Conservation of Coastal Eco-Systems in Tanzania: The PWANI Project

FINAL REPORT

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Cover Photos: Clockwise from top left corner: 1) female baker pointing at baking tins, 2) man and woman grinding an oyster shell, 3) sea turtles hatching, and 4) an African elephant collared by the Project

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List of Acronyms

AIDS	Acquired Immunodeficiency Syndrome
APA	AIDS PARTNERSHIP with AFRICA
CEEST	Centre for Energy, Environment, Science and Technology
CRC	Coastal Resources Center
CVM	Communita Volontari per il Mondo (Community of Volunteers for the World)
CSW	Commercial Sex Worker
GBV	Gender Based Violence
GIS	Geographic Information Systems
GoT	Government of Tanzania
HIV	Human Immunodeficiency Virus
ICM	Integrated Coastal Management
IEC	Information, Education, and Communication
IMS	Institute of Marine Sciences
IR	Intermediate Results
KIDOTOA	Kizimkazi Dolphin Tourism Operators Association
LoP	Life of Project
NAP	National Adaptation Plan
MBCA	Menai Bay Conservation Area
MPA	Marine Protected Area
NEMC	National Environment Management Council
NGO	Non-Governmental Organization
PHE	Population-Health-Environment
PLWA	People Living with AIDS
PMP	Performance Monitoring Plan
SACCOS	Savings and Credit Cooperative Society
SAMP	Special Area Management Plan
SANAPA	Saadani National Park Authority

SO	Strategic Objective
SUCCESS	Sustainable Coastal Communities and Ecosystems
TaTEDO	Tanzania Traditional Energy Development Organization
TCMP	Tanzania Coastal Management Partnership
TFD	Theater for Development
UNFCCC	United Nations Framework Convention on Climate Change
URI	University of Rhode Island
USAID	United States Agency for International Development
VCT	Voluntary Control and Testing
VMAC	Village Multisectoral AIDS Committee
WCR	Women and Children's Rights
WIOMSA	Western Indian Ocean Marine Science Association
WMAC	Ward Multisectoral AIDS Committee

Executive Summary

The Conservation of Coastal Eco-Systems in Tanzania: The PWANI Project was a four-year, ecosystem-based management Project. It targeted an area stretching from Bagamoyo to Pangani town, focusing on the Saadani National Park (SANAPA) and the Wami River estuary. An additional area of focus was the Menai Bay Conservation Area on Zanzibar. The Pwani Project had a US $4,050,000 budget from USAID and an estimated match funding support provided by the implementing partners of US $577,061.

The Pwani Project's goal was **to sustain the flow of environmental goods and services; reverse the trend of environmental destruction of critical coastal habitats; and improve the wellbeing of coastal residents in the Bagamoyo-Pangani and Menai Bay Seascapes.** The Project worked towards this goal by supporting local participation in natural resources management, integrating socio-economic and other cross-cutting issues and promoting institutional and resource user behaviors that are appropriate for the long-term management of the Northern Tanzania Seascape. The Project also built local capacity for integrated approaches to conserve biodiversity. At the same time, it provided gender equitable and sustainable economic benefits to coastal people through partnerships with local and national government, the private sector and civil society organizations.

The Pwani Project used the Nature-Wealth-Power (NWP) paradigm as part of its organizing framework. It recognized that natural resources management Projects that have integrated key concepts from within each of these domains have historically been the most successful at achieving meaningful results. The Project's activities were organized around three broad result areas, each of which was tied to a key system within the defined seascape. The marine system, terrestrial system and human dimensions system reinforced each other and all included elements of the nature, wealth and power paradigm.

Summary of activities undertaken and objectives accomplished during the life of Project (LoP):

Critical coastal area use planning in the Bagamoyo District

- Determined the ecosystem functions and services of Mbegani Bay including its physical, ecological and economic value and functioning.
- Built capacity of district staff, local leaders and Project team members in coastal planning, including geographic information and shoreline processes and dynamics.
- Built and maintained a Coastal Management GIS database.
- Developed a State of Mbegani Bay Report that includes scenarios for the future.

Mariculture zoning for mangrove ecosystem protection

- Created interest, understanding, and stakeholder engagement in mariculture zoning and sustainable mariculture development.
- Identified potentially suitable locations for orderly, low-impact mariculture expansion in Bagamoyo and Pangani.

- Developed -scale mariculture permitting procedures for the Bagamoyo and Pangani Districts and thereby improving the management of over 22,000 terrestrial hectares.

Protect and monitor coastal forests and associated wildlife inside SANAPA

- Conducted satellite telemetry studies of elephants to determine local and regional seasonal movements, habitat use and corridors. Providing access to better information for decision-making, the Project contributed to improving the management of over 44,000 terrestrial hectares.
- Conducted systematic aerial surveys of elephants in Saadani NP, Wami-Mbiki WMA and lower Wami-Ruvu River Basin to determine seasonal distribution and abundance.
- Worked with local communities and wildlife managers to identify areas of human-elephant conflict and established measures to reduce conflicts.

Reduce Deforestation through Improving Energy Technologies.

- Contributed to increased resilience, improved livelihoods, and reduced fuel wood consumption through introduction of modern energy technologies (i.e. solar multi-chargers and fuel-efficient baking ovens).
- Conserved biodiversity through sustainable production and utilization of renewable resources using sustainable modern energy technologies.

Scale-up of community-led no-take zones of intertidal areas

- Improved three existing no-take zones in Menai Bay.
- Scaled up community-based management of cockles to two new areas by establishing new no-take zones for the Kikungwi and Unguja Ukuu villages. Combined the new and "old" no-take zones to help improvethe biophysical conditions of 1,728 hectares.

Half pearl farming

- Scaled up the number of households benefiting economically from half-pearl farming to the Unguja Ukuu and Kikungwi villages.

Improvements in sustainability of dolphin tourism in Menai Bay

- Improved the sustainability of dolphin tourism by establishing a dolphin tourism accreditation scheme and providing multiple trainings for dolphin tour operators and fishermen.

Protection of sea turtles

- Protected and conserved endangered marine species and habitats through community-based species monitoring, education, training and ecotourism.
- Monitored and protected nesting sea turtles and hatchlings at eight nesting sites.
- Identified areas of high risk to nesting and foraging sea turtles.
- Developed sea turtle ecotourism as a revenue generating activity in two villages.
- Raised awareness of threats to endangered marine species and their habitats.

- Improved the management of over 55,000 hectares through the turtle monitoring and protection program, thereby reducing threats to endangered marine species.

Training of coastal and marine management professionals

- Supported capacity building of coastal and marine management professionals.

Increasingly resilient communities are enabled to adapt to climate change impacts

- Raised awareness of coastal vulnerability and adaptation to climate change in Bagamoyo District and among village leaders—thereby improving the capacity of 44 local institutions to address climate change issues.
- Conducted eight vulnerability assessments that identify climate change vulnerabilities and ways to increase resilience and reduce harm from climate change impacts.
- Catalyzed small, doable, early adaptation actions in six villages; thereby improving the capacity of 2,316 stakeholders to adapt to the impacts of climate change.
- Assisted in revising the national integrated coastal environment management strategy to include climate change.
- Tested methods and modalities for national adaptation planning.
- Learned from experience and shared with other countries and the UNFCCC.

Communities benefitting economically from NRM-based businesses through increased income, access to credit, new markets and enhanced goods and services

- Prepared value chain assessments for small-scale fisheries (Bagamoyo) and ecotourism (Pangani and Zanzibar).
- Defined and promoted good practices in sustainable ecotourism.
- Improved the enabling conditions for future coastal tourism development.
- Improve access to savings and credit services for coastal communities by supporting 12 savings and credit cooperative societies (SACCOS), thereby improving the access to credit for 989 households.
- Introduced natural resource management (NRM) based sustainable livelihoods and added value to existing NRM livelihood products, thereby increasing the economic benefits for over 5,200 individuals.
- Improved product quality; established and expanded markets for shell craft jewelry making on Zanzibar.

HIV/AIDS prevention and mitigation activities improve life for those living with HIV/AIDS and lead to quality behavior change among fishing communities in Pangani

- Implemented village and ward-based activities related to creating an effective community response to HIV/AIDS in the Pangani District, resulting in:
    - Implementing HIV/AIDS action plans for all 33 villages in the Pangani district, including identifying and incorporating activities that address local gender needs and challenges around leadership.

- Implemented a unique leadership program targeting VMACs and other district and community leaders (leadership coalitions) in Pangani.
- Produced and aired four interactive radio programs through Pangani FM. These radio programs supported behavior change campaign interventions, gender justice and leadership development interventions and biodiversity conservation efforts.
- Produce and showed interactive theater and video spots on biodiversity. conservation, youth, leadership and behavior change for community dialogue in 33 villages.
- Produced good practice documentation about innovative and effective community-based approaches and organizational learning.
- Established 403 condom social marketing outlets in Pangani.
- Reached over 21,800 individuals with small group level HIV prevention interventions and over 6,800 fishermen and women involved in the fishing industry.

HIV/AIDS prevention and mitigation activities improve life for those living with HIV/AIDS and lead to quality behavior change among fishing communities in Bagamoyo

- Promoted a coordinated response to HIV/AIDS in Bagamoyo District fishing villages.
- Supported an active response to HIV/AIDS, by increasing knowledge and changing attitudes and behaviors among at-risk groups, including fishermen/women, commercial sex workers, girls and PLWA.
- Established 184 condom social marketing outlets in Bagamoyo.

Additional results that cuts across multiple activity areas are:

- Established 31 policies, strategies, plans and agreements addressing climate change adaptation and/or biodiversity conservation.
- Leveraged over US $650,000 for Project activities.
- Trained 4,901 individuals, covering over 41,000 hours.
- Reached 8,955 individuals through community outreach and planning.
- Published 68 success stories documenting key actionable findings about best practice approaches and lessons learned published in local media reports, radio shows, conference papers, and research studies.

1. Introduction

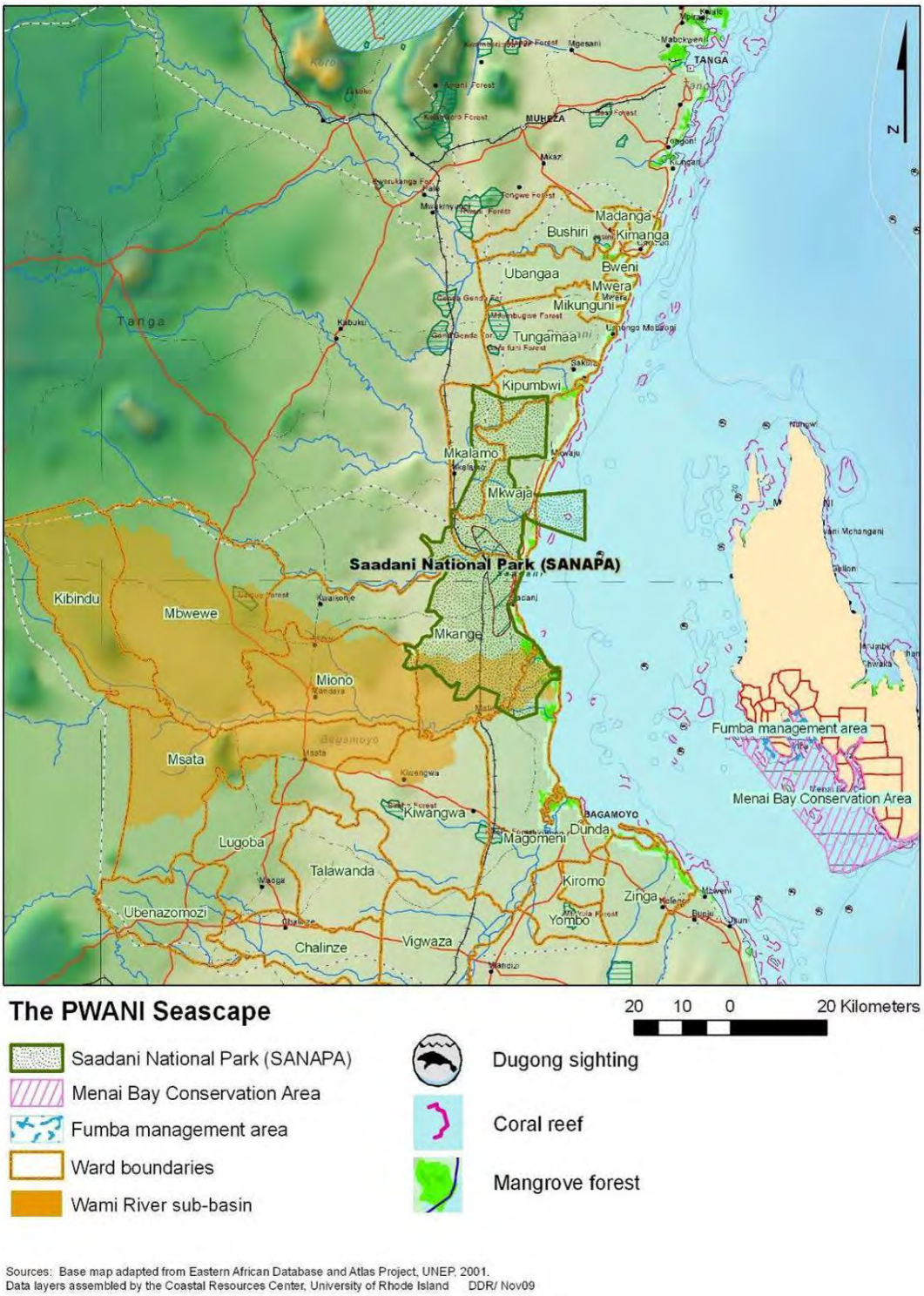
The Conservation of Coastal Eco-Systems in Tanzania: The PWANI Project started in December 2009, building on 12 years of previous experience and investments of the U.S. Agency for International Development (USAID), the Coastal Resources Center (CRC) at the University of Rhode Island (URI) Graduate School of Oceanography, the Government of Tanzania, and other partners. Locally, the Project was often referred to as the Tanzania Coastal Management Partnership (TCMP), which was what the URI-led Projects were called between 1996 until 2005.

The Pwani Project was an ecosystem-based management initiative. It targeted an area stretching from Bagamoyo to Pangani town, focusing on the Saadani National Park (SANAPA) and the Wami River estuary. An additional area of focus was the Menai Bay Conservation Area on Zanzibar. Cross-cutting in nature, it recognized that poverty, gender, climate change, population, and HIV/AIDS can be significant constraints to coastal and marine biodiversity conservation. The Project took an integrated approach to building community resilience and addressing key barriers for women obtaining increased benefits from their utilization of natural resource based livelihoods. It also recognized that implementation of an ecosystem-based program must be directed at catalyzing changes in human behavior. As such, *Pwani* worked to strengthen capacity at the local level to implement policy; advocate for policy adjustments (good governance); and integrate poverty concerns into conservation strategies.

The four-year Pwani Project had a US $4,050,000 budget from USAID and an estimated match funding support provided by the implementing partners of US $577,061. The Project received US $750,000 annually from the USAID Tanzania NRM team for biodiversity conservation and climate change adaptation. It also received between US $200,000 and 400,000 per year from the United States President's Emergency Plan for AIDS Relief (PEPFAR).

The Project Area

The Pwani Project area covered over 348 km of coastline in Bagamoyo, Pangani, and on Unguja. The area included the lower Wami River (3,270 km^2), Saadani National Park, (1,114 km^2, including a marine area of 60 km^2), and the Menai Bay Conservation Area (almost 500 km^2). Combined, these areas encompass around 39 coastal wards (21 wards on Zanzibar and 18 wards on the mainland) and a population of over 200,000.



Sources: Base map adapted from Eastern African Database and Atlas Project, UNEP, 2001.
Data layers assembled by the Coastal Resources Center, University of Rhode Island DDR/ Nov09

Figure 1: **Map of Pwani Project Area**

The Bagamoyo-Pangani and Menai Bay Seascapes are biodiversity-rich with nationally and internationally significant estuaries, mangrove forests, beaches, coral reefs, seagrass beds, coastal forests and rare and endangered wildlife species that include sea turtles and dugongs. The Saadani National Park (SANAPA)—one of the country's newest and the only terrestrial park with a contiguous marine area—also lies in this area. Nominated as a UNESCO biosphere reserve, the park is home to the rare Roosevelt Sable antelope and provides nesting ground for several endangered species of marine turtles. SANAPA has the largest marine no-take reserve in the country. The near-shore and offshore marine areas also support a large and vulnerable artisanal fishery, and wildlife and marine recreation and tourism—all of which depend upon a healthy ecosystem. Menai Bay Conservation Area (MBCA) is situated in the southwest of Unguja, the main island of the Zanzibar Archipelago. It is the largest marine conservation area in Zanzibar, managed locally by the community and government officials. The area is extensively covered with coral reefs, sea grass beds, and mangrove forest.

The seascape has changed considerably in the past 10 years as a result of increased private sector investments in and development along the beachfronts, growing national and international tourism, and new agro-industry development. Future pressures include an Export Processing Zone and harbor planned for the Mbegani Bay.

For the men, women, and children living in the Menai Bay and Bagamoyo-Pangani Seascapes, there are many interconnected pressures challenging them daily. First and foremost, while their livelihoods are highly dependent on natural resources, both agriculture and fisheries are suffering from a decline in productivity and profitability, due to over harvesting and climate change. This puts villagers at risk for even greater poverty and food insecurity in the near and long term. For women, there are additional disadvantages. They often have little or no education, and they lack a voice in household and community decision-making and finances because of the social, cultural, and religious beliefs. Despite having the primary responsibility for rearing children and ensuring sufficient resources to meet family needs, women's livelihoods are limited and few have access to monetary income. Further, poor access to modern contraceptives—and the lack of communication between partners about when and how to prevent pregnancies—restricts women's choices about when to bear children. Women are also hardest hit by the HIV/AIDS pandemic and by climate change impacts.

Development Hypothesis

The Pwani Project's strategy was to build upon the rich experience and capabilities already present in the Bagamoyo-Pangani and Menai Bay areas and through selected capacity-building activities maximize the potential for sustaining—and where feasible restoring—the vital, biodiversity-rich goods and services these areas could generate. The key hypothesis of *Pwani* was that *when* coastal constituencies are empowered to utilize and manage their natural resources and participatory implementation mechanisms are effective (Power), and *when* there are sustained benefits generated from those resources at local levels by those who actually use them (Wealth), *then* coastal and marine biodiversity (Nature) within the targeted ecosystems will be maintained appropriately. As articulated by USAID and used by many other development

groups, the Nature, Wealth and Power paradigm[1] captures many of the facets of the integrated systems approach that was the basis for Pwani.

Project Goal and Result Areas

The Pwani Project's goal was **to sustain the flow of environmental goods and services; reverse the trend of environmental destruction of critical coastal habitats; and improve the wellbeing of coastal residents in the Bagamoyo-Pangani and Menai Bay Seascapes.** The Project worked towards this goal by supporting local participation in natural resources management, integrating socio-economic and other cross-cutting issues, and promoting institutional and resource user behaviors that are appropriate for the long-term management of the Northern Tanzania Seascape. The Project also built local capacity for integrated approaches to conserve biodiversity. At the same time, it provided gender equitable and sustainable economic benefits to coastal people through partnerships with local and national government, the private sector and civil society organizations. The *Pwani* results framework was linked to the USAID Tanzania strategic objectives on biodiversity conservation and economic growth.

Building on the Project's development hypothesis, the Pwani Project used the Nature-Wealth-Power (NWP) paradigm as part of its organizing framework. It recognized that natural resources management Projects that have integrated key concepts from within each of these domains have historically been the most successful at achieving meaningful results.

Overview of the Three Result Areas

The Pwani Project's activities were organized around three broad result areas, each of which was tied to a key system within the defined seascape. The marine system, terrestrial system and human dimensions system reinforced each other and all included elements of the nature, wealth and power paradigm. For illustrations of how the nature, wealth and power paradigm fits within the three result areas and implementation of Project activities on the mainland and Zanzibar, please see Section 2: summary of Project accomplishments.

Result Area 1. Protect Critical Coastal Forests, Wildlife and Freshwater Resources

Pwani worked to protect terrestrial resources linked to coastal and estuarine ecosystems. The geographic focus of the activities was the marine and coastal areas of the Pangani and Bagamoyo Districts, including the Saadani National Park. The main biodiversity assets within this system are coastal forests and habitat, terrestrial wildlife (i.e. elephant migration corridor) and the Wami and Ruvu River estuaries. Project actions were designed to address biodiversity threats related to land clearing for agro-industries, tourism and energy production. Key activities included zoning for small-scale mariculture development, elephant tracking to understand wildlife movements between SANAPA and the Wami-Mbiki Wildlife Management Area, Spatial Planning for the Mbegani Bay and piloting energy saving technologies.

[1] Nature, Wealth and Power: Emerging Best Practice for Revitalizing Rural Africa. USAID, CIFOR Winrock International, IRG. 35p.

Result Area 2. Protect Critical Marine Ecosystems and Endangered Species

In the marine system, the Pwani Project targeted specific problems and opportunities critical to reversing current trends of marine ecosystem misuse and over-use in the Bagamoyo-Pangani and Menai Bay Seascape. This meant protecting marine biodiversity assets such as fish stocks, coral reefs, intertidal resources and sea turtles by investing in activities related to community based management of inter-tidal resources and protection of marine turtles and dolphins. Ensuring multiple uses, community empowerment, capacity building, local ownership, use of a participatory approach and science for management were important features of these Pwani activities. Key activities implemented under the marine system included: management of intertidal resources in the Menai Bay Conservation Area, promoting sustainable dolphin tourism, protection of sea turtles and capacity building of coastal managers.

Result Area 3. Human Dimensions of the Coastal Ecosystem

Pwani concentrated on three aspects of the human dimensions of coastal ecosystems: climate change adaptation, economic growth, and HIV/AIDS mitigation and prevention activities. The goal was to create wealthier and more empowered communities. Resilient communities are created not by simply increasing people's economic health and standing, but improving as well other factors that contribute to quality of life—factors such as increasing people's resilience to the impacts of climate change stressors; and improving their access to health services that shape their overall physical wellbeing, including reducing their vulnerability to quality-of-life reducing diseases such as HIV/AIDS. It is this combination of socio-economic "wealth" factors that the Pwani Project tried to help its beneficiaries obtain. Key activities within the human dimension area included: climate change vulnerability assessments and adaptation planning, women-centered small-business development, HIV/AIDS prevention and integrated population, health and environment communications.

Implementing Partners, Key Government Collaborators and Target Beneficiaries

The Pwani Project was led by the Coastal Resources Center at the University of Rhode Island and includes several implementing partners including:

- UZIKWASA: implemented activities related to HIV/AIDS communication and prevention and gender and leadership strengthening in the Pangani District.
- Sea Sense: implemented activities to protect sea turtles in Pangani; implements endangered species awareness activities—targeting schoolchildren and fishers; develops and promotes environmental and cultural ecotourism initiatives.
- TaTEDO: promoted energy saving technologies and other activities to reduce destructive practices and pressures on forest resources.
- WIOMSA: worked with Institute for Marine Science staff to expand intertidal no-take zones and half-pearl farming in Menai Bay; worked with dolphin tourist groups in Menai Bay to make the entrepreneurs more environmentally responsible.
- CVM: implemented activities related to HIV/AIDS communication and prevention in the Bagamoyo District.
- Districts of Bagamoyo and Pangani: partnered with the Pwani team on all activities implemented in the two districts.

- Menai Bay Conservation Area/Department of Fisheries on Zanzibar: collaborated with WIOMSA on activities related to no-take zoning on Zanzibar.

Supporting partners included national government counterparts (e.g. NEMC and Department of Environment); the local scientific community (USDM, IMS, the Tanzania Fisheries Research Institute) and the private sector (tourism businesses and agro-industries). Supporting partners were drawn upon for targeted research and technical support related to Project activities and cross-sectoral themes, such as climate change and gender.

The Pwani Project's target beneficiaries were local communities in the Bagamoyo-Pangani Seascape (including Saadani National Park) and Menai Bay, Zanzibar, with the goal of increasing participation and capacity in natural resource governance, including the ability to adapt to climate change impacts. Pwani paid particular attention to HIV/AIDS vulnerable groups (including women and mobile men with money), women shellfish collectors and households adjacent to SANAPA that are dependent on fuel wood for energy needs. Pwani also worked to strengthen local governments, park units and community groups that are essential in coordinating on-the-ground activities.

Results Framework

The Pwani Project contributed to USAID Tanzania's SO 13: "biodiversity conserved in targeted landscapes through livelihood driven approaches" and it's Intermediate Result 1. "Policies and laws that integrate conservation and development applied" (Figure 2). The Project also contributed to USAID Tanzania's PEPFAR Prevention: Sub Area 8 – Sexual and Other Risk Prevention.

Project Goal: to sustain the flow of environmental goods and services; reverse the trend of environmental destruction of critical coastal habitats; and improve the wellbeing of coastal residents in the Bagamoyo- Pangani and Menai Bay Seascapes.

Goal Level Indicators

G1 Number of hectares of biological significance and/or natural resources showing improved biophysical conditions as a result of USG assistance.

G2 Number of individuals with increased economic benefits from Project interventions.

G3. Proportion of female participants in USG-assisted programs designed to increase access to productive economic resources.

Figure 2: The Pwani Project's Results Framework

IR 1. Sound natural resource management (Nature)

Indicators:

1.1a Hectares in areas of biological significance under improved management

1.1b Number of hectares under improved natural resource management as a result of USG assistance

1.2 Local policies, plans, and co-management agreements adopted to manage natural resources and endangered ecosystems

1.3 Leveraged funding for Project activities

IR 2. Strengthened resilience and assets (Wealth)

Indicators:

2.1a Number of climate vulnerability assessments conducted as a result of USG assistance

2.1b Number of institutions with improved capacity to address climate change issues as a result of USG assistance

2.1c Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance

2.2 Number of households with improved access to finance, including those receiving community credit and start up grants

2.3 Number of persons reached through community outreach that promotes HIV/AIDS prevention

2.4 Number of the targeted population reached with individual and/or small group level HIV prevention interventions

2.5 Number of fishermen reached with individual and/or small group level

IR 3. Improved governance (Power)

Indicators:

3.1 Number of local organizations strengthened to manage endangered ecosystems, and to support sustainable livelihoods and cross-cutting issues such as HIV/AIDS and gender

3.2 Number of individuals reached through community outreach and planning that promotes biodiversity conservation and improved gender equity

3.3 Number of person hours of training in natural resources management and/or biodiversity conservation supported by USG assistance (SO 13, indicator 4.8.1-29)

3.4 Number of individuals trained and/or certified in coastal governance, MPA management, HIV/AIDS action planning, and other cross-cutting issues

3.5 Number of success stories documenting key actionable findings about best practice approaches and lessons learned

2. Summary of Project Accomplishments

This section provides information about the Pwani Project's achievements on the mainland and Zanzibar. It begins with a description of the activities and achievements on the mainland and thereafter describes the main activities and achievements on Zanzibar. It should be noted that the overall effort in terms of number of activities and budget has been much larger on the mainland than on Zanzibar. A summary of the Pwani Project's PMP indicator annual indicator targets and results are found in Appendix A. A comparison of actual accomplishments with the life of Project objectives established for each activity is found in Appendix B.

Achievements in the Pangani-Bagamoyo Seascape

Figure 3 provides a schematic overview of the activities implemented on the mainland. The green boxes are activities implemented under the terrestrial activity area; blue boxes are activities implemented under the marine ecosystem result area, and the orange boxes are

activities implemented under the "human dimensions of the coastal ecosystem" result area. The arrows show how the Project activities are linked to parameters that the Project has attempted to influence. The figure also shows how the activities fit within the overlapping Nature, Wealth, and Power paradigm, illustrated as shaded colored areas in the background. The box numbers correspond to activities/achievements described below.

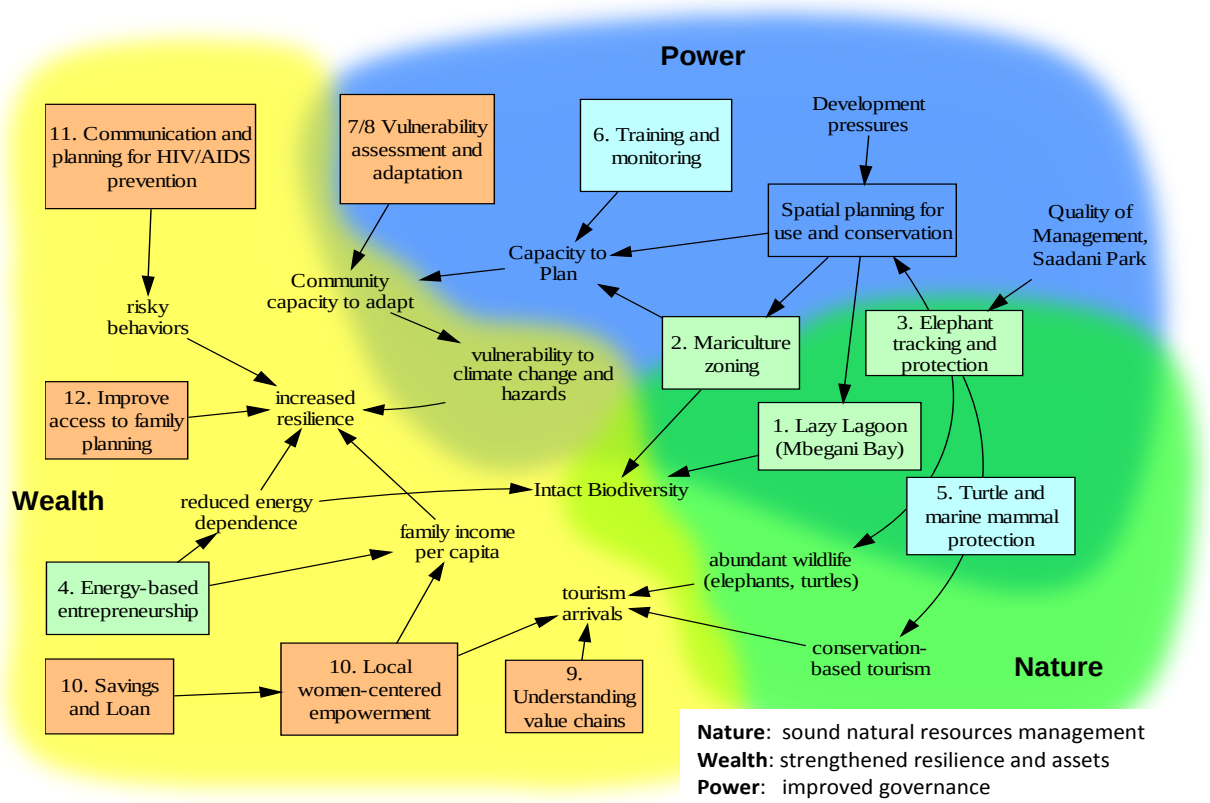


Figure 3: Mainland Project Logic

As shown in Figure 3, the Pwani implemented a range of activities in the Pangani and Bagamoyo Seascape. The activities were implemented to achieve the ultimate goal to maintain biodiversity and improve the wellbeing among those living in the area. The team implemented activities to strengthen spatial planning for use and conservation, climate change adaptation to improve resilience, coastal conservation to maintain an intact biodiversity, economic growth activities to increase family income per capita, and health interventions to reduce risky behaviors and increase resilience. The following were key achievements within each of the mainland activity areas:

1. **Development of a State of Mbegani Bay Report:** There are hotspots dotting the coastline of Bagamoyo that are of both economic and biological significance. One of these hotspots is Mbegani Bay. The Bay has a number of reefs, estuaries, seagrass beds and mangrove ecosystems that provide important habitat to marine organisms and as a

result, it is home to a highly productive fishery. The Bay also includes a lagoon that provides a buffer against ocean surf, protecting the shore and coastal settlements. The natural endowments have attracted diverse interests, which seek to take advantage of the biological and economic importance of the Bay. At one end of the spectrum are those with an interest to conserve the natural resource base and ecological amenities of the Bay so that the resources are kept in good condition and are sustainably utilized. At the other extreme are interests for turning the Bay and the surrounding area into a satellite industrial center that supports a range of economic investments, including an industrial port.

Recognizing the diversity of interests, the Pwani Project produced a State of Mbegani Bay Report. It aims to identify pertinent issues related to the Bay and its environs and seeks to inform all stakeholders on the physical, biological and socio-economic status of the Bay ecosystem. It includes set of scenarios of the future status of the bay, including "business as usual," industrial development and proactive conservation and adaptation. The report was developed in close collaboration with the Bagamoyo District, which was interested in understanding the area better. It involved a number of steps: preparing a special study of shoreline features and dynamics, which was commissioned as part of the Mlingotini village vulnerability assessment; creating various GIS maps; and preparing a comprehensive scientific report on the physical features of the bay, ecosystem characteristics, livelihoods and governance. The report was launched in November 2013.

2. **Mariculture zoning for mangrove ecosystem protection:** Mariculture in Tanzania is in an early stage, but growing. With some 50,000 hectares of salt flats, the potential for fish and prawn farming expansion is high and growth is likely to continue contributing to food security, income generation and employment in coastal communities. However, development of pond mariculture needs to be executed in a controlled and thoughtful manner. The Pwani Project addressed this need by establishing decentralized mariculture permitting procedures for small scale mariculture activities for the Bagamoyo and Pangani Districts. By establishing permitting procedures for small scale mariculture activities, the Project was able to decentralize the power of issuing permits from the central to local governments. The Project also clarified the village boundaries for mangrove areas managed through the National Mangrove Management Plans—clarifying which villages are responsible for monitoring and managing which mangrove areas. Developing the permitting procedures was a multi-stage process, involving village and district stakeholders. The process included awareness raising; assessment of environmental conditions suitable for small scale mariculture development (figure 4), development of GIS base maps; drafting permitting procedures and obtaining feedback from local stakeholders; finalizing the procedures; and submitting the document for approval by the District's Full Council. The permitting procedures were approved by the Bagamoyo and Pangani District Councils in 2013.

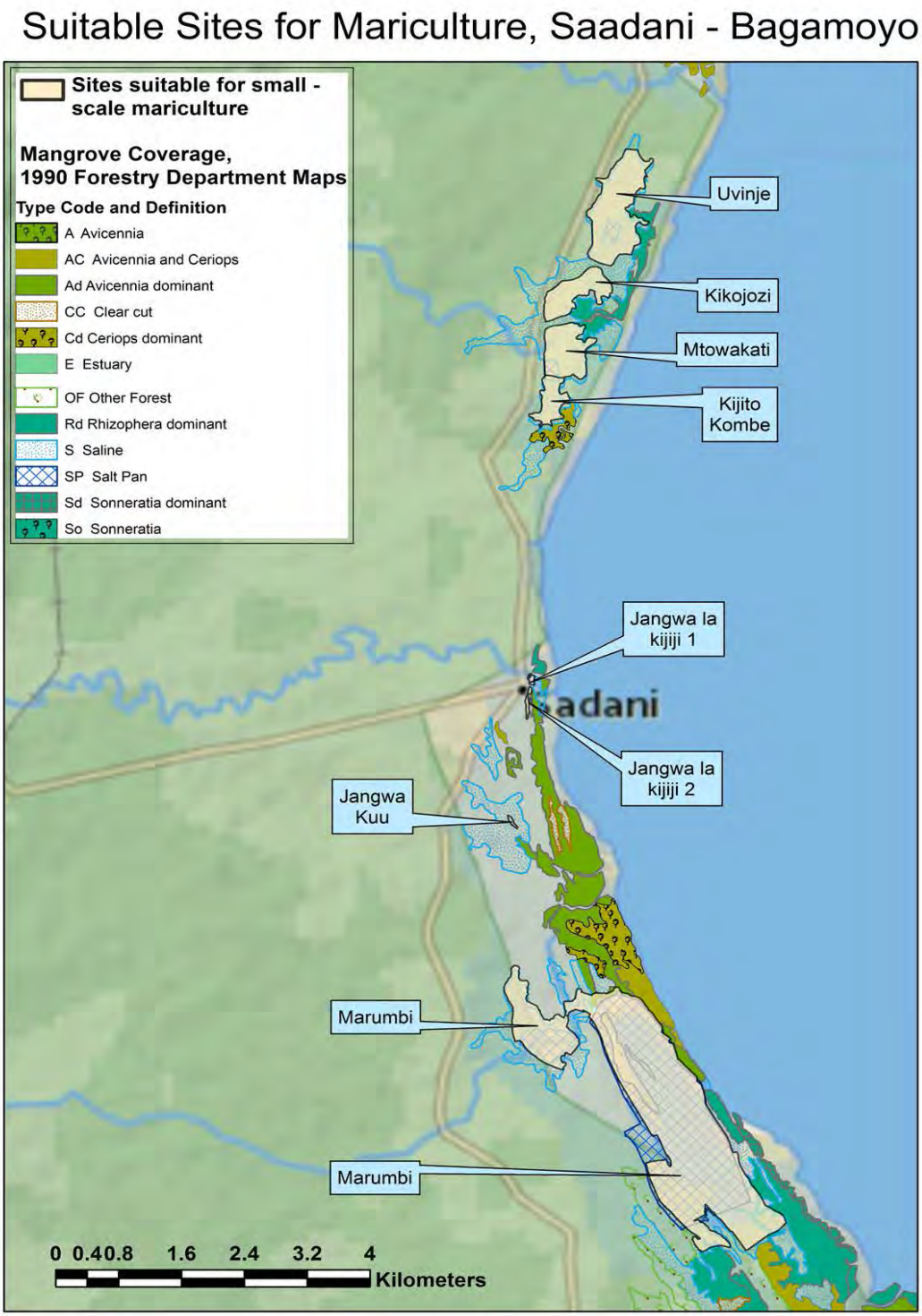


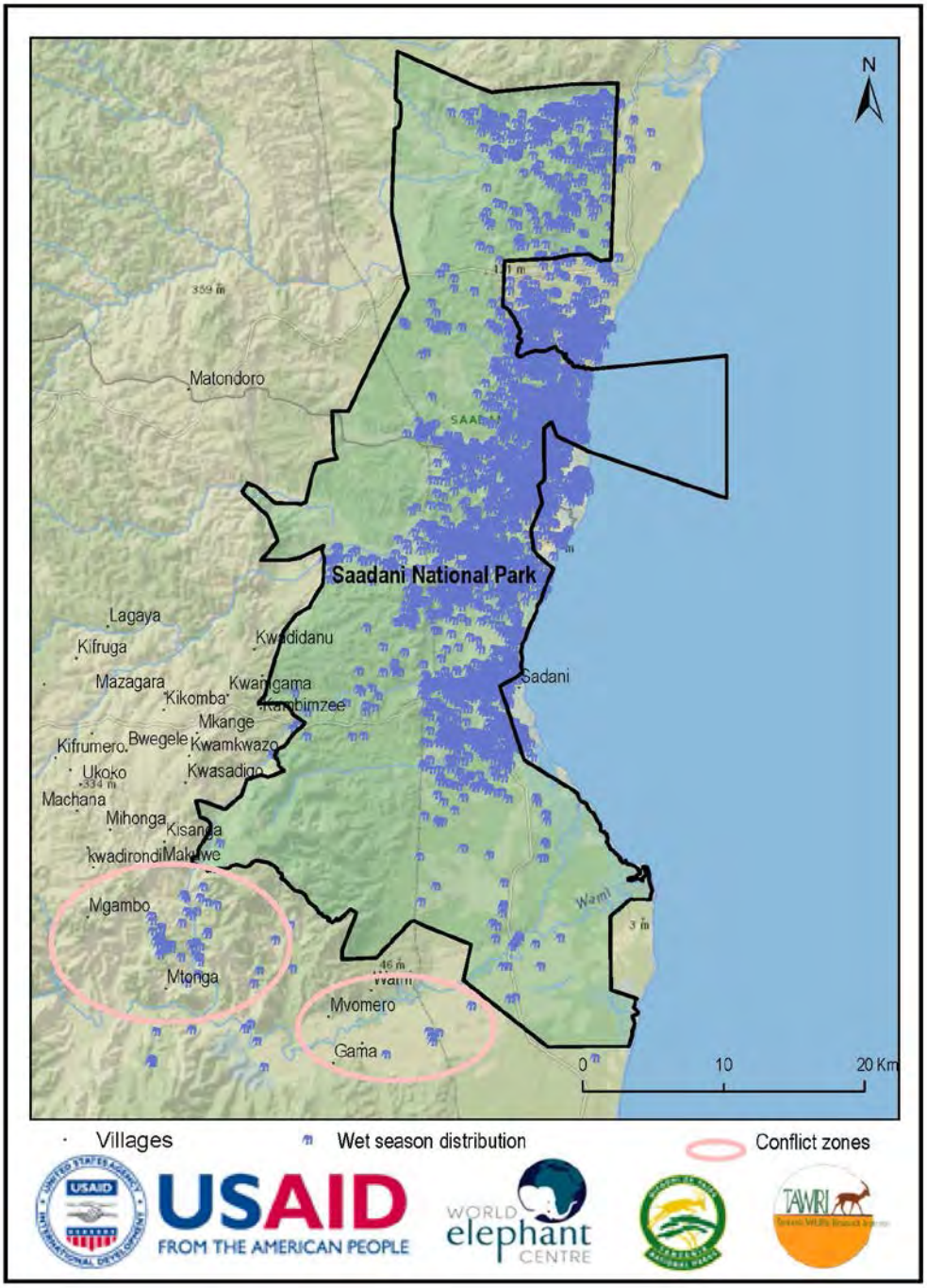
Figure 3: Example of a map produced for the Bagamoyo Mariculture Permitting Procedures.

3. **Elephant tracking:** Saadani National Park (NP), Wami-Mbiki Wildlife Management Area (WMA), and the lower Wami-Ruvu River Basin provide important habitats and ecological links for elephants and other wildlife. Yet, the juxtaposition of extensive agricultural lands, deforestation and rapidly expanding rural communities pose significant challenges for elephants moving across the region and high potential for human-elephant conflicts. To conserve and enhance areas that provide important elephant habitats and facilitate their movements, the Pwani Project in collaboration with Dr. Alfred Kikoti from the World Elephant Center, identified and mapped elephant habitats within the region. Through monitoring satellite collars deployed on 17 elephants (12 in Wami Mbiki and 5 in SANAPA) and conducting aerial surveys and ground tracking exercises, the Project prepared GIS analyses of elephant distribution and movements—identifying important habitats within the protected areas as well as unprotected lands, corridors, linkages and dispersal areas. The team also identified seasonal movements outside the protected areas, recoding human-elephant conflict areas.

   A key finding from the telemetry study was that human activities result in almost no movements of elephants between SANAPA and Wami Mbiki. The elephants stay within the protected areas during the rainy seasons, moving outside only during the dry seasons, when their home range increases extensively. However, human activities (settlements, agriculture, charcoal production, cattle grazing, etc.) have left only a handful of already compromised corridors. To address human-elephant conflicts, the Project has documented existing conflicts (e.g. 120 reported conflicts in SANAPA during the period of study), and plotting elephant's daily movement patterns has enabled protected area authorities to plan daily patrols (Figure 5). Predicting which areas are likely to be invaded by elephants and sending out animal control teams in advance helped reduce human-elephant conflicts. We worked closely with the "Saving Wami" Project, which aims to re-introduce rhinos in Pongwe Msungura (north east of Wami Mbiki) and start an elephant orphanage in the Bwata area (south west of Wami Mbiki WMA). The two activities will help boost the biodiversity of the entire wildlife management area in the long term.

4. **Reduce Deforestation through Improving Energy Technologies:** Coastal communities' dependence on biomass energy is a challenge the Pwani Project addressed through promoting more energy efficient technologies. Pwani worked with the Tanzania Traditional Energy Association (TaTEDO) to develop entrepreneurship driven solar multi-charger stations and bakeries. A total of around 90 individuals were trained to run bakeries, solar multi-charger stations, or work as technicians, installing new solar multi chargers. A 2013 survey of the entrepreneurs found that the bakery and multi-charger entrepreneurs are earning a good income from their enterprises (see section 3, which; the school is now able to provide a daily meal to all students.

Figure 4: Map showing wet season distribution of elephants in SANAPA. The two circled areas, are zones where human-elephant conflicts are common



5. **Protection of sea turtles:** Turtle populations in Tanzania have declined dramatically in recent years due to incidental capture in fishing nets, deliberate slaughter for meat, poaching of turtle eggs and habitat disturbance. To reverse this decline, the Pwani Project worked with a local NGO called Sea Sense to establish a community based sea turtle monitoring program in the Pangani district. The monitoring program covered eight

villages and supported a network of seven trained Community Conservation Officers (COs). Each CO conducted a daily patrol to collect data on sea turtle nesting activity. All nests identified were allocated an individual number and their progress was monitored throughout the incubation period. Any nest at risk from predation, poaching or tidal inundation was moved to a safer area. Nests were excavated after hatching to calculate hatching success. The COs recorded nesting data on prepared data sheets, which were submitted to Sea Sense and entered in a database. Due to the complex nature of the sea turtle lifecycle, increases in population numbers are difficult to detect without a comprehensive data set spanning a generation (30 years). To address this, Sea Sense established the basis for a long term dataset on sea turtle nesting populations in the Pangani District.

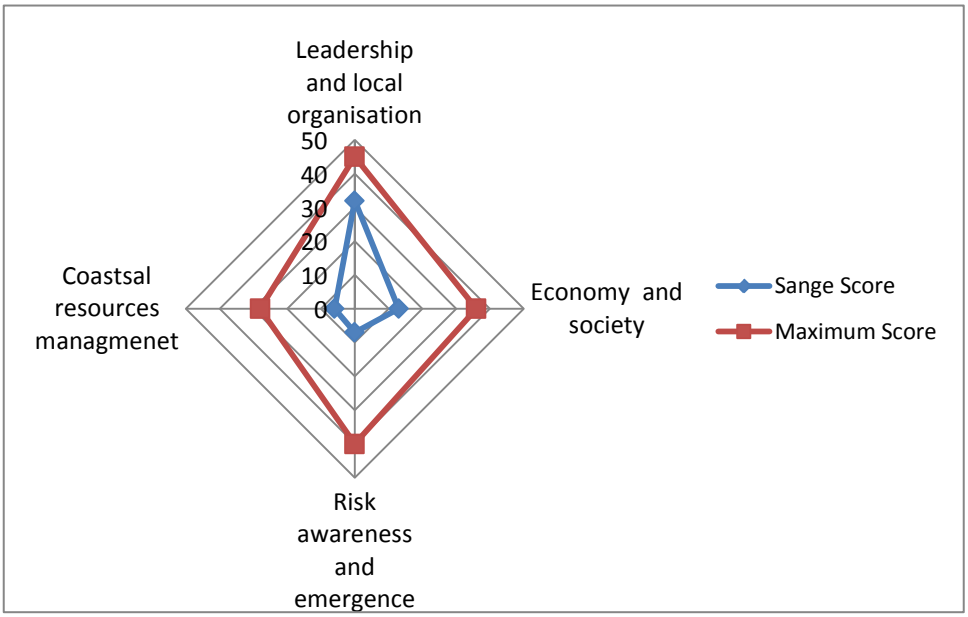
The COs also recorded strandings of endangered marine species (sea turtles, dugongs, cetaceans) during daily patrols and collected morphometric data from stranded specimens (species, sex, length and width). A description of external injuries helped ascertain the cause of death. Analysis of stranding data enabled Sea Sense to assess sources of threat to sea turtle survival and identify high risk areas for both nesting and foraging populations. Community outreach and awareness-raising activities (school programs, interactive theater, and education and awareness workshops for fishermen) had a significant impact on coastal communities. For example, as a result of bycatch awareness sessions, gill net fishers have a clearer understanding of the impacts of bycatch on sea turtles and now have the skills to be able to safely release entangled sea turtles from their nets. By providing training in turtle conservation and ecotourism, two communities are now generating revenue from sea turtle ecotourism. This has helped to dispel the belief that conservation does not create any economic benefits. By the end of the Project, successful hatching events had taken place at Kikokwe and Ushongo villages and nearby hotels and lodges were actively promoting the initiative.

6. **Training of coastal and marine management professionals:** Pwani supported capacity building through mentoring and targeted training, education, planning and outreach—using existing coastal management capacity building initiatives such as the URI Institute in Coastal Management, coastal management courses funded by Sida in Sweden, and the Western Indian Ocean Certification of Marine Protected Area Professionals (WIO-COMPAS) Program. The program supported two staff members to obtain masters degrees (one from the University of Dar es Salaam and one from the Tanzania Open University). It also supported staff, partners and MPA rangers to attend short courses and certifications related to MPA management, coastal climate change adaptation, integrated coastal management, and integrated population, health and environment for coastal climate change adaptation.

7. **Climate change adaptation at local level:** There is scientific consensus that climate changes are already occurring and will intensify in the future, resulting in significant alteration of coastal ecosystems, coastal hazards, and lifestyle changes for fishers, coastal resource users, waterfront infrastructure and coastal communities. It is the poorest who are often most dependent on natural resources for livelihood and most exposed to climate hazards and changes affecting the environment, and yet they are also the ones least equipped to deal with the consequences. The Pwani Project worked with the Bagamoyo

and Pangani Districts, through the district climate change task forces, to prepare coast-wide rapid vulnerability assessments that documented the area's state of vulnerability, pinpointed villages that are particularly vulnerable, mapped out the adaptation measures that are currently in use, and assessed the villagers understanding of climate change. They also assessed the Districts' and coastal villages' adaptive capacity in relation to four areas: coastal resource management, risk awareness/emergence response, community economy and governance/leadership (Figure 6).

Figure 5: Example summary of an adaptive capacity assessment conducted of the Sange Village



Complementing the district/coast wide assessments, the Pwani team conducted six village-level vulnerability assessments in Pangani, Bagamoyo and on Zanzibar. The first two assessments were conducted in collaboration with the Center for Energy, Environment, Science and Technology (CEEST). After learning the vulnerability assessment techniques, the Pwani staff conducted the remaining mainland assessments on their own. All vulnerability assessments are available in the Pwani Project's publications list on the CRC website. The vulnerability assessments identify exposure and sensitivity to climate change impacts and measure the adaptive capacity in the selected villages. They also include simple adaptation plans that include no-regrets adaptation measures tailored to their specific locations and contests. After being adopted by the respective villages, the Pwani Project has supported the implementation of selected pilot adaptation actions in each village. Finding that the local communities were most interested in adaptation actions that had some connection to strengthening and diversifying their current livelihoods, the mainland adaptation actions were: drought-resistant agriculture

(banana, sesame, mango, and rice cultivation) and beekeeping for mangrove conservation.[2]

8. **National level climate change adaptation planning:** The Pwani Project organized a Tanzania Coastal Climate Change National Adaptation Plan (NAP) Workshop in March 2013. The workshop convened 38 participants (of whom 42% were women) and a number of facilitators and guests of honor. In preparation for the workshop, the Pwani Team in collaboration with the Institute for Resource Assessment at the University of Dar es Salaam developed a background paper on coastal climate change adaptation in Tanzania. The team also adapted an existing training workshop curriculum and prepared a number of presentations that can be used to foster the growth of a Tanzanian community of practice in adaptation.

   The NAP workshop aimed to strengthen thinking about how to mainstream adaptation planning into strategies and plans for sectors engaged in the coast and near-shore marine ecosystems. It helped kick-start the NAP process and provided an opportunity for learning and sharing experience across sectors—useful for developing a vision for Tanzania's NAP. Participants (generally one level down from Director level) from the mainland and Zanzibar were drawn from a wide range of sectors including, fisheries, environment, energy, water, forestry, tourism, coastal and marine research among others and was well matched to the inter-sectoral design of the workshop and its intended take-away messages about the importance of inter-sectoral interaction and collaboration. This was well received by the Vice President's Office (VPO), who intends to build upon the design of the workshop and its outcomes, to contribute to a participatory NAP process for the nation. The Pwani Project also contributed to mainstream climate change adaptation into national policies and plans, including the revised Integrated Coastal Environmental Management Strategy.

9. **Preparation of value chain analyses of ecotourism and fisheries:** The Pwani Project prepared value chain assessments for ecotourism in Pangani and a fisheries value chain assessment for the Bagamoyo District. The purpose of the participatory value chain assessments was to get a clear picture of the structure and functioning of the industries. As a result of the value chain analyses, the Pwani Team developed a number of livelihoods tangible actions related to sea-turtle related tourism in Pangani. The Project also worked to build capacity for and better promote ecotourism in the Mkwaja village, Pangani. In addition, the Project worked with the newly established Collaborative Actions for Sustainable Tourism eco-tourism (COAST) Project, which is managed by the Vice President Office and funded by UNWTO and UNIDO, to support ecotourism in Bagamoyo. Through these activities the Project promoted good practices in sustainable ecotourism and helped improve the enabling conditions for future coastal tourism development.

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[2] A series of ten climate change documents are available on the CRC website: http://www.crc.uri.edu/Projects_page/conservation-of-coastal-eco-systems-in-tanzania-the-pwani-Project/?section=publications

10. **Improving access to credit through Savings and credit cooperative societies (SACCOS):** Rural coastal communities have little access to institutional credit for entrepreneurial activities. Their main sources of credit are local money lenders and traders that charge very high interest rates. Working with the district cooperative departments in Pangani, Bagamoyo and on Zanzibar, the Project established new SACCOS and helped strengthen already existing, but non-functioning, SACCOS in ten villages in Pangani and Bagamoyo and two areas on Zanzibar. The established SACCOS serve as a network of institutions that share a common conservation mission and support livelihood activities that are tied to good natural resource use practices. Enterprises run by SACCOS members include seaweed farming, beekeeping, baking and household food service using fuel efficient stoves, best agriculture practices and climate change small doable adaptations, including banana and sesame production. Each SACCOS was trained in business development skills, entrepreneurship, SACCOS' management and natural resources management. Once operational, they received between two and three million Tanzania Shillings in seed funding. Through the members' loans and repayments, the seed funds have multiplied and the more mature SACCOS all have over ten million Tanzania Shillings in capital. The most active SACCOS had a total capital of over 23 million Tanzania Shillings by December 2013. The Pwani Project also helped register the SACCOS and helped two of the more mature organizations develop strategic plans. The Project also developed a financial literacy training manual that can be used when establishing new SACCOS.

    A survey conducted in 2013 found that the SACCOS provided beneficiaries with what was often their first experience with a non-predatory lending source and their first opportunity to effectively manage their income and spending. Many borrowed from the SACCOS to further support their enterprises: 68.2 percent took out at least one loan after joining SACCOS, and two thirds of the loans were used for business development or improvement. In addition, participants demonstrated responsible financial management behaviors: 84.3 percent of members who took out loans did not report missing any payments.

    Starting in 2010, the Pwani Project began working with Village Multisectoral AIDS committees to promote and support SACCOS memberships for HIV/AIDS vulnerable groups. The Project focused on orphans, widows, and people living with HIV/AIDS. By the end of 2013, the Project had assisted over 100 vulnerable individuals, who were credited 100,000 Tanzania shillings (~65 USD) in their savings account—enabling them to take loans from the SACCOS. The vulnerable individuals also received trainings in entrepreneurship and business management.

11. **HIV/AIDS prevention and mitigation activities for quality behavior change among fishing communities:** In Pangani, the Pwani Project worked with a local partner called UZIKWASA to prevent HIV/AIDS and to promote behavior change among fishing communities. This was done through condom social marketing, interactive theater, community radio and distributing other behavior change communication (BCC) materials. These included posters, calendars, comic books and leaflets. The behavior change campaign tackled real-life issues/scenarios that contribute to the spread of HIV. Themes included HIV/AIDS risk-taking, leaders' abuse of power, gender rights

violations and parental roles. The target audiences were mobile fishermen, local leaders, including village government leaders, and families. Problem behaviors addressed included unsafe sex, early forced marriage, teacher/pupil sexual relationships, gender-based violence and lack of respect for the opposite gender, beginning in childhood. The first communications campaign was called Banja Basi. An exact English translation is difficult, but an approximate meaning is "spit it out"—i.e., "do not be silent about problems around you." The second campaign, which began in 2012, emphasized action and was referred to as "Banja basi…Halafu?" It translates roughly to "Speak out, then what next?" and urged individuals to first speak out and then take action. The campaign promoted responsibility among individual communities and leaders—asking the question "what is my role and responsibilities in this problem" rather than blaming the government and village leaders only.

The Pwani Project also implemented a program to strengthen Village Multisectoral AIDS Committees (VMACs) through HIV/AIDS action planning, implementation, and monitoring. The approach was highly participatory, involving village meetings and more informal methods, including Theater for Development (TFD) as one of the participatory planning tools. Through theater, it was possible to engage a broad spectrum of villagers—including young and old, and men and women—to discuss issues that can be difficult to address in formal meetings. These included early sex initiation, low condom use, superstitious beliefs, sexual abuse and violence, and poor leadership. The action plans outlined steps to confront the root causes of the spread of HIV. They also included sections that address how to help vulnerable groups, such as orphans, widows, People Living with AIDS (PLWA), the elderly and those physically challenged/disabled.

A key observation during the first two years of implementation was that the village performance level in the implementation of HIV/AIDS plans was directly correlated with the level of commitment among the respective village leadership. (poor performance—poor village leadership and vice versa). Furthermore, UZIKWASA's monitoring data suggested that women lacked access to leadership positions in the Pangani District. Several factors impeded women's access to leadership positions: lack of confidence, lack of funding to run for office and a heavy domestic work load.

Development in general, and particularly the struggle against poverty, HIV/AIDS and gender inequality requires committed leaders. Realizing the need to promote effective and committed leadership, UZIKWASA began incorporating leadership and gender related challenges into the village planning process. Activities included reflective leadership trainings (funded by other donors) and leadership coaching. These activities were re-enforced through interactive radio programs to provide women with a voice and promote a continuous community dialogue. The end goal was to build a culture of responsible leadership and a culture of responsibility taking for all.

In 2011, the Pwani Project expanded its work to promote HIV/AIDS prevention through training and behavior change communication to the Bagamoyo District. Initial activities included focus group meetings and trainings with fishermen and women involved in the fishing industry. The Project also established condom social marketing outlets and trained PHE adult peer educators in the Saadani and Mkange villages. The peer educators, who were involved in SACCOs, fuel efficient technologies, and other Pwani activities,

delivered messages on biodiversity conservation, reproductive health/family planning, HIV/AIDS, energy saving technologies and the value of microcredit to their fellow villagers. The team also worked to strengthen vulnerable groups, including female bartenders and other women's and children's rights (WCR) groups. A total of ten WCR groups were established in Bagamoyo's coastal villages. Each group has its own plan of action, holding regular meetings, and four groups have started developing bylaws to protect the rights of women/girls and children. The effort aimed to protect girls from rape, school dropout, physical violence and early pregnancy. The Project trained bar workers in peer education, sexually transmitted infections, HIV/AIDS, women's rights, rules and regulation in work places for girls working as bar/guest house tenders. There was no association in the Bagamoyo District promoting bar/guest house tenders' rights and trade unions do not have any representation in the District. Therefore, the training workshop helped the participants form an association. The PHE and HIV/AIDS prevention activities in Bagamoyo were implemented in collaboration with the international nongovernmental organization (NGO) Community Volunteers for the World/AIDS Partnership for Africa (CVM/APA).

12. **Integrating population, health and environment:** The Pwani Project partnered with another URI led Project called the "Building Actors and Leaders for Advancing Community Excellence in Development" (BALANCED) Project. BALANCED began in November 2008 and ended its field activities in Tanzania in April, 2013. In collaboration with BALANCED, the Project worked to increase access to family planning commodities in villages surrounding the Saadani National Park, by expanding the distribution of FP information and products at the grassroots level. Through a system of fifty community-based distributors (CBDs) and over 180 adult and 30 youth peer educators who are cross-trained in population, health and environment (PHE) linkages RH/FP and pro-environment behaviors—the BALANCED Project has increased awareness of and expanded access to family planning information and services in the area. The Pwani Project worked with BALANCED to expand the number of trained peer educators to the Bagamoyo District.

PHE peer educators

Main Achievements on Zanzibar

Figure 7 provides a schematic overview of the activities implemented on Zanzibar. On Zanzibar, the Project only implemented activities related to the marine resources (blue boxes) and "human dimensions of the coastal ecosystem" (orange boxes) result areas. As in Figure 1, the arrows show how the Project activities are linked to parameters that the Project has attempted to influence. The figure also shows how the activities fit within the overlapping Nature, Wealth, and Power paradigm, illustrated as shaded colored areas in the background. The box numbers correspond to activities/achievements described below.

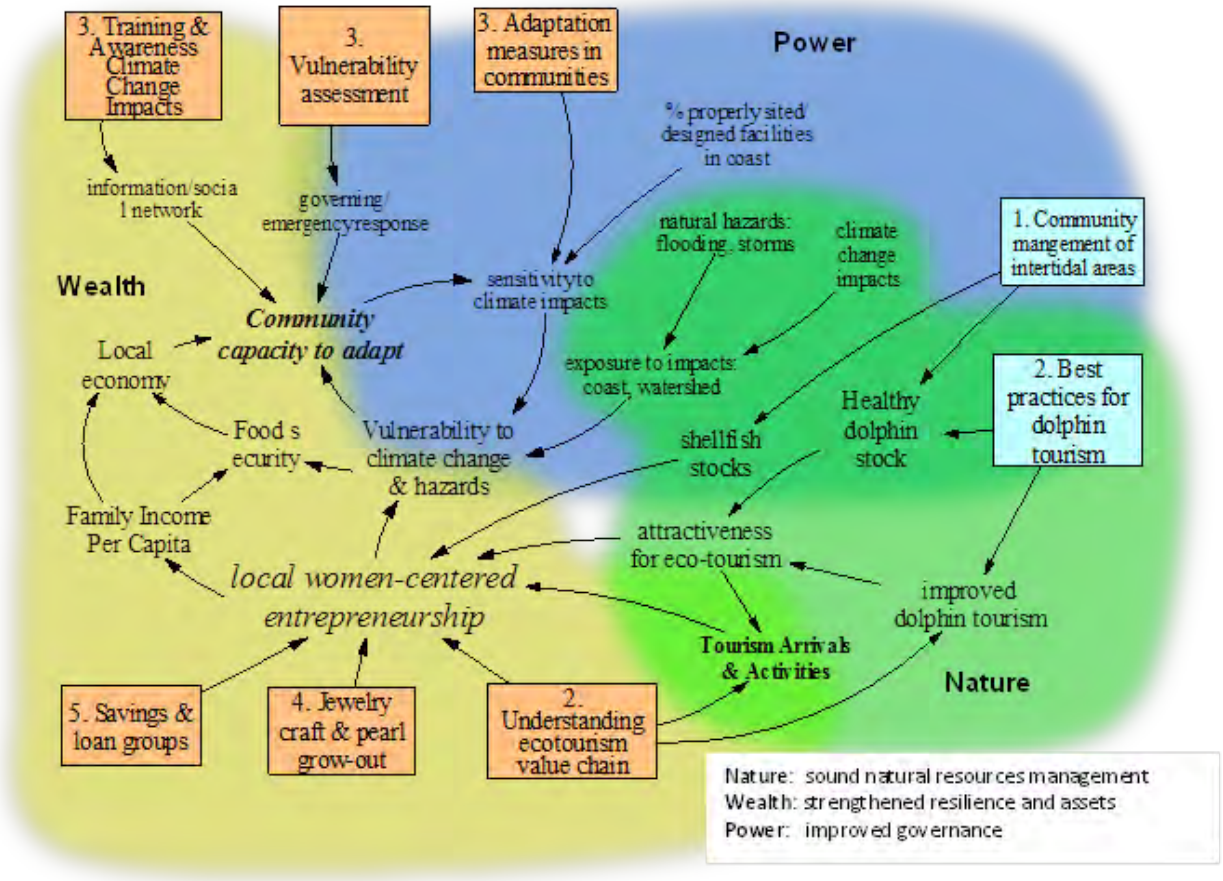

Figure 6: Zanzibar Project Logic

On Zanzibar, the Pwani Team collaborated with the Western Indian Ocean Marine Sciences Organization (WIOMSA) and individuals from the University of Dar es Salaam's Institute for Marine Science to implement a package of activities related to improving the management of the Menai Bay Conservation Area, improving the communities' capacity to adapt to climate change, and promoting women's entrepreneurship. The key activities and achievements were:

1. **Maintain and expand no-take zones for intertidal areas on Zanzibar:** At the outset of the Pwani Project, there were four community based intertidal "no-take zones"—areas where no extractive activities are allowed—on the Fumba Peninsula. These no-take zones

are co-managed by the communities through an approved management plan and village bylaws. The no-take zones were all situated within the Menai Bay Conservation Area (MBCA) and their main objective was to protect bivalves and other intertidal resources. A secondary goal was to empower women, who are the main harvesters of marine resources in intertidal areas. The Pwani Project helped improve the existing no-take zones by revisiting and revising their associated bylaws.

The Project also helped establish two new no-take zones in the villages of Unguja Ukuu and Kikungwi. The new no-take zones were selected from six potential sites surveyed as part of a baseline conducted in September 2012. The new no-take areas were selected because they contained a much higher number of cockles per square meter than the other four sites. Bylaws for the two new no-take zones have been drafted and agreed upon by the local villagers. The bylaws have been submitted to the district and are awaiting a formal approval by the lawyer and endorsement by the District Commissioner.

Table 1: Characteristics of new no-take zones

No-take zone	Area (m2)	Approx. Area (hectares)	Perimeter (m)
Kikungwi	13,589	1	468
Unguja Ukuu	18,063	2	550

No-take zoning fit well with the MBCA framework, which allows for community-based management within the conservation area. To guide implementation, the villages have in hand management plans for the no-take zones to ensure that the resources of Menai Bay are managed sustainably. The plans delineate tasks and responsibilities of the key stakeholders in the villages, allowing for variations in approach by the unique groups to help them build on their successes.

The final monitoring of the no take zones in Bweleo, Fumba, Kikungwi, and Unguja Ukuu took place in October 2013. Analyzing the monitoring data showed that the three "old" no-take zones continue to stabilize (Fumba) and improve (Bweleo) biophysical conditions (i.e. increase in abundance and size of bivalves) inside and outside the reserves. For the new areas, the no-take zone in Unguja Ukuu showed positive results whereas the Kikungwi no-take zone did not. It is likely that the topography of the no-take area in Kikungwi creates fluctuations in the cockle abundance—and hence the reduced abundance is likely not the result of poaching in the no-take area. The total intertidal area that is positively impacted by the new no-take zone in Unguja Ukuu is 394 hectares. A total of 1,334 hectares are maintained under improved biophysical condition as a result of the three old no-take zones at the tip of the Fumba Peninsula.

2. **Improving the sustainability of Dolphin tourism in Menai Bay:** Dolphin safaris are popular among tourists visiting Menai Bay, and it is the main source of income for

residents of the Kizimkazi village. However, it is difficult for the villagers to break into the dolphin tourism market, which is dominated by Stone Town entrepreneurs, partially because the local boat operators are poorly organized. The unregulated dolphin tourism industry is also causing stress on the dolphin populations, because it allows a large numbers of tourist boats to invade the dolphins' space every morning. A related issue is that dolphins are still being caught by local fishermen using gillnets.

Pwani started addressing this issue by conducting a profile of the dolphin tourism on Zanzibar. Based on the recommendations from this assessment, the Project began working with a local dolphin tourism association called KIDOTOA. The Project trained dolphin tour boat operators, developed an accreditation plan and new rules/best practices for dolphin tourism. The team also worked with KIDOTOA to establish new markets and improve the pricing for dolphin tour activities. In collaboration with the Fisheries department, the Menai Bay Conservation Authority, and KIDOTOA, the Project conducted a workshop to discuss the use of "pingers" in fishing nets. Pingers are net alarms that give out a continuous low decibel beep that can be heard from up to 300 meters away. The beeps alert marine mammals, such as dolphins and porpoises, and have been proven to significantly reduce bycatch.

3. **Climate change adaptation:** The Pwani Project conducted vulnerability assessments for the villages of Paje and Jambiani. The assessments identify exposure and sensitivity to climate change impacts, and adaptive capacity in the selected villages. They also include simple adaptation plans that include no-regrets adaptation measures tailored to their specific locations and contests. The identified adaptation actions focused on controlling beach erosion. Led by the village climate change committee and collaborating with local hotels, the team planted so called ipomea grass on stretches of the Paje and Jambiani villages' beachfronts. This work was closed out with a one-day local stakeholders meeting that included government institutions, village heads, and climate change committee members. During the meeting, the team discussed how to continue collaborating to controlling beach erosion after the Project ends.

4. **Scale up of half pearl farming and shell craft jewelry making on Zanzibar:** The women of Fumba Peninsula, Zanzibar, have always depended on oysters and other bivalves for food and protein. For ages, women have gleaned them from the shallow waters around the Menai Bay Conservation Area. However, over time the bivalves have become overharvested and the women had to go out to deeper and deeper water to harvest. The Pwani Project worked on two fronts to address this issue. First, the Project supported the establishment and management of existing no-take zones (see point one above). Second, the Project trained local women and men in half pearl farming and shell craft jewelry making. Over 200 individuals, of which approximately 90% were women, were trained in half pearl farming and shell craft jewelry-making by the Pwani Project and its predecessor, the Sustainable Coastal Communities and Ecosystems Project. Of those trained, 37 are active shell craft and half pearl farming entrepreneurs whose businesses are likely to be sustained and grow. Others have used their business management training to start other forms of small businesses with the use of loans from SACCOS. A smaller subset of about 10 women has become para-extension officers, providing training and technical assistance to aspiring entrepreneurs in other coastal

communities on Zanzibar and on the mainland. Through donations, the Project has built a resource center on the Fumba Peninsula that is now the base for the shell craft

entrepreneurs.

The Fumba Resource Center

Research on the impact of combining entrepreneurship and conservation revealed that individuals involved in half pearl farming and shell craft jewelry-making have been sufficiently motivated by the successful sales of the product to assume stewardship of the inter-tidal resources. Women engaged in shell craft jewelry-making tripled their earnings to on average US$60 per month. During peak sales events they can make 70 dollars in one day. Two particularly successful women, Bi Rahma (shell jewelry-maker) and Bi Safia (jewelry-maker and half-pearl farmer) are now earning hundreds of dollars every month. The money the women earn goes straight to household needs, such as paying for food, electrical bills and school fees. Some of the women who have been able to save larger amounts from big sales and events have bought land and started building houses.

5. **Improving access to credit through Savings and credit cooperative societies (SACCOS):** Two SACCOS have been established on Zanzibar—one for the Kizingo shell craft jewelry group and one for the entrepreneurs on the Fumba Peninsula, which includes the Nyamanzi, Bweleo, and Fumba villages.

Cross-cutting achievements related to communications

In year two, Pwani initiated a Project-wide communications program to ensure that results, impacts, success stories and challenges reach the intended audiences. A secondary goal was to encourage a better flow of information between Project partners to improve organizational efficiency, cohesion and image. A third goal was to make sure that all Project publications, presentations, etc., comply with the USAID marking and branding procedures. The key audiences for the communication messages were local communities on the mainland and Zanzibar.

Using online communications platforms was cost effective and often free of charge—and enabled the Project to reach a large number of individuals in a short time frame. The Project established Swahili and English language blogs (http://tcmppwani.blogspot.com/). The blog allowed Pwani to publish audio, visual, pictures, text and illustrations. The blog attracted more than 7,000 all-time viewers and some mainstream media houses used the blog as a source of information. The Project also used Inter Press Services (IPS) site to publish its stories free of charge. Examples of articles published by IPS are:

http://www.ipsinternational.org/africa/sw/nota.asp?idnews=4256

http://www.ipsinternational.org/africa/sw/nota.asp?idnews=4204

http://www.ipsinternational.org/africa/sw/nota.asp?idnews=4146

http://www.ipsinternational.org/africa/sw/nota.asp?idnews=4142

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http://www.ipsinternational.org/africa/sw/nota.asp?idnews=3900

The communications officer supported the preparation of information, education and communications materials, including T-shirts, banners, brochures and bags. Together with the UZIKWASA team, the Project established a radio talk show discussing environmental issues. The show was aired twice per week by the Pangani FM. More than 5,500 airtime minutes were dedicated to discussing coastal environmental issues through the show.

Over the life of Project, the Pwani was featured in 171 media items. More than 50 newspaper articles were published in the English and Swahili press as a result of journalist field visits organized to increase Project visibility.

Supporting national and regional level coastal management policy and planning

Through its Senior Policy Advisor, Mr. Jeremiah Daffa, the Pwani Project was involved in a number of national and regional level policy and planning initiatives:

- Supported the fisheries division by being a member in the core team for two national fisheries policy implementation meetings. The meetings aimed to design strategies for using an ecosystem approach to fisheries management and ensuring effective management of tuna resources in the territorial waters and in the Exclusive Economic Zone. The designed strategies, plans and actions have been forwarded to the responsible Minister for consideration and adoption.
- Participated in the Vice President's Office team during the annual Parliament sessions in Dodoma in July. The Pwani Senior Policy Advisor, assisted in reporting and discussing policy and budgetary issues related to coastal and marine areas.
- Participated in the core team responsible for finalizing a draft regional protocol on Integrated Coastal Zone Management (ICZM) for the Eastern African Region, including the island states of the Western Indian Ocean Region. This protocol intends to replicate the USAID supported integrated coastal management efforts in Tanzania in the wider Western Indian Ocean region.
- Supported the National Environment Management Council (NEMC) by participating and providing data and maps to the process of mapping the Marine Environment Sensitive Areas of Tanzania (ESA process).
- The Pwani Senior Policy Advisor is a member of the USAID Strategic Objective Team (SOT) and has been invited to attend the SOT Oversight Committee meetings.
- Attended the Nairobi Convention's Conference of Parties (CoP) as part of the Tanzania delegation. The meeting was held in Maputo in December 2012. During this meeting, Tanzania was elected to be the Chair of the Convention, which means the nation will host the next meeting. There are three elected vice chairs: South Africa (Resource Mobilization), Mozambique (Cooperation) and Seychelles (Coordination). Kenya is the Rapporteur. To prepare for the next meeting, a Tanzanian secretariat has to be formed and the Pwani Project's Senior Policy Advisor is likely is part of the meeting's secretariat.

3. Measuring the impact of livelihoods and SACCOS activities

A Project's ultimate successes and gains are typically measured in tangible ways: Number of people affected, activities generated, money spent and return on investment. These are important factors when evaluating a Project, but they should not be the only measuring sticks. Non-tangibles, such as changes in attitudes and behavior, influences on future activities and actors and interpersonal and organizational growth are harder to quantify but often just as valuable. Such is true of the Pwani Project's livelihoods and SACCOS components. This section provides general highlights from an impact survey conducted in 2013.

Introduction

In 2007, the predecessor to the Pwani Project conducted a survey to assess the economic and non-economic impacts of its livelihood activities and ascertain what factors may contribute to livelihood success. The main findings of the survey, which are discussed in much greater length in Torell et al., 2010, include the following:

- Enterprise type (i.e., existing vs. new and individual/family vs. group), enterprise ownership (i.e., willingness to invest their own funds), and the kind of extension support provided (i.e., entrepreneurship and marketing training vs. production support) are all key factors influencing livelihood revenue generation.
- Very few Project beneficiaries left fishing as an occupation or reduced their fishing pressure.
- The majority of the Project beneficiaries perceived community empowerment benefits (i.e., stronger social ties, improved coordination with local government, and better business skills) from their involvement in the livelihood activities.

In July 2013, the Pwani Project undertook a follow up survey to further understand the impacts of its livelihoods activities. We were interested in examining the following questions:

- Are there statistically significant differences in the number of livelihood activities, overall standard of living, and total income generation between the Project beneficiaries and non-beneficiaries?
- How much revenue is generated, on average, by the various Pwani livelihood activities, what percentage of the beneficiaries overall income is derived from those activities, and how is the additional revenue used?
- Were the main findings of the 2007 study, as presented above, reaffirmed?
- Has the adoption of the new Pwani livelihoods, a longer tenure in the SUCCESS livelihoods, and/or SACCOS supported livelihoods reduced pressure on extractive livelihoods?
- What percentage of SACCOS members are taking out loans, for how much, and are the loans being used for their intended purposes?

Face-to-face surveys were conducted with Pwani Project beneficiaries and non-beneficiaries to gather qualitative and quantitative data on variables such as the total number of livelihood activities, total annual household income, annual enterprise revenue, enterprise characteristics,

extension support, community empowerment measures, engagement in extractive activities, and survey respondent demographics. In total, the team interviewed 178 Project beneficiaries (66% women, 34% men) and 117 non-beneficiaries (60% women, 40% men).

Survey findings related to Project impact

The survey analysis found that the Pwani Project contributed to significantly increasing the incomes among livelihood and SACCOS beneficiaries. There is also evidence that the Project's livelihood and communications activities influenced a modest reduction in biodiversity threats (i.e. charcoal making and fisheries). However, there are still some unresolved issues. One issue is identifying livelihoods that have the potential to generate significant incomes for many individuals. Another issue is reaching the poorest of the poor. The Pwani Project made some progress towards the latter issue by working with SACCOS to include vulnerable groups (e.g. people living with AIDS, orphans, and widows).

The livelihoods research found that the Project's livelihoods and SACCOS support contributed to the following outcomes and impacts:

- The beneficiary households had on average 2.15 livelihoods—significantly higher than the non-beneficiary households, which had on average 1.44 livelihoods. The greater diversity of livelihoods makes beneficiaries more resilient in times of stress and shocks.
- The beneficiary households had significantly higher mean levels of total income. On average, they reported earning more than three times the annual income reported by non-beneficiary households. The beneficiary households also had significantly higher proportions of certain household goods such as display cabinets and motor bikes. Combined, the direct and indirect measures of household wealth suggest that on average the beneficiary households have a higher standard of living than the non-beneficiary households.
- Assessing the possibility that Project support was captured by individuals who were better off from the outset, showed that elite capture of benefits may have contributed to the fact that beneficiaries had a higher income than non-beneficiaries.
- The annual mean and median incomes from all Project-supported livelihoods were US $631 and US $111, respectively. However, there is a large variation in incomes between the various livelihoods, with some livelihoods (e.g. baking and solar multi-chargers) generating much higher average incomes and others (e.g. beekeeping, energy-efficient stoves and pearl farming) generating significantly less.
- On average, 42.9% of the beneficiaries' overall income was derived from Pwani and SUCCESS enterprises suggesting that these livelihoods are not complete alternatives, but rather a way to increase livelihood diversity and supplement income. That being said, 22% of the beneficiaries reported earning 100% of their total income from the Project-supported livelihood activities.
- The Project supported livelihoods can be divided into three categories 1) those that provide a small but steady income for many entrepreneurs (e.g. seaweed farming and beekeeping); 2) those that provide a relatively high and steady income, but where the high income is dependent on having a limited number of entrepreneurs per village (e.g. bread baking and

solar multi chargers) and 3) livelihoods where the revenue vary significantly between entrepreneurs (e.g. jewelry and soap making.

- The revenue generated from the Pwani livelihoods and SACCOS-supported businesses is being used for survival and emergencies, life cycle needs (e.g., education) and opportunities (e.g., investing in a new business, purchasing land). Approximately 3.6% of the Pwani enterprise respondents reported using some of the generated revenue to invest in fishing.
- Individual- or family-owned enterprises as well as those run by individuals willing to invest some of their own funds were positively correlated with enterprise income while seasonal and group enterprises were negatively correlated.
- Involvement in the livelihood activities contributed to non-economic benefits such as stronger social ties and improved coordination with local government.
- The Pwani Project has contributed to a modest reduction of biodiversity threats. A total of 7.3% of the respondents had stopped or reduced their fishing activities whereas 11.2% had reduced or stopped burning charcoal and selling firewood. Among the respondents reporting a change in their fishing behavior in 2013, 62% stated that it was due to engaging in the Pwani enterprises. Similarly, 80% of the beneficiaries reporting a change in firewood and charcoal activities ascribed it to engaging in the Pwani enterprises or the environmental education provided by the SACCOS. These findings may be related to a small but important shift from natural resource based livelihoods to other income sources.
- Overall, 68.2% of the surveyed SACCOS members took out at least one loan since joining the SACCOS for an average amount of US $199.30.
- Two-thirds of all loans were taken out for business development and/or enhancement while the remainder was used for things such as school fees, farming, house construction/remodeling, the purchase of household items, and emergencies. A total of 67% of the loans were put into businesses and 42% of the income generated from Project supported SACCOS and livelihoods were reinvested.

The data analysis shows that SACCOS members and individuals involved in more than one intervention have a higher income than those involved in only one enterprise, and that SACCOS members make approximately the same as those involved in two or more interventions. This suggests that from an investment perspective, future Projects would benefit by supporting SACCOS. However, investing in SACCOS, one has to accept that some beneficiaries will be better off than others. Within any given SACCOS, some members will take risks and invest in more complicated and higher revenue-earning enterprises, such as bakeries or solar multi-chargers, and others will invest in lower risk and lower-income enterprises, such as beekeeping. Hence, if the purpose is to increase resilience by diversifying the current livelihoods and provide a small and steady income for many persons, then it might be better to invest directly in a livelihood such as beekeeping, jewelry making or seaweed farming.

Energy-saving stoves proved to be unsuccessful as conservation enterprises. However, the energy-saving stoves reduce pressure on forest resources, and future Projects might consider investing in them, because of their community and biodiversity benefits.

4. Challenges

This section describes the main challenges faced by the Pwani Project as well as adaptive measures taken to address these challenges.

Spatial Planning: Move from the Wami River Estuary to the State of Mbegani Bay

From the outset, the Pwani Project planned to assist the District of Bagamoyo in taking an integrated approach to addressing the biodiversity conservation and development concerns of the Wami estuary using the principles and approach of Special Area Management as provided for in the National Integrated Coastal Environment Management Strategy. The plan was to build a mechanism for local and district stakeholders to work together, using available information as well as the results of estuary-related studies, to clearly define the interrelated issues for the system; identify, select and adopt short and mid-term actions which the villages, wards, district, the Basin Office and National agencies can carry out.

However, upon consultation with Bagamoyo District executive leadership during the initial month of Project, a decision was made to change the focus of this activity. District leaders were more concerned about the shoreline development issues they faced in the immediate waterfront urban area and the more rapidly developing settlements of Dunda, Kaole, Mbegani, Mlingotini and Kondo and the Changwahela area with its extensive salt works and mangroves. Another concern was that much of the lower Wami area with development potential is either directly within the Saadani National Park or in its buffer zone. Officials were less optimistic that rapid progress could be made in planning for these areas within the time frame of Pwani.

Mbegani Bay became the logical focus because the District was interested in climate change adaptation work, centered on Mlingotini, and in the small scale mariculture zoning effort, which addressed a number of candidate sites in the salt flat areas and active salt works surrounding the eastern edge of the embayment. Prior work through the Sustainable Coastal Communities and Ecosystems Project had led to zoning of Mbegani bay for seaweed farming in order to reduce local conflicts with fishers, as well as the establishment of beach management units and collaborative fisheries management zones just outside the bay incorporating nearshore coral reefs. Finally, proposals were emerging for the idea of creating a cargo port at Mbegani, with the potential to threaten both the bay ecosystem and livelihoods activities. The integrated approach for addressing biodiversity conservation issues of concern was maintained but the location shifted as a result of these considerations and the preferences of the District.

Collaboration with the US Department of Interior

As outlined in the program statement, the Pwani team expected to work with the US Department of Interior (DOI) on training as well as ecological and economic assessments. Discussions were held with DOI staff and the team submitted a proposal that included activities related to strengthening the capacity to monitor the Saadani National Park (SANAPA), developing an interpretive visitor's center for SANAPA focusing on the coastal and marine portions of the park, and providing technical assistance to improve dolphin tourism in the Menai Bay Conservation Area (MBCA). However, USAID Tanzania directed the DOI-ITAP program to focus in the Wildlife Management Areas.

Establishment of Wildlife Corridors

The Project has not been able to work with local communities and wildlife managers to identify and establish conservation corridors between SANPA and Wami Mbiki. This objective was not met, because we are still in the data analysis and write-up stage of the elephant collaring study. Once this stage is completed, we will share the results with wildlife/resource managers, respective district councils, local communities and the private sectors. At that stage, the information can be used for land use planning, including the establishment of new wildlife management areas, community forests or watershed areas. However, it should be noted that current elephant migratory routes between SANAPA and Wami Mbiki are few and most of them area already compromised.

Promoting energy efficient technologies and a carbon neutral Project

The Pwani Project dropped all of the activities related to climate change mitigation: establishment of woodlots, carbon sequestration, and mechanisms to offset the Project's carbon footprint and collecting voluntary carbon offset payments for tourists. The reason was that the Project's funding came from the USAID biodiversity earmark and climate change adaptation funds. Neither of these funding sources support climate change mitigation activities.

Supporting the implementation of the SANAPA marine zone

The Pwani Project planned to support and strengthen management of the marine and coastal area of SANAPA by addressing knowledge and data gaps, building capacity among key stakeholders, strengthening and promoting participatory approaches to management and supporting management decisions. These activities were planned to start in year two of the Project. However, this activity area was dropped during the year two work planning. The Pwani Project was originally planned to receive US $750,000 annually in biodiversity funding and US $200,000 in HIV/AIDS prevention funds. But at the end of year one, we found out that the funding earmarks had shifted to be US $550,000 for biodiversity, $200,000 for climate change adaptation and $200,000 for HIV/AIDS prevention. This meant that the Project had to increase its focus on climate change and somewhat decrease its biodiversity focus. Since the SANAPA strengthening activity had not yet begun, we decided to cut this activity out completely, rather than making smaller cuts across all activity areas.

Conservation of endangered marine species

The Pwani Project has succeeded in establishing an efficient and accurate monitoring and reporting system for endangered marine species. But the Project did not have a mandate to work directly with illegal fisheries issues. Dynamite fishing continues unabated along much of the Tanzanian coast and is commonplace in Maziwe Island Marine Reserve in Pangani District. Dynamite fishing is having a devastating impact on ecosystem health and threatens the long term sustainability of sea turtle ecotourism initiatives supported by PWANI. Dynamite fishing is indiscriminate, and it is likely that many of the sea turtle mortalities around Ushongo were a result of dynamite fishing. In addition, breeding and foraging habitats are being destroyed at an unprecedented rate. These same habitats are enjoyed by tourists who come to Tanzania to scuba dive and snorkel. Without an urgent strategy to address dynamite fishing, Tanzania will be at risk of losing its reputation as a desirable dive destination which will in turn have a knock-on effect on sea turtle ecotourism.

Mainstreaming climate change adaptation into district plans and budgets

Integrating climate change adaptation within the local district governments has been both a success *and* a challenge. All Project activities have been implemented hand-in-hand with government staff, and over time we have built strong champions within the district. At the same time, getting higher level district officials to support the activities, by, for example, mainstreaming climate change adaptation into the district plans, setting aside a task force for supervising climate change adaptation actions and allocating funding for their implementation has been more difficult. We are confident that champions within the local government will continue supporting the implementation of climate change adaptation at village level as part of their routine work whenever they can, but in the future, the districts' institutional framework should be revised to cater for climate change adaptation.

Accounting capacity gap within SACCOS

The established SACCOS serve as rural banks in coastal villages, providing business development skills and credit to support an establishment of small environmentally friendly enterprises. The borrowing and loan repayment rates among the established SACCOS are above 75%, which is satisfactory. The most common reason cited for individuals failing to repay their loans has been droughts that lead to crop failure and reduced incomes. However, the main issue affecting the SACCOS is low capacity within the SACCOS board to properly manage accounting—and especially closing final accounts. Responding to this, the Pwani Project conducted a five-day training workshop to all SACCOS accountants in Pangani to build their capacity in financial management. The team also developed business plans for two SACCOS and prepared a financial literacy training manual.

Marketing goods outside the village or household is a barrier for many women

Coastal women continue to be culturally inhibited from becoming full-fledged entrepreneurs. For example, while it may be culturally acceptable for women to make shell craft jewelry, many are reluctant to leave the village to market their products in the main town or in tourist resorts. As a result, some women produce few pieces of jewelry per year (because their sales are low). The Project addressed this issue by creating the shell craft jewelry resource center, which allows the women to market their products close to their homes and by working with a marketing expert and women who are willing to venture outside the villages to market the shell craft jewelry, which is now sold in eight stores in Stone Town.

5. Summary of Pwani Project Lessons Learned

Technical approach

Spatial Planning: The Pwani Project made a wise decision by shifting from the Wami estuary to Mbegani bay, because more or less the same need of helping the district was met. Providing critical information that balances both local, ecological, economic, government interests and development needs is very important, and the State of Mbegani Bay provides a new and timely description of the values and characteristics of the area. Once the details of the newly announced port development are finally released, local officials may wish to take steps to conserve or mitigate its potential social, environmental and economic impacts through a SAMP.

Elephant telemetry is a wonderful, but expensive, technology: Tracking elephants using GPS satellite collars enabled our team to monitor the animals wherever they are provided there is an internet connection. However, the technology is quite expensive—to fit and remove collars the Project spent approximately US $150,000, which was a substantial portion of the Project budget in years one and three.

Terrestrial protected areas boundaries are not ecological: From our telemetry study we observed that elephants consistently use the village lands and private ranches. This implies that any conservation strategy has to be holistic, managing protected and unprotected areas as one ecosystem with a spectrum of spatial uses and conservation rules. It is also essential to include local community in planning—especially around the establishment of wildlife corridors and reducing human and wildlife conflicts.

Use of interactive theater and radio for sea turtle conservation and HIV/AIDS prevention: One of the major successes of the Sea Sense program was the use of Theater for Development (TFD) as a tool for community wide education and awareness on endangered marine species. Sea Sense received advice and guidance from another Pwani Project partner (UZIKWASA) on TFD methodologies and successfully implemented TFD Projects in four villages. Community debates surrounding the TFD performances ensued for several hours with hundreds of villagers in attendance. Through the debates and discussions the participants became increasingly able to recognize the impacts of illegal fishing practices and poor waste management and understand the link between resource conservation and sustainable livelihoods. Following the TFD in Kipumbwi village, which focused on poor waste management, village leaders have implemented a weekly village cleanup and have committed to enforcing local bylaws related to waste management. Reporters from Pangani FM radio station were also present and later aired a piece about the work being done by Sea Sense to raise awareness of the importance of conserving and protecting fisheries resources. Hence the impact of TFD reached far beyond the communities directly involved in the Project. The combination of interactive theater and radio programming has been equally successful in getting out HIV/AIDS behavior change communication. The HIV/AIDS prevention campaign implemented by the Pwani Project in collaboration with UZIKWASA has successfully inspired people to speak out about problems related to high risk sexual behaviors, gender rights and other problems—and actively engage them in a dialogue about the problems. Radio also helped create role models for youth leaders and good leadership performance through live airing of annual VMAC competitions and youth leadership competitions. Through the radio, poorly performing VMACs were stimulated to do better.

Ecotourism: The sea turtle ecotourism initiative has proven to be hugely successful in helping communities to recognize the value of live sea turtles. Intentional slaughter of sea turtles for meat and poaching of eggs have been eliminated in both villages that engage in sea turtle ecotourism. Communities involved in sea turtle ecotourism now have a greater understanding of the importance of endangered marine species and habitat conservation and of the potential economic benefits associated with conservation. It is imperative that conservation initiatives deliver tangible economic outcomes for communities in order to drive long term behavioral change.

Implementing climate change adaptation actions: The team found that it is easier to get good results when selecting simple adaptation actions that use local skills rather than selecting complex activities that require new skills. Also, those involved must have the desire and interest in engaging in the adaptation action. Those living in coastal Pangani and Bagamoyo have adopted a livelihoods strategy that includes several income streams—as a way to reduce their vulnerability to stresses and shocks. That is one reason why people were very interested in adaptation actions that were connected to strengthening or diversifying livelihoods. However, we found that the adaptation actions that were linked to livelihoods worked best when the livelihoods were managed by individuals. Group enterprises tend to attract free-riders and create resentment that lead to failure (i.e. the active individuals lose their motivation). However, sales cooperatives in which the entrepreneurs grow or prepare their own products that they then sell as a group can be successful.

The population, health, and environment approach has changed people's attitudes: Integrated population, health, and environment peer education works to deliver integrated messages. A core aspect of the Project's PHE work, which was implemented in collaboration with the BALANCED Project, was to integrate conservation and health volunteer responsibilities to deliver integrated messages on how to protect the environment and one's health. Volunteers working on conservation activities and/or who were members of savings and credit cooperative societies (SACCOS) were trained as PEs and CBDS. Similarly, PEs and CBDs also became members of SACCOS and involved in conservation activities. As a result of this intervention, most PEs are engaged in multiple PHE-related activities including community-based distribution of FP commodities, SACCOs, medical stores, fuel-efficient technologies, HIV/AIDS prevention and livelihood activities, such as beekeeping. These adult and youth peer educators (PEs) talk with their fellow community members about simple steps they can take to improve their lives. They also advise fellow community members where they can access information on FP methods and services. The results have been positive. Comparing survey data results from 2009 and 2012, we found that fewer men and women agree that large families are better off and that if you have children, you will find the resources to raise them. We have also learned that men have become more aware of natural resources management activities around the Saadani National Park and that both men and women feel more empowered to participate in conservation activities.

Stakeholder involvement

Engaging districts through technical task teams: It has been crucial to Project success and local buy-in to engage the Pangani and Bagamoyo districts on the Tanzania mainland. Since it was not possible to make the whole district(s) participate in the Project, the Project established an integrated coastal management (ICM) team in each district. From that ICM team, we created task forces of between five and ten members, who collaborated with the Pwani Team on specific

tasks related to spatial planning, mariculture zoning and climate change. The task teams co-led all field work, helped raise awareness at village level, drafted and reviewed documents to ensure that they reflected the needs of their respective districts. The task teams also saw that policy documents, such as the permitting procedures were submitted to the district bureaucracy and later approved. The task teams proved a good opportunity for different sectors within the districts to work together. For example, the Land and Fisheries Departments worked closely together to provide a better management system for mangrove areas. This included determining the precise village boundaries for mangrove areas and salt flats—which is essential when verifying which village should issue a mariculture permit for a specific area.

Obtaining approvals for plans etc. by the district councils: The Project worked on a number of policy documents, including the two mariculture permitting procedures. We learned that for steps that include district approvals, the district calendar and priorities may lead the approval process to take a long time. It is relatively easy to get plans approved if you organize a special session for the district decision makers, but it is costly and when plans are approved in special meetings, the commitment to implementing the plan is lower than if it is approved through the regular district meetings. Therefore, the Project decided to let the approval process take longer and go through the regular district meetings.

Private sector engagement: The elephant telemetry study received large support from the Saadani National Park, other government counterparts and community based organizations. Key stakeholders were local hotels (e.g. Tent with a View and the Saadani Safari Lodge), which together contributed tens of thousands of dollars' worth of materials and other inputs to the elephant collaring and de-collaring exercises. One reason behind the successful involvement of the private sector was that the hoteliers were involved throughout the whole exercise, from planning the study, collaring the elephants, tracking them and finally de-collaring the elephants. They considered themselves part of the Project and they were willing to contribute to its success. Another reason was that the hotels had something important to gain from collaborating with the Project. Having the collared elephants, they were obtained daily data about where the elephants were located, something that they could use when taking tourists on a safari. They were also able to use the elephant conservation Project when promoting their hotels to tourists.

Local hotels have supported other Project activitie, too. For example, local hotels in Ushongo have supported the sea turtle conservation activities and are actively engaged in protecting turtle nests and monitoring eggs lain on the Maziwe island. In Bagamoyo, the Bomani Bungalows are supporting local entrepreneurs (e.g. dance troupes) that offer services for visitors. Finally, the Project works closely with a number of shop keepers in Stone Town, Zanzibar, who are marketing shell craft jewelry and half pearls produced by Project supported entrepreneurs.

Local capacity

Local capacity for mariculture development: The capacity for mariculture is very low at village level and the few existing entrepreneurs operate fish ponds with only basic knowledge. Hence, the failure rate is high. The districts are unable to provide adequate support, because they lack the technical and financial resource to assist in pond construction, stocking procedures and general fish pond management. One potential solution to this problem is for future programs to help mainstream mariculture extension support into district development plans.

Educating schoolchildren: Targeting schools pupils has proved to be an effective means of raising awareness about environmental issues and the importance of a clean and healthy environment. Tanzania has a young population, with 71% being under the age of 15 so school education programs help to spread messages to a significant proportion of the population. Furthermore, environmental education is rarely taught in Tanzanian schools so pupils are very receptive to new information, particularly if taught in a fun interactive style.

Improving local capacity and knowledge around climate change adaptation: Even though individuals at district and village level are aware about climate change, they are not clear about what stresses are climate related and which ones are not. All sorts of environmental stresses and degradation—even those that are not climate change related—are blamed on climate change. Working with local villagers and district staff to tease out what changes are climate induced and which ones are caused by over exploitation and other stresses, has helped deepen the understanding of what climate change is and how to best design local adaptation actions. The Project has increased the capacity of village level climate change committees and the climate change task forces through regular trainings and mentoring related to climate change and its impacts on livelihoods. The committees have received technical assistance on safe adaptation and, acting as change agents, they are sharing their experience and information with other members of their villages.

Strengthening Village Multisectoral HIV/AIDS Committees (VMACs): The participatory, bottom-up planning model implemented by Pwani through UZIKWASA has strengthened the capacity of VMACs to lead the coordination of village HIV/AIDS control activities and helped villagers feel empowered to plan for and implement their own HIV/AIDS control activities. Activities, such as an annual VMAC competition and leadership training have contributed to increasing the commitment among the VMACS. In a 2012 behavior change monitoring survey, over 60% of the survey respondents were aware of UZIKWASA's activities in their community and of those aware close to 80% thought that the activities have made a difference. A majority of those aware of UZIKWASA's activities, agreed with the following statements:

- People are working more: 95.9%.
- People know where to get condoms: 95.1%.
- People feel better about the community: 93.1%.
- People are using condoms more: 91.7%.
- There are fewer rapes: 86.7%.
- There are fewer early marriages: 83.3%
- Communities are more outspoken about their issues: 82.8%.
- There is less trading of sex for fish: 82.6%.
- People feel more trusting of the VMACs: 82.1%.
- VMAC are more active than before: 80.6%.
- Leaders follow up more on reported cases: 76.6%.
- People have fewer sex partners: 77.1%.
- Women are more empowered to voice their concerns: 71%.
- There is less stigma with HIV/AIDS: 67.6%.
- People are more aware about gender roles and rights: 66.9%.
- Women have better access to family resources: 52.4%..

Gender mainstreaming

Empowering women through conservation based livelihoods and increasing access to credit: Women on both Zanzibar and on the mainland have been empowered through participating in SACCOS and conservation-based livelihoods (e.g. shell craft making combined with no-take zoning). Obtaining new technical skills have been important. However, equally important, is learning to be an entrepreneur and gaining business skills such as how to add value to current products and how to market and price them. For many women, turning entrepreneur has brought them personal growth. We see women, who previously would not speak up in a group, become more active. Many have also become a major breadwinner for their household. Through entrepreneurship women have become more involved in environmental management and village affairs. An example of an entrepreneurial woman who has seen her stature in her community change is the young woman Mkasi Kombo. Before becoming a shell craft jewelry entrepreneur, Mkasi was not recognized as a leader. Now, she has been appointed leader of a group that manages a new windmill producing electricity for the Fumba Mzambarauni village.

SACCOS have enabled the coastal poor to save their income in a safe place and it provides a buffer against economic shocks—reducing vulnerability and minimizing the need to use other coping strategies, such as selling off assets. The SACCOS are particularly useful for women, who have less access to capital than men. Women have started new enterprises including bakeries, restaurants, beekeeping, livestock keeping and opening of kiosks and shops. The revenues are used for household expenses and for reinvestments into their enterprises. Women also use the SACCOS loans to cover big periodic costs, such as school fees, which mean that more children are kept in school.

Behavior change communications focusing on root causes of high-risk sexual behavior has strengthened role of women: The Banja Basi communications campaign implemented by the Pwani Project in collaboration with UZIWKASA has successfully inspired people to speak out about problems related to high-risk sexual behaviors, gender rights, and other problems and people have started taking action to change their behaviors. We have seen some encouraging results related to reduced high risk sexual behaviors and increased HIV/AIDS testing in our Project villages. There has been increased condom use among women and an overall reduction in transactional sex among both women and men. This indicates that women have become more empowered to negotiate safe sex. Analyzing the data from a 2012 impact survey, we found that for condom use and HIV/AIDS testing, women in Project villages are doing significantly better than women in control villages. This indicates that the behavior change communications campaign implemented to address the root causes to high-risk behaviors have been effective in raising the status of women in the Pangani communities.

6. Key findings from the 2013 Pwani Evaluation

The Pwani Project underwent a final evaluation in September 2013. The purpose of the performance evaluation was to help inform USAID and Project stakeholders on:

1. Overall key achievements and outcomes of the Project.
2. Effectiveness of the Project's approach in meeting the aim of the USG biodiversity earmark for Water, Biodiversity and Climate Change.
3. Effectiveness of the Project and its integrated design in achieving intended results; and
4. Sustainability of the approaches implemented and potential for scaling up.

The evaluation provided an excellent opportunity for the Pwani team to think through its achievements, challenges and lessons learned—and in the end the evaluation generally affirmed our own conclusions about the Project's strengths and weaknesses.

The evaluation found that the integrated coastal biodiversity conservation approach has been very effective in achieving intended Project outcomes in the three key programming areas of Nature, Wealth and Power. For sound natural resources management and biodiversity conservation (Nature), the evaluators pointed out that improvements in biophysical conditions were largely on target as are the associated livelihoods improvements intended to reduce pressure on the environment and natural resources. For strengthened resilience and assets (Wealth), they found that savings and credit schemes, for example, have allowed for diversified and supplemental livelihoods and women's empowerment. Communities have been supported by the Project to develop climate change adaptation plans for increased resilience. For improved governance (Power), capacity building has been a major focus. The Project has also helped establish many policies, strategies, plans, agreements and regulations addressing climate change mitigation or adaptation and biodiversity conservation.

The evaluation made the following key points:

- A primary strength of the Project approach has been its strategic selection of partners with extensive experience of community engagement, and this has meant that each partner has been able to work successfully with communities from the outset. One weakness, as stated by several respondents, was that by having many local partners the Project had the potential to appear like several smaller Projects working independently. It is not apparent, however, how this negatively impacted the Project, if at all.
- One constraint of working with local partners noted by the districts was that the timing of Project activities did not coincide with district planning cycles. There has been a high funding expectation of local partners from the Project, and some government respondents have stated that because funds do not go through government there is a lower level of support and coordination. PWANI addressed this constraint by holding frequent meetings and increasing engagement and coordination with national government agencies.
- It was crucial to Project success and local buy-in to engage Pangani and Bagamoyo Districts on the Tanzania mainland. PWANI established an ICM team in each district. From that ICM team, task forces were created of between five and 10 members who collaborated with PWANI staff on specific tasks related to spatial planning, mariculture zoning and climate change. Task teams also ensured that policy documents (e.g. mariculture permitting

procedures) were submitted to the LGA for approval. The task teams proved a good opportunity for different sectors within the districts to work together.

- Another strength of the Project approach is that it has addressed gender by explicitly focusing on gender inequities and increasing women's access to credit and entrepreneurship opportunities. Women's involvement has improved Project results significantly since women are critical to family livelihoods, education and health. Gender empowerment is particularly evident in SACCOs, fuel-efficient baking ovens and stoves, sea weed farming, soaps and jewelry making. Women in Project activities have become more confident, empowered and able to disseminate messages in an integrated way by using theater and radio. PWANI did not have an in-country staff member specifically assigned to work on gender mainstreaming; neither did it have an explicit gender empowerment statement approved by government and NGO stakeholders to ensure gender would become even more mainstreamed. These could have become potential weaknesses if not for the fact that partners (e.g. UZIKWASA, CVM, TaTEDO) took the lead on addressing and integrating gender issues into the Project.
- Additional strengths of using an integrated approach to Project interventions included a focus on addressing root causes of behavior leading to biodiversity degradation and gender inequity. For example, UZIKWASA's FM radio station in Pangani has been educating on the importance of integrating issues of climate change, natural resources management and HIV/AIDS. Behavior change communication has contributed to decreasing risky sexual behaviors and addressing root causes of those behaviors as well as gender inequity.
- The Project operated at a scale where it was able to achieve impact at both the community and local government levels and, to a smaller extent, at the national policy level. The Project has piloted several activities (e.g. mariculture permitting procedures) that are now ready for coast-wide scaling-up. Some activities (e.g. dolphin tourism) were implemented at a scale that may have been too small for significant ecosystem level impact.
- Progress is being made toward sustainability, in which interventions have been made to put proper management systems in place to ensure the use of natural resources is at a rate that does not reduce the system's ability to provide those products and services to future generations. However, this goal takes considerable time and there remain challenges. At a broader scale, there is much work to do. The level of illegal resource exploitation is great and will continue to be a major threat to sustainability of coastal ecosystems without a concerted effort to address governance and accountability issues.
- It is significant that the Project has made information available to Parliament, which has acknowledged this support for policy development. The Zanzibar Environment Department has noted that the communities are very well organized and engaged through good networking and that the Project has brought the involvement of the department into the monitoring and evaluation process. Bagamoyo District government noted that communication among stakeholders for Project monitoring is very good.
- The program monitoring system appears to have been very effective. There is good coordination between CRC-URI and the TCMP field team with oversight, reporting and documentation.

- Although staff capacity, skills and abilities are generally high, there is room for improvement with increased and appropriate on-the-job training that would improve job performance even further. CRC-URI bears a substantial share of Project administration and performance, and it was noted that the in-country team should become more independent.
- An overriding lesson is that integrated approaches are more effective in strengthening gender, for example, as well as overall Project success than sector-based approaches because one development issue cannot be separated from another. Implementing Projects using an integrated approach need to bring together a well-qualified consortium of partners with relevant skills and expertise. Integrating livelihood interventions in the Project will help to ensure the support of communities for biodiversity conservation.

The evaluators found that the Pwani approaches that have the biggest potential for being scaled-up include (i) local government authority capacity building and increasing their coordination and involvement with the Project; (ii) climate change adaptation planning scaled-up to district and/or ecosystem level to create a stronger framework for addressing the unique conditions and needs of individual villages; (iii) promoting women's empowerment, leadership and entrepreneurship; (iv) establishing and strengthening conservation-based SACCOs; (v) continuing to integrate livelihoods with biodiversity conservation (e.g. fuel-efficient stoves, solar technology, PHE, gender rights, HIV/AIDS awareness and prevention) and supporting marine conservation activities (e.g. mariculture permitting procedures, sea turtle conservation/ecotourism, no-take zoning).

Appendix A. Summary of Annual Targets vs Actual Results

Below is a table summarizing the annual targets and results for the Pwani Project. The last column outlines the illustrative targets from our program statement. These targets were revised during the preparation of the Project performance management plan (PMP), which was revised and resubmitted to USAID for approval on an annual basis.

INDICATOR	Baseline data, 2009	FY 10 Results	FY 10 Target	FY 11 results	FY 11 Target	FY 12 Results	FY 12 Target	FY 13 results	FY 13 target	Year 1-4 Results	Illustrative targets from Program Statement
1. Number of MAINTAINED hectares of biological significance and/or natural resources under improved natural resource management	180,117	Not measured until FY 13						225,717	213,176	225,717	Not in program statement
1. Number of NEW hectares of biological significance and/or natural resources under improved natural resource management	180,117	56,414	595	102,046	104,000	55,311	45,040	11,945	65,219	225,717	497,000
2. Number of NEW hectares of biological significance and/or natural resources showing improved biophysical conditions	26,734					1,334	5,300	394	1,334	1,728	5,300

3. Number of laws, policies, strategies, plans, agreements or regulations addressing climate change (mitigation or adaptation) and/or biodiversity conservation officially proposed, adopted, or implemented	5	1	4	5	8	14	8	11	11	31	3
4. Dollar value of funds leveraged	0	255,729	No target	149,473	No target	142,475	No target	111,076	No target	658,753	Not in program statement
5a Number of stakeholders with increased capacity to adapt to the impacts of climate variability and change as a result of USG assistance	0	Not measured until FY 12				1766	2715	550	340	2,316	Not in program statement
5b Number of institutions with improved capacity to address climate change issues (adaptation) as a result of USG assistance	0			14	6	21	4	9	6	44	Not in program statement
5c Number of climate vulnerability assessments conducted as a result of USG assistance	0			1	4	4	2	1	1	6	Not in program statement

5d. Number of households implementing energy efficient measures as a result of USG assistance.		Not measured until FY 12				301	43	22	10	323	Not in program statement
6. Number of people with increased economic benefits derived from sustainable natural resource management and conservation as a result of USG assistance	0	400	145	334	260	2,690	602	1,800	285	5,224	740
7. Number of households with improved access to finance, including those receiving community credit and start up grants	0	104	60	174	200	272	120	439	105	989	300
Gender: Proportion of female participants in USG assisted programs designed to increase access to productive economic resources.		Not measured until FY 13					60%	167/354 (47%)	171/285 (60%)	672/1209 (56%)	60%
8. Number of persons reached through community outreach that promotes HIV/AIDS prevention	44,385	,66,244	29,400	,29,968	30,000	56,176	30,000	68,583	20,000	220,971 includes repeat individuals	32,000

9. Number of the targeted population reached with individual and/or small group level HIV prevention interventions that are based on evidence and/or meet the minimum standards required	0	685	200	1,999	650	4,186	2,500	14,966	5,230	21,836	
10. Number of fishermen (mobile men with money) reached with individual and/or small group level preventive interventions that are based on evidence and/or meet the minimum standards required.	0	203	100	753	450	1,041	500	4,867	1,000	6,864	
11. Number of targeted condom service outlets	62	147	62	153	42	351	300	587	500	587	
12. Number of local organizations strengthened to manage endangered ecosystems, and to support sustainable livelihoods and cross-cutting issues such as HIV/AIDS and gender	0	18	22	14	14	35	12	3	9	70	11

13. Number of individuals reached through community outreach and planning that promotes biodiversity conservation and improved gender equity	2,506	1,719	530	1,412	2,240	1,711	2,362	4,113	1,730	8,955	1,000
14a. Number of individuals trained and/or certified in coastal governance, MPA management, HIV/AIDS action planning, and other cross-cutting issues	1,166	602	395	838	836	1357	500	2,104	1709	4,901	490
14b. Number of person hours of training in natural resources management and/or biodiversity conservation		Not measured until FY 12				23,282	8,660	18,282	11,900	41,564	Not in program statement
15. Number of success stories documenting key actionable findings about best practice approaches and lessons learned published in local media reports, radio shows, conference papers, and research studies	0	14	20	33	30	60	33	84	31	191	68

Appendix B: Comparison of Objectives and Actual Results

Activity and Life of Project Objectives	Completed?	Year	Comments
Activity 1.1: Critical coastal area use planning in Bagamoyo District			
Determine the ecosystem functions and services of Mbegani Bay including its physical, ecological and economic value and functioning.	Yes	FY 10	http://www.crc.uri.edu/download/TZ2010CC005_LazyLagoon_508.pdf
Orient and build capacity of district staff, local leaders and Project team members in coastal planning, including geographic information and shoreline processes and dynamics	Yes	FY 10-13	Capacity was built through mentoring the Bagamoyo District ICM task force
Build and maintain a Coastal Management GIS database to empower and improve the quality of the Bagamoyo District planning and decision making	Yes	FY 10-13	A GIS data base maintained by URI. Maps have been provided to the District.
Prepare the SAMP framework document and at least two issue chapters for public discussion and district review, focusing on topics that will increase the district's capacity to implement climate change adaptation measures in coastal villages and towns.	Yes	FY 13	http://www.crc.uri.edu/download/TZ2010_MbeganiBay_508.pdf
Protect the natural environment and critical coastal ecosystems through local by-laws	No		Because of the proposed port development, which is decided at national level, the Bagamoyo District and villages around the Mbegani Bay did not think it would be useful to develop by-laws
Activity 1.2: Mariculture zoning for mangrove ecosystem protection			
Create interest, understanding, and stakeholder engagement in mariculture zoning and sustainable mariculture development	Yes	ongoing	
Establish a consensus on the appropriate level of mariculture operations in potential sites, including estuaries and salt flats, in Bagamoyo and Pangani	Yes	FY 11 and 12	
Identify potentially suitable locations for orderly, low-impact mariculture expansion	Yes	FY 11 and 12	

Adapt the model ordinance procedures to the needs and capabilities of Bagamoyo district in view of the experience of Mkuranga and other districts.	Yes	FY 12	http://www.crc.uri.edu/download/TZ2010MZ_Bagamoyo_Eng_USAID_11_15_13.pdf
Adapt the Mkuranga and Bagamoyo procedures to the needs and capabilities of the Pangani district	Yes	FY 13	http://www.crc.uri.edu/download/TZ2010MZ_Pangani_English_11_12_13_.pdf
Activity 1.3: Protect and monitor of coastal forests and associated wildlife inside SANAPA			
Conduct satellite telemetry studies of elephants to determine local and regional seasonal movements, habitat use and corridors	Yes	FY 10-13	Elephants collared in FY 10 and de-collared in FY 12
Conduct systematic aerial surveys of elephants in Saadani NP, Wami-Mbiki WMA and lower Wami-Ruvu River Basin to determine seasonal distribution and abundance.	Yes	FY 10-13	
Work with local communities and wildlife managers to identify and establish conservation corridors and reduce human-elephant conflict in the region.	Partially		Wildlife corridors were not established, however, needs were identified and decision makers were sensitized
Activity 1.4: Reduce Deforestation through Improving Energy Technologies.			
Contribute to increased resilience, improved livelihoods, and reduce fuel wood consumption through introduction of modern energy technologies.	Yes	FY 11-13	Bakeries and solar multi chargers were very successful
Conserve biodiversity through sustainable production and utilization of renewable resources using sustainable modern energy technologies.	Yes	FY 11-13	Survey found that Pwani entrepreneurs have reduced their wood cutting
Activity 2.1.1. Scale-up of community-led no-take zones of intertidal areas			
Improve the existing no-take zones and begin the scale up community-based management of cockles and pearl farming in at least two new areas.	Yes	FY 10-13	Old no-take zones were updated and two new no-take zones were established: http://www.crc.uri.edu/download/pwa10_notakemgtplan_508.pdf

Activity 2.1.2 Half pearl farming			
Scale up the number of households benefiting economically from half-pearl farming and establish policies based on good practice for farm siting and permitting.	Partially	FY 10-13	The half pearl farming was scaled up to two new villages. However, the new farmers are not very active
Activity 2.1.3 Improving sustainability of Dolphin Tourism in Menai Bay			
Improve sustainability of dolphin tourism that protects dolphins from harassment as well as improves guiding businesses.	Yes	FY 10-13	Established dolphin tourism accreditation and provided multiple trainings for dolphin tour operators and fishermen
Activity 2.2: Support the implementation of the SANAPA marine zone.			
Activity was dropped, see challenges section	No		
Activity 2.3: Protection of sea turtles			
Protect and conserve endangered marine species and habitats through community-based species monitoring, education, training, and ecotourism	yes	FY 10-13	
Monitor and protect nesting sea turtles and hatchlings at six nesting sites	yes	FY 10-13	http://www.crc.uri.edu/stories_page/community-based-conservation-the-key-to-increased-sea-turtle-populations-in-pangani/
Expand sea turtle monitoring and protection program to two new nesting sites	yes	FY 10-13	The Project ended up working in eight villages/nesting sites covered by seven trained community conservation officers.
Identify areas of high risk to nesting and foraging sea turtles	yes	FY 10-13	
Develop sea turtle ecotourism as a revenue generating activity	yes	FY 10-13	Two communities are generating revenue from turtle eco-tourism
Raise awareness of threats to endangered marine species and their habitats	yes	FY 10-13	Community awareness campaigns and school trainings.
Reduce threats to endangered marine species	yes	FY 10-13	
Activity 2.4: Training of coastal and marine management professionals			
Support capacity building of coastal and marine management professionals	yes	FY 10-13	See page 15 in main body of report

Activity 3.1a: Increasingly resilient communities are enabled to adapt to climate change impacts			
Raise awareness of coastal vulnerability and adaptation to climate change in Bagamoyo District and among the leadership of selected villages	yes	FY 10-13	District awareness raised through participation in climate change vulnerability assessments and adaptation planning/implementation
Identify climate change vulnerabilities and ways to increase resilience and reduce harm from climate change impacts	yes	FY 10-13	Eight vulnerability assessments completed
Catalyze small, doable, early adaptation actions	yes	FY 11-13	early actions implemented in six villages
Share good practices in coastal adaptation	yes	FY 11-13	study tour completed, vulnerability assessments published online
Mainstream coastal adaptation in District ICM Action Plans and village planning committees	Partially	FY 11-13	District ICM task force established
Activity 3.1b: National coastal adaptation capacity increased with sectoral policy mainstreaming			
Adjust critical policies, plans, strategies, standards and regulations with relevance to coastal areas to take into account both the effects of climate change and mitigation opportunities	yes	FY 12	National integrated coastal environment strategy revised to include climate change.
Test methods and modalities for national adaptation planning	yes	FY 13	http://www.crc.uri.edu/download/TZ2010CC002_NAP_508.pdf
Learn from experience and share with other countries and the UNFCCC	yes	FY13	http://www.crc.uri.edu/download/TZ2010CC001_Yanda_508.pdf
Activity 3.2.1 Communities benefitting economically from NRM-based businesses through increased income, access to credit, new markets, and enhanced goods and services			
Define and promote good practices in sustainable ecotourism	yes	FY 10-13	Tourism value chain studies conducted for Dolphin tourism on Zanzibar and for ecotourism in Pangani. http://www.crc.uri.edu/download/Ecotourism_in_Menai_Bay1.pdf

Support the growth of existing small ecotourism efforts that are already investing in ecotourism and demonstrate good conduct in ecotourism development	Partially	FY 10-13	Partnered with the larger COAST Project, which is supporting ecotourism in Mlingotini
Improve enabling conditions for future coastal tourism development	yes	FY 10-13	Mlingotini and Mkwaja villagers trained in ecotourism; developed an ecotourism guide for the Mkwaja ward
Identify entry points for improved wealth generation and equity in small-scale fisheries	yes	FY 10	http://www.crc.uri.edu/download/VCA_Report_September_Final_5081.pdf
Demonstrate successful early actions in small-scale fisheries	No		The fisheries value chain assessment, did not find any entry points for the Project to add value to small scale fisheries in Bagamoyo
Improve access to savings and credit services for coastal communities	yes	FY 10-13	The Project worked with 12 SACCOS on the mainland and Zanzibar. http://www.crc.uri.edu/stories_page/access-to-credit-family-planning-changes-womens-lives/
Introduce natural resource management (NRM) based sustainable livelihoods	yes	FY 12-13	Beekeeping
Add value to the existing NRM livelihoods products, including seaweed farming	yes	FY 12	Training provided in seaweed soap making
Activity 3.2.2 Jewelry making and entrepreneurship development			
To help communities benefit economically from small scale jewelry making businesses through increased income, establishing and expanding markets, and enhanced goods and services	yes	FY 10-13	Trained and provided marketing support to shell craft jewelry makers
Activity 3.3: HIV/AIDS prevention and mitigation activities improve life for those living with HIV/AIDS and lead to quality behavior change among fishing communities			
Implement village and ward-based activities related to creating an effective community response to HIV/AIDS in the Pangani District	yes	FY 10-13	See pages 17-18 in main body of report

Activity 3.3.2 HIV/AIDS prevention and mitigation activities improve life for those living with HIV/AIDS and lead to quality behavior change among fishing communities in Bagamoyo			
Promote a coordinated response to HIV/AIDS in Bagamoyo District fishing villages	yes	FY 11-13	Trained fishermen in HIV/AIDS prevention. Established condom social marketing outlets and trained PHE adult peer educators in the Saadani and Mkange villages
Support an active response to HIV/AIDS, by increasing knowledge and changing attitudes and behaviors among at risk groups, including fishermen/women, commercial sex workers, girls and PLWA	yes	FY 11-13	Trained bar workers and women's and children's rights (WCR) groups. Formed a bar workers association and ten WCR groups
Project Wide Communications Activities			
Increase mass media coverage and enhance the Pwani Project's visibility	yes	FY 11-13	Published 191 success stories about the Project in various media. In addition, over 5,500 airtime minutes were dedicated to the Pangani FM's environment show.
Use internet for online publication	yes	FY 11-13	Established a blog http://tcmppwani.blogspot.com/ and published articles on the inter Press Service http://www.ipsinternational.org/africa/sw/nota.asp?idnews=3900
Bridge the communication gap between the Pwani Project, partner organizations, local government, and national government	yes	FY 11-13	Regular partner meetings