methods and the indicators for assessing progress in EBM initiatives prepared for the Global Programme of Action will be held in late November/early December 2006. Pending further funding, a second workshop may be held in mid 2007. It is anticipated that this LOICZ-sponsored activity will enable the methods to be applied to a wider diversity of sites.

Building Capacity in the Practice. As a member of the National Academies for Science Committee on Capacity Building, Olsen will be attending a series of workshops and assisting in the drafting of the Committee Report scheduled to be completed by September 07. These workshops and discussions offer additional opportunities to discuss and refine the evolving certification program and a model MSc curriculum in Ecosystem Governance to be prepared in support of the SUCCESS sites in Latin America and East Africa. Such capacity building must be executed as a long-term effort centered in selected universities in each region. Independent funding for such initiatives are being pursued through such mechanisms as a series of benefit concerts by the New York Oratorio Society (Latin America) and a strategic alliance with the Asia Institute of Technology (AIT) in South and Southeast Asia.

Opportunities Assessment on Small-Scale Fisheries. The final version of the assessment and recommendations report on small-scale fisheries in developing countries will be published and disseminated to various government agencies (with a focus on USAID Missions and regional bureaus) and various other stakeholders including donor and program delivery agencies.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
Dissemination of the CRC-USAID Approaches**:**	
• Presentation of documents at the IGR-2 Ministerial conference in Beijing	October 2006
• Participation in the Norway Symposium on ICM	June 2007
• Dissemination of major documents prepared in 06	On-going
Application and Refinement of Analytical Methods:	
• Case studies of coastal and marine governance in Latin America	On-going
• Analysis of the outcomes of the tsunami reconstruction	On-going
• LOICZ workshop on EBM methods	December 2006
Building Capacity	
• NAS report on capacity building	September 2007
• Fund raising for capacity building by region	On-going
Opportunities Assessment on Small-scale Fisheries	
• Final report disseminated	November 2006

OUTPUT(S)

- Fisheries Opportunities Assessment Report

F. Cross-cutting Program Elements Year 3 Budget: $0

Scale of Intervention: Global
Lead Implementing Organization: Coastal Resources Center
Other Partner Organizations: Western Indian Ocean Marine Science Association (WIOMSA), EcoCostas and the University of Central America (UCA)
Activity Coordinator: Elin Torell

Background

Equity: CRC's work has always emphasized the participation of stakeholders, including those who often have the least "voice"—the poor and other marginalized groups. More recently, the Center has put additional focus on ensuring opportunities for the participation of women. CRC has helped its own and others coastal programs learn to better mainstream gender equity—from the initial design phase to the final evaluation phase of a program. CRC has been working to mainstream gender into coastal management since it began its Women in ICM: Leadership Development (WILD) program in 2000. CRC and its partners worked with targeted ICM and water programs in Indonesia, Fiji, the Philippines, Kenya, Tanzania, and most recently in Mali, to better understand the tools and techniques for mainstreaming gender and demographic considerations in resource management programs. These programs applied what was learned in the training to their work in the field, and then used that experience to produce teaching case studies. Building on this experience, funding from the USAID Biodiversity team allowed for exploring the nexus between population, equity, AIDS and coastal biodiversity (the PEACE Project) in Tanzania. This project is described in more detail in the next section.

SUCCESS is explicitly working towardschieving greater equity on-the-ground in its field sites through its second intermediate results "Promoting *equitable* coastal resources governance and management of natural resource conflicts" and sub IR 2.3 "Equitable participation achieved". Equity is also mainstreamed into activities within training, knowledge management, and science for management—and gender indicators have been established whenever possible (see the PMP in Appendix A for a complete list of the indicators). In Year 3, special attention will be given to gender equity when conducting the microenterprise impact assessments in SUCCESS field sites.

Health: HIV/AIDS: In 2004, CRC proposed a more holistic approach to coastal conservation and resource management in its work in Tanzania and was awarded USAID funding for a cross-cutting initiative that considers issues of HIV/AIDS, population, and gender in coastal management/biodiversity conservation. The Population, Equity, AIDS and Coastal Environment (PEACE) initiative promotes improved biodiversity conservation through the sustainable use of coastal resources while at the same time seeking to enhance the quality of life of coastal people. This requires addressing the issues that result from rapidly growing coastal populations, increased numbers of HIV/AIDS-positive men, women, and children, and a lack of equity, especially for women. While the initiative builds on existing programs and projects in Tanzania, it promotes a more holistic approach—one that demonstrates the links between HIV/AIDS, gender, and population and one that considers how these issues can—and *must*—be integrated into local coastal management and conservation programs. The first phase of PEACE has been

funded as a project by the United States Agency for International Development (USAID) and managed through the USAID Bureau for Economic Growth, Agriculture and Trade Office of Natural Resource Management in Washington DC. In a second phase, starting on October 1, 2006, PEACE will become one activity within the broader Sustainable Coastal Communities and Ecosystems (SUCCESS) Tanzania program. The SUCCESS Tanzania Program is funded by the USAID/Tanzania Mission. The second phase has two goals:

- Improve biodiversity conservation and enhance the quality of life of women and other vulnerable groups by implementing actions to mitigate the impacts of HIV/AIDS in the Saadani National Park land/seascape area.

- Provide information and build the capacity of vulnerable groups, particularly women and migratory fishermen, to encourage preventive behavior and social norms that minimize the HIV-AIDS infection rate and minimize negative impacts on the environment.

The SUCCESS team's technical expertise in milkfish farming was tapped to investigate the feasibility of constructing milkfish ponds in Buyuni village of Bagamoyo, which is adjacent to Saadani National Park. HIV/AIDS-vulnerable groups in this community have been identified as migrant fishers and laborers in the salt works. The milkfish ponds, once operational, will provide employment opportunities for individuals in the village and opportunities for more year-round jobs—rather than reliance on temporary migrant laborers. In Year 3 of SUCCESS, collaboration with the PEACE initiative to develop milkfish ponds in Buyuni village will continue.

Democracy/Governance: CRC is recognized internationally for an approach to coastal management that sees decentralized and participatory governance and the successful application of the principles of democracy as the heart of successful coastal management. The SUCCESS Program is actively working to improve governance of coastal resources at the site level. Under this intermediate result category, the number of sustainable natural resource management and conservation policies and strategies implemented will be measured. For example, in Year 3 this will mean working towards establishing management zones for bivalve harvesting and seaweed cultivation in Tanzania. These detailed zoning plans contribute to the implementation of the Tanzania National integrated coastal management (ICEM) Strategy and the Mariculture Guidelines and increase citizenry engagement in participatory resource management decision-making.

The Policy Cycle and the Orders of Outcomes frameworks described in Section I of this document serve as guides for sequencing actions in all field programs and evaluating results. These frameworks are central to a learning system that focuses on the connection between governance and the condition of the people and ecosystem in specific places. These methods integrate across the SUCCESSS portfolio and are a central feature of the training programs.

Year 3 Objectives

For all of the cross-cutting themes, the task is to mainstream consideration of these issues into the overall fabric and on-going activities of the field sites, network discussions, and training. As such, no SUCCESS budget is allocated specifically to these crosscutting themes.

G. Volunteers for Prosperity Year 3 Budget: $ 18,956

Scale of Intervention: Global
Lead Implementing Organization: Coastal Resources Center
Other Partner Organizations: Western Indian Ocean Marine Science Association (WIOMSA), EcoCostas and the University of Central America (UCA)
Activity Coordinator: Kimberly Kaine

Background

CRC has a history of working with volunteers. The Center has depended upon them in its Rhode Island-based program for citizen monitoring of rivers and ponds and has used volunteers to assist the CRC office with administration of its international programs since 1985. In 2000, the Center established a formal volunteer program at its headquarters. Most are active or retired professionals in a wide array of disciplines. In 2004, with the start-up of the SUCCESS Program, CRC was able to expand its volunteer program to include overseas assignments at USAID-supported SUCCESS Program field sites.

Accomplishments to Date

CRC has set up an efficient system for recruiting and placing professional volunteers within its USAID-supported SUCCESS Program field sites. After becoming a member of USAID's Volunteer for Prosperity (VfP) Program, CRC was invited to participate in the Beta test of VfP's test of an on-line giving portal. Following the completion of the Beta Test, CRC was then asked and agreed to be a member of the Giving Portal for six months. This portal allows corporations and individuals to give donations on-line to CRC's volunteer program. A CRC volunteer web page was developed and now posts descriptions of volunteer opportunities, stories of volunteer experiences, and volunteer deliverables. In tandem, EcoCostas developed a successful volunteer program under the supervision of Derek Simmonds and is a model for other partners. Through this program, EcoCostas secured several U.S. and international volunteers in Year 2 to assist with SUCCESS Program activities.

Selected Highlights of the Program to Date (October 2004 – Sept 2006)

- Four VfP volunteers(one female) were deployed to Tanzania and Ecuador for a total of 590 hours of volunteer service valued at approximately $12,500

Selected Program Highlights in Year 2

Two volunteers were recruited and sent on assignment in Ecuador. Joe Torres, a biologist at the USDA Forest Service in the Green Mountain National Forest, prepared a report with an overview of the zone around the Cojimies Estuary and detailing potential new activities for that area. Mr. Torres spent a total of 125.5 hours volunteering. The dollar value of his volunteer time is $2,149.87. (Hourly value is based on the Independent Sector Value of Volunteer Time Guide. The 2004 dollar value per hour was $17.55). Jill Turek volunteered in the Chamanga Estuary in

Esmeraldas, Ecuador as a small business development specialist. She assisted with the facilitation of an EcoCostas small business training and provided follow-up support for the participants. She also wrote a follow-up report detailing future needs for the EcoCostas small business development project. Ms. Turek volunteered a total of 122 hours for a dollar value of $2,202.10 (hourly value based on the Independent Sector Value of Volunteer Time Guide; the 2005 dollar value per hour was $18.04).

Year 3 Task Objectives

In Year 3, CRC will place at least two volunteers at SUCCESS sites. The exact location of the volunteers will depend on the needs of the field sites and type of applicants recruited. However, two volunteers are already recruited and planned for assignment. Katie Wolff of the US Environemental Protection Agency will volunteer in Thailand for two months. She will provide technical assistance in development of a water quality monitoring plan for the Klong Naka river system and estuary, which lies within the boundaries of the National Park. Mary Ellen Bell, a communication and marketing specialist from the University of Wisconsin, is scheduled to volunteer in Nicaragua in the Fall of 2006 for three weeks. She will assist with developing a plan for integrating communications strategies and developing an effective communications strategy.

Women are actively recruited for volunteer positions by advertising on professional women's listservers and websites**.** The CRC website volunteer section will be maintained with new assignments, volunteer stories and final product documents produced by volunteers**.** An evaluation will be made of the effectiveness of the Volunteers for Prosperity Giving Portal and CRC's interest in continuing to be part of this initiative.

Tasks, Milestones and Schedule

Tasks and Milestones	Date
• Post SUCCESS volunteer opportunities on VfP Giving Portal	October 2006
• Engage CRC, WIOMSA, EcoCostas and UCA in the volunteer program by identifying detailed volunteer task descriptions for posting in Year 3	October 2006
• Post volunteer assignments on various websites and list servers with emphasis on locating female professionals as volunteers	December 2006
• Recruit and assign a volunteer to either Latin America or Tanzania	January 2007
• Evaluate the effectiveness of the VfP Giving Portal and decide whether or not to become a paying member	March 2007
• Recruit and assign the second volunteer to either Latin America or Tanzania	June 2007
• Develop a preliminary list of new volunteer job descriptions for advertising for Year 4	August 2007

OUTPUT(S)

- Volunteer assignment descriptions for posting on the web

H. Key Products and Reports for Year 3

The following table lists key products and reports that will be produced in Year 3 along with the deadline or expected completion dates and key individuals at USAID who will receive copies.

Key Products and Outputs	Schedule	Recipient
Program Reports		Richard Volk, CTO and Joseph Schmidt, AO
• Year 3 Workplan	1 October 2006	
• PMP report	30 October 2006	
• Semi-annual Report & PMP Report (July 06–Dec 07)	30 January 2007	
• Progress Report (December – March 07)	30 April 2007	
• Semi-annual Report & PMP Report (Jan 07–July 07)	30 July 2007	
Financial Reports	quarterly	
• Forms SF 269, 269a		Richard Volk, CTO
• Forms SF 272,272a		R. Volk, CTO & www.dpm.psc.gov
TraiNet Data	w/in 30 days of event	USAID TraiNet database
Volunteer Reports		
• Volunteers for Prosperity	upon request	VfP Coordinator
Publications	w/in 30 days of pub.	Richard Volk, CTO and USAID Clearinghouse

Quarterly - w/in 45 days of Dec 31, March 31, June 30, and September 30

PMP Report - evidence for all data/entries for each indicator on file at CRC, available on request

Financial Reports - submitted by URI Controller's Office

TraiNet Data - includes (as applicable) stakeholder compacts, liability waivers, individual participant information, training cost summary and drug use waiver forms on file at CRC, available on request

Volunteer Reports - limited information provided in PMP Report, detailed data for the VfP annual report available on request

IV. Associate Awards

During Year 1, a key objective for associate awards was to inform USAID Missions about the Integrated Management of Coastal and Fresh Water Systems (IMCAFS) SUCCESS LWA mechanism. SUCCESS cooperated with the USAID Water Team and the Global Water for Sustainability (GLOWS) Program to develop and distribute a joint SUCCESS–GLOWS flyer targeted primarily at USAID Missions and Bureaus. CRC also developed a stand-alone flyer with information specifically on the SUCCESS Program.

One Associate Award—the *Post-Tsunami Sustainable Coastal Livelihoods Program* in Thailand —was made to URI/CRC on March 14, 2005 under the SUCCESS Leader Award. Missions are also supporting and funding complementary activities in Tanzania and Ecuador. Although not awarded through the LWA mechanism, these are considered leveraged and complementary funding for our activities. The expectation and hope is for additional associate awards in the years ahead and these will provide opportunities for additional engagement by the family of SUCCESS partners. The LWA Associate and non-associate USAID supported activities in SUCCESS countries are briefly outlined below. Performance management and reporting on USAID indicators and Life-of-Program (LOP) indicators for the leader award does ***not*** include data from associate awards. Such data, however, is included in Performance reports submitted to the Missions that issue the associate award and copies are furnished to the cognizant technical officer (CTO) for the SUCCESS Leader Award. A summary of past and projected Year 3 results for the Thailand Associate Award are also provided below.

Thailand

The Post-Tsunami Sustainable Coastal Livelihoods (SCL) Program is a model Program to demonstrate sustainable coastal communities that are resilient to economic and environmental shocks. This Program was created in response to the December 26, 2004 tsunami disaster. The USAID Regional Development Mission/Asia (RDM/A) provided an associate award to the Coastal Resources Center, University of Rhode Island in the form of a grant of US$3.26 million to rebuild and diversify sustainable coastal livelihoods of severely affected fishing communities on the Andaman Coast of Thailand and to demonstrate effective practices of community-based disaster preparedness. The Program has a 30-month time horizon, with an end date of September 30, 2007. It is implemented in a partnership with the Asia Institute for Technology (AIT) and the University of Hawaii-Hilo.

Five tsunami-affected villages in Ranong Province were selected for the demonstration initiative. Located within Laem Son National Park, these villages have a population of about 5,000 and are dependent on fishing and agriculture for their livelihoods. The relatively small, compact area makes it suitable for modeling an integrated approach to coastal disaster rehabilitation. The communities suffered from the death of over 160 of their residents, and the loss of over 220 fishing boats, engines and gear. Also destroyed were homes, public buildings, and coastal infrastructure. The tsunami had its greatest impacts on rural coastal communities, many of which were already poor and economically vulnerable with few livelihood options. Recovery is especially difficult because many of those that survived lost the ability to practice their livelihoods.

The SCL Program seeks to build coastal community resilience with a focus on rebuilding the economic basis of livelihoods rather than on physical reconstruction, and on providing coastal people with the skills and resources for self-recovery. Key elements of resilience include building livelihood opportunities that do not degrade the natural environment, protecting ecosystems, reducing vulnerability to natural hazards, and strengthening local governance. Program interventions combine ICM and hazard management frameworks.

The specific objectives of the Program are to:

- Establish a common vision and coordinated approach to rehabilitation
- Restart and diversify livelihoods, especially those that rely on healthy coastal resources
- Build capacity for planning and decision-making in the coastal zone
- Promote learning and share experience in Thailand and the region

The Program established a field office at the Tambon Administrative Office (TAO) shortly after the award was made in March 2005. The field office has a full-time staff of five. The Chief of Party and Office Assistant are located at the Asian Institute of Technology. The Program is already producing significant results including:

- 4,383 person days of cash-for-work activities helped people get back on their feet and facilitate actions that make a noticeable difference in areas such as water supply, sanitation, mangrove replanting, solid waste management, road repair, and greening of the landscape
- 164 old livelihoods were restarted and seven new livelihoods were created as a result of loans made possible through newly established Village Microfinance Groups
- Microfinance groups were created in five rural villages where financial services were previously not available. Microfinance members have increased from an initial 250 to 397 in less than one year
- US$157,368 in loans was provided to support livelihoods benefiting 296 microenterprises (110 M, 186 F)
- 81 buildings and infrastructures have been repaired
  (29 water tanks to households and cash-for-work activities; sports field improvements;
  1 sewer line repaired; 2 drainage canals repaired; and water lines to 46 homes connected)
- Five communities and 384 people (134 M, 250 F) have received training in disaster preparedness and management
- Over 400 persons received training in various livelihood-related topics such as business and microfinance, catfish seed production, fisheries co-management and safety-at-sea, and agriculture
- 20 fishing livelihoods restarted through replacement of 20 long-tail fishing boats, engines, and gear

Selected Program Highlights in Year2

The First Regional Lessons Learned Workshop was held February 15-17, 2006 followed by a Ranong project site visit and the Intergovernmental Oceanographic Commission Conference in Phuket on ecosystem and biodiversity impacts of the tsunami. By linking with theUSAID-funded Indian Ocean Tsunami Early Warming System (IOTWS) Program, it was possible to share some travel costs. Participants appreciated the time in the field and commented on how well designed the workshop was in comparison to others. The Learning Workshop captured many issues, experience, and recommended good practices in five categories (sustainable fisheries and aquaculture, microfinance and building diversified livelihood opportunities, community-based disaster preparedness, infrastructure reconstruction and coastal development, co-management of marine parks and fisheries). Recommendations include good practices to protect biodiversity.

SUCCESS Thailand conducted two workshops on better fishing practices to conserve biodiversity and maritime safety for the benefit of the 20 recipients of SUCCESS Thailand-funded boats and engines. The team of Brian Crawford, Chris Dunbar and resource persons from several Thai government agencies delivered the interactive program. The training was well received and recently the Department of Fisheries (DoF) expressed interest in delivering a similar course throughout Thailand.

The first three in a series of four training sessions on resilient coastal communities were held in December 2005, and March and May 2006. Village hazard risk maps were prepared in seven villages and Community-based disaster management plans were completed by Disaster Preparedness Committees in four villages. Officials from Thailand National Disaster Warning Center (NDWC) recently visited the Kampuan site and were pleased by the developments of the village disaster committees. They expressed interest in learning more about the model program so that it can be recreated in other areas of Thailand's coast.

Solid waste management and recycling. In December 2005 and March 2006, workshops were held with village health volunteers and community leaders. Two groups of community and TAO members were taken on study tours to see communities in Thailand that have successful solid waste management programs and to gain experience in recycling techniques. These study tours had a positive impact on the community and on TAO support for recycling and waste management planning. In June, 61 people from two project villages banded together to develop recycling plans (collection, separation, composting, packaging, and marketing). The groups elected village environmental committees and village volunteer groups to be responsible for waste separation and collection of waste in the village. The Community recycling program will help improve village sanitation, and reduce the amount of waste going into the Kampuan dump site as a result of recycling of plastic, glass, metal and composting of organic waste. Revenues from the sale of recycled material will go back to the communities for use on village improvements. Other villages in the Suk Samran sub-District have expressed interest in developing a similar program.

Marine resource co-management. In June 2006, agreement was reached with the Joint Management of Protected Areas (JoMPA) initiative of the Thai Department of National Parks to partner on the delivery of training and a study tour for members of the new Laem Son National

Park Advisory Council on marine resource co-management. A one-week training was held in Ranong in September 2006 under the guidance of the CRC, SUCCESS Thailand project team and JoMPA.

In addition to the above, a number of other activities were completed.

- A site for the green learning center was approved, the building design finalized, and a contract signed for the construction of the building. Construction began in July 2006 with a contractual agreement to complete the building by the end of December 2006.
- 18 training events were sponsored on topics including environmentally sustainable livelihoods, disaster preparedness, marine resource co-management, and local governance capacity.
- Grants and technical assistance for strategically selected new enterprises is promoting diversification of livelihoods such as, catfish seed production, duck-fish-vegetable integrated household farming, and herb-drying and packaging.
- Water storage tanks were provided to 29 households and water supply lines connected to 46 households.

V. Program Management Year 3 Budget: $ 50,205

CRC's mission of "promoting coastal stewardship worldwide" is the foundation of all work carried out through this leader award. The primary partners and clients for this work are the people and institutions of the developing countries that participate in the SUCCESS Program. The goal is to improve the well-being of these people by promoting healthy ecosystems and sustainable resource management through good governance. These people of the place will be supported by the Program's network of individuals and organizations that serve as its subrecipients, strategic partners and supporting partners (Figure 2).

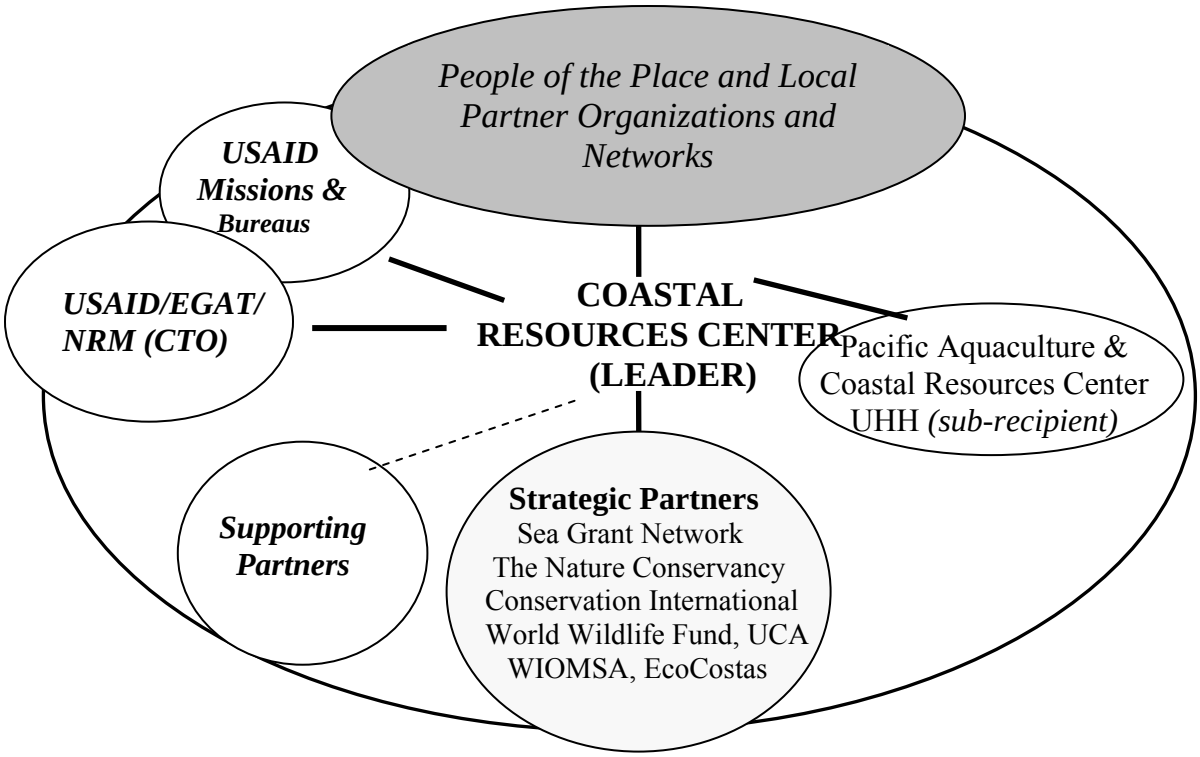

Figure 2: Organizational structure: leader, sub-recipient, strategic partners, USAID.

The Coastal Resources Center (CRC) at the University of Rhode Island is the leader of this Agreement. In this role, CRC maintains lines of communication between the partners, negotiates all associate awards, inform partners of opportunities, and pursues collaborative responses. The Pacific Aquaculture and Coastal Resources Center at the University of Hawaii (PACRC/UHH) is a sub-recipient for this award. The Program's strategic partners based in the United States include the Sea Grant Association, through the Rhode Island Sea Grant College Program; the Nature Conservancy (TNC); World Wildlife Fund (WWF); and Conservation International (CI). Regionally, our strategic partner for East Africa is the Western Indian Ocean Marine Science Association (WIOMSA). In Latin America there are two strategic partners – EcoCostas, a regional NGO based in Ecuador (regional training and networking), and the Universidad de Centro America (UCA), in Nicaragua (provides one of the initial field sites for on-the-ground results and for the regional Sea Grant network).

Key Technical Staff Positions: The Program's key technical staff positions have strong, state-of-art knowledge, skills, and experience in ICM, fisheries, and aquaculture and offer multiple language capabilities. Details on the responsibilities of key positions are outlined in Table 4.

The Program Director is Mr. Brian Crawford, a 25-year international coastal management specialist based at CRC/URI. Mr. Crawford has worked extensively in the field helping to design and manage large, complex ICM projects. The Deputy Director at UHH is Dr. Maria Haws, an international mariculture and fisheries expert specializing in policy, applied research and implementation in aquaculture development and community-based fisheries management. Dr. Haws also has extensive practical experience in community-based economic development and small business management. The Deputy Director at CRC is Ms. Lesley Squillante. Ms. Squillante has 14 years of international experience and expertise in capacity building, training, communications and business administration. The Program's monitoring and evaluation specialist is Dr. Elin Torell, who is also based at CRC. Dr. Torell has a decade of international experience in ICM, focusing on adaptive learning systems and applications.

The Strategic Partners: Sea Grant, TNC, CI, and WWF will provide technical input and assistance to the Program and will participate in the in-country activities funded by Associate Awards. Their representatives serve on the Program advisory committee that also includes the Program's leadership team, the CRC Director, one or more URI fisheries experts and one or more representatives from USAID including the Program's CTO. The committee meets annually to discuss the ICM problems and opportunities addressed by the Program and to identify opportunities for knowledge sharing and joint training events. The committee provides advice on strategies, alliances and direction. The committee is not a steering committee or oversight board. The SUCCESS advisory committee is timed to follow IMFAFS (Integrated Management of Coastal and Freshwater Systems) meetings scheduled in October/November of each year. USAID/EGAT through the CTO approves annual workplans and budgets.

The primary responsibility for external communications concerning the Program is CRC. However, given the important presence of many partners in USAID Missions and other countries, and their linkages to other international organizations and donors, the Program ensures that there is a healthy flow of information to its partners for widespread dissemination. Partners with on-going activities and a presence in USAID countries in particular will be important in disseminating information about the opportunities presented by the SUCCESS LWA award, as well as about activities, lessons and accomplishments the Program has achieved.

The Program Director and at least one of the Deputy Directors attend semi-annual IMCAFS meetings and the annual IMCAFS partner meeting. The Program Director keeps missions where the Program is active appraised of Program activities through regular communications. This includes informing the USAID Missions of international travel conducted by Program staff and consultants, and making staff available to brief Missions on Program status and opportunities. Missions are also furnished copies of semiannual and annual Program reports.

Roles and Responsibilities of Key Positions

Program Director • Responsible for Program execution and management • Principal liaison to USAID/EGAT CTO and missions; responsible for reporting to USAID • With the USAID CTO, convenes the advisory committee meetings • Reports to the CRC Director on program activities • Supervises deputy directors, M&E specialist, selected in-country technical staff • Represents the Program with missions and leads negotiations for Associate Awards • Provides technical oversight for on-the-ground Program results • Supervises activity coordinators
Deputy Director (ICM, Mariculture and Extension) ● Assists director in Program execution; emphasis on mariculture/fisheries elements ● Collaborates in the creation of USAID reports, field program designs and workplans ● Provides technical oversight for Program Results Categories– On-the-ground results in fisheries and aquaculture, and science for management ● Principle liaison with Partners in Nicaragua and Ecuador ● Supervises selected technical staff and consultants ● Oversees performance on selected sub-agreements ● Serves as key technical trainer and member of cross-portfolio learning initiatives
Deputy Director (Capacity Building, Communications & Administration) ● Technical oversight for Program results on increased capacity ● Serves co-designer for regional capacity-building efforts ● Supervises the administration & finance manager, & training specialists ● Collaborates in preparing USAID reports ● Provides technical guidance on publications and other print communications ● Oversees performance on sub-agreements/contracts for training or communications ● Serves as team member of the cross-portfolio learning initiatives ● Assists director in Program administration
Monitoring and Evaluation Specialist ● Responsible for the design and execution of performance monitoring plan ● Assists field and Program leadership in the design of results frameworks for each Associate Award and the overall program ● Conducts training/mentoring on adaptive management & learning across projects ● Technical oversight for Program Results concerning learning networks ● Leads the design of a learning agenda for the program
Note: Stephen Olsen, as CRC Director, oversees this leadership team.

Workplans are developed in consultation with all Program-implementing partners as well as with the USAID CTO. Draft workplans are shared by the Program CTO with the relevant missions for comment on the respective on-the-ground results program elements with the aim of seeking their concurrence with these activities. The workplan development process starts in the July – August period with the aim of a final workplan submitted to the USAID CTO by September 30th each year. Semi-annual reports are submitted in July and the Annual reports in January.

VI. Monitoring, Evaluation and Reporting Year 3 Budget: $ 85,849

Background

The monitoring and evaluation (M&E) program has two major components. The first component is results monitoring, built around the SUCCESS Results Framework presented in section II and Annex A. During Year 1 of the SUCCESS Program, the Program results framework was refined and indicators developed and targets set for each intermediate result. This results framework will be applied to track progress in each field site over the Life-of-Program. Results indicators will be summed on a semi-annual basis to conform to USAID reporting requirements. However, the frequency of monitoring will depend on the indicator. Semi-annual and annual reports will be prepared for USAID that include summary information on the indicators for each LOP Result as well as narrative descriptions and stories concerning Program progress and accomplishments. These twice-yearly reports will conform closely to the annual workplan outline.

The second component of the M&E program is learning for adaptive management—described in more detail in the science for management section. The goal is to promote learning and sharing among sites as well as within each site. In Year 3, there will be three major learning activities: a cross-site microenterprise impact assessment, biodiversity threats assessments for each field site, and development of a model governance baseline.

Accomplishments to Date

In Year 2, the M&E system was integrated with the web-based knowledge management system. This allows field sites and regional partners to input data and documentation into the system remotely. All data then goes through quality control checks by the M&E coordinator at CRC. Once information is cleared and loaded into the database, partners with access to this internal system, including key USAID personnel, can generate summary reports.

Year 3 Objectives

The primary objectives for Year 3 are: 1) to further the agenda for cross-site learning and adaptive management by conducting an impact assessment of SUCCES Program site-based microenterprise activities, 2) to conduct biodiversity threats assessments for each field site, 3) to develop a model governance baseline, and 4) to improve the web-based knowledge management system. There may be a need to revise Program indicators and targets based on recent changes to the USAID indicators. A retreat for SUCCESS field partners will be held in August 2007 to include discussions around the learning agenda and the results of the microenterprise impact assessment and the biodiversity threats assessments.

In Year 3, the CRC Monitoring and Evaluation (M&E) specialist will continue to provide technical assistance to the pilot projects in monitoring and evaluation to ensure that the results framework is properly monitored. This will also ensure that similar approaches are being used to capture appropriate information for both in-Program adaptations and cross-Program learning. Each field site has designated an M&E coordinator to ensure that information is collected on each key result area and for the indicators selected.

In Year 3, the indicators laid out in the results framework will be monitored—this includes a beneficiary survey to measure the revenues and profits generated from new or improved enterprises. This survey, which will be developed early in Year 3, will be the only survey instrument used to measure progress within the results framework (other indicators will be measured using other sources of data and forms of evidence). The survey will be a smaller part of the microenterprise impact assessment.

Specific tasks for monitoring, evaluation and reporting in Year 3 include the following:

Tasks, Milestones and Schedule

Tasks and Milestones	Date
Conduct microenterprise impact assessment	November 2006 – April, 2007
Prepare biodiversity threats assessments	January-February 2007
Prepare model governance baseline	March 2007
Monitor program results semi-annually	March and September 2007
Prepare and submit semiannual report to USAID	April 1 2007
Refine electronic web-based KM system for SUCCESS results monitoring, linked to the KM system for regional networks	April 2007
Organize a SUCCESS field partner retreat	August 2007
Adapt and refine program results framework based on experience from the first and second year of monitoring.	Sept. 2007
Prepare and submit Year 4 Workplan	Sept. 30, 2007

OUTPUT(S) – (some of these are also reported under science for management)

- Microenterprise impact assessment report
- Three biodiversity threats assessments (Tanzania, Nicaragua, Ecuador)
- Two model governance baselines (Cojimies and Estero Real)
- Semi annual report
- Refined program results framework
- Year 4 work plan

VII. Issues and Challenges

At the end of Year 2, a major challenge arose for the SUCCESS Program. This was the announcement by Emilio Ochoa, Executive Director of EcoCostas and lead for the SUCCESS Ecuador Program, that he would be stepping down from his full-time position as Executive Director and thereby his role in SUCCESS Ecuador as well. This creates a number of leadership, supervisory, programmatic, and operational level challenges. A six-month "transition" plan has been developed with clear guidelines on performance benchmarks that must be achieved at the end of the first six months of Year 3, if SUCCESS Ecuador is to continue. The SUCCESS CTO will be kept closely advised of updates on this situation.

In Year 2, the Program team continued to struggle with identifying a meaningful way to bridge the SUCCESS and GLOWS Programs so both Programs feel and behave as part of an overarching and cohesive IMCAFS Program. There are a few areas of common interest concerning a learning agenda, and a web portal (www.imcafs.org) was established that shows both programs falling under the IMCAFS umbrella and with links to each program's respective web pages. However, identifying on-the-ground linkages, while desired, remained elusive. With this said, the SUCCESS and GLOWS teams have committed to developing a joint IMCAFS website and a joint IMCAFS newsletter. Planning began as part of the Year 2 Annual Partners meeting, but design and operations of these two joint initiatives will occur in Year 3.

While the governance baselines prepared at each site do a very good job of discussing trends and conditions of resource use and governance arrangements for each place, in the past they have done a less adequate job of explaining specific bio-diversity assets and significance, threats to bio-diversity, and how the SUCCESS Program activities contribute to addressing these threats. However in Year 3, rapid threats assessments will be completed in each field site. These will provide more information about the actual biodiversity threats in the place—information that will, in turn, be used in the mid-term Program assessment to determine if adjustments are necessary in SUCCESS Program activities to address the key biodiversity threats.

It remains a challenge to identify value-added opportunities to use the SUCCESS Program strategic partners (TNC, WWF, CI, and the Sea Grant network) given the limited budget and differences in the geographic and thematic focuses of the different partners. However, the fisheries assessment has allowed the Program to engage with World Wildlife Fund, and with Sea Grant partner institutions, as well as with GLOWS. In addition, the Program has reached out to WWF/Thailand to partner in conducting a marine parks training program.

A positive challenge is the opportunity to create greater linkages and synergy between CRC and its partners' multiple projects and programs being implemented in the same geographic areas (e.g., the PEACE, Tanzania Coastal Management Partnership IV (TCMP IV) and SUCCESS Programs in Tanzania; the EcoCostas-CRC Network project and the SUCCESS Program in Ecuador and Nicaragua; and, the SUCCESS Associate Award program and the USAID-funded Indian Ocean Tsunami Warning System (IOTWS) project, both in Thailand.

VIII. Budget

This section provides details of the annual budget aggregated in several different ways as illustrated in the figures below. The budget assumes a carryover of Year 2 funds of $ 184,463 plus an additional Year3 obligation of $750,000 for a grand total of $934,464.

Figure 3: Budget by Line Item

Item	USAID Share	Cost Share CRC	Cost Share UHH	Total
Salary	233,080	89,758	9,085	331,923
Consultants				-
Fringe Benefits	81,049	35,903	3,198	120,150
Other Direct Costs	23,500			23,500
Travel	76,000			76,000
Sub-agreements	385,165			385,165
Direct Costs	798,794	125,661	12,283	936,738
Indirect @32.8%	135,670	41,217	3,378	180,265
Total	**$ 934,464**	**$ 166,878**	**$ 15,661**	**$ 1,117,003**

Figure 4: Budget by Program Element

Program Element	USAID	Cost-Share	Total
On-the-Ground Results	406,823	15,661	422,484
Regional Training/Certification	154,591	25,032	179,623
Networking and Knowledge Management	140,640	25,032	165,672
Science for Management	77,400	33,376	110,775
Global Leadership		83,439	83,439
Volunteers	18,956		18,956
Monitoring and Evaluation	85,849		85,849
Program Management	50,205		50,205
Total	**$ 934,464**	**$ 182,539**	**$ 1,117,003**

Figure 5 reflects estimated expenses for on-the-ground work in each of the respective countries and international travel to those countries for program work. The total does not equal the entire budget for SUCCESS On-The-Ground Results Program activities, as some budget line items are not country-specific.

Figure 5: Budget by Country

Country	Total
Ecuador	107,592
Nicaragua	109,836
Tanzania	145,671

Figure 6 provides a summary of the travel budget for all international travel and US based travel. Travel is broken down by Program element and by the partner organizations initiating the travel.

Figure 6: International and US Based Travel Budget

Program Element	CRC	UHH	UCA	ECC	WIOMSA
On-the-Ground Results	12,500	14,400			
Regional Training/Cert.	20,500				6,000
Networking and KM	10,000				
Science for Management	11,500				
Global Leadership Volunteers	7,500				
Monitoring and Evaluation	14,000	2,050	3,041	1,700	3,500
Program Management					
Total	**$ 76,000**	**$ 16,450**	**$ 3,041**	**$ 1,700**	**$ 9,500**

Figure 7 identifies the traveler, tentative travel dates, destination and purpose of travel by program element.

Figure 7: Tentative International and US Travel Schedule[1]

MONTH	Program Element					
	On-the-Ground	Training/Capacity Building	Networks and KM	Science for Management	Volunteers	Monitoring & Evaluation
October 06	**Haws** - Ecuador; **Requintina** - Tanzania (milkfish water management)					
November 06		**Herrera** - Nicaragua (certification)	**Torell** - Tanzania (learning agenda and threats assessment); **Olsen** - Nicaragua (governance baselining)		**Volunteer** - Nicaragua	**Crawford - DC** (project presentation)
December 06	**Crawford** - Nicaragua (technical support)					
January 07	**Crawford** - Tanzania (technical support)			**Kotowitcz** - Thailand (microenterprise survey)		
February 07	**Haws** - Ecuador/ Nicaragua	**Robadue** - Ecuador (training and learning); **Squillante** - Tanzania (Certification); **Requintina** - Tanzania (milkfish regional training)	**Olsen and Herrera** - Ecuador (governance baselining and threats assessment)			

[1] Dates, traveler and purpose are estimates based on the workplan activities. All travel assumes a multi-purpose agenda with an emphasis of each trip on one of the program elements. Traveler name and primary trip purpose may change based on workplan schedule and progress.

March 07	**Haws** - Tanzania (pearl harvest)			**Robadue** - Nicaragua (learning case study)		
April 07		**Olsen or Tobey** - Costa Rica (training Freshwater to Estuaries with GLOWS/OTS)				
May 07					**Volunteer** - Tanzania	
June 07	**Crawford** - Ecuador/ Nicaragua (cockle management)					
July 07	**Haws** - Ecuador					
August 07						**Nicaragua** - Annual Work planning meeting August 13-17
September 07						**Crawford, Haws, Torell - D.C.** (CTO Meeting)

Figure 8 lists leveraged funds that have contributed to the overall program objectives in Year 1 and 2, as well as additional leveraged funds we expect to obtain in Year 3. No targets are set for leveraged funds but the estimated amounts are tracked and reported.

Figure 8: Leveraged Funds

Year One			
Funding source	**Recipient**	**Description**	**Estimated Contribution**
USAID/Ecuador	EcoCostas	Galapagos workshop and assessments/mapping for Cojimies, Ecuador	
CosTech, Tanzania	Tilapia farmers, Mkuranga	Windmill for water pumping from CosTech for Tilapia ponds in Tanzania	
Private citizens from South Africa	Fumba Village	For work on bivalve farm and kiosk construction	
WWF	SUCCESS Leader - Regional Training	Travel for 3 participants/staff from WWF Mafia Marine Park project	
USAID SEEGAAD Project ADCI/VOCA	SUCCESS Leader - Regional Training	2 training resource persons for 2 person days and local travel of 1 participant	
Aquaculture CRSP Project (USAID) , Oregon State University	SUCCESS Leader	Travel costs for Tanzanian training participant from Univ. of Arkansas (Post Doctoral)	
Kwetu Training Centre, Kenya	SUCCESS Leader	Regional training participant from Kenya	
University of Rhode Island	SUCCESS Leader - Regional Training and on-the-ground results	Expertise for training on bivalve culture and on-the-ground results -URI Associate Professor Michael Rice	
Private citizen	SUCCESS Leader - Regional Training and On-the-ground results	Expertise on milkfish farming for training and on-the-ground results-Edwin Requintina	
Year One total			**$ 4**
Year Two			
Funding source	**Recipient**	**Description**	**Contribution**
OIKOS	CIDEA	Funding that complements training on aquaculture and integrated management	8,072
Japanese aid agency	CIDEA	Development of best management practices, training and materials	7,831
UCRECEP	CIDEA	Cockle aquaculture development	3,384
NOAA	Coastal Resources Center	International Sea Grant Latin American Network Development	30,000

Avina Lima	EcoCostas	Funds will be used for the project "Conectando líderes de experiencias de cambio local en la costa continental de Ecuador"	37,950
InWEnt- gGmbH	EcoCostas	Support to capacity building	1,524
URI WILD initiative	EcoCostas	Support one EcoCostas employee to attend Summer Institute	5,000
Private citizens	EcoCostas	Two American volunteers and two Ecuadorian volunteers	7,467
AVINA	EcoCostas Director	Regional Networking and On-the-ground Results	24,500
Government of Sweden	Regional Networking	Deliver short course highlighting Tanzania livelihoods & gender --cross cutting themes	1,940
YSI Company	UHH	Water quality monitoring equipment for Cojimies	3,500
WWF	WIOMSA	Training support	1,000
SEEGAAD	WIOMSA	Training support	250
Ministry of Natural Resources	WIOMSA	Training support	500
IMS	WIOMSA	Training support	500
WIOMSA	WIOMSA	Training support	800
School of int training	WIOMSA	Undergraduate student working with women in Fumba	600
Commission for science and technology	WIOMSA	Training support	500
Sida/SAREC	WIOMSA	Two MARG 1 grants to study water quality and its suitability for shellfish farming and consumption on the Fumba peninsula and research on milkfish fingerlings in Bagamoyo and Mkuranga	12,000
Private company	WIOMSA	Donation of half pearls to Fumba	900
Year Two total			**148,218**

Annex A: Performance Management Plan: Overview of Results for Year 1 and Quarters 1-3 of Year 2

This table gives an overview of the "rolled-up" results for SUCCESS in Year One and Year Two (until 06/30/06). It shows the results for FY 05, the first three quarters of FY 06, and the cumulative results to date. The results from the fourth quarter of Year Two will be reported by October 15th, 2006.

IR. 1 Improving management and conservation across diverse landscapes through science, inter-disciplinary approaches, and the adoption of best practices.		**FY 05 Targets**	**FY 05 Results**	**FY 06 Targets**	**FY 06 Results Q1**	**FY 06 Results Q2**	**FY 06 Results Q3**	**FY 06 Total**	**Cumulative results**
Sub IR 1.1 Governance of Coastal Resources Improved at the Site Level	1. Number of hectares with improved natural resource management, including biologically significant areas, watersheds, forest areas, and sustainable agricultural lands	0	132	10,839	5,230	7,115	1,361	13,707	13,839
	Number of biologically significant hectares	no target	55	no target	5,557	1,093	1,361	8,011	8,066
	Number of watershed hectares	no target	50	no target	5,228	1,349	0	6577	6,627
	Number of forested hectares	no target	0	no target	2,320	2,268	0	4588	4,588
	Number of hectares under agriculture/aquaculture	no target	5	no target	341	36	1,361	1,739	1,744
Sub IR 1.2 Biophysical Conditions Improved at the Site Level	2. Number of hectares showing stable or improved biophysical conditions for selected parameter(s)	no target	Not measured until 2007						

IR. 2. Promoting equitable coastal resources governance and management of natural resource conflicts.		**FY 05 Targets**	**FY 05 Results**	**FY 06 Targets**	**FY 06 Results Q1**	**FY 06 Results Q2**	**FY 06 Results Q3**	**FY 06 Total**	**Cumulative results**
Sub IR 2.1 Policies formally adopted	3. Number of sustainable natural resource management and conservation policies, laws, agreements, or regulations implemented	0	0	0	0	1	0	1	1
Sub IR 2.2 Funding secured	4. Leveraged funding and financing	no target	177,073	no target	4,953	48,029	35,296	88,278	265,351
Sub IR 2.3 Equitable participation achieved	5. Number of persons participating in coastal resources and conservation planning initiatives (gender dissaggregated)	123	123	620	110	112	408	630	753
IR 3. Increasing tangible and equitable economic benefits through sustainable production, marketing, and trade of natural resource-based products and services.		**FY 05 Targets**	**FY 05 Results**	**FY 06 Targets**	**FY 06 Results Q1**	**FY 06 Results Q2**	**FY 06 Results Q3**	**FY 06 Total**	**Cumulative results**
Sub IR 3.1 A large number of stakeholders benefiting from sustainable enterprises	6. Number of full time jobs in excess of two weeks created	118	124	241	28	200	58	286	410
Sub IR 3.2 New or improved sustainable enterprises developed for a broad number of coastal residents.	7. Number of new or improved enterprises developed	46	47	72	13	92	5	110	157
Sub IR 3.3 Increased monetary value generated from new or improved enterprises	8. Monetary value generated from sustainable natural resources or conservation initiatives (USD or equivalent)	no target	Not measured until 2007						

IR 4. Knowledge and best practices are widely shared to promote cross learning		FY 05 Targets	FY 05 Results	FY 06 Targets	FY 06 Results Q1	FY 06 Results Q2	FY 06 Results Q3	FY 06 Total	Cumulative results
Sub IR 4.1 Regional Training Provided to Support Enabling Conditions and Share Best Practices	9. Number of people trained (gender dissaggregated)	75	93	150	133	88	85	306	399
Sub IR 4.1 Regional Training Provided to Support Enabling Conditions and Share Best Practices	10. Number of training courses implemented	3	5	10	9	3	5	17	22
Sub IR 4.2 Regional Coastal Governance Networks are Promoting Cross-Learning	11. Number of active participants in web-based regional networks (gender disaggregated)	0	20	17	1	0	0	1	21
Sub IR 4.3 Impacts of good practices are documented and codified at the community scale	12. Publications documenting impacts of best practices	no target	3	no target	0	2	4	6	9
CT 1. Volunteers for Prosperity		**FY 05 Targets**	**FY 05 Results**	**FY 06 Targets**	**FY 06 Results Q1**	**FY 06 Results Q2**	**FY 06 Results Q3**	**FY 06 Total**	**Cumulative results**
CT 1. Volunteer international opportunities provided to US professionals to work on technical projects overseas.	13. Number of American volunteers	2	2	2	1	0	1	2	4
CT 1. Volunteer international opportunities provided to US professionals to work on technical projects overseas.	14. Volunteer person days	24	24	24	16	15	15	46	55
CT 1. Volunteer international opportunities provided to US professionals to work on technical projects overseas.	15. Value of volunteer time ($)	12636	12,636	12,952	2,203	2,200	2,200	6603	17,039

Gender mainstreaming		FY 05 Targets	FY 05 Results	FY 06 Targets	FY 06 Results Q1	FY 06 Results Q2	FY 06 Results Q3	FY 06 Total	Cumulative results
Sub IR 2.3 Equitable participation achieved (Ind 5)	16. % females participating in coastal resources and conservation planning initiatives	74%	74%	78%	67%	56%	59%	60%	62%
Sub IR 3.1 A large number of stakeholders benefiting from sustainable enterprises	17. % females with new full time jobs in excess of two weeks created	75%	75%	51%	36%	57%	57%	71%	72%
Sub IR. 4.1 Regional Training Provided to Support Enabling Conditions and Share Best Practices	18. % females trained	40%	30%	40%	26%	47%	45%	37%	36%
Sub IR 4.2 Regional Coastal Governance Networks are Promoting Cross-Learning	19. Number of female participants in web-based regional networks	50%	40%	50%	38%	38%	38%	38%	38%
American volunteer effort	% female American volunteers (Ind 13)	50%	0%	50%	0%	0%	100%	50%	25%

Sustainable Coastal Communities and Ecosystems Program (SUCCESS)

A component of the Integrated Management of the Coastal and Freshwater Systems Program (IMCAFS)