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CONSERVATION OF CENTRAL AMERICAN WATERSHEDS PROGRAM

Final Report



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CONSERVATION OF CENTRAL AMERICAN WATERSHEDS PROGRAM

FINAL REPORT

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ACRONYMS

AAMVECONA	Asociación de Amigos y Vecinos de la Costa y la Naturaleza
ABIMA	Asociación de Biología Marina de Guatemala
ANCON	Asociación Nacional para la Conservación de la Naturaleza
APESCA	Asociación Pesquera del Caribe de Honduras
ASAP	Asociación Silvo-Agropecuaria
CAFTA-DR	Central American and Dominican Republic Free Trade Agreement
CCAW	Conservation of Central American Watersheds Program
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
COCABO	Cooperativa de Servicios Múltiples de Cacao Bocatoreña
CONAP	Consejo Nacional de Áreas Protegidas
DMO	destination management organization
FCG	Fundación para la Conservación de los Recursos Naturales y Ambiente de Guatemala
FHIA	Fundación Hondureña de Investigación Agrícola
FUCSA	Fundación Cuero y Salado
FUNDAECO	Fundación para el Ecodesarrollo y la Conservación
IARNA	Instituto de Agricultura, Recursos Naturales y Ambiente
INDESA	Inversiones de Desarrollo, S.A.
NGO	nongovernmental organization
PES	payment for environmental services
PINFOR	Programa de Incentivos Forestales
TGS	Thomas Gomez & Sons Company
UPESABO	Unión de Pescadores Artesanales Bocatoreños

EXECUTIVE SUMMARY

Watersheds comprise the land area that drains down to streams and rivers that feed into the ocean, holding not just the water and land, but the forests, fish, plants, people, and many resources on which the region's economic and ecological well-being depends. In addition to their importance to the region's water resources, Central America's major watersheds make up and feed into some of the most biodiverse and ecologically important areas in the world. Coral reefs and mangrove systems along Central America's coasts serve as nurseries to countless coastal and marine species, help reduce floods, mitigate sea level rises, and support countless livelihoods through fishing and tourism.

Many of Central America's most critical watersheds, including the Bocas del Toro/Cahuita/Río Cañas and Gulf of Honduras watersheds, are under attack. Relatively new regulatory agencies often lack the capacity and financial resources necessary to consistently and effectively implement and enforce watershed, land use, and protected area management plans. In addition, there has been a lack of private sector participation in conservation activities. The lack of planning and protections has allowed industries and cities to grow unchecked and unmanaged, leading to increased pollution and adding to the stress on already vulnerable ecosystems. The environmental consequences of these threats in regional watersheds include:

- Fresh water and marine pollution from agricultural, industrial, and urban waste
- Fragmentation and destruction of habitats within the landscape
- Over-harvesting of fish and wildlife resources
- Unplanned mass tourism and coastal residential development
- Climate change

Since environmental damage in one country may originate in another country — for example, tourism moves across borders and lobsters migrate from one country to another — cooperation among these countries is vital. Understanding that the transboundary nature of these watersheds makes cross-border solutions critical, USAID applied a regional strategy to improving watershed management in Central America. USAID's Conservation of Central American Watersheds Program (USAID/CCAW) fostered sound land and forest management practices and market solutions tailored to ensure environmental sustainability at the local level. The program applied successful approaches and lessons learned across boundaries, while implementing holistic watershed management principles through site-based interventions.

USAID/CCAW worked with key public sector and civil society groups at the national, regional, and local levels to mitigate the greatest environmental threats in two transboundary watersheds. The program also engaged local communities and the private sector in alternative approaches to the conservation and sustainable use of natural resources in areas of biodiversity importance. The program addressed major environmental threats and obstacles to reach financial sustainability for conservation of the Gulf of Honduras and Bocas del Toro watersheds, producing on-the-ground results in five countries sharing both transboundary watersheds in three key areas:

- 1) *Sustainable finance for areas of critical biodiversity importance.* USAID/CCAW worked with local officials to promote policy reforms for the generation and retention of fees, leveraging of multilateral funds, and development of payment for environmental services (PES) and other private sector business models to generate new revenues necessary to sustainably manage selected key trans-national protected areas and implement management plans.
- 2) *More consistent implementation of existing management plans for areas of critical biodiversity importance.* USAID/CCAW worked with environmental ministries, protected area co-managers, local communities, and private sector groups to implement protected area, watershed, and land-use management plans.
- 3) *Private sector management and participation to enhance biodiversity conservation, natural resource protection, and sustainable economic growth.* USAID/CCAW fostered public-private partnerships to invest in enterprises linked to conservation, generate new revenues for sustainable tourism management, and promote adoption of green certification principles.

Using a strategy aimed at improving local livelihoods, while advancing sustainable resource management and replicating best management practices across borders, the program helped local communities, nongovernmental organizations (NGOs), enterprises, civil society organizations, and government agencies make important changes to increase resources available for conservation, improve implementation of watershed management plans, and engage the private sector in conservation.

Increased funds for conservation. USAID/CCAW stimulated investment from the public and private sector by improving government policies and regulations related to funding, raising decision-makers' awareness of the importance of conservation funding, and implementing financial mechanisms and business models to generate and retain increased revenues for conservation. The program's efforts catalyzed the adoption of three municipal agreements, two concessionary agreements, and four regulatory reforms, which resulted in improved legal frameworks and increased funding for natural resource management in the two watersheds. The program also trained more than 350 civil society representatives in improved advocacy skills and 25 key decision-makers in regulations required to implement financial mechanisms in protected areas, increasing these government officials' capacity to identify and solicit new revenue streams for conservation. USAID/CCAW identified new revenue streams and private sector investments to directly increase funding for biodiversity conservation at the local and municipal levels.

Guiding Principles of USAID/CCAW's Approach

- Support holistic yet focused interventions aimed at seeking the highest possible return on investment for program dollars.
- Foster commitment and ownership on the part of local partners and stakeholders, through sharing resources to promote truly collaborative endeavors.
- Apply lessons learned within countries and across boundaries by drawing from existing and successful examples in the region throughout implementation.
- Promote environmental competitiveness by engaging the private sector and helping companies improve their bottom line while reducing their environmental footprint and implementing conservation best practices.

Additionally, USAID/CCAW helped implement nine private concessions and developed eight business models in tourism, agro-forestry, agriculture, and other enterprises in targeted areas to fund sustainable conservation.

Improved implementation of land use, monitoring, and protected area management plans. USAID/CCAW assisted protected area co-managers and government environmental entities to implement management plans in 11 protected areas, spanning four countries, and covering 492,740 ha. USAID/CCAW has provided technical assistance to agribusinesses, forestry enterprises, and communities to develop and implement private land-use plans in both watersheds, ensuring ecological connectivity between areas of critical biodiversity. Additionally, through USAID/CCAW support, civil society groups and the private sector have developed 13 monitoring plans, which are currently under implementation. These plans focus on biodiversity conservation, water quality and quantity, and agro-climatology. USAID/CCAW has improved transboundary cooperation on enforcement of environmental regulations, training 13 organizations and more than 100 individuals in the application of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and other environmental regulations.

Advanced private sector participation in conservation. USAID/CCAW established public-private partnerships to invest in tourism linked to conservation, improving environmental practices of private enterprises, and increasing the number of hectares under improved environmental management. USAID/CCAW leveraged \$1,458,360 through public-private partnerships to fund sustainable tourism linked to conservation of critical areas. USAID/CCAW support also helped agribusinesses, forestry enterprises, and tourism operators incorporate improved environmental practices into their business activities. The program trained 434 individuals from tourism and agribusiness operations in green certification and aided 40 private enterprises to adopt green certification principles. Through USAID/CCAW technical assistance to the private sector, communities, and local organizations, 39,595 ha are under improved management in targeted sites.

Lessons learned. In its short two years, USAID/CCAW made important inroads into increasing local organization capacity and resources for conservation in the Gulf of Honduras and the Bocas del Toro/Cahuitta/Río Cañas watersheds.

- *Address transboundary threats at the regional level.* As a regional program, USAID/CCAW needed to focus on addressing transboundary threats, such as management of marine species that migrate through the region (e.g., marine turtles, lobsters, fish), watershed degradation that affects coastal marine habitats and livelihoods in neighboring countries, and impact from tourists who travel across borders. To address transboundary threats, there must be harmonization of environmental regulations and guidelines, and natural resource management best practices must be disseminated among stakeholders across transboundary sites.

- *Build on local initiatives and capacity to achieve rapid results.* USAID/CCAW used a series of small grants and subcontracts to take advantage of existing capacity on the ground. This enabled participating regional and local organizations to exploit new opportunities and ensured rapid results for the program.
- *Access large numbers of stakeholders by supporting cooperatives.* Small landholders, indigenous community associations, and independent business owners dominate in the biodiversity-rich forests and coastal marine sites targeted by the program. USAID/CCAW provided small grants, training, and technical assistance to six cooperatives, allowing the program to affect hundreds of cacao producers, *xate* collectors, community foresters, tour boat operators, and fishermen who have direct control over many of the most vulnerable sites in the region.
- *Allow time for change within governments.* USAID/CCAW's work to implement existing forest management plans with different governments demanded more than the two years spanned by the program.
- *Take a market-based, private sector approach to obtain buy-in from local stakeholders for conservation efforts.* USAID/CCAW learned that it was important to highlight the benefits of conservation at the business and community level to foster local commitment and participation.
- *Revenue-generating business models can ensure local ownership and financial sustainability.* USAID/CCAW used concessions, PES, destination management organizations (DMOs) and other revenue-generating business models to help attract funds for the financial sustainability of conservation measures.
- *Continue to act as a catalyst with local partners.* USAID/CCAW strategically identified activities that served as catalysts and provided the impetus for local actors to continue replicating results after the program ended. This approach enabled the program to achieve immediate results and impact in a short period and should be replicated.

Next steps. Given the short two-year period of the program, there is still much to be done to build long-term, sustainable solutions to address the threats to Central America's watersheds. Recommendations for future interventions in the region include:

- *Ramp up efforts to address additional threats in each watershed site.* USAID/CCAW successfully worked in select sectors in each country and watershed site, but opportunities exist to strengthen additional sectors' capacity for conservation.
- *Replicate successful private sector business models.* PES, destination management organizations, and other innovative business models resulted in great success and should be replicated in other areas within the two watersheds to help consolidate processes initiated by this program.

- *Step up efforts to involve major developers.* Given the impact of new real estate developments on the region's watersheds and the potential for leveraging their involvement in conservation, future programs should work with municipal governments and local stakeholders to engage private sector developers.
- *Integrate USAID/CCAW local partners with new and emerging international initiatives.* USAID/CCAW local partners are well positioned to participate in international initiatives and opportunities related to climate change. USAID/CCAW forestry partners in the Gulf of Honduras should take advantage of programs such as reduced emissions from deforestation funding. Likewise, regional planning partners such as Instituto de Agricultura, Recursos Naturales y Ambiente (IARNA) can contribute to adaptation to projected impact from climate change. Future programs can use these initiatives as low-hanging fruit that can be quickly launched, much as USAID/CCAW built on earlier initiatives.
- *Expand the integrated regional approach to additional watersheds in Central America.* Problems in one watershed in the region can flow down to another. Therefore, it is critical to expand efforts to protect these natural resources to additional watershed sites.

SECTION I. PROGRAM DESCRIPTION

Central America's major watersheds make up and feed into some of the most ecologically important areas in the world. The Mesoamerican Reef, the world's second largest coral reef system, runs along the Caribbean coasts of Mexico, Belize, Guatemala, and Honduras and provides critical habitat for more than 10,000 species. The mangrove systems of Central America's coasts provide nurseries for countless coastal and marine species, help reduce floods, and mitigate sea level rises. The fishing and tourism industries supported by the region's natural resources provide millions of livelihoods. In addition, these watersheds are the native lands of indigenous groups that have historically depended on a healthy natural resource base.

Many of Central America's most critical watersheds are in jeopardy. Agricultural runoff, overfishing, urban and industrial pollution, and unregulated tourism and infrastructure development present threats — and they are often interrelated. For example, unsustainable cultivation leads to increased sedimentation and pesticide runoff into coral reefs, increasing stress on corals already affected by overfishing. Watershed and coastal ecosystems themselves are intrinsically connected, which spreads and compounds the effects of poor environmental practices and protections.

A. Background

Two of the region's watersheds — Bocas del Toro/Cahuita/Río Cañas (hereafter referred to as Bocas del Toro) and Gulf of Honduras — have come under particular threat in recent years. These two watersheds are among the world's most biologically diverse areas and are critical to local and national economies shared amongst five countries. The tourism sector has been driving the growth of many related service industries and real estate development in these regions, while export-driven agriculture has continued to be the mainstay of their economies. However, progress has come at a price. Inadequately planned development, mass tourism, and unsustainable agricultural practices are having severe environmental consequences and are compounded by a lack of watershed management and loose enforcement of protection measures. The following sub-sections detail the importance and vulnerability of Bocas del Toro and the Gulf of Honduras.

Bocas del Toro Watershed

Spanning the border of Costa Rica and Panama, the Bocas del Toro watershed houses numerous ecosystems, including mangroves, lowland tropical forest, and montane and sub-montane forest in an area of about 12,000 km². This area has the highest terrestrial biodiversity in Central America, with 189 mammal species, 825 bird species, 588 butterfly species, 168 reptile species, and 128 amphibian species. These extensive coastal wetlands are also home to threatened species such as the manatee. The watershed is also home to large indigenous populations, including several Ngöbe, Naso, and Bri Bri tribes that have inhabited the watershed for generations.

Common local livelihoods include wood harvesting, banana farming, cattle ranching, and fishing. Tourism in the Bocas del Toro archipelago has also grown 70 percent in the past decade, largely due to its undisturbed beaches, extensive coral reefs, and unique ecosystems.

Gulf of Honduras Watershed

The Gulf of Honduras watershed includes parts of Honduras, Guatemala, and Belize. It supports a wide variety of terrestrial habitats as well as vast portions of the Mesoamerican Reef. Recognized as one of the top 10 reef “biodiversity hotspots” worldwide, the Mesoamerican Reef has more than 400 species of fish and 66 coral species and is associated with a multitude of seagrass beds, atolls, and mangrove forests that provide critical habitats for sea turtles and other threatened species. The Gulf of Honduras watershed also has high levels of terrestrial biodiversity, including riverine forest and some of the strongest remaining tracts of lowland tropical forests in Central America.



Major seaports and tourism (including cruise ships) play an economically important role in the area. Fishing and lobster harvesting are also central to local economies. For example, fisheries in Belize alone generated \$12.5 million in exports annually.

B. Threats to Biodiversity and Livelihoods

The watersheds of Bocas del Toro and Gulf of Honduras face similar challenges to their fragile ecosystems and their economic productivity. Government agencies and NGOs have been established to protect these watersheds and the ecosystems that depend on them, but the vast majority of these institutions are still in nascent stages. The majority of Central American environmental ministries were established within the last decade and are still developing a basic framework of environmental laws and implementation regulations. As a result, many governments lack the focus and capacity to address immediate environmental threats. They often have limited capacity to allocate adequate resources to consistently and effectively implement and enforce watershed and protected area management plans. The lack of planning and protections has allowed industries and cities to grow unchecked and unmanaged, leading to increased pollution and adding to the stress on already vulnerable ecosystems. The environmental consequences of these threats are numerous and compound one another.

Water pollution from agricultural, industrial, and urban waste. The intensive and inappropriate use of agrochemicals on banana, oil palm, sugarcane, pineapple, citrus, and other export crops is one of the main culprits behind the declining health of coral reefs. Erosion and contamination from urban sewage also alters local ecosystems, which supports natural habitats and the tourist economy.

Fragmentation and destruction of habitats within the landscape. Lack of forest management, unsustainable logging, extensive cattle ranching, and the unchecked conversion of forests and mangroves for agriculture and tourism infrastructure threaten the unique species of the Bocas del Toro and Gulf of Honduras watersheds. Unregulated hunting and the collection of flora and fauna, including poaching of endangered marine turtles and eggs, also pose direct threats to biodiversity.

Over-harvesting of fish. Artisanal fishermen and industrial fisheries in Central America generate a total net income of \$1.4 billion per year and \$800 million in exports. However, weak regulation and exploitative market conditions within the industry have resulted in over-harvesting of fish stocks and poor practices at fisheries. The open-access nature of the fishery sector has resulted in unsustainable fisheries that threaten marine populations, affect local fishing communities, and undermine the ecological integrity of marine ecosystems.

Inadequately planned mass tourism and coastal development. The natural beauty of the Gulf of Honduras and the Bocas del Toro watersheds make them appealing tourist destinations. Both are experiencing increased visitations from cruise ships and other tourist groups, yet little planning is being undertaken to ensure that the public and private resources coming into these areas are sufficiently reinvested in watershed management.

Climate change. These already fragile watersheds are under attack as a result of climate change. And as the environmental threats increase, communities within the watersheds are at greater risk. A growing body of evidence indicates that healthy coastal and marine ecosystems can help build resistance to the ocean acidification that results from increasing carbon dioxide levels in the atmosphere. Mangroves and coral reefs alleviate floods and mitigate sea-level rises, providing coastal communities with buffers from storms. However, higher water temperatures brought about by global warming are causing more intense and frequent storms, increasing coral bleaching and disease, and threatening mangroves and terrestrial ecosystems.



PHOTO: AUGUSTO ROSALES

More than 42 percent of the population in the Gulf of Honduras region is under the age of 14. Because their way and quality of life depend directly on natural resources, especially in rural areas, watershed management and conservation of the Gulf of Honduras have crosscutting significance.

C. Program Objectives

To protect these critical watersheds and the many species and people that depend on them, USAID introduced the Conservation of Central American Watersheds program in 2007 to reduce identified threats, promote adaptive management, and apply integrated watershed management concepts. Building on previous USAID programs, this two-year, \$6 million initiative implemented by Chemonics International, World Wildlife Fund, Solimar International, and the Smithsonian Tropical Research Institute aimed to: 1) increase sustainable financing for critical biodiversity areas, 2) support more consistent implementation of management plans for critical biodiversity areas, and 3) promote more effective private sector management and investment to enhance conservation, natural resource protection, and sustainable growth.

Methodology and Strategies for Implementation

Given that the watersheds and ecosystems in the region feed into one another and cross international boundaries, USAID/CCAW applied a regional strategy in collaboration with the governments of Belize, Costa Rica, Guatemala, Honduras, and Panama. The program worked with key groups from the public and private sectors at the regional, national, and local levels, and engaged local communities and institutions in alternative uses of coastal and marine resources.

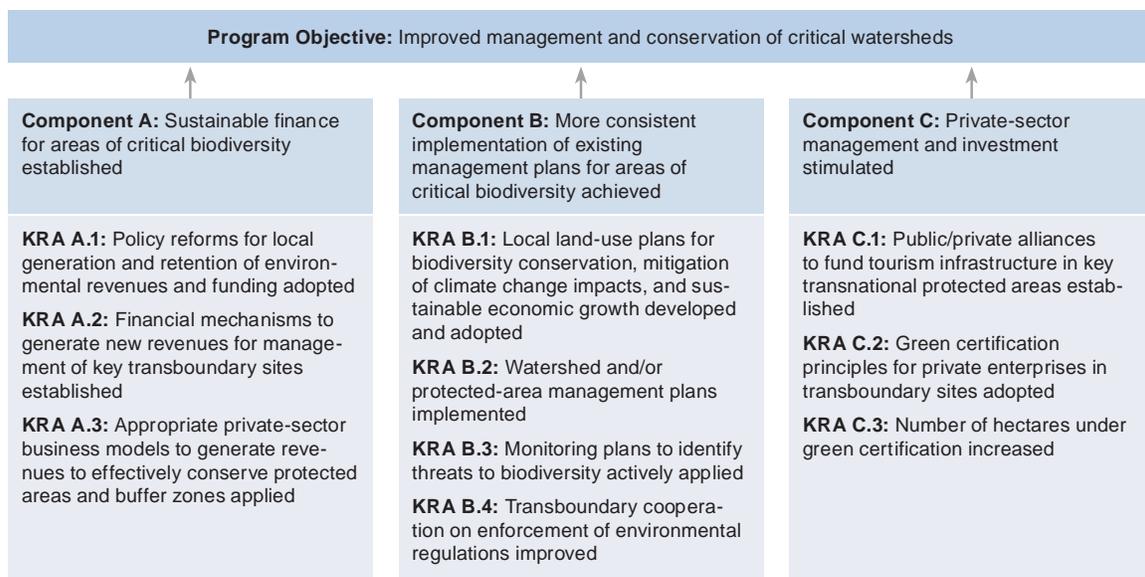
The program addressed major threats to sustainability to the Gulf of Honduras and Bocas del Toro watersheds, producing on-the-ground results in five countries sharing both transboundary watersheds with three key objectives: 1) facilitating access to sustainable finance for critical areas of biodiversity, 2) assisting in the implementation of existing management plans for critical areas of biodiversity, and 3) promoting private sector management and participation to enhance biodiversity conservation, natural resource protection, and sustainable economic growth. These three objectives, as well as several key results areas under each are shown in the program results framework below.

Facilitating access to sustainable finance for critical areas of biodiversity. Local government and conservation agencies in Bocas del Toro and Gulf of Honduras watersheds need to establish and strengthen financial mechanisms to increase investment in protected areas. USAID/CCAW worked with local officials to promote policy reforms for the generation and retention of fees and environmental fines and for PES. The program also helped officials develop strategies for leveraging multilateral funds and other mechanisms to generate the new revenues necessary to sustainably manage selected key trans-national protected areas and implement management plans. In addition, USAID/CCAW promoted private sector business models to support the generation and effective use of financial resources for use in protected areas and buffer zones.

Assisting in implementation of existing management plans for critical areas of biodiversity. USAID/CCAW worked with environmental ministries, protected area co-managers, local communities, and private sector groups to implement management plans for protected areas, watersheds, and land use. Program staff and partners helped local decision-makers develop and implement land-use plans that incorporate biodiversity conservation needs, mitigate climate change impact, and promote sustainable economic

growth in the transboundary sites. USAID/CCAW also promoted implementation of monitoring plans to manage areas so specific threats to biodiversity (such as fires, pests, or invasive species) can be mitigated or reduced. In addition, the program aimed to improve transboundary cooperation in the enforcement of environmental regulations.

Promoting private sector management and participation to enhance biodiversity conservation, natural resources protection, and sustainable economic growth. USAID/CCAW helped create public-private alliances to invest in agriculture, forestry, and tourism enterprises linked to conservation. The program developed public-private partnerships to generate new revenues to sustainably manage and improve tourism infrastructure in selected key transboundary protected areas. The program also worked with private enterprises to help them adopt green certification principles and increase the number of hectares under green certification.



USAID/CCAW’s program activities were guided by a four-pillar conservation strategy. The pillars highlighted the central need to foster alliances among multiple parties: public and private entities, business and financial institutions, conservation agencies and private sector businesses, and stakeholders with diverse interests. The pillars were:

- Support holistic, focused interventions aimed at bringing the highest possible return on investment for program funds
- Foster commitment and ownership by local partners and stakeholders through sharing resources and promoting truly collaborative endeavors
- Apply lessons learned within countries and across boundaries by drawing on successful examples from the program’s implementation

- Promote environmental competitiveness in the private sector by helping companies reduce their environmental footprints and implement conservation best practices while increasing their profits

In identifying activities and selecting partners and sites, USAID/CCAW focused on opportunities that could have transboundary impact. The program recognized the importance of sharing experiences across borders and replicating successful approaches. At the site level, USAID/CCAW evaluated socioeconomic conditions and looked for opportunities to improve local livelihoods while advancing sustainable resource management. Local coastal communities (including several indigenous groups), NGOs, and government agencies were key stakeholders in the long-term process of defining and implementing sustainable natural resource management practices and improving the enforcement of environmental laws and regulations.

To support its strategy of involving local partners, USAID/CCAW employed a small grants fund that could provide up to \$100,000 per grant to local organizations. The selection criteria were:

- The grantee's feasibility in leveraging financing through strategic alliances with stakeholders, the private sector, and other conservation interests
- The beneficial impact of the grantee's conservation efforts
- The grantee's capacity to implement the activity within the time frame of the project

Subcontracts with respected local and international organizations were also developed to support activities that required more than \$100,000.

SECTION II. PROGRAM RESULTS AND DEVELOPMENT IMPACT

USAID/CCAW helped to increase resources for conservation, improve implementation of watershed management plans, and engage the private sector in conservation. The following sub-sections highlight results and success stories in those three areas. Detailed maps and tables of the activities in each area can be found after Sub-section C.

A. Sustainable Finance for Critical Areas of Biodiversity

Challenges

The sustainability of Central America's watersheds depends on informed policy and legislation, combined with sufficient resources and the political will necessary for implementation. Governments have historically allocated inadequate funds for implementation and enforcement, and fiscal policies rarely allow for significant generation and retention of fees for local level management.

USAID/CCAW focused on establishing financial mechanisms to increase revenues for protected areas in the Gulf of Honduras and Bocas del Toro watersheds. Particular emphasis was placed on carrying out policy and regulatory reforms that promote sustainable resource management, leveraging conservation funding from the public and private sector, training civil society representatives and government officials in biodiversity conservation, and developing and implementing private sector business models that ensure resource conservation in USAID/CCAW's areas of intervention.

Results and Impact

Working at the regional, national, and local levels, USAID/CCAW stimulated investment from the public and private sector by catalyzing more enabling policies and regulations, raising decision-makers' awareness of the importance of conservation funding, and implementing financial mechanisms and business models that generated locally retained revenues for conservation. The sub-sections below highlight key examples of results and impact.

A1. Policy Reforms Generate and Retain Environmental Revenues and Funding

With the understanding that national laws are often difficult to create or reform, USAID/CCAW focused on catalyzing conservation agreements at the local and municipal levels. The program's efforts catalyzed the adoption of three municipal agreements, two concessionary agreements, and four local and/or national policy reforms. These have resulted in an improved legal framework for the sustainable management of natural resources in the two watersheds. In addition, USAID/CCAW trained more than 320 civil society representatives from the Gulf of Honduras and Bocas del Toro watersheds in improved advocacy skills for conserving biodiversity.

USAID/CCAW recognized the need to retain conservation funding at the local and municipal levels. Across Central America, protected area funds that are collected locally are usually sent to centralized authorities that redistribute the funds to the national network of protected areas. As a result, the financial needs of protected areas that draw

the most tourists (and experience the most negative impact) rarely receive levels of funding appropriate for their needs, making it difficult to manage visitors or properly conduct conservation activities. To address this discrepancy, USAID/CCAW formalized agreements that allow protected area co-managers and concessionaires to retain revenues generated at their sites. At the national level, the program helped to redirect centralized funding back to local jurisdictions. These activities resulted in \$1.27 million in revenue generated and retained at target sites.

The next sub-section provides example of how USAID/CCAW helped to improve policy and advocacy for increased conservation funding for the two watersheds.

Regulations and service concessions established to protect the Gulf of Honduras watershed. In Guatemala, funds assigned to environmental protection have been marginal. Although the Guatemalan System of Protected Areas (Sistema Guatemalteco de Áreas Protegidas, or SIGAP) represents 32 percent of the country’s national territory, the government has invested little in protected areas. The Guatemalan National Protected Areas Council (Consejo Nacional de Áreas Protegidas, or CONAP) does not have the financial or human resources to effectively administer the more than 200 protected areas to which it has been assigned by law.

At the inception of USAID/CCAW, the government of Guatemala was contemplating increasing the national budget for protected areas. Recognizing the need to leverage government resources, the program assisted the CONAP and protected area co-managers in Guatemala to develop a legal instrument that supports increased public funding for protected areas. USAID/CCAW also assisted CONAP in drafting regulations to establish the guidelines and recommendations for the national law on concessions in Guatemala. The regulation detailed the types of concessions, their legality, and the rights and obligations of concessionaires, including guidelines for concessions in indigenous territories. The program also worked with CONAP and protected area co-managers to implement these guidelines and recommendations.

Establishing New Protected Areas in Guatemala

In Cerro San Gil, Guatemala, USAID/CCAW assisted in the elaboration, technical revision, and negotiations on the regulation of the law declaring Cerro San Gil a protected area. This significant accomplishment opened new avenues to funding the conservation and management of the area.

The concessions regulation led directly to establishment of at least two new concessions in Cerro San Gil. First, through a USAID/CCAW grant, members of the Cerro San Gil executive council worked with protected area co-manager the Foundation for Eco-Development and Conservation (Fundación para el Eco-Desarrollo y la Conservación, or FUNDAECO) to approve regulations that granted service concessions for Río Las Escobas nature reserve. Second, FUNDAECO championed the formalization and consolidation of a private concession for collecting entrance fees at Río Las Escobas. The concession established a rate of 20 percent for the concessionaire and 80 percent for FUNDAECO. The concession is allowing the foundation to expand its service offerings

to cruise ship passengers docking in Santo Tomás de Castilla and eco-tourists coming to Izabal under the “Izabal, Green Caribbean” promotional campaign.

Similarly, in nearby Punta de Manabique, USAID/CCAW helped the protected area co-manager Fundación Mario Dary and the community of Estero Lagarto to establish a service concessions agreement for the Estero Lagarto Ecohostel within the Punta de Manabique Wildlife Refuge. This agreement allows for the joint implementation of activities related to community tourism in the community of Estero Lagarto, which supports local generation and retention of funds for conservation of Punta de Manabique.

A2. New Financial Mechanisms Generate Increased Revenue Streams for Managing Key Transboundary Sites

Even with retention of revenue at the local level, conservation in critical areas of biodiversity is underfunded. USAID/CCAW addressed these limitations by identifying new revenue streams and private sector investments to directly increase funding at the local and municipal levels. For example, USAID/CCAW efforts helped to increase funding by 15 percent in Las Escobas (Cerro San Gil) and by 57 percent in the Bocas del Polochic Wildlife Refuge. The program also trained 113 key decision-makers on protected area finance management, financial projections, and regulations required to implement financial mechanisms in protected areas. The skills gained in the training sessions increased local capacity to identify and solicit new revenue streams for conservation. The next sub-sections provide examples of USAID/CCAW impact in this area.

Payment for environmental services models for watershed conservation created with municipal governments in Teculután and Cerro San Gil. Over-exploitation of natural resources in the sub-watershed of Teculután (part of the Gulf of Honduras watershed) has led to significant water quantity and quality issues. The problems have directly affected the water supply for human consumption and agricultural irrigation. Even more significant is the loss of forest cover due to excessive deforestation and forest pests. As a result, erosion and sedimentation are increasing during the rainy season, and evaporation and soil drying are increasing during the dry season.



PHOTO: AUGUSTO ROSALES

The USAID/CCAW program implemented a PES business model to assist small-scale agro-ecological producers in the reforestation and recovery of highland areas of the Teculután River sub-watershed.

To help address water resource issues in Teculután, USAID/CCAW grantee CARE-Guatemala helped the municipal government design and implement a payment for environmental services business plan for water resources, in which downstream users pay for upstream conservation of the Teculután sub-watershed. The PES plan contributes to

conserving and protecting the area's water resources, promoting and formalizing strategic alliances, strengthening the capacity of local businesses and organizations, and increasing agricultural production capacity while improving water efficiency through improved technologies.

The municipality donated six parcels, totaling 270 ha, of fertile land to rural communities to establish sustainable agriculture and agro-forestry systems. Previously, these communities planted crops in the upper watershed's nutrient-depleted soils, which were prone to severe erosion. USAID/CCAW, CARE-Guatemala, and the municipal government assisted communities in developing an early warning system for forest plague detection in the upper watershed, reforesting critical habitats in the river basin, and establishing improved crop irrigation systems. The Teculután government also established fire brigades to control forest fires, which have hurt downstream water quality. With help from CARE-Guatemala, Teculután brought in the Dutch government and the Coca-Cola Corporation as partners to provide counterpart funding for improved irrigation systems and reforestation.

Successful approaches and lessons learned from the Teculután PES model were shared with other municipalities, private sector firms, local and international NGOs, and community members through a USAID/CCAW-sponsored workshop.

In Cerro San Gil, USAID/CCAW helped leverage more than \$3 million in funds for the installation of an advanced water system infrastructure, using a public-private partnership between Aguas de Izabal potable water company, protected area co-manager FUNDAECO, and the municipal government of Puerto Barrios.

In 2007, the Puerto Barrios government granted a service concession to Aguas de Izabal to provide the town with its potable water, sourced from Río Las Escobas in Cerro San Gil. USAID/CCAW provided grant support to FUNDAECO to develop a PES mechanism in which the concessionaire provides funding for the use of Cerro San Gil's water resources. Through the PES, Aguas de Izabal provided \$15,000 to FUNDAECO in the first and second years of the concession. Starting in the third year, FUNDAECO will receive 1 percent of Aguas de Izabal's gross profits, representing 7 percent of FUNDAECO's annual budget assigned to Cerro San Gil protection.

In addition, USAID/CCAW and FUNDAECO assisted the Puerto Barrios government in its review of proposed water tariffs and the Aguas de Izabal proposed criteria for water resources management and conservation. Based on the recommendations of USAID/CCAW and FUNDAECO, Aguas de Izabal has installed a new water system infrastructure in Cerro San Gil that is reducing leaks and water losses, improving water use efficiency, and ensuring the sustainable management of water resources.

Fee collection improved in protected areas of Panama. Through a grant to Fundación Natura, USAID/CCAW helped to implement mechanisms to increase the generation of funds for protected areas in the Bocas del Toro watershed. The protected areas included the Isla Bastimentos National Marine Park, San San Pond Sak (Ramsar Convention

wetlands of international importance), La Amistad International Park, and the Palo Seco Protected Forest.

In Isla Bastimentos National Marine Park, USAID/CCAW worked with Panama's National Environmental Authority to improve its entrance fee control systems. At the start of the program, Isla Bastimentos' park guards were the sole individuals responsible for charging entrance fees and collecting funds. However, due to the numerous access points into the park and understaffing at those points, there was a large discrepancy between entrance fees collected and number of park visitors. To improve the system, Fundación Natura installed protected area entrance fee control software, replicating successful experiences in Cerro San Gil, Guatemala. Fundación Natura also strengthened the network of key tourism actors within the park, including community groups and boat operators, and enlisted them in collecting entrance fees. As a result, the park is increasing revenues and retaining locally generated funds: entrance fee revenues increased from \$31,656 in 2007 to \$76,588 in 2008, a 142 percent increase.

USAID/CCAW also worked with the Bocas del Toro municipal government in Panama to establish a program to identify and capture new revenue streams for conservation financing. The amount of annual funding that the municipal government has earmarked for the implementation of conservation activities in Bocas del Toro is insufficient to address the large-scale environmental threats in Isla Colón and the greater watershed area, including wastewater and solid waste management. Drawing on lessons learned in Guatemala, USAID/CCAW worked with the Bocas del Toro municipal government to identify all financially and legally viable revenue streams that could be applied to solving local environmental issues. Based on this assessment, USAID/CCAW facilitated passage of a local resolution for creation of a municipal company to leverage funding for conservation in Bocas del Toro. Details about formation of the company and defining the mechanisms for implementation and participation of the private sector remain to be resolved among local stakeholders.

Parallel to this initiative, USAID/CCAW contacted the owners of large housing developments for tourists in Bocas, including Red Frog and Sunset Point, to solicit their participation in USAID/CCAW environmental programs in the archipelago. Red Frog expressed initial interest in participating. However, some of the same environmental issues the program would address diverted the attention of these businesses.

A3. Appropriate Private Sector Business Models Generate Revenues to Conserve Protected Areas and Buffer Zones

With the increased retention of funds at the local level and increased sources of funding and revenues, protected area managers need to improve their business acumen to take fuller advantage of new opportunities. USAID/CCAW developed eight business models in 19 enterprises (including tourism, agro-forestry, and agriculture) in targeted areas. The application of these business models is generating revenues for conservation in the Gulf of Honduras and Bocas del Toro, as demonstrated by the following examples.

Applying private sector business models generated income while ensuring conservation. The Caribbean coast of Belize and Honduras represents one of the most important lobster production areas in the Caribbean and is the most important export fishery in the region, with a majority of the production destined for the United States. However, lobster fisheries in this region are severely over-exploited and catches have been dwindling in recent years. To address this issue, USAID/CCAW worked with local organizations, fisheries cooperatives, and the private sector to implement a sustainable lobster fisheries business model in Honduras and Belize. This business model helped to reduce unsustainable and illegal lobster catches, while generating income through the sale of sustainably harvested lobsters. Through the application of this business model, Asociación Pesquera del Caribe de Honduras (APESCA) has generated \$125,000 from the sale of more than 100 t of sustainably harvested lobster.

Business model developed to increase revenue for tourism linked to conservation. With tourism up more than 70 percent in the past decade in the archipelago of Bocas del Toro, unplanned development and increasing numbers of visitors are putting tremendous pressure on the area’s natural resources. As those in the tourism value chain continue to negatively affect the environment, Bocas del Toro risks losing its pristine environment — the major draw for visitors to the area.

Through a subcontract with Solimar International, USAID/CCAW developed a business model for a sustainable tourism cluster to increase the competitiveness of sustainable tourism and to generate increased revenue for tourism linked to conservation. As part of the business model, the sustainable tourism cluster (known as a destination management organization) offers products and services to tourists and local tourism businesses, generating revenue and ensuring its financial sustainability. The DMO, known as the Bocas Sustainable Tourism Alliance, provides invaluable exposure and market access to Bocas del Toro’s sustainable tourism suppliers and will contribute all net profits from its operations to support conservation initiatives in the Bocas del Toro watershed. The Geotourism Stewardship Council, a board of directors for the DMO, will be responsible for the funds. Building on the successes of the Bocas del Toro DMO, USAID/CCAW helped build a similar destination management organization in the Gulf of Honduras.

Private Sector Business Models Generate Revenue for Conservation Efforts

USAID/CCAW established financial mechanisms to increase revenues for protected areas in the Gulf of Honduras and Bocas del Toro watersheds. Converting these experiences into practical guides, USAID/CCAW developed eight business models for interventions with 19 beneficiaries:

1. Community Tourism
2. Protected Area Tourism
3. Public Private Partnership for Conservation Fund
4. Public-Private Partnership for Water Governance
5. Non-timber Tropical Forestry
6. Timber Tropical Forestry
7. Lobster Fishing Best Practices
8. Agriculture Best Practices

The development and implementation of these private sector business models have generated \$1,060,833 in revenue and have improved resource conservation throughout the transboundary sites.

CASE STUDY

Saving an Archipelago with Tourism

Guides, hotels, and tour operators band together to preserve cultures, lands, and livelihoods



Photo: SOLIMAR INTERNATIONAL

An indigenous Ngöbe artisan weaves a traditional chácara bag for sale at BSTA's Tourist Information Center in Bocas.

U.S. Agency for International Development
www.usaid.gov

CHALLENGE With tourism up more than 70 percent in the past decade in the archipelago of Bocas del Toro, unplanned development is putting tremendous pressure on the area's natural resources. Those working in the tourism value chain seem largely unaware of the negative impact their actions can have on the environment and on their health and livelihoods. Bocas del Toro risks losing its pristine environment, which is the main reason tourists visit the area.

INITIATIVE The Bocas del Toro Sustainable Tourism Alliance (BSTA) — a destination management organization comprising 40 local hotels, restaurants, indigenous communities, boatmen associations, and tour operators — promotes conservation efforts to preserve the cultural and ecological landscape of the archipelago. BSTA supports local and global marketing efforts of all member companies and develops marketing materials to promote Bocas del Toro as a nature-based destination through print materials, a Web site (www.discoverbocasdeltoro.com), and a tourist information center. The center provides travel-planning and reservation services, and sells local handicrafts and branded merchandise.

RESULTS BSTA has fostered links between member service providers, resulting in new sustainable tourism packages and day tours. BSTA also created a comprehensive marketing and branding strategy, an awareness campaign to promote waste-management solutions, and training for guides, resource managers, and others. Ten hotels are improving their environmental performance by implementing Rainforest Alliance's Best Management Practices. In its first year, BSTA is on its way to generating \$30,000 in revenue through its Tourism Information Center, membership fees, merchandise sales, and commissions. A percentage of the profits will be used to support conservation efforts in the region.

B. Improved Management of Critical Areas of Biodiversity

In the past two decades, USAID's engagement in the region has created a solid foundation of capable and committed local partners working in watershed management and biodiversity conservation. The USAID/CCAW program built on previous efforts and continued rehabilitation of critical watersheds through proper land use and protection and conservation measures.

Challenges

Although watershed management effectiveness varies widely throughout the region, at the onset of the USAID/CCAW, overall trends pointed to continued loss of biodiversity and the declining integrity of basic hydrological functions. Regional-level initiatives provided the framework for greater cooperation and improved management, but on-the-ground realities and implementation trends still indicated overall poor watershed management. Critical areas for conservation of biodiversity were being lost, forests were being cleared for short-term gains, fisheries were being overharvested, soil erosion continued to be problematic, and water resources were declining steadily in quantity and quality. Despite regional strategic planning efforts, execution on the ground was still disconnected, particularly in transboundary watersheds. In essence, too much focus was being placed on process, with too little emphasis on the practical work required to quickly address urgent threats or capture the value of emerging opportunities. There was an acute shortage of funds to implement conservation management and environmental monitoring plans.

Results and Impact

Building on more than 20 years of USAID assistance, USAID/CCAW used a bottom-up, results-oriented strategy to improve implementation of existing regional and private watershed management plans and monitoring programs.

B1. Land-Use plans

Regional land-use plan implemented in the Gulf of Honduras. For nearly 10 years, the governments of Belize, Guatemala, and Honduras had tried to move forward a tri-national initiative to improve management of the Gulf of Honduras watershed. When USAID/CCAW began in 2007, these governments still had not defined a viable, useful, regional land-use plan. Recognizing the importance of cooperation and joint decision-making, in November 2008, the USAID/CCAW partnered with Rafael Landívar University's Institute of Agriculture, Natural Resources and Environment (Instituto de Agricultura, Recursos Naturales, y Ambiente) in Guatemala to develop a regional land-use plan for the Gulf of Honduras watershed.

As a first step, USAID/CCAW created a regional advisory board composed of members of key organizations and stakeholders in the region. The board would be responsible for promoting implementation of the regional land-use plan. Second, USAID/CCAW carried out focus group meetings with local decision-makers in all three countries to develop a comprehensive territorial assessment of the current state of natural resources in the watershed, as well as the expectations, interests, and capacity of stakeholders to use the

land. It was critical that the regional land-use plan reflected the desires of the population and included reasonable goals for the short, medium, and long term.

As a result of the assessment, four critical conservation areas were identified as particularly vulnerable to environmental threats. They included Laguna de Placencia territory in Belize, the region between New Heaven and Punta Gorda in Belize, Punta de Manabique in Guatemala, and the Bocas del Polochic wetlands in Guatemala. IARNA identified the Río Dulce/Lake Izabal region of Guatemala as an initial point for implementing the regional plan at the local level. In September 2009, IARNA trained members of the regional watershed organization, the Authority for Sustainable Management of the Río Dulce Watershed (Consejo Directivo de la Autoridad para el Manejo Sustentable de la Cuenca Hidrográfica del Lago de Izabal y Río Dulce). The authority's training and subsequent pilot project helped improve water management by enabling five municipalities in Izabal to better plan and implement sustainable land-use management plans.

Community land-use plans and sustainable agro-forestry decrease deforestation and help sustain livelihoods in Guatemala and Belize. One of Guatemala's most important non-timber forest products is *xate*, a decorative palm frond used mostly in the United States for ornamental purposes and floral arrangements. *Xate* exports contribute more than \$1 million annually to the Guatemalan economy and generate thousands of jobs for rural households. *Xate* is also a naturally sustainable crop, grown in mature native forests and harvested without cutting trees.

In 2008, USAID/CCAW introduced *xate* into the community forests of Sierra Santa Cruz to promote sustainable harvest and commercialization. Working with local Q'eqchi' communities, USAID/CCAW helped develop 16 community land-use management plans, covering about 2,000 ha and including areas set aside for conservation.



PHOTO: AUGUSTO ROSALES

Q'eqchi' indigenous communities on Guatemala's Caribbean coast, active participants in the USAID/CCAW program, apply ancestral practices for alternative forest management and conservation by establishing *xate* nurseries as value added to their natural resources.

SUCCESS STORY

Setting Standards for Sustainable Forest Management

USAID/CCAW helps improve the management and operations of one of the largest forest concessions in Belize



Photo: CHRISTA BOLLMAN

From the forest floor to the sawmill, Thomas Gomez & Sons operates a concession granted to it by the Belize government. With USAID/CCAW support, Thomas Gomez & Sons now uses forest resources and sustainable forest management practices.

In 1992 Thomas Gomez bought a sawmill for logging and lumber production. Hoping to profit from it someday, he said, “If you learn to do it properly, then you have a business for life.” Thomas Gomez & Sons Company (TGS), located on the Highway to Punta Gorda in Southern Belize, now manages 22,000 ha of tropical conifer and broadleaf forest under a 40-year forest concession granted by the government of Belize.

Like many forestry enterprises in Belize, TGS’s management plan did not include adequate measures to ensure the sustainable use of forest resources within the concession. Rotation cycles were estimated without accurate monitoring of the forest’s response to harvesting practices, inventory was incomplete, and the company’s accounting systems did not precisely calculate operating costs to determine economic viability.

With a shared goal in improving sustainable forest management practices, USAID/CCAW provided technical assistance to improve his company’s forestry practices, ensure efficient and sustainable use of forest resources, and improve the company’s economic viability. TGS improved its silvicultural practices, established better-defined rotation cycles, completed forest inventories supporting sustainable harvest on its concession, and enhanced its finance and accounting systems. USAID/CCAW’s support put TGS on the map as a competitive local and international player. Mr. Gomez’s successful concession has stimulated interest and support throughout the Belize forestry sector and has helped pave the way for other concessionaires to follow its lead. More importantly, with improved forest management, more native forests are being conserved.

USAID/CCAW also helped formalized alliances with two private export companies, creating important market links for local and international exports. As a result of USAID/CCAW's technical assistance and training programs, Q'eqchi' *xate* collectors are maintaining biodiverse forests, while practicing sustainable management and harvesting, forging new business partnerships, and reaping the economic and social benefits of increased income.

In Belize, USAID/CCAW forestry specialists and local grantee Sarstoon-Temash Institute of Indigenous Management assisted two community enterprises in Conejo and Santa Teresa in developing forest management plans and trained a number of community members in the harvesting and commercialization phases of their operations. Through field demonstrations and hands-on training, 73 foresters learned the reduced-impact

logging method, including directional felling, which limits damage to trees left standing for future harvest cycles. They were also trained in timber processing using saw guides, which significantly increases recovery of saleable timber compared to traditional cutting methods. By implementing their forest management plans and applying the practical forest management training, foresters in these communities are introducing new techniques in the field and using business tools to increase profitability.

Cacao farmers in Panama learn best practices in agro-forestry management. USAID/CCAW implemented private land-use plans with rural cacao farmers in Bocas del Toro. The program worked in coordination with two rural agricultural cooperatives, Cooperative of Multiple Services of Bocatoreño Cacao (Cooperativa de Servicios Múltiples Cacao Bocatoreño, or COCABO) and Silvi-agriculture Association, (Asociación Silvo-Agropecuaria, or ASAP). With USAID/CCAW assistance, 123 COCABO farmers geo-referenced their farms, communities, surrounding forest cover, and micro-watersheds. In addition, USAID/CCAW provided farmers with accurate and detailed information about their spatial surroundings, helping them implement an agro-forestry system that integrates cacao crops with the natural habitat of trees and shrubs. As a result, farmers are increasing cacao production, improving soil quality, and conserving the forest resources in the buffer zone of the Palo Seco protected area. In addition, USAID/CCAW provided farmers with training on sustainable pruning and harvesting and constructing solar dryers and cacao fermentation boxes. Approximately 257 ha were rehabilitated through establishment of agro-forestry systems.

In August 2009, COCABO received a government grant from the Ministry of Farm Development (Ministerío de Desarrollo Agropecuario) for \$832,838 to replicate the model developed under USAID/CCAW. Under this grant, COCABO will promote cacao cultivation as a viable source of income; support families in cacao production by

USAID/CCAW Developed and Implemented 27 Land-Use Plans

2 Regional Land-Use Plans

- 1 for Gulf of Honduras (IARNA)
- 1 Regional land-use plan for Bocas del Toro (Programa Multifase de Desarrollo Sostenible)

25 Private Land-Use Plans

- 2 Chiquita (Honduras and Guatemala)
- 1 INDESA (Guatemala)
- 1 Hondupalma (Honduras)
- 2 Santa Teresa & Conejo communities (Belize)
- 1 Thomas Gomez (Belize)
- 1 ASAP cacao producers (Panama)
- 1 COCABO cacao producers (Panama)
- 16 *xate* collectors (Guatemala)

providing them with vegetative material, supplies, and tools to rehabilitate at least 2.5 ha of cacao per family; and offer technical assistance during cultivation and commercialization.

USAID/CCAW worked with ASAP rural farmers to implement a private land-use plan and improve agro-forestry systems in the buffer zones of La Amistad National Park. A series of training sessions on agro-forestry management was conducted on topics such as the elaboration and use of organic materials; pruning; phytosanitary management; and best practices in grafting, rehabilitation, harvest, and post-harvest. Agro-forestry systems have been established on 53 ha in micro-watersheds buffering the park. Through USAID/CCAW support, these rural farmers are improving the quality and increasing the quantity of their cacao production, using sound natural resource management practices that are compatible with the plans for the buffer zones of the protected lands.

Mitigating climate change through sound agro-forestry management. USAID/CCAW's support to agribusinesses resulted in the reduction of chemical fertilizer and pesticide applications. Through improved environmental performance, agribusinesses have produced 11,000 t of organic manure, which has reduced the application of more than 2,000 t of chemical fertilizer on banana, African palm, pineapple, and sugarcane plantations. In Belize and Guatemala, USAID/CCAW continued to work with communities and private sector forestry enterprises to conserve forest resources. Forest conservation protects Central America's tropical forests, thereby reducing deforestation and increasing carbon sequestration.

B2. Protected Areas and Buffer Zones

USAID/CCAW has worked with protected area co-managers and government agencies to implement management plans in 11 protected areas, spanning four countries and covering 492,740 ha. The areas include Punta de Manabique, Cerro San Gil, Bocas del Polochic, and Sierra Santa Cruz in Guatemala; Roatan Marine Park and Cuero y Salado in Honduras; Isla Bastimentos Marine Park and San San Pond Sak Wetlands in Panama; and the Talamanca Caribe Biological Corridor in Costa Rica. The paragraphs to follow highlight several of USAID/CCAW's interventions in implementing these plans.

Helping implement the Bocas del Polochic Wildlife Refuge management plan in Guatemala. The Bocas del Polochic Wildlife Refuge in the Polochic River valley is another Central American site designated by the Ramsar Convention as wetlands of

The Private Sector Gives Back

Development Investments (Inversiones de Desarrollo or INDESA) is one of the largest agribusinesses in Guatemala. In 2008, USAID/CCAW worked with INDESA to improve the application of a sustainable business model for oil palm. USAID/CCAW showed INDESA how to develop organic compost using empty fruit bunches from oil palm. The program contributed \$374,235 in cost savings to the company.

Later that year, Defensores de la Naturaleza, a USAID/CCAW grantee approached INDESA requesting a financial contribution for a community tourism project in Chapín Abajo. INDESA agreed to provide the land and construction materials to build Chapín Abajo's eco-lodge. This donation of land and materials was valued at \$263,000. INDESA's contribution is an indication of the private sector's willingness to give back. Together, INDESA, Defensores de la Naturaleza and the Chapín Abajo community have made a giant leap forward in watershed conservation.

international importance. USAID/CCAW supported Bocas del Polochic's protected area co-manager, Defensores de la Naturaleza, in three distinct management programs: sustainable development, ecotourism, and sustainable construction of infrastructure. Together with USAID/CCAW, the indigenous community of Chapín Abajo established a community tourism enterprise. After developing a business plan and with ongoing training, Bocas del Polochic is now outfitted with an eco-lodge that offers more tourism services and excursions and teaches sustainable tourism to others.

Protecting precious resources and mitigating negative environmental impact through proper wastewater management. Water pollution from wastewater discharge is one of the most pressing environmental issues in the Bocas del Toro and Gulf of Honduras watersheds. In its efforts to mitigate negative impact from wastewater runoff, USAID/CCAW targeted Cuero y Salado Wildlife Refuge in Honduras and the town of Old Bank in Panama.



PHOTO: ROBERT WALLE

The USAID/CCAW program supported more consistent implementation of management plans for protected areas, including components such as protection, surveillance, public use, waste management, and water monitoring and quality. It also assisted with hazard mitigation efforts in the Panama-Costa Rica bi-national watershed, particularly those implemented in the Bocas del Toro Archipelago.

Cuero y Salado Wildlife Refuge is composed of 13,225 ha of mangrove-covered wetlands 33 km from La Ceiba. The refuge protects wildlife such as the endangered manatee and 198 species of birds, along with other wildlife.

Fundación Cuero y Salado (FUCSA) is the non-profit organization mandated by Honduran law to manage the refuge. Through USAID/CCAW's small grants program, FUCSA strengthened the refuge's management plan to address growing tourism and visitation and improve tourism infrastructure. The refuge improved its wastewater treatment system by eliminating raw wastewater discharge from the visitor's center and lodging areas, and FUCSA monitors water quality in strategic locations near the wastewater treatment facility.

Old Bank, Panama is a community of about 180 households and several tourism-related businesses situated on a bay in the buffer zone of Bastimentos Island National Marine Park. During the last few decades, Old Bank has grown without central planning, government oversight, regulation, or significant infrastructure improvement, despite Bastimentos' status as one of the most prominent protected marine areas in Latin America. Before USAID/CCAW's intervention, there were no wastewater treatment facilities, and the majority of households discharged untreated sewage directly into small streams and the bay. The few existing septic tanks were designed incorrectly and treated wastewater inadequately.

USAID/CCAW sought to improve household sanitation systems and conduct stream and marine ecosystem restoration to reverse watershed degradation. The program worked with the Smithsonian Tropical Research Institute, local community members, and the municipal government to improve wastewater treatment systems in Bastimentos. USAID/CCAW built wastewater treatment systems for 145 homes and businesses, and community members planted a variety of tree and plant species in strategic locations to reduce erosion. The municipal government created an elected water board that collects service fees to offset management costs and hired a full-time technician to help maintain the system. USAID/CCAW's efforts created a permanent revenue stream that a one-time donation or grant could not have accomplished. Activities like this one ensure sustainable growth for years to come.

B3. Monitoring Plans

Residents living in the transboundary sites of the Gulf of Honduras and Bocas del Toro watersheds depend on marine resources for their livelihoods. A central component of the USAID/CCAW program was to identify viable options for managing fisheries and conserving critical habitats, including coral reefs. USAID/CCAW helped establish marine resources monitoring plans so that current and future residents have sustainable livelihoods.

Monitoring is equally important for agribusinesses. Forest plantation establishment, growth, quality, and pest and disease control depend largely on climate conditions. Advance knowledge of likely climate conditions allows forest managers to prepare management strategies, obtain greater benefits, and mitigate losses. The paragraphs below highlight USAID/CCAW's successes in developing and implementing monitoring plans in transboundary sites.

Monitoring coral reef ecology and water quality in the Gulf of Honduras. The Marine Biology Association (Asociación de Biología Marina de Guatemala, or ABIMA), received a grant from USAID/CCAW to develop an environmental monitoring plan for the Punta de Manabique Wildlife Refuge (Refugio de Vida Silvestre de Punta de Manabique). The refuge forms an integral part of the Mesoamerican Reef. Extending from the northern tip of Mexico's Yucatán Peninsula southward to Belize, Guatemala, and the Bay Islands off the northern Honduran coast, the Mesoamerican Reef ecosystem contains an amazing biodiversity, providing an important habitat for lobsters, sharks, manta rays, dolphins, and other species.

The refuge functions as a marine biological corridor between the coastal and coral reef ecosystems of Belize and Honduras. At the onset of the program, this area was threatened by urban and tourism development, slash and burn agriculture, and unregulated fishery activities.

With no environmental monitoring plan in place, there was no way to measure how and to what extent anthropogenic threats were affecting this protected area. With a USAID/CCAW grant, ABIMA developed a marine resources monitoring plan to determine the ecological condition of the coral reef ecosystems. ABIMA identified the baseline

conditions of the site and developed marine biodiversity indicators, anthropogenesis indicators, and physical, chemical, and biological indicators for water quality. ABIMA's research is a valuable tool in determining the most effective ways to mitigate the principal threats to this important area of biological diversity.

Protecting endangered marine life through effective monitoring.

The San San Pond Sak Wetlands Reserve and Gandoca-Manzanillo Wildlife Refuge are critical areas of biodiversity within the Bocas del Toro watershed. The wetlands reserve is part of an ecologically fragile lowland area of the Bocas del Toro province in Changuinola District. The wildlife refuge is located just a few kilometers north of the Panama border, in Limon Province. Both of these protected areas are sparsely populated and provide an important habitat for aquatic birds and species in danger of extinction, such as manatees and sea turtles. As Ramsar Convention wetlands of international importance, both areas are major regional attractions for nature-based tourism and generate considerable income for local communities. In both areas, the increase of unplanned tourism activities poses a serious threat to the manatee and sea turtle population and habitat. But when properly managed, ecotourism activities can serve as a valuable funding source for conservation programs.



PHOTO: JOHN PARKER

USAID/CCAW supported implementation of binational plans and programs for protection and conservation of sea turtles, designed to mitigate threats to endangered species in the transboundary watershed extending from Punta Cahuita, Costa Rica, to the mouth of the Changuinola River in Panama.

To improve the conservation of these flagship species in the region, USAID/CCAW provided two grants to the Association of Friends and Neighbors of the Coast and Nature (Asociación de Amigos y Vecinos de la Costa y la Naturaleza, or AAMVECONA), a farmers' organization. The first grant was used to promote the conservation of an endangered manatee species by designing and implementing a monitoring plan and developing an ecotourism strategy. Working with the Wider Caribbean Sea Turtle Conservation Network, tour operators, and local civil society representatives in Costa Rica, AAMVECONA implemented a science-based monitoring plan. Through information gained from the plan, AAMVECONA established links between manatee behavior changes and water quality fluctuation in the San San Pond Sak wetlands.

Empowered with this information, local representatives apply improved practices for manatee conservation, and local communities are now socially and economically empowered to educate one another and visitors on the importance of participating in manatee conservation and habitat protection. In the past two years, AAMVECONA and the National Environmental Authority of Panama (Autoridad Nacional del Ambiente) explored possible legal arrangements ranging from formal co-management of San San Pond Sak to low-impact tourism concessions. These discussions continue with the new

administration in Panama. The second AAMVECONA grant was used to implement a sea turtle conservation and protection program between Costa Rica and Panama. A central component of the program is a plan for sea turtle monitoring and control in San San Pond Sak and Gandoca-Manzanillo. USAID/CCAW and local communities rehabilitated 35 km of critical sea turtle habitats and nesting grounds.

Managing Critical Areas and Species through Improved Monitoring Programs		
Plan Type	Activity	Location
2 regional monitoring plans	Agro-climatological monitoring	Gulf of Honduras
	Marine turtles monitoring	Panama and Costa Rica
5 private land monitoring plans	Sugarcane plantations monitoring plan, La Azucarera del Norte, S.A.	Honduras
	3 palm tree plantations monitoring plans, Inversiones de Desarrollo, S.A.(INDESA), Agrotor, and Hondupalma	Guatemala and Honduras
	Banana plantations monitoring plan	Guatemala and Honduras
6 monitoring plans	Manatee population monitoring plan	Panama
	Water quality monitoring plan	Panama
	Environmental and water quality monitoring plan	Costa Rica
	Marine resources monitoring plan	Guatemala
	CONAP management effectiveness monitoring plan	Guatemala
	Phytosanitary and early warning monitoring plan	Guatemala

Using agro-climatic network systems to reduce chemical impact and protect bio-corridors in the Gulf of Honduras. Agribusiness is a pillar of the regional economy of the Gulf of Honduras watershed. However, poor agricultural practices have also made agribusiness one of the primary sources of contamination, degradation of water quality, and loss of biodiversity everywhere from tropical forests to coral reef ecosystems. A major cause is a lack of agro-climatological information, which operators need to determine the correct quantities of agri-chemical applications to use.

USAID/CCAW granted the Honduran Agricultural Research Foundation (Fundación Hondureña de Investigación Agrícola, or FHIA) funds to increase and improve agro-climatological information. Targeting biological corridors in agricultural landscapes, FHIA purchased and installed telemetric weather stations and sensors to monitor precipitation, temperature, and radiation. FHIA also taught farmers best management practices for pesticide reduction and water use efficiency. Today, these Honduran farmers use organic mulch to minimize the use of herbicides and pesticides, effectively reducing pollution from agrochemicals. Water management has also been improved because the

sensors provide access to accurate estimates of evapotranspiration — water transferred from the earth to the atmosphere. Through these efforts, farmers have reduced their production costs while promoting conservation.

B4. Transboundary Cooperation on Enforcement of Environmental Regulations

Regional integration of watershed management and sustainable development of transboundary sites are a vital step forward in Central America, as are the adoptions of the Central American and Dominican Republic Free Trade Agreement (CAFTA-DR) and CITES. CAFTA-DR provides a significant commercial opportunity in the region, but to benefit from the agreement, local governments needed to improve environmental enforcement regulations. USAID/CCAW’s activities under this component focused on improving transboundary cooperation on enforcement.

Facilitating cooperation among different actors in the Gulf of Honduras and Bocas del Toro watersheds. In June 2008, USAID/CCAW held a Tri-national Workshop for Capacity Building in Wildlife Management in Tegucigalpa, Honduras. The workshop trained participants from 13 governmental and nongovernmental organizations from the Gulf of Honduras area. Attendees included representatives of protected area

The Private Sector Commits to Environmental Compliance

USAID/CCAW was committed to engaging the private sector in improving environmental compliance. In Río Chamelecón, Honduras, USAID/CCAW prompted Coca-Cola and SABMiller, a Coca-Cola bottler, to install clean production technologies to ensure their compliance with CAFTA-DR environmental regulations.

departments, fisheries departments, national police departments, customs departments, universities, and national and municipal governments. Participating organizations exchanged information and lessons learned with a diverse group of fellow organizations and stakeholders that play significant roles in wildlife management and trade. This information sharing and capacity building has helped to improve cooperation with CITES enforcement.

Given the success of the Gulf of Honduras workshop, USAID/CCAW replicated the event in October 2008. USAID/CCAW and the Wildlife Trade Monitoring Network facilitated a bi-national workshop between Panama and Costa Rica on wildlife management and trade. The workshop was attended by 65 participants from 21 organizations and included university professors, civil society representatives, protected area administrators, customs officials, officials from the U.S. Department of the Interior, and representatives of the Central American Commission on Environment and Development (Comisión Centroamericana de Ambiente y Desarrollo). The workshop built individual and organizational capacity in enforcing national rules and regulations on wildlife management and trade. This activity provided an important space for discussion of sustainable management and use of flora and fauna and to share success stories and lessons.

In May 2009, USAID/CCAW hosted a regional workshop entitled “Ex-situ Wildlife Management in Central America and its Contributions to In-situ Conservation” in Guatemala. The focus of the workshop was to define the mechanisms, principles, and

guidelines required to strengthen wildlife management and conservation in Central America. The workshop demonstrated the intrinsic relationship and complementary elements of wildlife management outside natural habitats (*ex situ*) and conservation in natural habitats (*in situ*). Carried out in coordination with CONAP and attended by representatives of the Guatemalan Ministry of Environment and Natural Resources, Costa Rican Ministry of Environment and Energy, Honduran Ministry of Agriculture and the Institute for Forest Conservation, Belize Ministry of Natural Resources and Environment, as well as diverse experts in native species flora and fauna management, rescue centers, protected areas, and biological corridors, participants discussed key concepts and criteria related to wildlife management exchanged experiences and approaches related to *ex-situ* flora and fauna management, and identified the constraints and obstacles encountered as a result of these experiences. The workshop provided governments with important information and inputs to develop and implement action plans that would strengthen the complementary relationship between *ex-situ* wildlife management and *in-situ* conservation.



PHOTO: ADRIEL CASTAÑEDA

Lobster is one of the main marine resources in high demand in the global market, especially for the tourism industry. International standards have been established to ensure that lobster sizes comply with the standards and are economically and environmentally acceptable. USAID/CCAW supported implementation of these best fishing practices for lobster-catching in Belize and Honduras.

Supporting the government of Belize to comply with regulations on spiny lobster exports and encouraging Honduran fishermen to use best fisheries management practices. USAID/CCAW worked with the government of Belize to formalize an official lobster fisheries management protocol. The protocol specifies the maximum sustainable yield for lobster fisheries and the minimum carapace length (size limit). Through hands-on technical workshops, USAID/CCAW and government officials evaluated the health of spiny lobster populations, providing the scientific evidence required to help Belize fulfill environmental regulations established by the U.S. Department of Commerce. Without this backup documentation, spiny lobster exports to the United States could be suspended. The innovative approaches and technologies used in Belize are easily replicable in other countries in Central America; therefore, USAID/CCAW carried out a regional sustainable lobster fisheries management workshop to share technical approaches and lessons learned throughout the region.

In Honduras, USAID/CCAW helped improve management of the lobster fisheries. Working with APESCA, several Honduran companies have voluntarily adopted best fisheries practices by using improved wooden traps. USAID/CCAW also helped APESCA compile a database to determine the effectiveness and potential impact of using best fisheries practices. The broad dissemination of these best practices within the

governmental sector, among exporters, and lobster fishermen has increased environmental compliance according to the fisheries regulation, improved fisheries management with the use of environmental friendly traps, and promoted the conservation of marine biodiversity and ecosystem services by promoting an ecosystem-based approach and supporting the Environmental Cooperation Agreement under CAFTA-DR.

C. Improved Private Sector Management and Investment

Challenges

In 2007, businesses in the Central American watershed region still had unmet needs in financing management of biodiversity and natural resources. Businesses lacked the capital to implement new marketing strategies or adopt environmentally friendly practices. As a result, industries such as agribusiness and tourism were negatively affecting biodiversity, human welfare, and marine ecosystems through chemical runoff and improperly managed waste. Without the requisite resources, biodiversity conservation through incentives such as green certification simply became discourse, and little action was taken.

The principal challenge for USAID/CCAW was to bring resources to capable, innovative private businesses that would invest long-term in better environmental policies and infrastructure. Although USAID and other international development assistance was critical in filling this gap, external funding was only a temporary substitute for stimulating greater public financing and private investment in biodiversity conservation. USAID/CCAW recognized that public financing plays a role, but the program operated from the understanding that a slight shift in private capital investments to pro-biodiversity businesses and practices would significantly improve conservation inside and outside protected areas. The program's objective was to harness this potential through alliances and partnerships.

Results and Impact

C1. Public-Private Alliances Fund Tourism Infrastructure in Key Trans-national Protected Areas

The key pillar of USAID/CCAW's approach to increase funding for tourism infrastructure was to create partnerships and bring together additional resources from the private sector, host governments, and other development assistance organizations. This strategy allowed USAID/CCAW to deepen the impact of USAID's contribution by creating important alliances so that the public and private sectors could combine efforts and create sustainable market-based solutions. These alliances would leverage funds and generate creative ideas for identifying new products, techniques, and methodologies for engaging community members and external actors, including tourists.

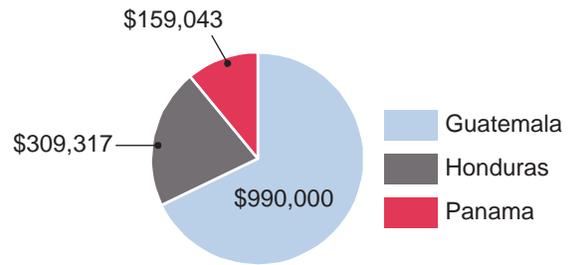
Forging alliances with the public and private sectors to fund tourism infrastructure projects in Salt Creek. The archipelago of Bocas del Toro, including Bastimentos Island National Marine Park, attracts more than 10,000 national and international tourists per year. However, the park was not being used ideally. Several sites within the park were overused, while attractive areas inside and outside the park were rarely visited. Its tourism infrastructure needed a major overhaul to improve its physical conditions and management, better distribute tourists across the park, and increase visitation. However, the park had few avenues to access funding for improvements.

The National Association for Nature Conservation (Asociación Nacional para la Conservación de la Naturaleza, or ANCON), a non-profit organization, showed interest in meeting this need and presented a compelling grant proposal to improve the tourism infrastructure and facilities in Cayo Zapatilla inside the park and at nearby Salt Creek. In executing such a large tourism project, ANCON did not act alone. In addition to USAID/CCAW grant funds, ANCON was able to leverage more than \$75,000 from a diverse group of supporters, including government agencies and local tour operators.

Through marketing by the Bocas Sustainable Tourism Alliance, Salt Creek is quickly becoming a popular destination. The area now features clear signage directing tourists to points of interest along the Salt Creek trail. The small community of 500 Ngöbe living in Salt Creek now has a cultural house where tourists enjoy indigenous dance performances and traditional meals. The community has seen a significant increase in income by offering tour guides, selling handicrafts and food, and providing entertainment. In Cayo Zapatilla, bathrooms, changing rooms, lockers, and furniture have been rehabilitated.

Infusing funds into an innovative business model generates revenue for the Sandy Bay-West End Marine Park. The Sandy Bay-West End Marine Park, located on the island of Roatán, Honduras, is home to a rich coral reef ecosystem that local fishing communities have depended on for centuries. During the past 10 years, pressure has increased on the ecological resources and protected areas of Roatán, including the Sandy Bay-West End Marine Park. The degradation of the reef due to unplanned development, mass tourism, and insufficient legal and building code enforcement is compounded by a lack of marine environmental education programs and unsustainable fishing practices. Neither the public sector nor the private sector showed significant interest in investment in conservation, and existing management plans had only limited success in implementation.

Investments Generated for Tourism Infrastructure from Public-Private Partnerships



Country	Location	Value
Guatemala	Cerro San Gil	\$250,000
	Chapín Abajo	\$315,000
	Río Dulce	\$425,000
Panama	Salt Creek	\$75,317
	Bocas del Toro	\$234,000
Honduras	Roatan	\$79,043
	Río Chamelecon	\$80,000
Total		\$1,458,360

To address one of these needs, USAID/CCAW provided a grant to the Roatán Marine Park Association to diversify its eco-store by increasing the distribution of environmentally friendly tourism products, including DEET-free insect repellent, energy-saving products, reusable bags, and silicone bracelets that are given to tourists who pay a voluntary reef user fee. Since diversifying the eco-store, the Roatán Marine Park Association has registered more than \$79,000 in sales revenue, which is reinvested in sustainable tourism and conservation activities at the reserve. In another example of the interconnections of USAID/CCAW, the reserve's small grant from USAID/CCAW attracted additional private funds that also are being invested back into conservation efforts.

Leveraging funds to diversify tourism excursions in Cerro San Gil. USAID/CCAW's support to FUNDAECO included leveraging \$250,000 for low-impact tourism infrastructure. The funds came from the Inter-American Development Bank, Guatemalan Institute of Tourism, Guatemalan Exporters Association, and Humane Society International. FUNDAECO is using the funds to develop new tourism destinations such as sea kayaking to Guatemala's Ensenada Verde and adventure hikes to the peak of Cerro San Gil. The destinations will be promoted through the USAID/CCAW-supported local tourism alliance. Once constructed and implemented, these destinations will reduce negative impact on nearby Las Escobas waterfall and distribute tourism dollars to more communities, businesses, and households.

CASE STUDY

Creating a Window into the Rainforest

Visitors to Salt Creek learn to hike trails, and see the world, like Ngöbe villagers



Photo: CHEMONICS INTERNATIONAL

The indigenous Ngöbe community uses this cultural ranch as a reception area for tourists and a multi-purpose building for discussing community matters.

U.S. Agency for International Development
www.usaid.gov

CHALLENGE Despite its beautiful setting just outside Panama's Bastimentos National Marine Park, the community of Salt Creek struggles to preserve its indigenous culture and its forests and beaches amid rising tourism. Public services like clean water and electricity are inadequate in the area, and steady jobs are rare. Visitors have limited opportunities to understand the park and its wildlife, or the history and culture of the Ngöbe people who live nearby.

INITIATIVE The USAID Conservation of Central American Watersheds Program supports Salt Creek community tourism through partnerships with several agencies and donor groups. Projects include training 15 residents as ecotourism guides, rebuilding nature trails, distributing a brochure to promote Salt Creek attractions, and constructing a community cultural house where visitors can learn about daily Ngöbe life and buy *chácaras*, dyed jute bags, and other handicrafts. USAID/CCAW also offered ongoing training in accounting, business administration, tourism development, and environmental education.

RESULTS By strengthening local capacity in business and environmental management, customer service, and guide services, USAID/CCAW helped ensure financial sustainability of tourism services and conservation of natural resources. Villagers gained long-term employment and a greater stake in the health of the local ecosystem. Tourists are learning to respect the jungle and spot animals — from sea turtles to night monkeys — and plants and learn how they are used in daily life. The program has led to more sustainable tourist facilities, better wastewater management, more job opportunities, and wider alliances, including with boatmen, hotels, and the Bocas Sustainable Tourism Alliance. By identifying key actors and defining roles for provision of tourism services, the program also developed community leaders.

C2. Private Enterprises Adopt Green Certification Principles

The concept of green certification is to engage government, the private sector, and civil society to work toward environmental sustainability by identifying and promoting environmentally responsible products, purchasing, and production. Green certifications help set standards to promote conservation and natural resources management. USAID/CCAW applied green principles and best practices in private sector businesses and protected area operations. Training and seminars carried out by the program and USAID/CCAW partners have led the private sector to adopt voluntary norms and standards that reduce their environmental impact in both transboundary watersheds.

Restaurants apply international tourism standards and best practices. With a grant from USAID/CCAW, Asociación Ak'Tenamit trained 238 tourism workers from 30 rural villages in Guatemala in earning certification from international tourism programs. With this knowledge, the Ak'Tenamit's BugaMama restaurant, serving traditional Mayan cuisine, pursued certification and began applying tourism best practices. One of the major activities undertaken was the installation of better wastewater treatment systems in the restaurant. Through Ak'Tenamit's efforts, the restaurant remains certified by all four international standards: Green Deal, ServSafe, Hazard Analysis Critical Control Point, and Public Health and Safety (NSF International).

Fishermen's cooperatives in Almirante Bay apply conservation practices. In Bocas del Toro, USAID/CCAW trained 22 fishermen members of Bocas Artisanal Fishermen's Association (Unión de Pescadores Artesanales Bocatoreños, or UPESABO) on how to apply fisheries conservation practices and establishing conservation zones in Almirante Bay. The cooperative established 150 fish zones to repopulate marine life in areas that have been degraded by overfishing, and entered into an agreement with Panama's Aquatic Resources Authority (Autoridad de los Recursos Acuáticos de Panamá) to enforce a moratorium on fishing activities in the zones. UPESABO also formalized a code of conduct for responsible fisheries in Bocas del Toro that now serves as the cooperative's guide for improved fisheries practices.

C3. Increased Land under Green Certification Principles

Green certification in the forestry sector is helping to mitigate climate change through improving the protection of tropical forests and reducing global greenhouse emissions.

Going Green!

USAID/CCAW has trained 40 private enterprises and 434 individuals in green certification principles. These enterprises and individuals span a variety of sectors from tourism to agro-forestry to fisheries. The following organizations have adopted green principles under the USAID/CCAW program.

- Thomas Gomez & Sons, Belize
- EFC Conejo Creek, Belize
- EFC Santa Teresa, Belize
- Las Escobas, Guatemala
- Chapín Abajo, Guatemala
- Estero Lagarto, Guatemala
- Ak'Tenamit, Guatemala
- INDESA Guatemala
- Grupo INTUR, Honduras
- Lactosa, Honduras
- CONECTSA, Honduras
- COCABO, Panama
- UPESABO, Panama
- Asociación Corredor Biológico Talamanca-Caribe, Costa Rica
- 10 tourism enterprises in Bocas del Toro, Panama
- ASAP, Panama

USAID/CCAW implemented sustainable forest management practices in private sector and community-based forest enterprises in Belize, Guatemala, and Costa Rica. During the life of the project, USAID/CCAW saw a marked increase in land areas operating under green certification and/or using green principles, totaling more than 40,000 ha. The program beneficiaries are indicated in the chart below.

Land Operating under Green Certification or Using Green Principles		
Country	Beneficiary	Hectares
Belize	Conejo community	3,362
	Santa Teresa community	7,010
	Thomas Gomez & Sons	22,000
Guatemala	Xate collectors (Programa de Incentivos Forestales or PINFOR)	2,829
	Agro-foresters	4,158
Costa Rica	Asociación Corredor Biológico Talamanca-Caribe	881
Total		40,240

USAID/CCAW Conservation Activities in the Bocas del Toro Watershed



USAID/CCAW Conservation Activities in the Bocas del Toro Watershed

Code and Location	Accomplishments	Partners
1. Isla Bastimentos Marine National Park	<ul style="list-style-type: none"> • Implementation of the Isla Bastimentos Marine National Park management plan • Governmental strengthening through training and equipment to the National Environmental Authority • Funds leveraged for best tourism services • Financial mechanisms designed to increase national park revenues • Tourism promotion as destination 	ANCON Fundación Natura Solimar International
2. Salt Creek	<ul style="list-style-type: none"> • Tourism promotion as destination • Funds leveraged for best tourism services • Institutional strengthening through training, trail rehabilitation, and building of a cultural ranch • Private sector participation through tourism • Community tourism established in accordance with protected areas' business model 	ANCON Solimar International World Wildlife Fund
3. Bahía Honda	<ul style="list-style-type: none"> • Tourism training to community members • Private sector participation through tourism • Tourism promotion as destination 	Solimar International World Wildlife Fund
4. Old Bank	<ul style="list-style-type: none"> • Wastewater treatment system • Private sector participation through tourism • Tourism promotion as destination 	Smithsonian Tropical Research Institute Solimar International
5. Isla Colon	<ul style="list-style-type: none"> • Tourism cluster through the Bocas Sustainable Tourism Alliance • Training in tourism management best practices for hotels, restaurants and water taxis • Private sector participation through tourism • Tourism promotion as destination • Public-private partnership established to help implement an environmental fund business model • Agreement established with the municipal government for a PES program in Bocas del Toro district 	Solimar International World Wildlife Fund
6. Isla Popa	<ul style="list-style-type: none"> • Tourism training to members 	World Wildlife Fund
7. San Cristóbal	<ul style="list-style-type: none"> • Tourism training to community members • Private sector participation in tourism • Tourism promotion as destination 	World Wildlife Fund Solimar International

USAID/CCAW Conservation Activities in the Bocas del Toro Watershed

Code and Location	Accomplishments	Partners
8. Bahía de Almirante	<ul style="list-style-type: none"> • Fishing conservation zone • Tourism training to artisanal fishermen 	UPESABO
9. San San Pond Sak Wetland Reserve	<ul style="list-style-type: none"> • Funds leveraged for best tourism services and other conservation efforts • Manatee monitoring plan • Implementation of the San San Pond Sak management plan • Tourism and conservation training to community members • Sustainable tourism strategy designed • Sea turtles monitoring plan • Tourism promotion as destination • Financial mechanism designed to increase revenues for the reserve • Business plan established 	Fundación Natura AAMVECONA Solimar International World Wildlife Fund
10. Gandoca Manzanillo National Wildlife Refuge	<ul style="list-style-type: none"> • Sea turtles monitoring plan • Conservation training to community members • Implementation of the Gandoca Manzanillo National Wildlife Refuge management plan • Private sector participation through tourism 	AAMVECONA Solimar International
11. Puerto Viejo	<ul style="list-style-type: none"> • Tourism promotion as destination • Private sector participation through tourism 	Solimar International
12. Cahuita National Park	<ul style="list-style-type: none"> • Private sector participation through tourism • Tourism promotion as destination • Sea turtles monitoring plan 	Solimar International AAMVECONA
13. Río Caribón watershed	<ul style="list-style-type: none"> • Payment for environmental services (forest) • Integrated farms management • Implementation of the Río Caribón management and land-use plan • Environmental education training and activities • Forest and water quality monitoring plan • Reforestation and degraded areas restoration • Deer and paca (CITES species) conservation through a farm management plan 	Asociación Corredor Biológico Talamanca-Caribe
14. La Amistad	<ul style="list-style-type: none"> • Funds leveraged for best tourism services 	Fundación Natura

USAID/CCAW Conservation Activities in the Bocas del Toro Watershed

Code and Location	Accomplishments	Partners
International Park	<ul style="list-style-type: none"> Financial mechanism designed to increase park revenues La Amistad International Park (Panama-side) business plan 	
15. Palo Seco Protected Forest	<ul style="list-style-type: none"> Funds leveraged for best tourism services Cacao agro-forestry systems best practices and restoration Environmental education training to communities Implementation of the Palo Seco Protected Forest management plan 	Fundación Natura
16. Río Oeste Ariba	<ul style="list-style-type: none"> Training in agro-forestry systems best practices to farmers Cacao agro-forestry systems best practices and restoration Tourism training to community members 	COCABO World Wildlife Fund
17. Bocas del Toro (excluding protected areas)	<ul style="list-style-type: none"> Cacao agro-forestry systems best practices and restoration Training in agro-forestry systems best practices to farmers Water quality monitoring plan Private land-use plan Funds leveraged for agro-forestry systems establishment and training 	COCABO ASAP

USAID/CCAW Conservation Activities in the Gulf of Honduras Watershed



USAID/CCAW Conservation Activities in the Gulf of Honduras Watershed

Code and Location	Accomplishments	Partners
1. Puerto Barrios	<ul style="list-style-type: none"> • Civil society participation and monitoring of solid waste disposal • Tourism cluster established through a DMO • Licensed guides and DMO staff trained to incorporate environmental conservation awareness into tours 	<p>ABIMA Solimar International</p>
2. Punta de Manabique Wildlife Refuge	<ul style="list-style-type: none"> • Improved environmental monitoring in strategic sites that are threatened by environmental degradation • Increased knowledge of the environmental threats and best understanding of how to mitigate these threats • Improved policy reforms for the generation and retention of environmental funds • Appropriate business plan implemented for income generation and improved conservation • Improved implementation of the refuge's management plan • Improved fee collection systems 	<p>ABIMA Fundación para la Conservación de los Recursos Naturales y Ambiente de Guatemala (FCG)</p>
3. Cerro San Gil Protected Area	<ul style="list-style-type: none"> • Increased funding for protected areas through the enforcement of entrance fees to ecotourism sites and PES mechanisms • Improved organization for the approval of distinct plans and proposed mechanisms, such as ratification of agreements reached • Leveraged funds through public and private alliances • Two businesses models (port and municipal water company) provided funding for PES • Promoted sustainable management of community and privately owned forests through participating in PINFOR • Strengthened community groups through training and workshops to internationally market <i>xate</i> palm • Increased funding for conservation through the incentives of PINFOR and the increased income generation through the commercialization of the <i>xate</i> palm • Best forestry practices (timber and non-timber forest products) training • Financial mechanism established to improve fee collection systems in Las Escobas tourism area • Promotion of Cerro San Gil as a tourism destination • Improved identification, localization, and design of low-impact tourism infrastructure in tourism sites • Diversified tourism services in Cerro San Gil and reduced tourism impact in Las Escobas • Increased application of appropriate private sector business models to generate revenues to effectively conserve the protected area • Improved implementation of the action plan developed for the Río Dulce/Lake Izabal area to ensure sustainability of the BPWR • Increased support to lowland protected areas with approved management plans, growing visitation, and 	<p>FUNDAECO Solimar International FCG</p>

USAID/CCAW Conservation Activities in the Gulf of Honduras Watershed

Code and Location	Accomplishments	Partners
	<ul style="list-style-type: none"> limited capacity to manage visitors • Community tourism and business training • Leveraged funds through public and private alliances • Improved fee collection systems 	
4. Bocas del Plochioic Wildlife Refuge	<ul style="list-style-type: none"> • Increased generation of revenues to effectively conserve protected area and buffer zones • Increased application of appropriate private sector business models to generate revenues to effectively conserve the protected area • Improved implementation of the action plan developed for the Rio Dulce/Lago Izabal area to ensure sustainability of the BPWR • Increased support to lowland protected areas with approved management plans, growing visitation and limited capacity to manage visitors • Community tourism and business training • Leveraged funds through public and private alliances • Improved fee collection systems 	Defensores de la Naturaleza FCG
5. Barras de Cuero y Salado Wildlife Refuge	<ul style="list-style-type: none"> • Improved protected area administrative capacity • Strengthened alliances with national universities and the private sector to support conservation activities • Improved tourism infrastructure to support an increasing number of visitors • Improved fee collection and management system • Enhanced capacity for stakeholder-based water quality monitoring and enforcement mechanisms • Business plan developed and implemented • Environmental education training in alliance with public and private schools 	FUCSA
6. Sierra de Santa Cruz Protected Area	<ul style="list-style-type: none"> • Promoted sustainable management of non-timber forest products, including the <i>xate</i> palm • Promoted sustainable management of community-owned forests in PINFOR program • Strengthened community groups through training and workshops to market internationally the <i>xate</i> palm • Increased funding for conservation through incentives of PINFOR and increased income generated from commercialization of <i>xate</i> palm 	FUNDAECO
7. Sandy Bay and West End Marine Reserve	<ul style="list-style-type: none"> • Developed sustainable financial mechanisms for conservation based on fee collection • Increased public awareness of the effects of terrestrial pollution on coral health and civil society involvement in practical solutions • Developed an strategic alliance with stakeholders to include basic environmental concerns in infrastructure 	Roatán Marine Park Association

USAID/CCA W Conservation Activities in the Gulf of Honduras Watershed

Code and Location	Accomplishments	Partners
	<p>design and municipal code enforcement</p> <ul style="list-style-type: none"> • Improved implementation of existing protected area and watershed management plans • Consolidated the legal basis by formalizing co-management and fee rules • Implemented monitoring measures in water quality 	
8. Río Teculután sub-watershed	<ul style="list-style-type: none"> • Improved protection of water and forest resources • Increased capacity of local businesses and community organizations • Improved agricultural production for farmers • Increased water efficiency in agricultural irrigation systems • Agro-ecology small producers trained on watershed conservation • Developed and implemented a monitoring program to prevent early forest diseases 	CARE
9. Sarstoon-Temash National Park	<ul style="list-style-type: none"> • Improved community forest management • Increased number of local stakeholders trained in sustainable forest management and green principles • Natural forest delimited through implementation of best forest practices • Developed a community-based forest enterprise • Developed and approved two community forest management plans on the buffer zone of the national park • Implementation of pilot harvesting process in Santa Teresa and Conejo • Community members trained in use of chainsaw and guide under sustainable forestry principles • Assisted communities in lumber commercialization process through formalized written agreement signed with an interested buyer 	Sarstoon Temash Institute for Indigenous Management
10. Deep River Forest Reserve	<ul style="list-style-type: none"> • Improved management of at least 15,000 ha of tropical forest • Improved environmental performance of Thomas Gomez & Sons • Designed and implemented a business plan to improve competitiveness and marketing; established the first forestry concession under sustainable forest management in Belize, which serves as a national model 	Thomas Gomez & Sons Co.
11. Río Chamelecon sub-watershed	<ul style="list-style-type: none"> • Private sector companies actively participated in payment for environmental services business model • Reduced water consumption by key private sector industries • Private sector representatives trained in clean production technologies, payment for environmental services and watershed management • Local communities members trained in improved agricultural practices, improved manufacturing practices, business and marketing 	Centro Empresarial Hondureño para el Desarrollo Sostenible

USAID/CCAW Conservation Activities in the Gulf of Honduras Watershed

Code and Location	Accomplishments	Partners
	<ul style="list-style-type: none"> Improved environmental practices of private companies through installation of clean technologies Portfolio of projects for seven communities developed Documented designing process of the payment for environmental services business model 	
12. Río Dulce National Park and Livingston town	<ul style="list-style-type: none"> Improved surface water resources conservation in Río Dulce National Park through implementing wastewater treatment Sustainable conservation finance generated through improved tourism infrastructure and business development Strengthened capacity of community members to work as local guides and manage tourism operations Improved implementation of Green Deal and other certification standards Tourism cluster through a destination management organization 	Ak Tenamit Solimar International
13. Gulf of Honduras (Guatemala)	<ul style="list-style-type: none"> Increased government funding for SIGAP, focused on protected areas in the Gulf of Honduras Increased investment in SIGAP through development and implementation of national payment for environmental services proposal Improved sustainable financing for protected areas in the Gulf of Honduras 	Incidencia
14. Gulf of Honduras (tri-national)	<ul style="list-style-type: none"> Regional land-use plan for the Gulf of Honduras watershed developed Geographic information systems database elaborated for the Gulf of Honduras 	IARNA
15. Honduras lowlands	<ul style="list-style-type: none"> Increased and more effective agro-climatological information through addition of agricultural precision technology in agribusiness Improved dissemination of best management practices for pesticide reduction and water use efficiency Applied agricultural best management practices in intensive agricultural areas Strengthened and expanded sustainable agriculture activities through agro-exportation Improved environmental performance of agribusinesses that mitigate their environmental impact 	FHIA
16. Caye Caulker Marine Reserve	<ul style="list-style-type: none"> Training provided in best lobster fishing practices 	World Wildlife Fund

SECTION III. CONCLUSIONS: LESSONS LEARNED AND NEXT STEPS

In its two short years, USAID/CCAW made important progress in increasing local organization capacity and resources for conservation in the Gulf of Honduras and the Bocas del Toro watersheds. The paragraphs to follow highlight the lessons learned as a result of the program.

A. Lessons Learned

Address transboundary threats at the regional level. As a regional program, USAID/CCAW needed to focus on addressing transboundary threats, such as management of marine species that migrate through the region (e.g., marine turtles, lobsters, fish), watershed degradation that affects coastal marine habitats and livelihoods in neighboring countries, and the impact from tourists who travel across borders. Furthermore, as a regional program, USAID/CCAW needed to implement solutions and activities that transcend national boundaries. In practice, most activities are implemented at the local level and most often in a single country. The lesson learned in USAID/CCAW was to communicate, through reports, conferences, and personal meetings, how the projects' local activities were tied to the regional threats and demonstrate a practice or process that could be replicated in neighboring countries or on a regional scale to address the regional threat. For example, addressing norms and regulations for minimum harvest size for lobster in one country relates to harmonizing these regulations across the region, thereby improving simultaneously the lobster populations and associated economics for lobster collectors in each country.

Build on local initiatives and capacity to achieve rapid results. With only two years to achieve results and impact, USAID/CCAW used a series of small grants and subcontracts to take advantage of local initiatives already underway. This strategy made the most of existing on-the-ground capacity, enabled participating regional and local organizations to exploit new opportunities, and ensured more rapid results for the program. Working with a large number of grantees in five countries required complex management and administrative processes, but this approach allowed the program to witness effects in diverse locations simultaneously. USAID/CCAW support to local organizations built capacity to carry the work forward and replicate the success in other sites.

To optimize future small grants and subcontracts programs, it is best to use pre-selection criteria linked to the project framework to identify qualified organizations that can carry out the work. The criteria should be as objective as possible, while clearly evaluating the organization's capacity to execute the proposed work. When building on existing programs, it is important to recognize the contribution of previous donors and years of work that USAID is building on. Similarly, and given the importance of local organizations and initiatives to results and to the continuation of activities, allowing for co-branding with government and local NGOs may be a way, to have the public better appreciate the contributions of its local organizations.

Access large numbers of stakeholders by supporting cooperatives. Although large-scale agribusinesses represent a major economic force in the region, small landholders, indigenous community associations, and independent business owners dominate in the biodiversity-rich forests and coastal marine sites targeted by USAID/CCAW. Fortunately, many stakeholders are affiliated with cooperatives or associations to provide technical support and training, promote favorable regulation, and support collective bargaining. By providing small grants, training, and technical assistance to six cooperatives, USAID/CCAW was able to affect hundreds of cacao producers, *xate* collectors, community foresters, tour boat operators, and fishermen who have direct control over many of the most vulnerable sites in the region.

Allow time for change within governments. The proposed targets and results for local and national government strengthening were ambitious for a two-year program. Working with governments always implies a challenge due to staff turnover and ebbs and flows in their priorities. USAID/CCAW's help in implementing existing forest management plans, for example, demanded significant time and facilitation between different governments and various laws. Consequently, many initiatives remained at the proposal stage at the end of the program, and USAID/CCAW could not provide follow-up. By contrast, in Teculután, the project managed a smooth transition through change in local government, in large part because our local partners had worked many years in the area and were prepared to manage the transition.

Take a market-based, private sector approach to obtain local stakeholder buy-in of conservation efforts. The program could not assume that all businesses intrinsically care about conservation of natural resources. In the tourism industry, for example, USAID/CCAW learned that it was important to offer marketing benefits (such as being featured on the initiative's Web site and in outreach materials) as an incentive for local stakeholders to join the Bocas Sustainable Tourism Alliance. Once local stakeholders joined the alliance, their commitment to work on local action committees was easier to obtain. Trial memberships, in which members could experience the benefits of the program before being asked to pay a fee, were useful. Although these approaches work with small, local enterprises, USAID/CCAW learned that large enterprises, including large resorts and housing projects building with international investors, require more time to cultivate and require engagement at national and international offices. Nevertheless, the program confirms that a market-based approach works as a voluntary incentive.

Revenue-generating business models can ensure local ownership and financial sustainability. The sustainable tourism alliance formed in Bocas del Toro charges membership fees and sells local handicrafts at the tourism information center established with a USAID/CCAW grant. Income from these sources will support the alliance's future operations. Likewise, community-based *xate* palm and timber enterprises are expected to provide decades of support to the community and conservation of tropical forests. From these examples and others, USAID/CCAW learned that local stakeholders actively take ownership of project activities, even working as volunteers, in part because they recognize the long-term values of sustainable funding.

Act as a catalyst with local partners. USAID/CCAW pinpointed activities that served as catalysts for local actors. Quarterly meetings with USAID/CCAW program staff, beneficiaries, and local partners also enabled implementers to come together to share results, generate new insights, strengthen old ties, and build new partnerships in the region. This approach enabled the program to achieve immediate results and impact in a short time frame, and perhaps more importantly, provided the impetus for local actors to continue replicating results beyond the end of the program.

B. Recommendations for Next Steps

Given the short duration of the program, much remains to be done in building long-term, sustainable solutions that address the threats to Central America's watersheds. The paragraphs that follow provide some recommendations for future interventions in the region.

Ramp up efforts to address additional technical areas in each watershed site. To increase the impact of future programs in the transboundary sites, it is important to expand the integrated approach to all sites within and among these watersheds. For example, in southern Belize, USAID/CCAW worked in the forestry sector, but opportunities still exist to strengthen non-timber forest products (*xate*), promote tourism, and leverage environmental funds for protected area management and improved livelihoods. Immediately across the border in Guatemala, USAID/CCAW established community-based *xate* enterprises, sustainable tourism networks, and innovative payment for environmental services programs. Each initiative improved incomes for communities and small businesses and demonstrably improved conservation of biodiversity. As a next step, USAID/CCAW created an opportunity to transfer these experiences across the border, in both directions, replicating the success in equivalent ecosystems by applying the business models and training programs documented by USAID/CCAW. Doing so in future programs would significantly improve environmental conditions in the shared watersheds and the coastal marine ecosystems in particular.

Replicate successful models. USAID/CCAW compiled an array of information and documentation about the local experience that can be replicated for other programs and in other regional watersheds. The innovative wastewater treatment systems in Bastimentos, Panama, and the consolidation of private sector alliances to implement a conservation fund in Bocas del Toro (Iniciativa Bocatoreña para la Cultura y el Ambiente or INBOCA), precision agriculture in Honduras and Guatemala can be effectively replicated using USAID/CCAW tools. The PES model piloted in the Gulf of Honduras and Bocas del Toro watersheds was an efficient mechanism for articulating work with the public and private sector, as well as communities. Similarly, the DMO model resulted in great success in the tourism sector in these two watersheds. USAID/CCAW documentation of these models can and should be replicated in other watershed countries. To increase private sector participation, it would be useful to incorporate a component to strengthen business competitiveness.

Step up efforts to involve major developers. Early in the program, USAID/CCAW approached developers in charge of major real estate developments in Bocas del Toro to solicit their participation in environmental programs in the archipelago. Even though some expressed initial interest in participating, the same environmental issues the program would address diverted its developers' attention. Given the impact of new real estate developments on the region's watersheds and the potential for leveraging their involvement in conservation, future programs should work with municipal governments and local stakeholders to engage private sector developers.

Integrate USAID/CCAW local partners with new and emerging international initiatives. USAID/CCAW local partners are well positioned to participate in international initiatives and opportunities related to climate change. USAID/CCAW forestry partners in the Gulf of Honduras are positioned to take advantage of programs such as reduced emissions from deforestation funding. Likewise, regional planning partners such as IARNA can contribute to adaptation to projected impact from climate change. Future programs can use these programs as low-hanging fruit that can be quickly launched, much as USAID/CCAW built on earlier initiatives.

Expand the integrated regional approach to additional watersheds in Central America. USAID/CCAW's regional approach fostered sharing of experiences and application of lessons learned across borders to protect transboundary watersheds. This approach was vital to the success of the program, as biodiversity threats and their solutions are not limited to one country and watershed problems in one region can flow to another. Future programs should expand efforts to additional watersheds in Central America, take a regional approach to solutions, and combine activities as part of an integrated watershed management approach.

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