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Lessons on

Community Enterprise Interventions

for Landscape/Seascape Level Conservation



Seven Case Studies from the Global Conservation Program

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EnterpriseWorks/VITA (EWV) combats poverty by helping small producers and other entrepreneurs build sustainable businesses that create jobs and increase productivity, market opportunities, and incomes. EWV achieves this by expanding access to appropriate technologies, technical assistance, knowledge, and finance.

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Lessons or

Community Enterprise Interventions for Landscape/Seascape Level Conservation

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Overview of the Global Conservation Program Case Studies



Photo courtesy of ANSAB

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Introduction

The urgency to implement effective conservation programs has never been greater. Climate change, rapid deforestation, and increasing competition between human and wildlife are now well publicized, no longer relegated to specialized conservation publications. There has also been a transformation on the ground over the last decade. Conservation programs have become more inclusive and actively look for solutions that address economic needs while achieving conservation goals. Conservation organizations are working with communities to launch enterprises, educating governments on economic development strategies that are environmentally sound, and bringing together broader constituencies needed to tackle conservation challenges.

Conservation programs are working in some of the most remote, high biodiversity areas of the world generating lessons on their successes and failures. Yet opportunities to learn across sites are still scarce. If we are to achieve our collective conservation goals, learning can no longer be confined to a site or organizational level.

This product—*Lessons on Community Enterprise Interventions for Landscape/Seascape Level Conservation*—looks across learning in seven landscape/seascapes, implemented by six conservation NGOs funded under the Global Conservation Program (GCP). The GCP emphasizes learning in program design and implementation. The GCP site-based projects help NGOs expand their initiatives, strengthen in-country capacity and collaboration, as well as complement other conservation and development activities in a given landscape/seascape. Learning from terrestrial and marine sites in Africa, Asia, and Latin America has been captured in annual reporting and success stories for the last decade.

In 2006 a learning component that looked across sites and the GCP implementing organizations was launched. This product is part of the GCP cross site learning component and includes this report and a companion PowerPoint presentation with speaker's notes for training and workshop use.



Samburu Women Dancing, courtesy of AWF

1. The Global Conservation Program (GCP)

The primary objective of the Global Conservation Program (GCP) is to conserve globally significant *in situ* biodiversity. Managed by USAID and implemented by six conservation partners—African Wildlife Foundation (AWF), Conservation International (CI), EnterpriseWorks/VITA (EWV), The Nature Conservancy (TNC), Wildlife Conservation Society (WCS), and World Wildlife Fund (WWF)—the GCP includes over 30 landscape/seascape sites and a learning component. The Global Conservation Program, which runs from 1999 – 2009, focuses on landscape/seascape level conservation using a threats-based approach. The GCP sites are globally important areas for conservation and funded work is designed to be participatory, sustainable, adaptive, and results oriented.

The GCP and other investments allowed partners to make long-term commitments of at least 10 years to over 30 landscapes/seascapes. This report features seven of these sites, exploring community enterprises and their contribution to achieving biodiversity conservation.

While livelihoods are important in their own right and the program recognized a moral desire to reduce poverty, this was not the main goal of the GCP. Instead, projects recognized that getting the right mix of incentives and enforcement/protection is a precursor to make conservation attractive to communities, resource users, and decision makers.

Overview of the GCP Case Studies

2. Overview of the Learning Themes and Case Studies

Three learning themes—threats-based approach, scale, and partnerships—are explored in the context of community enterprise interventions in the seven case studies.

- 1. Threats-Based Approach:** How has using a threats-based approach influenced engagement with community enterprise interventions?
- 2. Scale:** How has the shift in scale to landscape/seascape level conservation influenced choices in enterprise development?
- 3. Partnerships:** How has the GCP leveraged partnerships and cross-sectoral relationships to achieve livelihood/economic outcomes that support conservation at a landscape/seascape level?

Getting the right mix of incentives and enforcement/protection is a precursor to make conservation attractive to communities, resource users, and decision makers.

The seven cases, shown in the map below, cover terrestrial and marine sites in Africa, Asia, and Latin America. Each case gives a brief background on the landscape and people, a threats analysis for the site, the project objectives, and the project activities. The cases then focus on the community enterprise component in relation to the three learning themes.

Figure 1: The Seven Landscape and Seascape Case Studies



Overview of the GCP Case Studies

A common context exists across the seven cases: the GCP sites were chosen based on biodiversity criteria, not enterprise feasibility. Globally significant biodiversity tends to be in remote areas, which have poorly developed infrastructure that is often not supportive of enterprise development.

Enterprises at the case study sites face greater business challenges due to their location and tenure status than comparable enterprises not operating in high biodiversity areas. All cases have worked with new and evolving land and seascape tenure instruments that recognize wild lands and wildlife along with peoples' rights to use resources. This has required policy work and community organization to take advantage of evolving tenure instruments for conservation and enterprise purposes.

Enterprise development in the conservation case examples is far more complex than providing business development services (BDS) and financing alone. Conservation compatible community economic development have involved alternative and/or modified activities – standard industry practices were not working for conservation goals. Table 1 gives an overview of the seven cases.

Table 1: Overview of Cases

Organization	Landscape/ Seascape	Enterprise	Tenure/Group Management
AWF	Maasai Steppe, Tanzania	Livestock Production and Ecotourism	Group Ranch and Private Lands
AWF	Samburu Heartland, Kenya	Ecotourism	Wildlife Management Area/ Communal and State Lands
EWV	Western Himalayas, Nepal	Nontimber Forest Products Processing (NTFPs)	Community Forest User Groups (CFUG)
TNC	Komodo National Park, Indonesia	Ecotourism and Sustainable Community Fishing/ Mariculture	UNESCO Man and Biosphere Reserve (Park)
TNC	Mesoamerican Reef, Belize, Guatemala, Honduras, and Mexico	Ecotourism, Modified Artisan Fishing, and Scuba Diving Guides	Open access adjacent to network of marine protected areas
WCS	Petén, Guatemala	Trophy Turkey Hunting	Community Concession
WWF	Terai Arc, Nepal	Nontimber Forest Products Processing (NTFPs)	Community Forest User Groups (CFUG) and National Park

Lessons Learned

1. Threats-Based Approach

The threats-based approach (also called a threats and opportunities-based approach) to biodiversity conservation, as used in the GCP context, has the following steps:

- Identify the site, scale, and conservation targets;
- Identify direct threats to biodiversity;
- Prioritize threats;
- Develop conservation interventions to address high priority threats; and
- Apply adaptive management techniques.

Across the seven cases, community enterprise has contributed to reducing threats by:

- Creating multiple incentives for local communities to conserve biodiversity by increasing appreciation of biodiversity value¹;
- Providing alternative or modified income to lessen the pressure on biodiversity;
- Providing alternative income to mitigate revenue and goods forgone when access is restricted by conservation enforcement;
- Using enterprise benefits as examples to influence policy;
- Using enterprise activities as a means to gain community trust; and
- Raising money for research, community development, and conservation activities to promote sustainable conservation financing.

All cases have concluded that economic diversification beyond existing livelihoods was needed to modify people's income and give incentives for behavior that would address the threats to biodiversity. It was important to understand how the enterprise has matched up with a threat and its scale, urgency, and severity when designing interventions.



Photo courtesy of TNC

While individual economic activities within the community (hunting, fishing, farming, etc.) impact biodiversity, addressing threats to biodiversity at a landscape/seascape level requires group cooperation. To achieve group cooperation, effective governance for the distribution of benefits from enterprise activities is very important. This is an added cost of enterprise development but crucial to achieve sustainable conservation. Benefits have to be seen as equitable and transparent to gain group cooperation on landscape/seascape level conservation and threat abatement activities. All cases have invested in educating the stakeholders on threats and options for addressing the threats, as well as community level organizing and capacity building.

Overview of the GCP Case Studies

All cases have concluded that economic diversification beyond existing livelihoods was needed to modify people's income and give incentives for behavior that would address the threats to biodiversity.

¹ value = ecosystem services, contribution to economic security, cultural pride, subsistence gathering, and prestige in conserving unique species

Table 2: Overview of How Enterprise Interventions Have Addressed Threats

Case/Enterprise	How Enterprises Have Addressed Threats
<p><i>AWF - Maasai Steppe, Tanzania:</i> Livestock Production and Ecotourism</p>	<ul style="list-style-type: none"> Improved livestock health and productivity in exchange for community commitment to conservation actions that kept wildlife migration corridors open Tied enterprise with land tenure status that supported wildlife conservation Made government support of tenure policies and local enforcement more attractive because of enterprise benefits
<p><i>AWF - Samburu Heartland, Kenya:</i> Ecotourism</p>	<ul style="list-style-type: none"> Increased value of wildlife for local people to conserve habitat and restrict farm expansion, a major threat Tied enterprise with land tenure status that supported wildlife conservation Made government support of tenure policies and local enforcement more attractive because of enterprise benefits
<p><i>EWV - Western Himalayas, Nepal:</i> NTFP Processing</p>	<ul style="list-style-type: none"> Promoted value-added processing of NTFPs to increase value per unit harvested, so reduced harvesting could become an option – over-harvesting major threat Tied enterprise development with access to government land tenure program that required a sustainable forest management plan and conservation action on other threats (fire, poaching) Built trust with community on successful enterprise which led to community actions on other threats (fire reduction)
<p><i>TNC – Komodo, Indonesia:</i> Ecotourism & Mariculture</p>	<ul style="list-style-type: none"> Provided alternative tourism-based income (ecotourism guides, products and services for tourists) to entice people to give up unsustainable fishing practices Modified artisan fishing to make more sustainable
<p><i>TNC - Mesoamerican Reef:</i> Fishing & Tourism</p>	<ul style="list-style-type: none"> Developed models and capacity to persuade government and local communities to change policies and practices
<p><i>WCS – Petén, Guatemala:</i> Trophy Turkey Hunting</p>	<ul style="list-style-type: none"> Provided alternative turkey trophy hunting income to entice people to give up unsustainable farming practices and protect the turkey’s habitat Tied enterprise with land tenure status that supported wildlife conservation Made government support of tenure policies and local enforcement more attractive because of enterprise benefits
<p><i>WWF - Terai Arc, Nepal:</i> NTFP Processing</p>	<ul style="list-style-type: none"> Promoted NTFPs to reduce human-wildlife conflict and provide alternative income Tied enterprise development with access to government land tenure program that required a sustainable forest management plan and conservation action on other threats

General advice has emerged from the cases on where to work, what sectors to work with, and who and how many people a project should work with to address threats. In determining where to work within a landscape/seascape, choose critical “conservation determined” geographic areas to achieve conservation leverage (connectivity function, areas with high human impacts, accessibility/feasibility). Choose key sectors that are directly tied to *in situ* biodiversity. Modifying existing livelihoods (forests products, livestock) or sustainably exploiting biodiversity for new activities (ecotourism, trophy hunting) show promise for reducing threats in the cases. The “who and how many to achieve conservation” question was trickier to provide guidance on, as good data was not available. Limited data suggests that the number of people and amount of money generated has to be measured in the local context. The case studies show that relatively small amounts of funds, equitably and transparently distributed, can be persuasive for communities to adopt conservation.

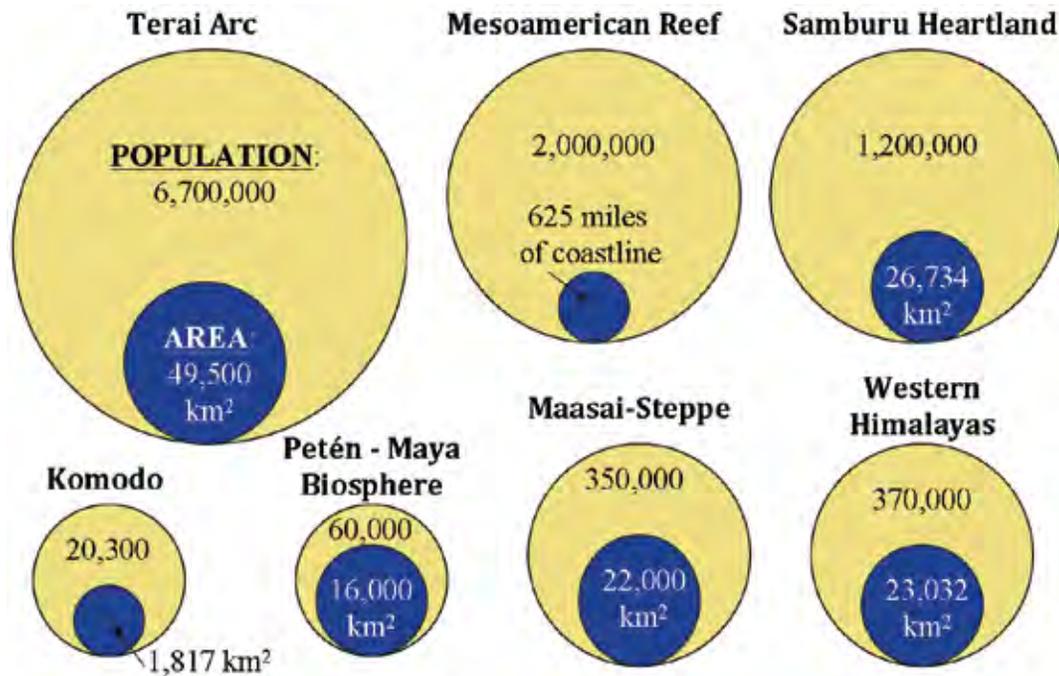
2. Scale

“Landscape and seascape-level planning offers a context in which conservation and development goals can both be effectively promoted, and become mutually reinforcing”².

The GCP partners have varying methodologies for defining a landscape or seascape, but all methods use a biological basis. Area needed for a species or suite of species, habitat protection, and ecosystem viability goals are several primary ways landscape and seascapes are defined.

The seven cases explicitly include areas “zoned” for human economic activities that have high biodiversity or are critical to maintaining species.

Figure 2: Landscape/Seascape Size and Population



The seven cases explicitly include areas “zoned” for human economic activities that have high biodiversity or are critical to maintaining species. The enterprise activities in the landscape/seascape interacted with private lands, community tenured lands, and common property usually owned by the government in addition to protected areas.

2 Gustavo A. B. da Fonseca, et al. “On Defying Nature’s End: The Case for Landscape-Scale Conservation.” *Conservation Practice at the Landscape Scale*, 22.1 (2005).

Table 3: Overview of Cases' Tenure Instruments and Implications

Case/Enterprise	Tenure Instruments Outside Protected Areas	Enterprise and Conservation Implications for the Landscape/Seascape
AWF – Maasai Steppe, Tanzania Livestock (cattle) production and Ecotourism	Group Ranch and Private Lands	<ul style="list-style-type: none"> Group ranch brought under the management of the Tanzania Land Conservation Trust with explicit mandates to conserve migratory corridors for wildlife while operating livestock and ecotourism enterprises. Pre-emptive move to solidify land tenure mechanism meant competing owners that would have put up fences did not secure title to the land.
AWF – Samburu Heartland, Kenya Ecotourism	Wildlife Management Area/ Communal and State Lands	<ul style="list-style-type: none"> Showcase tourist lodge attracted high end tourism operator that gave back higher percentage of revenues to the community to create conservation incentives. Government entities included early in project implementation facilitated government approval of tourism permits and actively engage government as a conservation partner.
EWV – Western Himalayas, Nepal NTFPs	Community Forest User Groups (CFUG) and Government Lands	<ul style="list-style-type: none"> CFUG rules favorable to enterprises, but advocacy needed for some species. Effective enforcement in CFUG areas used to lobby for greater CFUG areas in landscape to reduce degradation in neighboring government lands.
TNC – Komodo Ecotourism Mariculture (fish and seaweed culture)	UNESCO Man and Biosphere Reserve with Open Access Outside the Park	<ul style="list-style-type: none"> Seascape level open access makes it hard to achieve enterprise and conservation goals, as it is very difficult to restrict outsiders.
TNC – Mesoamerican Reef, Fly Fishing Tourism and Artisan Fishing	Open Access	
WCS – Petén, Guatemala Trophy Turkey Hunting	Community Concession	<ul style="list-style-type: none"> Successfully secured turkey hunting and export permits needed for enterprise within existing community concession laws; collateral effect on local wildlife policy efforts.
WWF – Terai Arc, Nepal NTFPs	Community Forest User Groups (CFUG) and Private Lands	<ul style="list-style-type: none"> CFUG groups work within operational plans and allowable activities of CFUG tenure agreements, while private lands do not have these restrictions in Nepal.

Across most sites, protected area strategies—research, capacity building, policy work, parks management— were a starting point for enterprise activities. Lessons from protected area management influenced “zoning” rules for buffer areas where people are engaged in economic activities.

Tailoring tenure instruments has been critical for landscape/seascape conservation and enterprise development across the seven cases. The GCP partners have influenced community tenure instruments to require biodiversity conservation, lobbied for zoning and permit rules to support enterprise options that favor or encourage conservation, and promoted mechanisms within tenure agreements for enforcement of conservation requirements.

The case studies show that the economic value of tenure security is highly sought after by communities and provides a strong incentive to engage in conservation. Consolidating community tenure groups and types of instruments under federations or associations has allowed for more effective policy advocacy on both conservation and enterprise issues. It has been necessary to explicitly integrate community tenure instruments with broader level conservation planning, networking, awareness raising, and stakeholders coordination. The use of subsector/value chain tools to better understand how planned enterprises fit within the sector and its landscape/seascape has also been noted as helpful in several cases.

3. Partnerships

The seven cases show trends of how partnerships have evolved over the last decade of the GCP work to leverage relationships among a much larger group of stakeholders to achieve livelihood/economic outcomes that support conservation at a landscape level. Examples of this trend include:

- Networks that link primarily protected area managers and scientists expanding into networks that link a range of stakeholders, especially community representatives;
- The creation of protected areas controlled by government/NGOs expanding to include titling of participatory resource management areas managed by communities; and
- Monitoring of conservation efforts by scientists with hard conservation data and scientific data collection methods expanding to include monitoring by local communities and project partners, augmented with NGO led monitoring meetings and workshops.

Community partnerships have leveraged a previously under-utilized resource for conservation—the men and women living in high-biodiversity areas. The GCP investment in community capacity building has increased community roles in enterprise, monitoring, and advocacy. Government partnerships have leveraged government’s influence in tenure and zoning policy to support landscape/seascape level conservation and sustainable enterprises. NGO and donor partnerships have leveraged skills,



Awareness campaign, courtesy of ANSAB

training funds, and complementary programs of agencies operating in the landscape or seascape to scale up impacts. At the same time, private sector partnerships have leveraged the conservation message through product and services marketing in value chains that reach broad constituencies locally and internationally.

Community partnerships have leveraged a previously under-utilized resource for conservation—the men and women living in high-biodiversity areas.

Partnerships with the private sector have been of particular importance in the development of the community enterprises across the case studies. Often given the remoteness and new type of enterprise, there were few or no private sector actors. Serious barriers to entry exist for the private sector to initiate a partnership with community enterprises and the NGOs are needed to help reduce the barriers to entry and recruit private sector partners.

Across the seven cases, the following guidance has emerged on how to recruit and leverage private sector partnerships.

Overview of the GCP Case Studies

Interventions implemented under the GCP program have reduced many of the barriers to entry for private sector partners.

- Identify existing private sector actors to link to community enterprise.
- Pitch the products/services to the private sector. The private sector actors will not approach you. In all cases, the NGOs played a facilitation role.
- Understand the private sector’s cost structure and respect reasonable profit margins. The private sector has to make money to be sustainable.
- Demonstrate how the NGO activities reduce the barriers to entry for the private sector. If barriers to entry cannot be overcome, then the enterprise will not be sustainable.
- Take on a private sector role as last resort. NGOs may need to insert themselves in the enterprise’s activities when existing private sector actors feel barriers to entry are too high. If an NGO does take on a private sector role, clearly define an exit strategy.

Barriers to entry for the private sector partners—common to community enterprises operating in high biodiversity areas—include: political risk (unclear/inconsistent permitting procedures for resource extraction or services and corruption); lack of local context knowledge (social, environmental, and political); low levels of enterprise capacity within the community; overly burdensome conservation restrictions; higher transport costs due to remote locations and seasonal access; and low community capacity to produce and deliver a quality product consistently.

NGOs’ local knowledge, relationships with government and communities, and policy interventions implemented under the GCP program have reduced many of the barriers to entry for private sector partners. The map below shows the private sector companies that have entered into partnerships with the NGOs and communities to process, promote and market products and services from the conservation areas.

Figure 3. Private Sector Partners Interviewed for the Case Studies





Photo courtesy of EWW

All eight private sector partners have company mandates to support conservation and social equity. Each noted that they were approached by the NGO and would not have known of the business opportunity otherwise. The companies also indicated that if the NGO had not mitigated barriers to entry, it would not have been feasible to enter into a partnership with the community enterprise. Companies were willing to support conservation goals even when it meant adjusting order size and timing of orders to support sustainable harvesting, but community enterprises have provided good data on product supply and timing of supply. Most of the companies have invested in educating their end consumers on conservation, but found changing end consumer demand patterns difficult to influence.

Overview of the GCP Case Studies

Finally, leveraging of cross-sectoral relationships to foster a better understanding of governance, enterprise development, and conservation issues has built trust between partners. This has allowed partners to better negotiate tradeoffs to achieve conservation. The cases demonstrated that among the private sector-NGO-community partnerships, each has gained a better understanding of business, social, and environmental issues, when previously each specialized in only one out of the three. For government-community partnerships, more secure land tenure and user rights (grazing, fuel and water access, medicinal herbs, wild foods) have strengthened community partnerships with the government. While for NGO-community-government partnerships, the international prestige in conserving globally significant areas has influenced relationships with government officials and communities.

Concluding Thoughts and Advice for the Future

The seven cases have generated some interesting lessons across the threats-based approach, scale, and partnership themes. Concluding thoughts for each theme are listed below.

Threats-Based Approach

To address threats to biodiversity conservation, community enterprises must have clear land/sea tenure rights that:

- Allow the community to restrict outsiders;
- Are recognized and supported by government;
- Allow the community to restrict members' resource use; and
- Reward good resource management with larger areas of land that will support multiple enterprises.

Scale

When working at landscape/seascape scale on community enterprises, NGOs should:

- Build capacity;
- Work to reduce barriers to entry for private sector partners;
- Institute robust biological and social monitoring; and
- Facilitate locally governed enforcement mechanisms.

These seven cases demonstrate a wide range of community enterprises with greater sophistication in dealing with the private sector.

Partnerships

To leverage partnerships that achieve livelihood improvement and conservation, NGOs should:

- Include government, local communities, and the private sector;
- Gain an appreciation for the different partners skill sets, capacity, priorities, and styles of communication;
- Recruit expertise that understands the different partners' perspective;
- Facilitate understanding among the partners; and
- Embrace the relative strengths of each partner.

This GCP learning activity illustrates that while some of these lessons may not be new to some, they are still new to many practitioners. Across the cases, a clear lesson is that conservation and development practitioners still need to invest more effort in understanding and appreciating the varying perspectives on enterprise development and conservation.

There is still much to do, but progress has been made. These seven cases demonstrate a wide range of community enterprises with greater sophistication in dealing with the private sector. We should encourage more experiments with enterprise options if we are to be successful in landscape/seascape level conservation. The seven cases that follow provide a better understanding of the multiple interventions required to be successful in enterprise development in a conservation setting, or conversely, achieve conservation goals while promoting community enterprise.

Advice for Future Projects

Don't Forget Previous Learning.

The basics when considering enterprise development and biodiversity conservation hold true. New practitioners should not overlook the body of learning from the Biodiversity Conservation Network program (www.bsponline.org), which was used heavily in the design and by the partners throughout the life of the GCP.

Make explicit in project design that landscape/seascape conservation requires governance, resource management, and economic changes for communities.

This means there will be lots of new things to balance. The cases demonstrated that local people are maxed out trying to make it all work. Future efforts need to work smarter and more strategically, building on the learning from partnership leveraging.

Put more emphasis on impact data.

Impact data on economic activities and conservation are still lacking. More attention needs to be paid to this area across most landscape/seascape conservation programs.

Look continuously for opportunities to reconcile community, conservation, private sector and government interests.

This takes a significant, long term investment but will create a strong conservation constituency when achieved.

African Wildlife Foundation – Maasai Steppe, Tanzania



Scouts, courtesy of AWF

Connectivity and Landscape Conservation Through Ranch Land Enterprise

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Background – Landscape and People

The Maasai Steppe in northern Tanzania is one of the world’s richest remaining refuges for wildlife and an area of global biodiversity value. The region is characterized by semi-arid grasslands, which are an ideal habitat for Africa’s large mammal species and for grazing livestock, the traditional livelihood of the Maasai people who inhabit the region.

The ecosystem encompasses 22,000 km² lying east and south of the Great Rift Valley escarpment. The area includes two national parks (Tarangire and Lake Manyara), two forest reserves (Marang and Lossimngori), community areas, and institutional land holdings (Manyara Ranch, and Makuyuni National Service Training Grounds). Lake Manyara was designated a Biosphere Reserve in 1987. Bordering the Maasai Steppe is the Ngorongoro Crater, a caldera designated by UNESCO in 1979 as a World Heritage Site. To the east lie the Simanjiro Plains—used by zebra, wildebeest, and other migratory animals from Tarangire during the wet season to calve.

The most diverse and complex grassland savannah ecosystem in the world extends through the Maasai Steppe, serving as the cornerstone of Tanzania’s growing \$1.3 billion tourism industry (approximately 13% of GDP). Despite the potential economic growth and financial opportunity created by tourism, local communities derive little direct economic benefit. Most of the region’s rural residents continue to structure and base their livelihoods on livestock production and are highly dependent on the natural resource base.



Photo courtesy of AWF

A population of approximately 350,000 people inhabit the Maasai Steppe landscape. There is a livestock population of approximately one million indigenous zebu cattle. Historically, pastoralists practiced a nomadic existence, dependent upon large tracts of land that could be utilized according to exigencies at the time. However, over the past 20 years, there has been a large in-migration of other groups into the region modifying many of the traditional land and resource use practices.

In-migration has resulted in rapid population growth in large areas of the Maasai Steppe. Fragmentation of the landscape is a serious threat to the ecosystem; only four out of twelve wildlife corridors remain viable. AWF and partners have been working on securing important land units within wildlife corridors, such as the Manyara Ranch in the Kwakuchinja corridor, and are implementing a landscape conservation approach in the Maasai Steppe.

African Wildlife Foundation
Maasai Steppe

A population of approximately 350,000 people inhabit the Maasai Steppe landscape.

This case is part of a series of seven cases under “Lessons on Community Enterprise Interventions for Landscape/Seascape Level Conservation”. Each case study provides some brief context on the site-based project before focusing on the community enterprise component in relation to three learning themes: Threats-based Approach, Scale, & Partnerships.

Threats Analysis

As part of the Heartland Conservation Process in the Maasai Steppe Heartland, AWF conducted a detailed threats analysis to guide their conservation efforts. AWF focused threat abatement activities on the following conservation targets in this Heartland: wildlife migration routes/dispersal areas, elephants, and predators (with a focus on the lion.) For each conservation target, AWF determined the specific threats that the target was currently facing.

Table 1 provides a summary of the threats affecting priority conservation targets in the Maasai Steppe Heartland.

Table 1. Threats Assessment

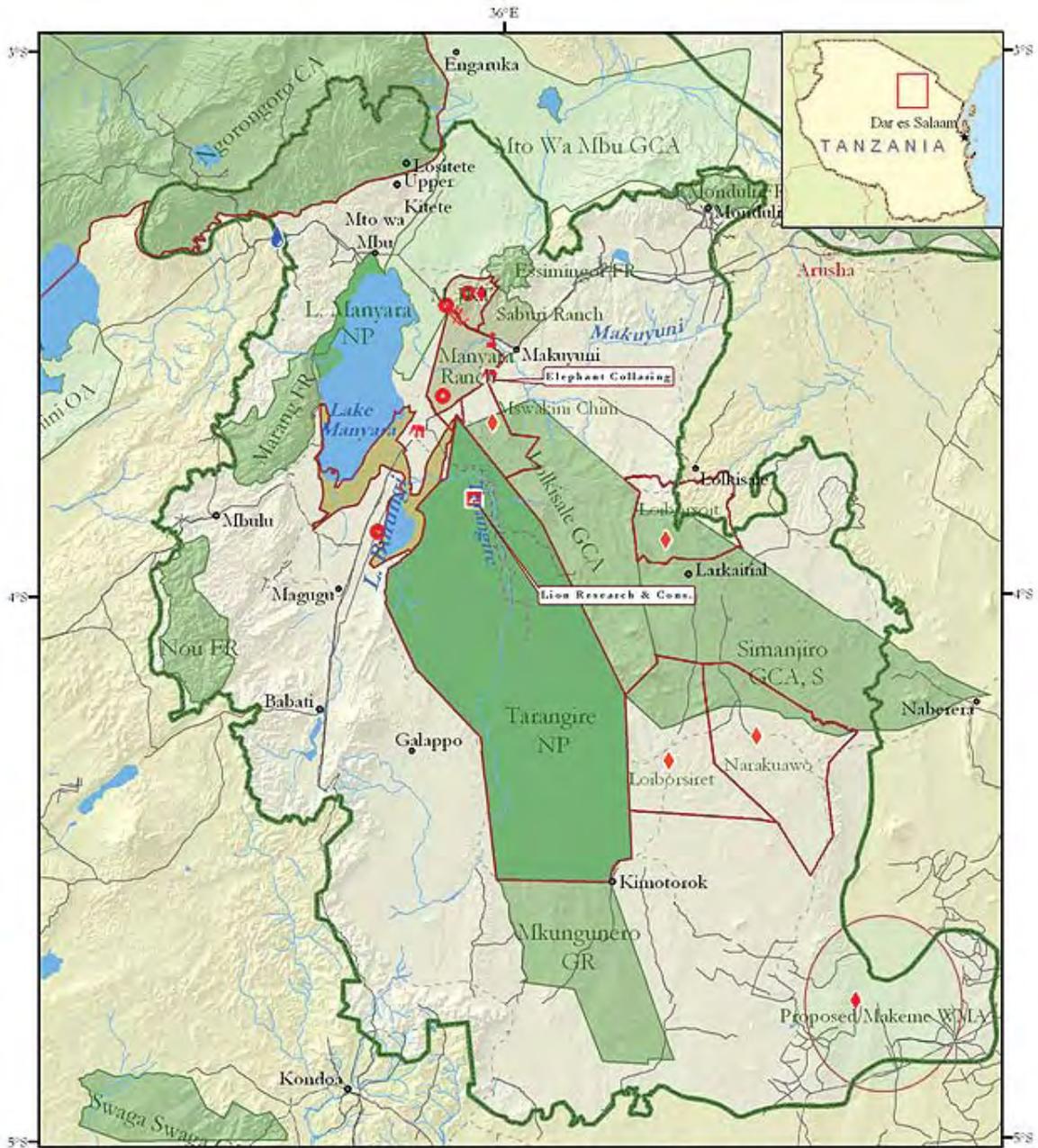
Conservation Target	Critical Threats		
Elephants	Habitat conversion to agriculture	Human wildlife conflict	Poaching
Wildlife migration corridors / dispersal areas	Incompatible settlements	Habitat conversion to agriculture	Habitat fragmentation
Predators (focus on the lion)	Poisoning, killing by humans	Loss of habitat	Conflict with people/livestock depredation

Project Objectives

The AWF approach to achieving conservation goals in Africa is to focus on priority landscapes, such as the Maasai Steppe Heartland, that have the potential to conserve viable populations of African wildlife as well as key habitats and ecological systems. Heartlands are conceptualized to define the functioning landscape, establish priority conservation targets, determine critical threats to the targets, and develop conservation strategies to protect and maintain the elements of biodiversity while meeting human needs in the area.

In the Maasai Steppe Heartland, AWF has invested substantial effort and resources towards maintaining a corridor between Manyara and Tarangire National Parks which is crucial to ensuring the future ecological and economic health of the landscape. The following map shows the Maasai Steppe Heartland in its regional context and the locations of AWF interventions:

Maasai Steepe Heartland – Regional Context



Maasai Steepe Heartland: Regional Context

- AWF Cons. Center
- AWF Office
- Road
- Stream
- AWF Heartland
- Sources: AWF, Instituto Oikos, FAO-Africover, NASA-SRTM
- National Park
- Other Protected Area
- Wildlife Mgt. Area
- WMA (proposed)
- Private Cons. Initiative
- AWF Priority Intervention
- 2007-8 Priority Interventions
- Conservation Enterprise
- Elephant Collaring/Corridor Conservation
- Improve Management
- ◆ Land Conservation
- ◆ Land Use Plan
- New Manyara R. School
- Species Research/Cons.
- Watershed Management

Maasai Steepe by #s	
Area (Km ²)	22,233
Annual Rainfall (mm)	869.4
Mean Temp. (C)	20.8
Elev. Range (m)	908-3434
Population Total	622,252
Pop. Density (#/Km ²)	28.0

National Distribution	% Area
Tanzania	100.0



AWF Spatial Analysis Laboratory, Dec-07

Project Activities

The Maasai Steppe Heartland program has concentrated on tangible on-the-ground activities to abate threats to biodiversity conservation targets. AWF has helped to integrate sustainable local economic development into conservation through support for empowerment and land use rights, participation of poor people in decision-making processes, improved governance of community institutions, and facilitating the development of community wildlife-based enterprises.

AWF's multi-faceted strategy has included:

- Support for improved management of protected areas (e.g., National Parks/Reserves, Forest Reserves);
- Establishment of the Tanzania Land Conservation Trust;
- Conservation of private lands using innovative land conservation mechanisms to secure important habitats; securing the Manyara Ranch for conservation;
- Participatory land use planning;
- Applied species research, monitoring and protection;
- Institutional development and capacity building to strengthen natural resource management;
- Watershed management;
- Policy dialogue; and
- Wildlife based enterprise development to secure livelihoods for local people and generate revenue to finance conservation efforts, including private sector partnerships.

The thrust of this intervention was to secure an important land unit within the corridor, the Manyara Ranch (17,806 ha). AWF facilitated the creation of the Tanzania Land Conservation Trust (TLCT) and placed Manyara Ranch into the Trust to secure this important land unit for conservation management and improve the livelihoods of local people. AWF is implementing an action plan for the ranch that addresses multiple users' needs and management issues: wildlife protection, grazing allocations for pastoralists, tourism development, and livestock enterprise development. The creation of the TLCT and Manyara Ranch were a required step to pursue the community enterprise component of the project.



Photo courtesy of AWF

African Wildlife Foundation
Maasai Steppe

AWF facilitated the creation of the Tanzania Land Conservation Trust (TLCT) and placed Manyara Ranch into the Trust to secure this important land unit for conservation management and improve the livelihoods of local people.

The Community Enterprise Component

One of the main strategies for achieving lasting conservation impact in AWF Heartlands has been the development of conservation-based enterprises—commercial activities that generate economic benefits to local people in a way that supports the attainment of a conservation objective. AWF’s Conservation Enterprise program is one part of a wider, fully integrated Heartland strategy that includes: land and habitat conservation, species and applied conservation research, capacity building, and policy.

AWF has developed a comprehensive Conservation Enterprise Development Process that underpins the structuring and management of its work in this area. The five core steps of the process are: 1) Project identification, 2) Due diligence and business planning, 3) Project development, 4) Business development, and 5) Benefits management. This sequential approach recognizes that the different phases of an enterprise’s development require different management skills and approaches. Accordingly, AWF has placed considerable emphasis on developing a comprehensive series of structured tools and services specific to each step.

To draw out lessons on utilizing conservation enterprises as a strategy to achieve conservation impacts at landscape scale, two specific examples of enterprise projects implemented in the Maasai Steppe Heartland, and specifically on Manyara Ranch, are described below.

1. Management of Manyara Ranch

The Manyara Ranch, which was previously held by the Tanzanian Government’s National Ranching Corporation, had fallen into disrepair and caused some to consider privatization of the land. Privatization, however, would likely have led to further habitat damage, since a traditional private livestock ranch would likely fence the area, further fragmenting the landscape and preventing ecological connectivity needed for wildlife. A private sector entity acting alone would likely have made ranch operations economically profitable but with little or no interest in promoting ecological connectivity.

Believing that privatization could potentially bring negative social and conservation costs, AWF instead created a national land conservation trust to manage the area. With AWF support, the Tanzania Land Conservation Trust (TLCT) entered into a 99-year lease with the Tanzanian government for rights to Manyara Ranch. Manyara Ranch is now part of a land holding mechanism that is being governed in partnership with two neighboring local communities. These communities have stewardship responsibilities over the land and are the primary target beneficiaries of the ranch’s natural resources. Manyara Ranch is intended to be a platform site from which additional lands and conservation partners can be integrated to improve overall ecological connectivity in the entire Maasai Steppe Landscape.

A private sector entity acting alone would likely have made ranch operations economically profitable but with little or no interest in promoting ecological connectivity.

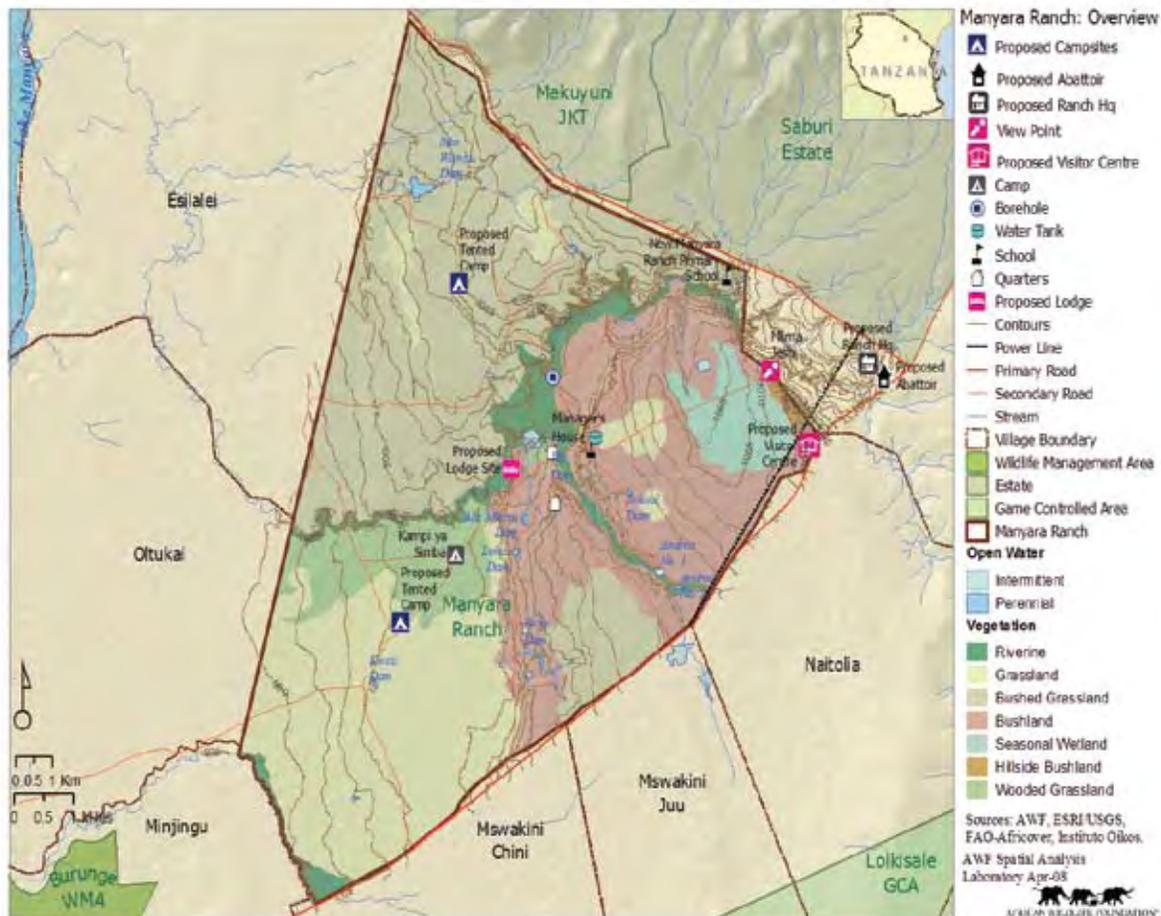
After acquiring the land, the TLCT developed a ranch management plan with the following objectives:

- Conserve the ranch to promote ecological connectivity and maintain corridors for wildlife.
- Develop ecologically compatible, socially beneficial, and economically viable ranch enterprises to generate income to finance conservation and community development activities.
- Develop other compatible enterprises, such as ecotourism, to generate sufficient revenue for TLCT to finance needed conservation costs and provide economic benefits to the local communities.

AWF and TLCT have implemented activities on Manyara Ranch that have elevated the conservation status of this property to that similar to a core protected area. Figure 1 shows the Manyara Ranch and the locations of AWF interventions. AWF has established a functioning management presence on the ranch, which has enabled threat reduction activities to be implemented and a full engagement of local communities who border the ranch. Additional achievements include employing and training of game scouts for monitoring wildlife on the ranch and strengthening the Tanzania Land Conservation Trust. AWF has also expanded the coverage of elephant monitoring for the Maasai Steppe Heartland. Lastly, AWF has relocated and constructed a new primary school on the periphery of the ranch for local children. The relocation was done to optimize conservation and community needs.



Figure 1: Manyara Ranch



2. Livestock Enterprise

Through a livestock development enterprise on Manyara Ranch, AWF and its partner the Tanzania Land Conservation Trust are working to effectively respond to the economic and environmental pressures placed on pastoral systems. The livestock enterprise aims to add value across the livestock value chain, build a regional center for production technology, and establish links to larger markets in order to positively impact the livelihoods of producers in seven rural villages.

The project is working to satisfy a large unmet demand in the marketplace and serve as an import substitution to costly imported meats. At the same time, the project promotes sound natural resource management to demonstrate that mixed livestock/wildlife land use is a viable strategy for sustained economic growth in Tanzania's northern regions.

When fully operational, the livestock enterprise aims to impact 16,000 people (an estimated 7,400 of whom would be women.) The project will also benefit an estimated 150,000 consumers in the Arusha and Moshi markets by providing greater access to reasonably priced, locally raised beef. As of this case writing, the enterprise was still in its early development stages, with community extension and breed improvement work ongoing. Anticipated value chain improvements include:

- Expanding the Manyara Ranch's livestock operation by: 1) improving production processes (including breed improvement, fattening and feedlot programs, and community extension services); 2) establishing an abattoir to enable local cutting, processing, and packaging to reduce transaction costs; and 3) creating employment by establishing new supply agreements with supermarkets, regional tourism outlets, and export markets in Nairobi.
- Improving water management schemes, including dam construction, to better balance the needs of wildlife, livestock, and people.
- Partnering with RAMAT, a local livestock organization, and district government authorities to link rural producers in seven villages to improved production practices and technology, affordable veterinary services, processing, packaging, and sound natural resource management.



Photo courtesy of AWF

The Trust has yet to reach a level of economic activity necessary to operate the ranch and convince local communities to adopt sustainable practices that are the costs of conservation (altering ranch land use, damage from wildlife, etc.) The enterprise has had to compete against sources of beef that have no conservation goals and use practices that discriminate against wildlife (e.g. fencing) in order to keep costs and livestock losses lower.

The enterprise has had to compete against sources of beef that have no conservation goals and use practices that discriminate against wildlife.

To overcome this, AWF reasoned that if the communities had access to improved breeds and animal health care, then animal disease could be reduced, increasing the size and return per animal, thus offsetting the other conservation cost considerations. The project also seeks to provide the local communities with increased access to locally produced beef to increase local communities' health and make this a conservation incentive. This is yet to be realized in the project, and will take time. For this reason, AWF has explored other economic opportunities that were compatible with the ranch management enterprise.

3. Ecotourism

The most important issue in the management of the ranch is to ensure economic sustainability without compromising conservation objectives. However, the ranch enterprise alone is not projected to generate enough revenue to sustain all the conservation efforts. Therefore, AWF initiated the development of ecotourism enterprises in the area. AWF also plans to promote compatible enterprise activities, such as local honey and handicraft production, in hopes of creating a portfolio of economic activities to sustain the conservation activities.

The construction of an ecotourism lodge on Manyara Ranch was identified in 2002 as a potential means of funding operational costs of Manyara Ranch and to provide benefits to neighboring local communities. Due to challenges with perceptions by local communities associated with equitable benefit-sharing, hesitation by the TLCT Board, and lack of authority granted by the Monduli District Council to alter the land-use code for tourism, the tourism initiative stalled.

However, after much work with local communities along with a very successful study tour where Manyara Ranch stakeholders and District commissioners were able to see a well-managed and financially successful ranch in Kenya, the concept of developing a tourism enterprise on Manyara Ranch gained traction. In 2008, the TLCT Board finally approved a conservation-based tourism enterprise on the ranch. Additionally, a business plan and due diligence from the investor as requested by the Board was approved by the Tanzania Investment Center. However, the proposed tourism enterprise on Manyara Ranch remains on hold due to an ongoing review of a management agreement between AWF and TLCT to implement the enterprise on the ranch.

Due to challenges with equitable benefit-sharing, hesitation by the TLCT Board, and lack of authority granted by the Monduli District Council to alter the land-use code for tourism, the tourism initiative stalled.



Photo courtesy of AWF

Learning Themes

1. Threats-Based Approach

How has using a threats-based approach influenced engagement with community enterprise interventions?

The prime objective of ranch management and promotion of economic activities (ecotourism and livestock) was to reduce threats to conservation targets and to improve the habitat condition and ecological connectivity in the area. Through the Manyara Ranch initiative, AWF has made progress in addressing the threats of land fragmentation, degradation, and human-wildlife conflict in the area.

AWF believes that local communities need to benefit or be compensated for their losses/sacrifice, since they bear the cost of wildlife conflict—damage to crops, cattle loss from wildlife, loss of traditional livelihood practices. Without introducing the economic component to the communities, it would have been extremely difficult to win buy-in from the communities to participate in the conservation goals. Hence, the project devised the strategies to provide benefits to the local communities while ensuring compatibility with conservation.

While the economic sustainability for the ranch has not yet been attained, the activities have opened up an important dialogue and partnership with the community to integrate conservation issues in to their livelihood activities.

African Wildlife Foundation
Maasai Steppe

Securing land for a conservation enterprise with the primary goal of addressing the threat of land fragmentation and degradation is an important pre-emptive conservation strategy.

Threats-Based Approach Summary Lessons

- Landscapes have multiple threats impacting the biodiversity, and therefore one enterprise option is not sufficient to provide the broad-based incentives needed to change people's behaviour concerning their livelihood practices. Within a given sector, in this case beef production and tourism, projects have to be prepared to deliver multiple interventions within the sector to achieve the enterprise economic goals and conservation goals. Adequate financing and long-term capitalization and investment are necessary to achieve these goals.
- Securing land for a conservation enterprise with the primary goal of addressing the threat of land fragmentation and degradation is an important pre-emptive conservation strategy. While the enterprises have to yet to prove economically successful, and could possibly fail financially, the land has been “protected” from competing enterprise options that were an imminent threat. Continued diligence is needed to keep the area open to wildlife.

2. Scale

How has the shift in scale to landscape/seascape level conservation influenced choices in enterprise development?

AWF selected ranch management and tourism as economic interventions because they have the potential to expand to the landscape level. Another important aspect was its strategic position and timing—offering opportunities to immediately address the ecological connectivity and pressing threats in an economically viable way.

The Trust mechanism to manage the ranch was developed so that other pieces of land could be added into the management unit. By increasing the land area under the Trust, the project could scale up the economic interventions and conservation impacts.

African Wildlife Foundation
Maasai Steppe

Scale Summary Lessons

- The selection of a landscape level enterprise (livestock production) can potentially have impact across the landscape in broad spatial terms and number of people engaging in ranch management. The enterprise activities were designed to achieve conservation by allowing free movement of wildlife. But, the rest of the livestock sector in Tanzania, for the most part, does not have conservation goals. Projects need to recognize that their products and cost and benefit structures must be competitive with “standard business practices” for their sector. In some cases conservation-friendly business practices can be made financially competitive. In other cases regulatory changes may be needed to take the enterprises to scale at a landscape level.
- A landscape level approach necessitates working with multiple and often new and evolving land tenure instruments. The Trust mechanism facilitated by AWF has good potential, but the implementation is and will continue to be bumpy. The “on hold” status of the tourism enterprise illustrates the real risk that enterprises face when operating in high biodiversity areas with uncertain or still evolving usage rights.

A landscape level approach necessitates working with multiple and often new and evolving land tenure instruments.

3. Partnerships

How has the GCP leveraged partnerships and cross-sectoral relationships to achieve livelihood/economic outcomes that support conservation at a landscape/seascape level?

AWF has developed active partnerships with national and local governments, communities, research organizations, other non-governmental organizations, and private sector companies in implementing this conservation intervention. Partnerships were developed specifically in the areas of land and habitat conservation, species conservation, applied research, conservation enterprises, capacity building, leadership development, and policy advocacy.

Major partners of AWF in this project included Tanzania National Parks Authority (TANAPA), Tanzania Wildlife Division, Tanzania Land Conservation Trust (TLCT), Tanzania Wildlife Research Institute (TAWIRI), Tarangire Elephant Project, District councils, and local communities.

For economic and enterprise development, the project has collaborated with tourism industry players, especially with tour operators to promote ecotourism in the area. Both government and private actors have been involved in developing the ranch enterprise, especially promoting the market for the ranch's products.

Managing the Tanzania Land Conservation Trust on behalf of and for the benefit of communities is a challenging task. Expectations are very high from the communities, and there is a high level of dependency on the Manyara Ranch for natural resources, especially water and grazing during times of drought. Managing expectations with limited resources has proven difficult. Furthermore, politics have influenced some conservation and development initiatives in the landscape. Political problems have been exaggerated and exploited by special interests especially where livelihoods are concerned, which has seriously delayed conservation efforts in some cases (e.g. the opening of the tourism enterprise).

African Wildlife Foundation
Maasai Steppe

Both government and private actors have been involved in developing the ranch enterprise, especially promoting the market for the ranch's products.

Partnerships Summary Lessons

- Partnerships that involve evolving land tenure issues continue to be extremely time consuming and complex around the world. The Tanzania Land Conservation Trust illustrates that while good conservation codes and practices can be put into legislation and tenure agreement, it often takes years and intensive partnership development for the implementing practices to achieve the intent of the legislation.
- Conservation NGOs have played an important role in advocating for and organizing new partnerships and mechanisms for conservation (e.g. Tanzania Land Conservation Trust), but more effort is needed to engage community and government stakeholders to take more responsibility early in the partnership process.

Results

The conservation management of Manyara Ranch has significantly improved the core protected area and extended social and economic benefits to the two neighboring local communities. The major accomplishments of the project, as of 2007, have been:

- Strengthening of the conservation management of Manyara Ranch in the Maasai Steppe Heartland, a critical wildlife migration corridor in an increasingly fragmented landscape.
- Completion of feasibility studies for tourism enterprises.
- Provision of technical assistance to the TLCT Board of Trustees and to the Manyara Ranch.
- Creation of a Steering Committee for institutional strengthening of the TLCT.
- Mobilization of community game scouts to conduct regular patrols on Manyara Ranch, leading to increased information on the natural resource base and critical threats affecting wildlife and habitat.
- Undertaking of a detailed corridor analysis to identify elephant movements to and from Manyara Ranch and to establish corridors between national parks and other areas of the landscape.
- Relocation of a boarding primary school, which was built on the ranch by the government in 1970. The school has 1,000 students and was in poor condition when the trust inherited it. The school was moved close to the northern boundary of the ranch with key amenities, such as water and electricity.

African Wildlife Foundation
Maasai Steppe

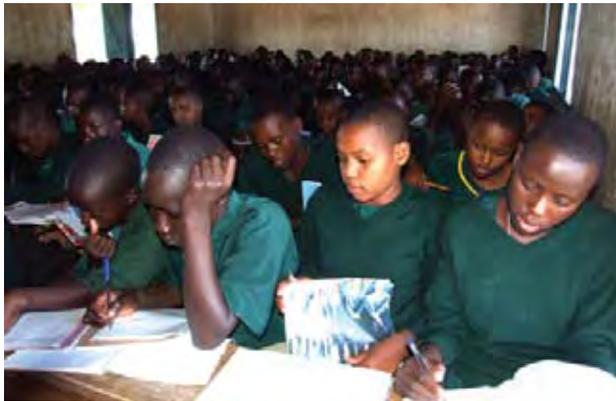


Photo courtesy of AWF

By improving school education, the trust is improving the literacy and education condition of the communities to improve conservation and sustainable economic development conditions in the future.

Concluding Advice

Conservation enterprises—commercial activities that generate economic benefits to local people in a way that supports the attainment of a conservation objective—have shown to be an important strategy for achieving lasting conservation impact for landscapes. Issues and challenges with conservation enterprises remain, such as addressing the scale of economic impacts and benefits management.

Benefits management remains a challenging and under-served technical area. Most NGOs recognize the importance of the issue, but are still struggling to systematically assess benefits management issues and then engage and facilitate benefit sharing mechanisms among stakeholders. More attention has been paid to how benefits can be shared within communities, but a neglected area is how successful enterprises will impact the benefits of other stakeholders (officials used to payouts, competing businesses, immigrants) and what measures they might take to undermine the enterprise's success. Projects need to broaden their concept of benefits management and assess annually who are the winners and losers as project activities are implemented and enterprises expand.

African Wildlife Foundation
Maasai Steppe

Projects need to broaden their concept of benefits management and assess annually who are the winners and losers as project activities are implemented and enterprises expand.



Manyara Elephant, courtesy of AWF

African Wildlife Foundation – Samburu Heartland, Kenya



Samburu Women Dancing, courtesy AWF

Conservation Enterprise in Samburu Heartland: A Strategy for Landscape-Scale Conservation

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Background – Landscape and People

Located just north of the equator in central Kenya, the Samburu Heartland (26,734 km²) encompasses the Laikipia plateau, Mount Kenya National Park, Aberdares National Park, four National Reserves (Samburu, Buffalo Springs, Shaba), and extensive ranch and communal lands. Approximately 1.2 million people inhabit the area.

The Heartland supports an incredible collection of wildlife and is one of the few areas in Kenya where wildlife populations are increasing outside of protected areas. Key species include: Kenya's second largest population of elephants; predators (lions, cheetah, hyena, wild dogs); an interesting suite of northern savannah specialist species (reticulated giraffe and Somali ostrich); and endangered species (Grevy's zebra and black rhino).

African Wildlife Foundation
Samburu Heartland

Samburu Heartland's rich biodiversity is at risk due to competition for resources between wildlife and livestock, habitat disturbance from overgrazing, poaching of wildlife, human-wildlife conflict, unsustainable water management, and unsustainable forest management.



Photo courtesy AWF

The Samburu Heartland's rich biodiversity is at risk due to competition for resources between wildlife and livestock, habitat disturbance from overgrazing, poaching of wildlife, human-wildlife conflict, unsustainable water management, and unsustainable forest management.

This case is part of a series of seven cases under "Lessons on Community Enterprise Interventions for Landscape/Seascape Level Conservation". Each case study provides some brief context on the site-based project before focusing on the community enterprise component in relation to three learning themes: Threats-based Approach, Scale, & Partnerships.

Threats Analysis

As part of the Heartland Conservation Process in Samburu Heartland, the Africa Wildlife Foundation (AWF) conducted a detailed threats analysis to guide their conservation efforts in the area. AWF targeted threat abatement activities for the following: Grevy's zebra, predators (wild dog and lion), northern specialist species, wildlife movement corridors/dispersal areas, dry forest blocks, and the Ewaso Ny'iro River watershed. The following table provides a summary of the threats identified as affecting priority conservation targets for the Samburu Heartland.

Table 1: Threats Assessment

Conservation Target	Critical Threats		
Grevy's zebra	Competition for resources with livestock	Poaching (for skins and meat)	Habitat disturbance
Predators (wild dog & lion)	Subdivision, fencing (habitat fragmentation)	Loss of natural prey	Human-wildlife conflict
Northern Specialist Species (Somali ostrich, reticulated giraffe)	Habitat disturbance/loss	Poaching	Overgrazing by livestock
Dry forests (Kirisia and Mukogodo)	Timber extraction	Illegal resource exploitation	Charcoal production
Ewaso-nyiro River and watershed	Water diversions for irrigation	Deforestation in the watershed	Agricultural practices increasing flooding

African Wildlife Foundation
Samburu Heartland

The threats assessment allowed Heartland teams to identify the most damaging threats to the entire landscape and prioritize threat abatement strategies.

Additionally, the analysis considered the critical threats affecting the *overall* site. The threats assessment allowed Heartland teams to identify the most damaging threats to the entire landscape and prioritize threat abatement strategies. The analysis identified the following critical threats:

- Human-wildlife conflict (competition for water/range between livestock and wildlife);
- Incompatible settlements;
- Overgrazing/incompatible range management;
- Poaching;
- Illegal exploitation of forest resources; and
- Charcoal production.

Project Objectives

The AWF approach to achieving conservation goals in Africa is to focus on priority landscapes, such as Samburu Heartland, that have the potential to conserve viable populations of African wildlife as well as key habitats and ecological systems. Heartlands are conceptualized to define the functioning landscape, establish priority conservation targets, determine critical threats to the targets, and develop conservation strategies to protect and maintain the elements of biodiversity while meeting human needs and aspirations in the area.

The Samburu Heartland program has concentrated on tangible on-the-ground activities to abate threats to biodiversity conservation targets. AWF's multi-faceted strategy has included: strengthening protected areas, land use planning, ecological monitoring, capacity building, applied science research, conservation-based enterprise development, private sector partnerships, and policy dialogue. AWF has helped to integrate sustainable local economic development into conservation through support for empowerment and land use rights, participation of poor people in decision-making processes, improved governance of community institutions, and facilitation of the development of community wildlife-based enterprises.

The map on the following page shows the Samburu Heartland in its regional context and the locations of AWF interventions.

Project Activities

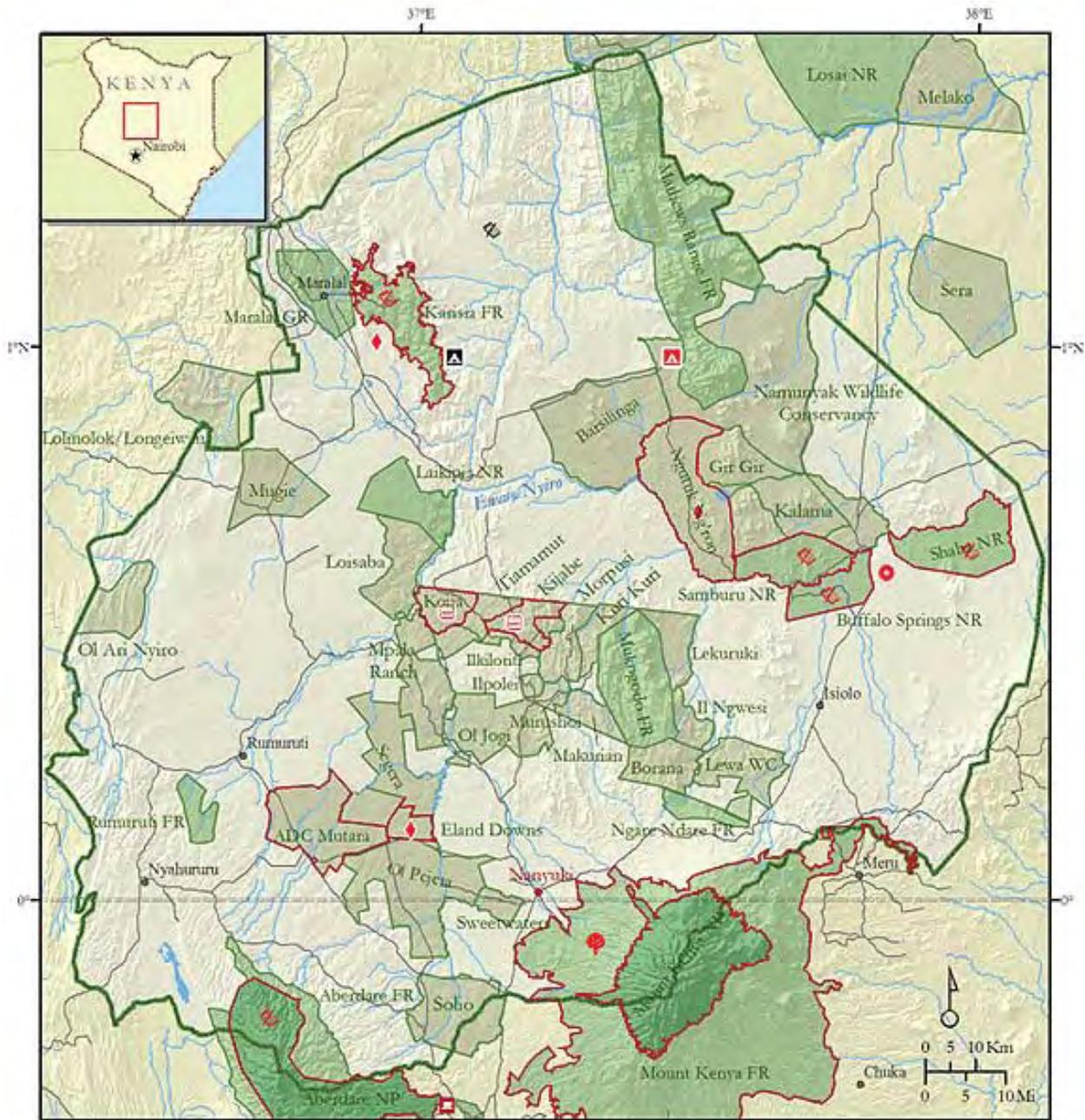
Priority interventions to address threats to conservation targets in Samburu Heartland have included:

- Natural Resource Management (NRM) planning and implementation: Kijabe, Koiya, and Tiermamut Group Ranches.
- Support to Protected Areas in Samburu Heartland.
- Integrated conservation program for Grevy's Zebra.
- Applied research, monitoring, and community outreach in Samburu Heartland (research on wild dog).
- Design and application of Ranger-based Monitoring (RBM) systems.
- Conservation of Kiriya Forest.
- Advancement of Heartland Conservation Process (HCP) in Samburu Heartland.
- Support to partners through capacity building and institutional development.
- Learning, adaptation, and sharing of lessons with colleagues on landscape conservation.
- Development of two community-based ecotourism lodges in Samburu Heartland and honey production and processing.

African Wildlife Foundation
Samburu Heartland

Heartlands are conceptualized to define the functioning landscape, establish priority conservation targets, determine critical threats to the targets, and develop conservation strategies to protect and maintain the elements of biodiversity while meeting human needs and aspirations in the area.

Samburu Heartland – Regional Context



Samburu Heartland: Regional Context

- ⊙ AWF Cons. Center
- AWF Office
- Road
- Stream
- AWF Heartland
- National Park
- Other Protected Area
- Private, Conservation-Supportive Land
- AWF Priority Intervention
- 2007-8 Priority Interventions
 - ⊙ Conservation Enterprise
 - ⊙ Improve Management
 - ⊙ Land Conservation
 - ⊙ Range Rehabilitation
 - ⊙ Restoration/Watershed Mgt.
 - ⊙ Species Cons. - Grevy's Zebra
 - ⊙ Species Cons. - Wild Dog
 - ⊙ Starbucks Coffee Project
 - ⊙ Tourism Plan

Sources:
AWF, ESRI/USGS, FAO-Africover,
Lewa/NRT, Mpala Ranch



Samburu HI. by #s	
Area (Km ²)	26,134
Annual Rainfall (mm)	579.1
Mean Temp. (C)	19.6
Elev. Range (m)	705-5,199
Population Total	1,247,826
Pop. Density (#/Km ²)	47.7

National Distribution	% Area
Kenya	100

AWF Spatial Analysis
Laboratory, Dec.07

The Community Enterprise Component

In the Samburu Heartland, conservation is often perceived by local communities as caring for wildlife; the link between the health of habitats and that of wild animals is rarely made. The costs of environmental degradation include the loss of grazing land, competition with wildlife for grazing and water, transmission of diseases from wildlife to livestock, and predation. In this context, the main purpose of enterprise development is to change the perception and attitude of local communities towards conservation and create economic incentives for local people to adopt conservation practices. AWF's conservation enterprise strategy strives to assist rural communities to develop compatible enterprises that support both their livelihoods and wildlife conservation. Furthermore, enterprises in the Samburu Heartland such as ecotourism, beekeeping, and handicrafts development also generate revenue to finance conservation activities.

AWF has developed a comprehensive Conservation Enterprise Development Process that underpins the structuring and management of its work in this area. The five core steps of the process are: 1) project identification; 2) due diligence and business planning; 3) project development; 4) business development; and 5) benefits management. This sequential approach recognizes that the different phases of an enterprise's development require different management skills and approaches. Accordingly, AWF has placed considerable emphasis on developing a comprehensive series of structured tools and services specific to each.

The Conservation Enterprise program is one part of a wider integrated Heartland strategy. In order to draw out lessons on utilizing conservation enterprises as a strategy to achieve conservation impacts at landscape scale, the tourism example of how an enterprise component is implemented in the Samburu Heartland is described below.

1. Ecotourism: The Sanctuary at Ol Lentille

Ol Lentille is a world-class safari lodge in northern Kenya. It is the result of an innovative partnership between AWF, the Laikipiak Maasai of the Kijabe Group Ranch, USAID, European Union Tourism Trust Fund, and a conservation-minded private investor. With support from these partners, the Maasai community secured ownership of Ol Lentille and established a long-term partnership with Regenesys, a conservation tourism company. Regenesys is managing the tourism business and the 4,000-acre conservancy on which the lodge is situated. To develop this conservation enterprise, AWF helped leverage an investment of over US\$1 million, a significant portion of which was raised from international aid agencies.

Unlike many other public-private partnerships, the local community has both a voice and a stake in this venture. The Maasai owner-partners are fully engaged in Ol Lentille's operations as conservation personnel and members of staff. Approximately 100 residents were employed in The Sanctuary's construction, and many women from the Maasai community have been working with Regenesys and AWF to develop and expand small craft businesses, obtain job training, and build a Maasai cultural village. This unique partnership between the private sector, international aid agencies, NGOs, and the local community has enabled the stakeholders to overcome barriers to entry that an individual partner could not tackle alone.



The Sanctuary at Ol Lentille, courtesy Paul Joynson-Hicks

African Wildlife Foundation
Samburu Heartland

Even though the eco-lodge has just recently opened, the local community is starting to see direct benefits. They include a percentage of profits from the lodge, lease payments paid to the community, and employment for local people. Despite the complete collapse of the Kenya tourism market in the first half of 2008 due to post-election civil unrest, the community did receive approximately \$7,000, along with 31 jobs for community members.

Unlike many other public-private partnerships, the local community has both a voice and a stake in this venture.

The land surrounding the lodge has been set aside as the Ol Lentille Conservancy, totaling approximately 4,000 acres. Carpeted in grassy hills and shrouded by woodlands, the conservancy hosts a wide array of wildlife and habitats that represent priority conservation targets for Samburu Heartland. The conservation value of this area has been greatly improved through the development of the eco-lodge, which has brought increased security to the conservation area and deployment of game scouts. Anecdotal information has shown an increase of wildlife present in the area. Detailed monitoring data is now being collected to determine the actual conservation impact of the enterprise and conservancy efforts.

Honey Enterprise & Conservation

AWF has worked with partners to develop alternative forest-based livelihoods for people living adjacent to Kirisia Forest through development of a beekeeping enterprise that targets sustainable forest conservation while providing economic returns for local people. The Samburu region has excellent conditions for beekeeping because it is rich in tree varieties. This enterprise project has focused on training people on how to keep bees, harvest honey and market their products. Through the construction of the Maralal honey refinery and the formalization of a beekeepers' cooperative, honey production and profits going to local people have greatly accelerated. Today, the cooperative produces as much as 10 tons of honey a month, and aims to produce up to 50 tons monthly once the project matures.

Learning Themes

1. Threats-Based Approach

How has using a threats-based approach influenced engagement with community enterprise interventions?

A threats-based approach to conservation has proven to be an effective way of designing intervention strategies and monitoring threat abatement.

As the main objective of this project has been to conserve the target wildlife species, the project has had comprehensive measures to protect the wildlife and their habitats. AWF has developed teams of game scouts, whose patrolling capability has been enhanced through the provision of communication equipment that links patrol activities to security apparatuses. AWF has also worked to establish a strong connection between the Kirisia Forest protection committees and the Forestry Department. The communities have assisted the forestry department in the enforcement of rules and regulations, which helps to strengthen the community's bargaining power.

Entrepreneurs have become committed to the protection of the forests in order to see their enterprises survive. Ecotourism projects have wildlife monitoring and protection plans in place, while the honey enterprises require beekeepers that put their hives inside the forest to protect the forests in order to sustain honey production.

Additionally, AWF has operationalized a ranger-based monitoring system in key areas that has helped communities make informed decisions and mitigate threats. Rangers conduct routine patrols in the reserves to collect data on target species and monitor illegal activities, such as charcoal burning, illegal grazing, and poaching.

African Wildlife Foundation
Samburu Heartland

Entrepreneurs have become committed to the protection of the forests in order to see their enterprises survive.

Threats-Based Approach Summary Lessons

- The community-based enterprise development has contributed to community buy-in for conservation. The significant investment in rangers and patrols directly benefits the tourism enterprise by increasing the presence of charismatic wildlife that interest tourists. Poaching is the threat directly addressed through these interventions.
- Other threats outside the 4,000 acres of conservancy—over grazing, charcoal production, fencing, and irrigated agriculture—are still under study in the Samburu Heartland. It is not clear if the two enterprises and their associated education and enforcement interventions are impacting threats outside the conservancy. When there has been a link to the habitat (e.g. forest honey), intervention activities have yielded anecdotal evidence that conservation is occurring.

2. Scale

How has the shift in scale to landscape/seascape level conservation influenced choices in enterprise development?

AWF's objective is to promote conservation in the Samburu Heartland by applying landscape approaches. The enterprise-oriented conservation program is also intended to achieve broader levels of impact. The tourism subsector, for example, is an economic intervention that has a large coverage area. The ecotourism lodge, though limited in its immediate impact, can be replicated in other areas, potentially impacting the entire domestic value chain if lessons from the conservancy community involvement model are adopted.

Specific lessons related to conservation enterprises gathered across AWF's Heartland program can be related to this case study. In general, the elements of the program that are going very well are: an effective approach developed through systematic processes and tools, a growing portfolio with emerging critical mass, and significant financial returns.

In terms of outstanding challenges and opportunities, these include: the capacity of practitioners, customers, and financiers; financing; benefits management; and governance structures to ensure sustainable and equitable enterprises.

African Wildlife Foundation
Samburu Heartland

Scale Summary Lessons

- A showcase tourism lodge fostered local enthusiasm for a conservancy land tenure mechanism, significant community participation, recruitment of the private sector, and greater policy advocacy. However, the grant/donor price tag for the facility was large—about US\$ 1 million. The private sector tourism model cannot make this type of investment and be profitable, since the Africa tourism industry does not fully pay for the protection of habitat and wildlife. There are cases where tourism operators are starting to increase benefits and make payments to communities that protect wildlife, but this is still in its infancy as a mechanism that covers the full costs of protection.
- Scaling up the tourism sector to impact conservation at a landscape level is going to take continued government, NGO, donor, community, and private sector collaboration. No one entity has the capital or can absorb the risk by going it alone. The lesson here is not to build a showcase lodge and then anticipate the private sector will replicate the model. Instead, the lesson is to clearly articulate the role government, NGOs, donors, community, and the private sector should play in developing a high end tourism venture that has the multiple objectives of: 1) conservation, 2) community economic development, 3) government programmatic goals, and 4) private sector profits. Conservation tourism enterprises must make these four objectives explicit.

Scaling up the tourism sector to impact conservation at a landscape level is going to take continued government, NGO, donor, community, and private sector collaboration. No one entity has the capital or can absorb the risk by going it alone.

3. Partnerships

How has the GCP leveraged partnerships and cross-sectoral relationships to achieve livelihood/economic outcomes that support conservation at a landscape/seascape level?

AWF has implemented the project by working closely with several key partners in the Heartland to advance landscape scale management efforts. Key local partners included Laikipia and Samburu County Councils, Laikipia Wildlife Forum, Samburu Wildlife Forum, Kenya Wildlife Service, Northern Rangeland Trust/Lewa Wildlife Conservancy, local communities, and private sector partners. The Heartland team has collaborated with government, local communities, and tourism industry players to promote ecotourism and community development.

The project invested in the construction of building and infrastructure for a tourism lodge that is now owned by the local community. A tourism concession was given to a private sector company to manage the tourist lodge and tour operations in the area. By facilitating this partnership with the local community and private sector, AWF has brought to the table the conservation commitment of the local communities and business expertise of the private sector to the conservation-oriented business.

The private sector partner has an explicit mandate to support conservation and social equity in their enterprise management approach.

African Wildlife Foundation
Samburu Heartland

Partnerships Summary Lessons

- Including government, local communities, and the private sector in an effective partnership requires a diverse set of skills and dedicated staff. Each type of entity works under different expectations, time frames, and skill levels. An appreciation for these differences is important when facilitating multi-stakeholder partnerships. AWF had three different staff experts working on partnership relationships—a policy-government relations position, a private sector development position, and a community development officer. Many NGOs will not have the luxury of multiple positions to devote to partnership development and should therefore look for ways to use part-time, long term consultants; volunteer advisors; and private-public partnerships to develop the multiple partnerships needed to successfully develop this type of enterprise.
- In this case, as well as other Global Conservation Program case studies, the private sector partner has an explicit mandate to support conservation and social equity in their enterprise management approach. Nevertheless, even with this mandate, the private sector will not necessarily look for an enterprise in a high biodiversity area that involves communities in a meaningful way. AWF had to make the initial overtures to the private sector as well as reduce barriers to entry.

Results

Ultimately, the Samburu Heartland has been able to achieve the following results:

- Construction of a world-class ecotourism lodge owned by the local community and managed by a private sector partner
- Implementation of priority recommendations from the General Management Plan (GMP) for Samburu National Reserve (NR); Active marketing of Samburu NR and strengthening of security infrastructure through procurement of radio equipment.
- Strengthening of the Kirisia Forest protection committee's capacity for patrols through provision of communication equipment. This enabled patrol activities to become integrated with the security apparatus in Maralal/Samburu County Council.
- Implementation of bee-keeping/honey enterprises in Kirisia and Matthews Forests. The project focused on training and capacity building in apiculture for communities living adjacent to the forests.
- Implementation of natural resources management strategies in Kijabe-Tiermamut-Koiya Group Ranches, including restoration of degraded grasslands, introduction of soil-conservation measures, and a partner exchange visit to Lake Baringo to witness impacts of overgrazing and unsustainable range management practices.
- Expansion of applied wild dog research and outreach activities to the Narok Valley; Community members employed as scouts and active monitoring established in Kirimon/Kelele, Namunyak, Kijabe, Kalama and Churo; Strategies implemented for reduction of human-wild dog conflicts in Laikipia and Samburu districts.
- Expansion of Grevy's Zebra applied research project into new areas of the Heartland, such as the Maralal area, Buffalo Springs/Samburu/Shaba NRs, and Kalama Conservancy. The project has continued with data collection to inform management priorities on threat mitigation for this endangered species and initiated a habitat assessment in Ngutuk Ongiron Group Ranch.
- Support for the Ranger-based Monitoring (RBM) program for rangers and game scouts in Samburu, Buffalo Springs, and Shaba National Reserves. Data collection sheets were redesigned and then were tested inside the protected areas and outside in the communal lands surrounding the reserves.
- Development and testing of a methodology for socioeconomic analysis. This sub-landscape scale work focused on Ngutuk Ongiron and Gir Gir Group Ranches, where progress was made in determining the socioeconomic factors of local communities in relation to threats and opportunities for conservation.

Concluding Advice

Marginalized people living in and trying to extract a livelihood out of high biodiversity areas are often ignored by “pure economic gain” interests (the private sector, government officials looking to make income from concessions, payoffs, etc.). Profit-motivated stakeholders may have concluded there is nothing much of value or the barriers to entry are too high to make a reasonable profit. Overcoming the barriers to entry of high-end tourism enterprises and other perceived lucrative enterprises would attract the interest of “pure profit stakeholders”.

Therefore, a dangerous time in the development of a community enterprise is when the model has convinced outsiders that it can be profitable. AWF has a responsible private sector partner involved that can fight to keep other less responsible private sector interests out of the landscape, but the enterprise still needs to be vigilant about potential stakeholders that may want to capture the enterprise revenues from the community.

African Wildlife Foundation
Samburu Heartland

A dangerous time in the development of a community enterprise is when the model has convinced outsiders that it can be profitable.



The Sanctuary at Ol Lentille, courtesy Paul Joynson-Hicks

EnterpriseWorks/VITA – Western Himalayas, Nepal



Screening Lokta Bark Pulp, courtesy of ANSAB

Sustainable Management and Marketing of Nontimber Forest Products: Creating Landscape Level Biodiversity Conservation

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Background – Landscape and People

The Himalayas of western Nepal are known for their rich biodiversity and scenic beauty. The area includes national parks, wildlife reserves, community managed lands, and national forests. Strong botanical diversity (in terms of species richness as well as endemism) flourishes in the land's subtropical, temperate, and alpine forests. Endangered wildlife species, such as the snow leopard and musk deer, take refuge in the area.

Covering an area of over 23,000 km², the Himalayas of western Nepal are home to 370,000 people who are among the poorest in Nepal. For these isolated groups, the forests and alpine pastures provide land for agriculture and grazing, which is necessary for survival. This biodiversity rich area, however, has not been sustainably utilized. The pressures on its resources are heightened by increasing population size, declining agricultural productivity, and the lack of other income generating activities.

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Covering an area of over 23,000 km², the Himalayas of western Nepal are home to 370,000 people who are among the poorest in Nepal.



Certified Forest Area, courtesy of Ram P Acharya, ANSAB

This case is part of a series of seven cases under “Lessons on Community Enterprise Interventions for Landscape/Seascape Level Conservation”. Each case study provides some brief context on the site-based project before focusing on the community enterprise component in relation to three learning themes: Threats-based Approach, Scale, & Partnerships.

Threats Analysis

EnterpriseWorks/VITA (EWW) partnered with the Asia Network for Sustainable Agriculture and Bioresources (ANSAB) to develop an intervention strategy that could effectively conserve biodiversity while improving rural livelihoods. The project applied a threats-based approach to identify and rank the threats and uncover their underlying causes. Table 1 summarizes the findings of the initial threats identification exercise conducted by the project.

Table 1. Major Threats to Forests and Shrub Lands in the Landscape

Threat	Area	Intensity	Urgency	Feasibility	Total	Rank
Burning of forest/pastures	4	5	5	4	18	2
Unmanaged nontimber forest product harvesting	5	2	2	6	15	3
Encroachment	3	7	7	3	20	1
Slash and burn farming	2	6	1	5	14	4
Unmanaged timber harvesting	6	4	6	2	18	2
Over grazing	7	3	4	1	15	3
Poaching of wild animals	1	1	3	7	12	5

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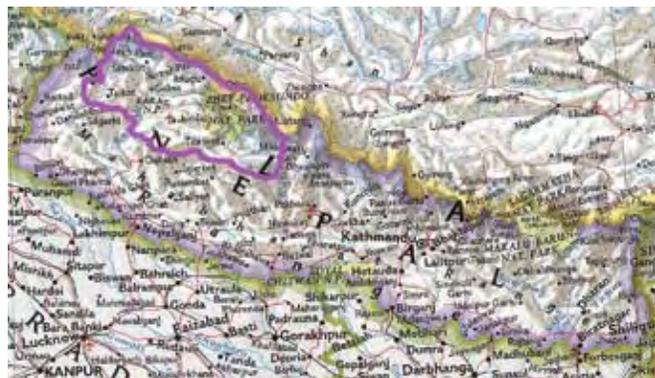
The critical threats identified were encroachment, fire, and unmanaged harvesting of forest products.

The critical threats identified were encroachment, fire, and unmanaged harvesting of forest products. Encroachment was the direct result of efforts to convert marginal forest land into farm land. Fires were used to bring up new grass shoots for grazing, facilitate honey collection and hunting, or clear small patches of forest for the cultivation of cereals and potatoes (slash and burn farming). Though first-time yields from slash-and-burn farming were comparable to those from regular agricultural production areas, production in these sites gradually deteriorated until, finally, the land lay fallow and had to be abandoned. This ultimately led to a loss of vegetation and disturbed the ecosystem, threatening the area's biodiversity.

Unmanaged harvesting of forest products included both over-harvesting and inappropriate methods of harvesting. Harvesting of timber, fodder, and firewood for subsistence purposes had exceeded sustainable yields, especially in areas near human settlements. The area affected by grazing was the largest, but communities found this the most difficult to address given the socioeconomic conditions. The traditional practice of hunting of wild animals, although illegal, posed a threat to such species as the musk deer (*Moschus moschiferous*) and the Himalayan black bear (*Selenarctos thibetanus*).

Project Objectives

The project's major objective is to conserve the globally significant biodiversity of Nepal's western Himalayas (see map, project area shown in pink outline). The project's landscape includes the districts of Humla, Jumla, Bajhang, Dolpa, Mugu, and Bajhang, which are considered biodiversity "hotspots" based on Myers' conservation setting priorities.



Enterprises are linked to nontimber forest resources and biodiversity in order to generate regular income for local communities that is dependent on high quality biodiversity.

EWV chose to initiate enterprise interventions because the project identified acute poverty as the underlying cause of biodiversity loss. The lack of alternative income generating opportunities, low skill levels and capacity to address livelihood issues, uncertainty over land tenure, lack of incentives and knowledge on conservation methods, and increasing market demand for nontimber forest products aggravated the situation. Livelihood concerns needed to be addressed if people were to value biodiversity conservation. Without showing tangible benefits to communities, it would be almost impossible to initiate sustainable harvesting and conservation practices in the project area.

Enterprises are linked to nontimber forest resources and biodiversity in order to generate regular income for local communities that is dependent on high quality biodiversity. The nontimber forest product (NTFPs) sector was selected for enterprise development because NTFPs: 1) play a major role in the local economy of the entire region; 2) could be sustainably harvested while conserving the forest and pasture habitats where they are found; and 3) offer a diverse range of products that could effectively show the potential value of conserving the resource base.

Project Activities

The project's enterprise oriented conservation initiative has included local institution building; facilitating access to resources through government sponsored land tenure programs; sustainable resource management and conservation research, monitoring and training; enterprise development and sustainable marketing of NTFPs; knowledge generation, education and capacity building; and environmental policy work. These major activities have focused on:

- Expanding and institutionalizing participatory resource management and conservation under Nepal's forestry policies and legislation, especially the community forest user group (CFUG) legislation;
- Enhancing knowledge and skills of forest user groups in sustainable use and conservation of biological resources;
- Promoting commercial use of natural products in an ecologically sustainable and socially equitable manner; and
- Generating scientific information for the sustainable management of biological resources.

Project interventions have been designed on the premise that if local communities saw economic benefits flowing from the biodiversity and were provided with the necessary education, tools and means to control resource use by members and outsiders, they would choose to manage and use biodiversity in a sustainable way. Thus, the project has developed enterprise-based conservation interventions as a means of creating economic incentives and institutional mechanisms that help local populations adopt sustainable practices.

The project has worked with the Nepal Nontimber Forest Products Network (NNN), Federation of Community forest Users – Nepal (FECOFUN), and the Ministry of Forest and Social Conservation to develop national policies, including: 1) amending government rules (formal and informal) to encourage community based enterprises, 2) handing over forest and pasture areas to the local people, and 3) revising nontimber forest products royalty rates.

The project has also championed the development of the first ever national level policy for herbs and NTFPs. In the final year of the GCP support, the project secured USAID Global Development Alliance support to form an NTFP public-private alliance. This alliance has brought together the private and public sectors, introduced a forest certification system and facilitated the awarding of a Forest Stewardship Council (FSC)¹ group certification for 24 forest products harvested and processed by 21 community forest user groups (CFUGs).



Photo courtesy of ANSAB

As part of the NTFP alliance activities, the Sustainable Bio Trade Group was formed to bring together Nepal-based natural products enterprises and facilitate the marketing of the FSC certified products. With the development of the NTFP alliance, the project has inspired the development of a new market channel for natural products that promotes measures for environmental, social and economic sustainability.

Through the Nepal NTFP Network (NNN), which represents over 50 institutional members and 250 individual members, the project has coordinated NTFP and conservation efforts in Nepal, developed and showcased an incentive based conservation model for outside the protected areas, and developed exemplary forest management operational plans and conservation oriented community enterprises.

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The project has worked with key stakeholders in the forestry sector to develop national and local policies that create an enabling environment for enterprise oriented conservation.

¹ FSC promotes responsible forest management by evaluating and accrediting certifiers, encouraging the development of national and regional forest management standards, providing public education and information about independent, third party standards, and by ensuring the world's forests are protected for future generations.

The Community Enterprise Component

Since the contribution of forest resources to local communities was high, it was a significant challenge to change community livelihood practices. The project needed to work on multidimensional issues over a wide area while making the largest impact on the conservation behaviour of the local people. Interventions would only have a chance of succeeding if the project integrated the communities' livelihood (NTFP and forest resources collection) into the conservation oriented framework. The project has achieved this by establishing a clear, vivid link between sustainable harvesting and sustained incomes; increasing income by introducing value added activities; and expanding market access by branding the products with social and sustainability themes.

Different NTFP products have been pursued depending on the products available to each community. Examples of successful enterprises launched or expanded during the GCP program include:

- Humla Oils in Humla
- Malika Handmade Paper in Bajhang
- Tripurasundari in Dolpa
- Bhagwati Oil Milling enterprise in Jumla
- Rara Soap enterprise in Mugu

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1. Humla Oils – Jatamansi Processing and Essential Oils Marketing

The first product developed using the enterprise-based biodiversity conservation approach was Jatamansi, a rhizome found in the upper pastures of the Himalayas. Communities were already over-harvesting Jatamansi, which was sold to local traders, who then sold it to essential oil manufacturers in India. When the project started, although illegal, 90% of Nepal's Jatamansi was being traded to India in raw form (only processed Jatamansi was supposed to be exported). Raw Jatamansi holds an essential oil that can be extracted using steam distillation. For every 100 kilos of raw Jatamansi, about 1.5 to 2 kilos of essential oil can be extracted.

NTFP processing and marketing enterprises were planned together with local communities using EWV/ANSAB's well established natural products based enterprise planning methodologies. Study plots were set up to scientifically study what a sustainable harvesting

protocol would be as there was no data on the subject. The community members were very interested to learn what percentage of the Jatamansi rhizome could be sustainably harvested and eagerly worked on the trials with experienced biologists.



*Jatamansi drying on top of the roof of the Humla distillation factory.
Courtesy of ANSAB*

The study data was used to inform a parallel activity—the securing of land tenure under Nepal’s community forest user group program (CFUG). As part of the CFUG application process, a group has to develop an operational plan for the protection and use of the forest. The GCP program operating principles were introduced into the CFUG operational planning process and for the first time a threats-based approach, the explicit protection of biodiversity, and inclusion of nontimber forest products was integrated into a CFUG operational plan in Humla, Nepal.

Using Humla as an example, these principles have been adopted nation-wide for CFUG operational plans. CFUG land tenure means that communities can restrict outsiders and put in place harvesting rules for their members. Previously, the harvesting of NTFPs on these lands was a “free for all” situation—no controls on harvesting.

As tenure was being secured, a distillation enterprise was being established with a combination of grant and community investment (about US \$15,000 total). The distillation enterprise pays a higher price for the raw Jatamansi than the trader coming from outside the community. The distillation enterprise has been able to do this and remain competitive because it saves on transport costs.

By processing the raw Jatamansi in the village, a 100 kilos of raw Jatamansi—which at 15 Rupees per kilo would cost 1,500 Rupees to transport—could be processed to produce about two kilos of high value essential oil. Transport costs for the two kilos of oil were 30 Rupees, a savings of 1,470 Rupees per 100 kilos of Jatamansi harvested. There was also a secondary market for the “spent” Jatamansi (the rhizome material left after the oil is extracted) that was in demand from incense manufacturers within Nepal.

The technical challenges of producing high quality essential oil at a village level were manageable, but Nepal had previously sold little processed oil and needed to attract buyers. Essential oil quality had to be proven and relationships with oil buyers (rather than raw material buyers) had to be developed. Working capital to carry the enterprise through the marketing was secured from NGO funds, then paid back when the products were sold.

Previously, the harvesting of NTFPs on these lands was a “free for all” situation—no controls on harvesting.

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Himalayan Bio Trade Private Limited

The project developed a private sector marketing company in Kathmandu that could provide services to a variety of small-scale community-based enterprises. This private sector company, Himalayan Bio Trade Private Limited (HBTL), has a professional manager and staff that buys semi-finished products from the community and markets the products within Nepal and to export markets.



HBTL has entered into marketing deals with international companies including Aveda, S&D Group, Howard Packaging, and Johnson Printing. HBTL has gone on to collaborate with other private sector NTFP processing and marketing companies in Kathmandu to incorporate more robust biodiversity conservation and social equity practices into their buying, processing, and marketing strategies. HBTL is now a profitable private sector company that has continued to increase sales and returns to the community producers each year.

The Humla enterprise serves as a model for how to add value to raw materials and seek out new markets that reward conservation efforts.

There have been stops and starts for the enterprise caused by civil unrest and a CITES 2 listing² of Jatamansi. There were periods when the processing factory in Humla had to be shut down and then re-opened again as Jatamansi marketing issues were resolved. After the CITES 2 listing, the more reputable buyers stopped buying, prompting the need for a certification mechanism (FSC) to guarantee that the Jatamansi was being sustainably harvested.

Despite these setbacks, the Humla enterprise serves as a model for how to add value to raw materials and seek out new markets that conservation efforts. The transformation of Nepal's Jatamansi sales has been substantial. At the start of the project, 90% of Jatamansi in Nepal was traded illegally in raw form across the border to India. By the close of the project, 90% of Jatamansi harvested in Nepal was being processed into essential oil in country. Incentives to conserve the habitat where Jatamansi grows are now integrated throughout the value chain (harvesters, processors, manufacturers, marketers, government royalties) in Nepal due to the introduction of the FSC certification.

2. Malika Handmade Paper

The Malika Handmade Paper enterprise in Kailash, Bajhang, is representative of the project's achievements in fostering successful community based enterprise creation. Using a similar set of steps as Humla oils for Jatamansi, the enterprise was planned together with local communities by analyzing biological, market, technological, and social factors. The planning exercises clearly showed handmade paper making, which was based on the bark of the Lokta shrub, to be the best option for the area and communities.

230 households of the Kailash community invested in the enterprise with their cash, labor, and materials. Professional staff, appointed by a board of directors elected by the communities, manage the enterprise. Employees include ten local people at the factory and around 100 others as collectors and suppliers.

The enterprise distributed 10% of its profits as a dividend to all 230 owner households in its first year of operation. With this organization, the community has realized the value of the surrounding forests and showed interest in managing a larger track of forests and pastures. As a result, the community has developed a forest management plan and started managing a larger forest area, significantly improving its forest product harvesting and forest management practices.

Enterprises like Malika have increased the economic security of the local people, allowing families to keep children in school, pay for needed medicines, and reduce seasonal migration to India for employment. All of these enterprises have also paid conservation fees to the forest user groups who utilize the funds to finance their forest management and conservation activities.



Photo courtesy of ANSAB

² “CITES 2 listing” refers to CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora) Appendix II listing. Appendix II lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled.

The sales success of the paper products is largely due to the central marketing company in Kathmandu, Himalayan Bio Trade Private Limited (HBTL). Malika Paper is one of the shareholders of HBTL and relies on HBTL to market its paper products. Since Malika started operations in 1999, paper sales have steadily increased. Verification of sound forest management and biodiversity conservation has been audited annually by the FSC certification process since 2002. It continues to be a challenge to generate funds to cover this annual audit and maintain the high quality international buyers for the paper. International shipping costs as well as managing foreign exchange risk when larger paper orders are often negotiated six to nine months prior to shipment remains a challenge for HBTL.

Verification of sound forest management and biodiversity conservation has been audited annually by the FSC certification process since 2002.

Building long-term buying relationships has been essential. To do this it has been necessary to invest time to educate the buyers to the constraints faced in Nepal, while delivering a high quality product on time and at a competitive price. This process took time, with several of the best buyers taking two to three years to cultivate – patience and persistence were needed.

Learning Themes

1. Threats-Based Approach

How has using a threats-based approach influenced engagement with community enterprise interventions?

Increases in income for a larger number of local people has translated into improved conservation practices. By creating economic incentives from linked enterprises, the project has promoted sustainable harvesting of resources and improved conservation practices. The project has created value for biodiversity in its area of operations and succeeded in bringing attitudinal and behavioural changes towards conservation and sustainable practices. When the communities saw the regular flow of income, they realized that their resource base needed to be managed properly so that their income would continue. They have also realized that there are many more species in their forests and pastures that can be turned into income generators with advancements in knowledge and technology.

Following project implementation, communities adopted additional sustainable management measures to conserve biodiversity including harvest rotations and timing. They have also established study plots to monitor the impact of harvesting. The project also helped groups develop a conservation fund. The fund has succeeded in increasing people's enthusiasm to adopt sustainable mechanisms and practices. The groups have organized regular meetings, conservation education classes, training for NTFP collectors, and monitoring.

Research done by ANSAB substantiates the claim that groups did adopt better conservation management practices as a result of the income derived from NTFPs. The research found that a significant percentage of forest user groups had a “good” level of management practices, such as grazing management, fire management, application of harvesting rules, regulations on harvesting of immature plants, and monitoring policy and practices. Keep in mind that all the CFUG groups studied started from a base of “very low” or “no” quality management practices.

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The research findings indicate that the increments in household income and subsistence benefits have served as incentives to CFUG members to manage and conserve the forest resources. With the increased economic benefits and awareness of the forests' contribution to community members, livelihoods and ways of managing forest resources improved. Communities have lobbied to bring larger forest areas under management and improved their management plans and practices. The community owned enterprises as well as the forest dependent communities commit to resource conservation once they learn that they can only sustain the benefits when they have appropriate management systems and sustainable harvesting practices in place. With the increase in the sense of ownership over resources and an awareness of the scope of benefits from the enterprise, the CFUGs have demonstrated an ability and commitment to mitigating threats to natural resources.

ANSAB's research, however, suggests that increases in income in and of itself will not automatically lead to conservation. There was a significant positive correlation between the social index and the conservation index, indicating that the CFUGs with higher social performance also performed better in conservation. With high levels of participation augmented by improved institutional practices, the CFUGs have been able to prepare more practical and effective forest management plans to abate threats.

Increases in income alone will not automatically lead to conservation.

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Threats-Based Approach Summary Lessons

- By combining a threats analysis tool with an enterprise strategy, community members were able to constructively analyze how their livelihood practices could be modified to conserve biodiversity and improve their economic security. The strategy quickly captured the community's interest since options for addressing threats and opportunities for improved incomes were presented along with threats. This strategy required the NGO to have experienced biologists and enterprise development specialists on the team to integrate the biodiversity and economic goals during the field work. Too often, projects still have biological studies and then enterprise studies that are integrated and compared in a desk exercise.
- Community enterprises, to contribute to biodiversity conservation, must have clear land tenure rights that: 1) allow the community to restrict outsiders; 2) are recognized and supported by the government; 3) allow the community to impose restrictions on members' resource use activities; and 4) reward good resource management with the potential to secure title to larger areas of land. Addressing threats to biodiversity means changing human behavior. Communities, under the right conditions are willing to change destructive behaviors, but they want to be assured that the land they improve will remain under their control, so strong tenure rights are essential.

2. Scale

How has the shift in scale to landscape/seascape level conservation influenced choices in enterprise development?

To affect a meaningful change at the landscape level, it was necessary to ensure that rules and institutional mechanisms were in place to regulate NTFP harvesting. Without such mechanisms, there was the potential for someone to take advantage of this newfound opportunity to advance their own personal income and wealth, pitting entire groups into competition that could lead to over-harvesting. Prior to project implementation, there had been no example of a community gaining legal access and control over the high altitude area pasture land where most of the NTFPs are found.

The project has worked with communities to provide them tenure rights under Nepal's community forestry policy by helping them demarcate their forests and pastures and develop organizational charters, rules, and forest management plans. With this mechanism, significantly larger (by tenfold) community forest areas by local and national standards have been handed over to user groups. The groups can now regulate resource harvesting and restrict non-members in a significantly larger area.

Access to secure land tenure through the community forest user group (CFUG) government program has been essential to the enterprise development strategy. Communities can form a CFUG group and apply for forest and pasture land they traditionally used. For the enterprise strategy to work, the communities have to have clear, government recognized rights to the resources, which include the ability to sell forest products. Communities also have to have rights to restrict access to resources and control harvesting in order to conserve the biodiversity. CFUG owned and operated enterprises that coordinate collection and processing of NTFPs is a first for Nepal. Prior to this, community members were passive collectors of NTFPs, selling the raw materials to traders without knowledge of market prices or options for processing and sustainable management.

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Scale Summary Lessons

- To protect resources at a landscape level, the scale of land tenure mechanisms had to be increased and matched with the scale of threats from the economic activities. Giving communities token size areas did not achieve conservation goals and did not provide large enough resource areas to launch a viable enterprise. Over-harvesting was taking place across wide areas, so tenure instruments needed to match. Value-adding processing enterprises needed to be able to process raw materials from a large enough area that could be sustainably harvested while providing the volume needed to make the infrastructure investment profitable.
- To reach scale in conservation, look at all the value chain actors and stakeholders to be contributors and supporters. Community members and government officials worked together on enforcement, while private sector branding mechanisms were introduced to recruit value chain actors that would support conservation of forest and pasture areas at scale. Improved conservation was achieved since this project worked on both the supply (community harvesters) and demand (value chain processors and buyers) issues that were causing biodiversity degradation.

The forest management plans have provisions for guiding sustainable harvesting and punishing violators. The punishment and fines are designed in a tiered fashion so that they progress from a warning and confiscation for first time offenders, to fines equal to the value of the products for second time offenders, and progressively larger fines for continuing offenders. For frequent or large scale violations, groups report offenders to district forest offices for further punishment. Other control mechanisms (e.g. group harvesting to police each other; rotational harvesting, and plant size requirements) have been placed in the hands of community-run enterprises.

Scale also needed to be achieved economically, but with controls in place to safeguard conservation. When the groups had sufficiently matured and their products had international appeal, EWV and ANSAB promoted an alliance to introduce Forest Stewardship Council (FSC) certification to brand and market the products produced by the communities as sustainable. To achieve certification, the CFUG groups have to keep detailed documentation of their forest management and open their books to third party auditors. These efforts have improved the standard of forest management and conservation, while also providing communities with incentives to support better stewardship of the resources.

To achieve certification, the CFUG groups have to keep detailed documentation of their forest management and open their books to third party auditors.

3. Partnerships

How has the GCP leveraged partnerships and cross-sectoral relationships to achieve livelihood/economic outcomes that support conservation at a landscape/seascape level?

Since the project promotes a landscape level approach, there has been a strong need for partnership and collaboration. First, the project developed a strong partnership with the Department of Forests and its field offices, since they are the key to implementing forest laws and regulations in Nepal, including community forestry programs.

To build much needed capacity, the project has worked with local partner NGOs in all project districts: Humla (Humla Conservation and Development Association), Bajhang (Social Development Center), Jumla (Rural Development Group Program), Dolpa (Dolpa Sarbangan Bikash Samaj) and Mugu (Rural Community Development Center). This implementation arrangement with local partner NGOs has been practical and effective. The local partnership promoted local capacity building, long-term sustainability, local level coordination, and smooth implementation of project activities especially given the security situation.

The forest users groups and trade association were project partners in promoting forest conservation, community based enterprises, and the NTFP value chain. The project has strengthened of The Federation of Community Forest Users, Nepal (FECOFUN) chapters in five project districts. These have played a critical role in policy lobbying, sharing best practices among forest user groups, and expanding community forestry movement in the districts.

In enterprise planning and implementation, the role of EWV, ANSAB, and their local NGO partners was that of facilitators and technical assistance providers. With lessons learned from past experience, EWV and its NGO partners did not take active roles in actual market functions. Instead, they have facilitated partnerships with the private sector and promoted new enterprise entities to provide value chain functions when needed. At a local level, new community based enterprises have been established while at a national level, partnerships have been fostered with existing companies, such as Gorkha Ayurved and Alternative Herbal.

When the need arose for a national level marketing company for community products, the project facilitated the creation of Himalayan Bio Trade Private Limited (HBTL), in which private entrepreneurs and community based enterprises from the districts had a stake. Partnerships with banks and financial institutions have also been forged when the need for greater financial inputs emerged.

The creation or strengthening of focused networks—particularly Nepal NTFP Network (NNN), FECOFUN, and the NTFP Alliance³—has been an important element in achieving the project objectives as well as establishing institutional mechanisms that would promote enterprise oriented conservation activities far beyond the project period. These networks have achieved significant policy outcomes at a national level, including: development and promulgation of an Herbs and NTFPs Development National Policy (the first ever national policy in the NTFP subsector), revisions of NTFP royalty rates for over 250 species, and the development of a Herb and NTFP Coordination Committee to coordinate NTFP policy and development activities across all government departments.

When the need arose for a national level marketing company for community products, the project facilitated the creation of Himalayan Bio Trade Private Limited (HBTL).

Partnerships Summary Lessons

- Partnerships need to be developed among all major stakeholder groups and this requires individuals and institutions that have technical competence and the respect of each partner group. In this case, a private sector company was developed and recruited to develop partnerships with other companies; local community based NGOs worked on partnerships with community members; and senior foresters linked with the Department of Forests. The key was that the project then facilitated regular meetings of these partner liaisons, where they had an opportunity to combine information to achieve overall project goals.
- Combining conservation, enterprise, and social equity goals is still an evolving field. Most NGOs, companies, and government institutions are charged with one or maybe two out of these goals. Most entities will naturally gravitate back to their primary mission, so do not overlook a strategy that creates a new entity to fill a role not done effectively by existing stakeholders. In this case the creation of HBTL filled a much needed marketing function that was founded on balancing conservation, social equity, and enterprise development.

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3 To promote forest certification and strengthen the NTFP value chain, an alliance among like minded key public and private sector stakeholders was developed. The alliance brought together: 1) U.S. product buyers and designers – Aveda and its extended industry contacts of the American Herbal Products Association; 2) Certification experts – Rainforest Alliance; 3) Nepali companies – Himalayan Bio Trade, Gorkha Ayurved Company, Nepali Networks; 4) NGOs – ANSAB, Nepal NTFP Network, Himali Jadibuti Sarokar Samuha, and Federation of Community Forestry Users, Nepal; 5) Donors – USAID, Ford Foundation, SNV, and SDC.

Results

Project interventions resulted in institutional strengthening, economic development, and biodiversity conservation directly benefiting local communities and the poor. In 2004, when the GCP funding ended, the project economically benefited 35,227 small-scale producers and generated US \$1,479,000 in revenue. The project continues to expand and increase benefits to local communities. In 2007, over 60,000 producers benefited from about US \$5,000,000 in revenues from dozens of enterprises now established across the landscape.

The project increased average annual per household income by about US \$40. In the local context of an agrarian economy in remote mountains that are characterized by extremely low agricultural productivity and lack of other economic opportunities, the contribution of NTFP enterprises has been significant. The poverty line, as determined by the Nepali government, is US \$59 per year in these remote areas, with the majority of people below this line.

In terms of scale of participation and impact, the project has involved and benefited a critical mass of people and generated significant momentum towards conservation efforts. Depending on the district and their remoteness, 53–93% of the people earned cash income from NTFPs by the closing year of the GCP project.

Once the value of the resource base is recognized, communities have shown interest in developing sustainable forest management plans and measures to regulate harvesting of natural resources. With the enterprise approach, 66 Community Forest User Groups (CFUGs) have been developed and 43,630 hectares of forest and pasture brought under improved management. To leverage its impact, the project has expanded its approach to other districts in Nepal bringing in a total of 108 community forest user groups covering 76,092 hectares of forests and pasture under improved management. The project approach has been adopted by the national level CFUG organization—The Federation of Community Forest Users, Nepal (FECOFUN)—and other community forestry assistance efforts in Nepal.

Concluding Advice

There have been significant achievements due to multi-disciplinary teams that have worked on the Nepal program since its inception in 1992. The program has had long-term, multi donor support that allowed the project to combine required interventions in policy, capacity building, conservation, enterprise development, tenure, and marketing. While other donors have stressed marketing or tenure, the GCP program has contributed a framework for the biodiversity interventions, allowing for flexibility in approaches and encouraging adaptive management that has produced a successful synergy of multiple donor programs.

EWV is primarily an economic development NGO that works to integrate conservation into its projects. For this reason, EWV and its GCP sites especially benefited from the GCP principles and strategies used by the other conservation NGOs that were part of the GCP program. The GCP program and its approaches and lessons could be of great benefit to other economic NGOs like EWV that find themselves working to provide technical assistance, capacity building, and tenure advising to rural groups who live in high biodiversity areas.

Depending on the district and their remoteness, 53–93% of the people earned cash income from NTFPs by the closing year of the GCP project.

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The Nature Conservancy – Komodo National Park, Indonesia



Photo courtesy of Robert Delfs, PT. Putri Naga Komodo

Ensuring Long-Term Protection of Marine Ecosystems

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Background – Landscape and People

Established in 1980, the Komodo National Park in Indonesia is a UNESCO Man and Biosphere Reserve and a World Heritage Site. The park is famous for containing the last remaining habitat of the Komodo Dragon (*Varanus komodoensis*) and is considered one of the richest marine environments in the world, flush with coral reefs, mangroves, seagrass beds, seamounts, bays, and deep-water habitat.

Roughly a third of the park’s 1817 km² area consists of three large islands: Komodo, Rinca, and Padar. The sea is home to over 1000 fish species, 385 species of reef-building corals, 16 species of whales and dolphins, green and hawksbill sea turtles, dugong, and manta rays. This biodiversity “hotspot” site supports the livelihoods of about 20,300 local people living inside and around the park. Given its unique biodiversity and scenic beauty, Komodo National Park is one of the most visited areas in Indonesia

This biodiversity “hotspot” site supports the livelihoods of about 20,300 local people.

The Nature Conservancy
Komodo National Park



Aerial View, courtesy of Jez O’Hare, PT. Putri Naga Komodo

This case is part of a series of seven cases under “Lessons on Community Enterprise Interventions for Landscape/Seascape Level Conservation”. Each case study provides some brief context on the site-based project before focusing on the community enterprise component in relation to three learning themes: Threats-based Approach, Scale, & Partnerships.

Threats Analysis

Despite Komodo's rich biodiversity, it is not immune to anthropogenic pressures and unsustainable practices. When The Nature Conservancy (TNC) began working in the park in 1995, there were major imminent threats to the park's biodiversity due to destructive fishing practices and over-fishing. These practices, though illegal, were common throughout the park and had larger negative impacts on the area as a whole, threatening demersal and sedimentary resources by destroying both the habitat (coral reefs) as well as the marine resources (fish and invertebrates). The project applied a threats-based approach to identify, rank, and address the critical threats to the park's biodiversity.

TNC learned that the livelihoods of local communities were closely linked to fishing practices. A *bagan* fishery for small pelagics was the major income earner around the time the zoning plan was being designed and developed for the Komodo National Park. Mostly, *bagan* fishing was done in the coastal waters off the reef in deep pelagic waters and, therefore, did not have serious impacts on the reef communities. However, local communities supplemented their income from the *bagan* fishery by exploiting reef resources. The shark fin industry and the lucrative live reef fish trade, for example, were driving forces for many of the destructive fishing activities in the area. Predation of turtle eggs by wild pigs was further aggravating the population and biodiversity health of the Komodo National Park. The park had insufficient resources and capacity to address these threats and conserve marine biodiversity.

These kinds of destructive practices were identified as the major threats to the biodiversity and were the very threats the project intended to address during the course of the project period.

Project Objectives

TNC's approach to global biodiversity conservation is to identify and work at top priority sites to bring systems-level changes and conservation actions. TNC's conservation strategy has focused largely on creating, expanding, and strengthening protected areas. In Komodo, TNC has employed integrated conservation approaches involving traditional protected area activities and compatible economic development and landscape-level strategies to address the threats. (The map on the following page shows the park's landscape.)

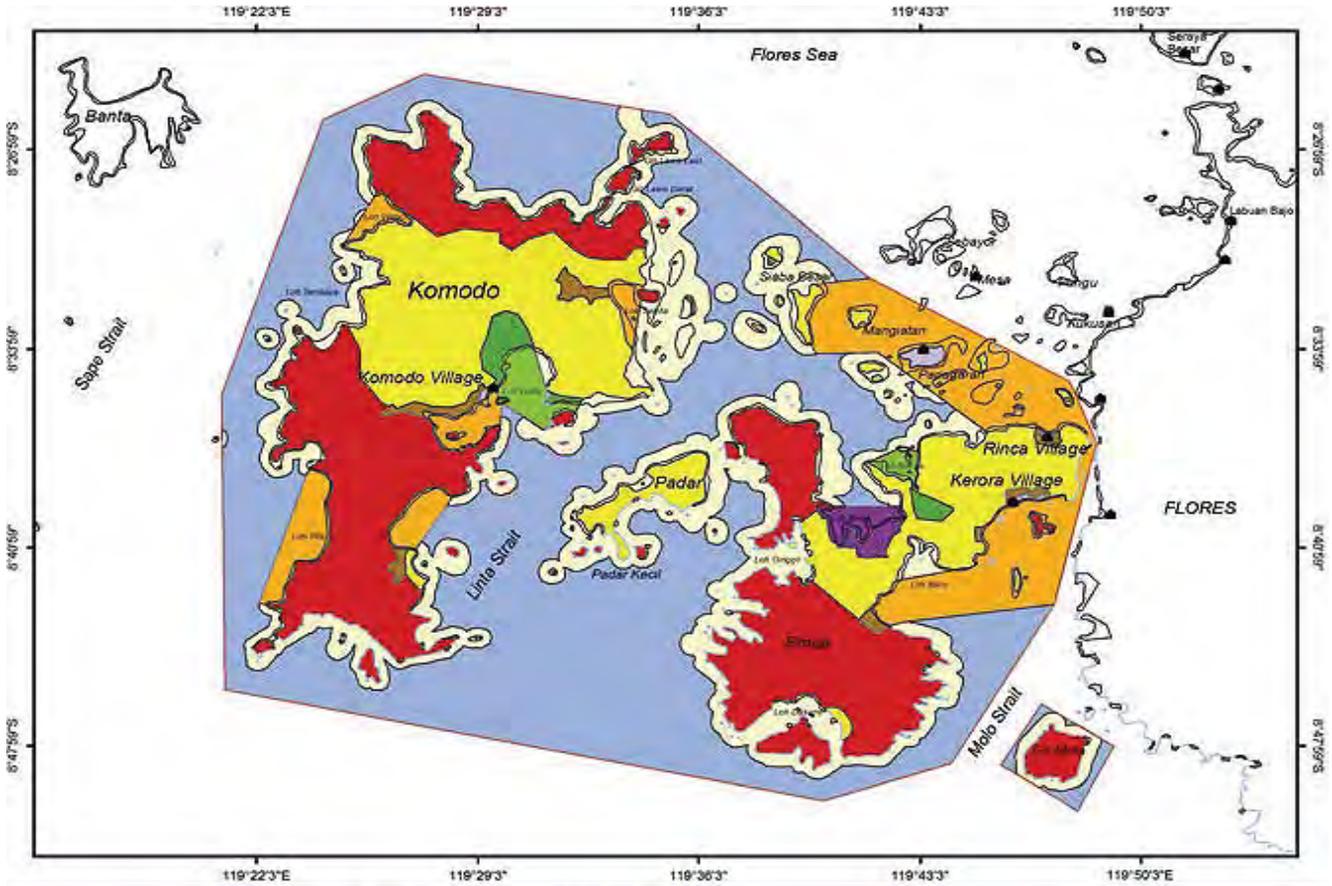
A major strategy for Komodo has been to strengthen the park management by improving its financial capacity and enforcement ability. TNC has worked on park management, enforcement mechanisms, and financing. It was recognized, however, that if access to reef fisheries were restricted, local fishers would face short-term losses in income. Thus, without alternative income sources available to the communities, it would be difficult to implement restrictions on reef fishing and address the threats of destructive over-fishing practices.

In short, without addressing the livelihood needs of the communities, it was difficult to practically enforce the park regulations and promote sustainable practices in the area. Thus, economic interventions needed to go hand-in-hand with other interventions.

The Nature Conservancy
Komodo National Park

Without addressing the livelihood needs of the communities, it was difficult to practically enforce the park regulations and promote sustainable practices in the area.

Zoning Map - Komodo National Park



**ZONING MAP
KOMODO NATIONAL PARK**
MANGGARAI DISTRICT
EAST NUSA TENGGARA
Area : 173.300 Ha



ANNEX DIRECTORATE GENERAL DECREE LETTER
FOREST PROTECTION AND NATURE CONSERVATION
NUMBER : 65/Kpts/DJ-V/2001
DATE : May 30, 2001

DIRECTORATE GENERAL
FOREST PROTECTION AND NATURE CONSERVATION

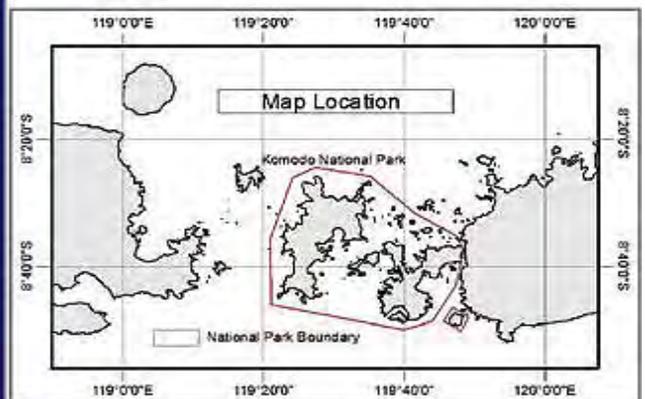
Wahid Wicakso
NIP 080035203

Legend

- Village
- National Park Boundary
- Coastline
- Coral Reef
- Core
- Wilderness, Sea
- Wilderness, Land
- Intensive Tourism, Land
- Intensive Tourism, Sea
- Traditional Use, Sea
- Traditional Use, Land
- Research and Education
- Pelagic Use
- Settlement

Source :

1. 25 Year Management Plan, Komodo National Park, 2000
2. Data Penutupan Lahan Kawasan Kehutanan, tahun 2000 skala 1 : 50.000 Departemen Kehutanan
3. Peta Tata Batas Kawasan Pelestarian Alam Perairan TN. Komodo skala 1 : 100.000, Departemen Kehutanan, tahun 2000



Project Activities

The project has designed and implemented the following interventions to address the critical threats:

- *Park management, Planning, and Financing* – assisted park authority with management planning and established mechanisms for sustainable self-financing of park operations through ecotourism development.
- *Patrolling* – supported the park authority, local enforcement agencies, and local communities to establish an efficient surveillance and enforcement system in order to prevent illegal resource use and destructive fishing.
- *Community Awareness and Outreach* – implemented a range of community education, awareness and outreach activities, including environmental lectures at local high schools, village information meetings, video documentaries, and publications.
- *Alternative Livelihood Development* – facilitated the exploration and development of alternative livelihood options, including fish culture, pelagic fisheries, seaweed culture, wood carving, and other home industries to shift fishing pressure away from the reefs.
- *Monitoring and Research* – implemented comprehensive biological and socioeconomic monitoring and research activities, including the monitoring of resource use by humans and applied research on coral reef rehabilitation to inform adaptive management and measure conservation success.

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Komodo National Park

The Community Enterprise Component

1. Ecotourism Concession for Park Financing

Putri Naga Komodo (PNK), an independent and sustainable management support unit, was established in 2005 to develop ecotourism through a 30-year concession granted by the Indonesian Ministry of Forestry. PNK is a 60/40 Joint Venture between The Nature Conservancy (TNC) and an Indonesian tourism company, PT Jaytasha Putrindo Utama (JPU). Although legally structured as a private company, PNK's charter states that all revenues will be used to support the management and development of Komodo National Park and the development of alternative livelihoods and enterprises for local residents.

The Global Environment Facility provided US\$ 10 million over a period of seven years through the International Finance Corporation to cover start-up costs, operating expenses, and carrying capacity studies for park management. By 2012, the park is expected to be financially self-sustaining on an operational budget of US\$ 2 million per year through higher visitor numbers and a gradual introduction of additional fees. A conservation fee was introduced on top of the entrance fee after a study undertaken by the project found that “willingness-to-pay” could be further enhanced by offering a higher quality experience and by clearly explaining the use of revenues for better park management.

A study undertaken by the project found that willingness-to-pay could be further enhanced by offering a higher quality experience and by clearly explaining the use of revenues for better park management.

Since gaining the ecotourism concession, the company has improved tourism infrastructure and collected tourism revenues, which were made available for park management in 2008. In addition, the company has invested a portion of the revenues in a fund for a community development program. This initiative has increased tourism revenues for government agencies, employment for local people, and additional market opportunities for the community enterprises. Community members are currently involved as naturalist guides in the tourism concession areas and in producing locally made merchandise to sell to tourists.

2. Improvement of Pelagic fisheries

The project actively developed a high-value pelagic fishery to shift fishing pressure from overexploited coral reefs to the open ocean. Pelagic fish are more resilient to exploitation than reef fish because pelagic fish generally grow and reproduce faster.

The project formed and trained fishery groups. Fish aggregation devices (FADs)—rafts anchored in deep waters to attract fish—were deployed to develop small-scale pelagic fisheries for species such as tuna, skip jacks, and eastern little tuna. These FADs increased the number of fishing locations, held migrating pelagics in the area and therefore increased overall catch rates.

TNC provided supplies for pelagic fishing (including iceboxes, nylon, artificial bait, and small boats), and technical and operational assistance for fishers' groups. The training included construction of traditional FADs and skipjack tuna fishing, live and dead bait still-fishing, artificial bait trolling, natural bait trolling, and post-harvest handling and techniques.

Later in the process, the project worked with Usaha Mina, a state-owned fishing company, to improve the marketing of the high-quality product. This helped attract private sector investors, such as PT Samudra Mina, that bought the products from these pelagic fishers. Some private companies invested in the installation of additional FADs and provided fishing gear and outboard engines for the fishers. Eventually, a cold storage facility for fisheries' products developed with private sector investment in Labuan Bajo.

This work is not ongoing. The market for the types of fish caught was not strong enough to sustain this livelihood option beyond the life of the project.

3. Mariculture Value Chain Development

Like the focus on pelagics, the mariculture efforts were designed to shift fishing efforts away from destructive practices to other, more sustainable techniques. The main purpose of developing a new large-scale fish culture enterprise in the Komodo area was to provide a source of income for fishing communities that would allow them to continue to share in the value of the fish. The goal: transform the live reef fish trade from unsustainable, capture-based to sustainable, culture-based. For this purpose, the project targeted high-value species such as mouse grouper (*Cromileptes altivelis*) and tiger grouper (*Epinephelus fuscoguttatus*). A preliminary business plan commissioned by the project showed that such a hatchery-based project would be technologically, socially, and economically viable for the area.

The project actively developed a high-value pelagic fishery to shift fishing pressure from overexploited coral reefs to the open ocean... The market for the types of fish caught was not strong enough to sustain this livelihood option beyond the life of the project.

TNC started this mariculture value chain development pilot in partnership with the Gondol Research Institute for Mariculture (Bali, Indonesia); the Department of Primary Industries, Queensland (Australia); and the Network of Aquaculture Centers in Asia (Bangkok, Thailand). TNC's Komodo Field Office took on the responsibility of developing and maintaining three tons of broodstock in fish cages near the hatchery site. During the pilot phase, the output capacity was 25 tons of fish per year. The pilot project was to lead to the development of a full-fledged fish culture business with a capacity of 200 tons of reef fish every year.

The project approach was for a central hatchery in the Komodo area to provide inputs (i.e. fingerlings, expertise, feed, materials) to grow-out units located in nearby villages. However, it took two years for the project to successfully observe spawning in mouse groupers kept in the Komodo fish cages. There were technical challenges in stabilizing fingerling production at the hatchery. After initial successes, hatchery production stagnated in June 2004 due to mass mortality of larvae. Despite such challenges, TNC still sees great potential in establishing a community-managed fish culture project with communities surrounding the park, based on the research and development work accomplished during the project.

The goal: transform the live reef fish trade from unsustainable, capture-based to sustainable, culture-based.

4. Promotion of Seaweed Culture

Seaweed culture has been popular in Bali, Lombok, and Seribu islands since the late 1990s, with 300,000 tons of output per year. However, the Komodo area has not been very active in the seaweed sector, representing a tremendous opportunity for growth. Market surveys done by the project showed a high demand for seaweed, which is used as a raw material in cosmetics, ice cream, and other desserts. Local people already collect seaweed in the park, but further growth has been stunted by the deficiency of appropriate seaweed culture and post-harvest treatment techniques.

The Nature Conservancy
Komodo National Park



Fish drying on beach, Komodo, courtesy of Ron Geatz. TNC

TNC believes a sustainable and profitable seaweed culture industry would make the local population less dependent on the reef fishery in the park. The project has investigated and introduced better culture and post-harvest techniques to attain a level of quantity and quality that would ensure the economic viability of the industry. The seaweed culture was remunerable to the communities as it could be harvested within 45 days from seeding.

The project has provided training to local fishing communities in seaweed culture; modules included: application technology, planting, breeding, harvesting, post-harvesting, maintenance, and marketing. Each participant has also been provided with materials needed for seaweed culture (e.g., rope, bamboo, anchor, plastic, seed, and buoys). Six seaweed culture groups have been established and seaweed culture started in April 2001 in Seraya Besar, Papagaran, Messa, Kukusan, Menjaga, Bajo Pulau (Sape) and Soro (Sape). These groups, especially in Sape, quickly became self-sufficient, expanding rapidly to additional family members.

As a result, each family has cultivated about 300-400 m² and produced about 250 kg of dry seaweed per planting cycle, earning Rp 600,000 (US \$60) per cycle. Since each family can complete about 8 cycles per year, the income generated from this is expected to be sufficiently large to make these communities less dependent on reef fishing.

Initially, there were not strong markets for the producer communities to sell their harvested seaweed. However, the price of seaweed has recently increased in Indonesia, and with greater access to domestic markets, communities both inside and outside the park are growing more seaweed. The skills and knowledge learned during the GCP project are now being realized.

5. Alternative Income-Generating Activities

The project has initiated smaller alternative livelihood initiatives during the project period to provide alternative income opportunities to the local fishing communities. Some small successful livelihood options have resulted from the project, including woodcarving for villagers from Kampung Komodo (23 households), sewing and weaving for women from Kampung Komodo (66 households), and production of homemade cakes for women from Messa and Papagaran (7 households).

Woodcarving

Villagers of Kampung Komodo have been carving since the early 1970s. To make their products more marketable, the project, together with the park authority, invited skilled carvers from Bali to train villagers on carving techniques and quality improvement. Training courses were organized where the most senior carvers trained the junior members. Marketing of souvenirs was improved by specifying a selling space at the entrance gate of Loh Liang.

The project also provided sets of carving tools to the groups who were later linked to the District Small-Scale Industry Service (a government agency) to further improve their product marketing beyond the Komodo area. Furthermore, a savings system was set up to collectively purchase raw materials. Carving quality has improved significantly along with improved marketing of souvenirs and increased incomes to the local communities. The carvers have been taught the benefits of conservation, in order to minimize the illegal harvesting of wood from the park.

Local wood carving, token bracelet making, production of cakes and other similar alternative livelihoods are still continuing, with financial support provided by micro-credit

initiatives through the empowerment of community managed “financial management units”. Many of the souvenir sellers work within the tourism concession area at Loh Liang on Komodo Island. This component of the program is working quite well, and there are significant opportunities for expansion.



Carvers, courtesy of Jack Wyllie, PT Putri Naga Komodo

To make their products more marketable, the project, together with the park authority, invited skilled carvers from Bali to train villagers on carving techniques and quality improvement.

Sewing

The women of Kampung Komodo are heavily involved in the collection of shellfish, sea cucumber and other valuable species from shallow reefs to supplement their household incomes. TNC determined that these women were well positioned to produce and market souvenir products at the main gate of the park, which was not only an ideal market place for such products, but also walking distance from the village. Although these women lacked sewing skills and materials, the area is famous for traditional woven cloth.

The project has provided groups of women with training, sewing machines, and cloth to initiate the sewing activity. 66 women in the fishing community have received training and capacity building support in sewing. These groups have also been supported through savings schemes. With this support, the women's groups have produced and sold traditional woven cloth embroidered with motifs inspired by the Komodo National Park. With the increased income and the savings system, these groups have expanded their sewing activity by purchasing additional sewing machines. TNC estimates this intervention alone has resulted in an additional income of Rp 300,000 per month to each of the group members.

Table 1: The Linkages between Economic Interventions and Threats

Intervention	Threat addressed	Remarks
Concession for Ecotourism for Park Financing	All threats	By: 1) Providing increased financial resources to the park to carry out management, patrolling and law enforcement, and to support further community development, through alternative livelihood schemes and community grants; 2) Increasing the involvement of communities within the park in tourism related activities (e.g. wood carving) for sale to tourists.
Improvement of Pelagic fisheries	Destructive fishing, over-fishing	By: Providing alternative sources of income to communities inside and outside the park, thereby reducing fishing pressures on near shore marine resources.
Mariculture Value Chain Development	Destructive fishing, over-fishing	By: Providing a high-value fishery as an alternative source of income to communities living immediately outside the park in order to decrease their heavy dependence on destructive fishing practices and reduce fishing pressure on vulnerable fish species such as Maori wrasse and groupers.
Promotion of Seaweed Culture	Destructive fishing, especially by women (practices such as reef gleaning), over-fishing.	By: Providing alternative incomes to the communities heavily dependent on destructive practices – especially with an activity that requires low-tech equipment and knowledge so all family members can participate.
Wood carving, Sewing, & Home-made Cakes	Destructive fishing, over-fishing	By: Providing alternative incomes to the communities heavily dependent on destructive practices.

Learning Themes

1. Threats-Based Approach

How has using a threats-based approach influenced engagement with community enterprise interventions?

There is no doubt that economic interventions play a role in conservation. However, regulatory mechanisms have to be in place to support and control economic interventions designed to promote sustainable practices that will eventually support the livelihoods of the local people.

For this reason, the project has strengthened the national park with a zoning plan, management planning, and development of new regulations based on the monitoring and research findings. With inputs from villagers, an ecological assessment and other research information, a zoning plan has been developed and implemented. The following zones have been designated: core, wilderness with limited tourism, tourism use, traditional use, pelagic, special research and training, and traditional settlement.

Traditional use and pelagic zones are open to local communities for non-destructive fishing. The park is planning to provide exclusive use rights to local communities for fishing grounds in the designated area. To safeguard the survival of the Komodo dragon, a major part of Komodo Island and Rinca Island, approximately 16% of the park area, has been declared a sanctuary. No take zones have also been designated, which helps to sustain commercial fishing in surrounding fishing grounds.

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Komodo National Park

The conclusion should not be that alternative livelihoods fail to achieve conservation, but rather that alternative livelihoods combined with regulatory enforcement and other interventions as a package can lead to conservation in the long term.

Threats-Based Approach Summary Lessons

- The premise that alternative sources of income for communities inside and outside a conservation area will reduce threats may not prove true in the short term in many cases. However, the flipside—people continuing practices as usual—almost certainly leads to continued degradation. The conclusion should not be that alternative livelihoods fail to achieve conservation, but rather that alternative livelihoods combined with regulatory enforcement and other interventions as a package can lead to conservation in the long term.
- The timeframe for alternative enterprises to thrive also needs to be considered. Community employment patterns are often complex and rooted in customs and traditions. Cash flows may be generated quickly, but the comfort level with a new livelihood sufficient to induce large percentages of the population to modify prior livelihoods can take years. Conservation and development practitioners should therefore consider that while alternative livelihood development may work to abate threats on a long-term basis, the short term has to be carefully monitored and adapted to adjust to changing market conditions and employment patterns.
- Alternative income strategies have a better chance of success when there is a clear commitment from the communities to reduce or stop destructive practices in exchange for training, equipment, credit, etc. that will help them to succeed in the new enterprise. There also needs to be clear regulatory support and enforcement to prevent early adopters from being penalized by non-adopters.

Although the park initially faced difficulty in the implementation of no take zone policies, the zoning plan, licensing, and local community access mechanisms have improved management and conservation of the park resources.

To abate the threats of destructive fishing from the live reef fish trade, TNC has had both supply and demand side strategies. TNC has collaborated with the South Pacific Community (SPC), the International Marinelife Alliance (IMA) and the World Resources Institute (WRI) to coordinate fishery related activities, increase awareness on fisheries, and introduce industry standards for the live reef fish trade. With effective monitoring and collaboration with relevant stakeholders, including governments and private sector players, TNC's efforts have resulted in the development and implementation of industry standards for the live reef fish trade, reduced pressure on key fish stocks, and improved fishing practices.

To abate the threats of destructive fishing from the live reef fish trade, TNC has had both supply and demand side strategies.

2. Scale

How has the shift in scale to landscape/seascape level conservation influenced choices in enterprise development?

A number of lessons have been learned from TNC's experience in Komodo that relate to larger discussions about the value and appropriateness of alternative livelihood projects.

1. Any new enterprise or activity must be market-driven to be sustainable.
2. Community members require on-going support in addition to initiation and implementation phases (need long-term vision from the beginning).
3. The communities must be involved from step one.
4. Collaboration is important with all stakeholders involved. In the Komodo case, this included the target community as well as surrounding communities.
5. In order to turn a fish culture pilot project into a commercially successful business with a large-scale capacity, a strong partnership with the private sector is needed.

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Komodo National Park

Scale Summary Lessons

- There are serious barriers to entry for the private sector to voluntarily enter high biodiversity areas. Zoning restrictions, uncertainty over long-term use and extraction rights, low capacity levels of local work forces, and remote locations all make launching enterprises riskier when compared to running a similar enterprise in a less remote, lower biodiversity area.
- When working at landscape and seascape scale on alternative enterprises, environmental NGOs must build capacity, work to reduce barriers to entry (create an appropriate enabling environment), and facilitate robust monitoring and enforcement mechanisms. All are needed to complement the traditional enterprise development activities (produce a product or service competitively and access markets). This is a complex challenge that requires multiple skill sets and a long-term commitment to sites.

When evaluating whether a certain market activity is likely to become a successful business opportunity with long-term income-creation potential, it is important to consider why the private sector has not already gotten involved. If the private sector has not invested in certain potential economic development opportunities, it may signal that they are not feasible at that moment due to the lack of an enabling local environment (perceived as barriers to entry for the private sector) and/or the lack of a good price or market for the products. However, environmental NGOs may play a role in working with partners to remove obstacles for investment. Nevertheless, it is important to consider the frequent lack of expertise within environmental organizations to take on such activities, and the potential dangers involved, not the least of which are harming relations with communities if such projects are unsuccessful.

3. Partnerships

How has the GCP leveraged partnerships and cross-sectoral relationships to achieve livelihood/economic outcomes that support conservation at a landscape/seascape level?

Some feel that environmental NGOs may not have the right capacity or decision-making structures to be successful in setting up businesses or conducting community development projects, and therefore, these sorts of ventures are a poor use of their time and funding. However, those working in developing countries—and particularly those working closely with communities facing poverty and poor health, sanitation, and education—cannot simply ignore the conditions their community partners are facing. Thus, it is extremely important to foster strong partnerships with social or development organizations that are experienced and have a proven track record in business development, as well as with actual businesses and credit providers that are willing to invest in opportunities.

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Komodo National Park

Conservation projects could greatly benefit from investing some of their scarce resources to hire expertise to construct targeted messages to achieve mutually beneficial partnerships with the private sector.

Given the seascape level orientation and magnitude of the threat, TNC has had to work with multiple partners at multiple levels. For the live reef fish trade issue, TNC has worked at a much larger scale, garnering partnership and support from regional level organizations and key fisheries-related national players including government agencies, NGOs, and local communities.

TNC has also worked with park managers, other government agencies, and communities on park management and livelihood development. To develop strong collaboration among key partners for park management and institutionalize the partnership, TNC has promoted a Collaborative Management Agreement with the park authority to strengthen the networking and participation of key stakeholders on park management issues.



Densely packed houses line the banks at Komodo National Park, Indonesia. Photo courtesy of Andy Drumm, TNC

Research and extension has been a strong component in the project. The project has collaborated with research institutions and universities as well as government and local institutions to undertake various research, monitoring, and extension activities. Local media were initially very critical of TNC developing no-take zones and the new joint-venture entity, which led TNC to expand its programs to include the education of local and international media to address these negative perceptions.

In the community livelihood activities, all of which had local markets, TNC's role has been to provide training, technical, and financial support to the entrepreneurs involved. TNC has played a facilitative and capacity-building role. The project has also worked towards linking these communities to private sector buyers. In addition, for pelagic fishing and seaweed culture, TNC has extended partnerships with private sector players to increase investment in the subsector and improve market access for community members.

TNC has played a facilitative role for tourism development, by developing and promoting new enterprises and park management. Conversely, with an ownership stake in the joint-venture company, TNC has inserted itself into the tourism industry as a market player. Although it was meant as a means of effectively implementing its strategy to raise revenues for park management costs and to further develop the tourism industry, the expansion of TNC's role into the value chain as a market player could have implications on its facilitative roles and development of the tourism sector.

Similarly, TNC has invested a significant amount in mariculture development. TNC has taken on much of the responsibility, both because it was an entirely new pilot initiative and because TNC was relatively inexperienced in collaborating with the private sector. However, the mariculture did not yield the results originally envisioned. One likely factor was the insufficient investment from the private sector.

The mariculture did not yield the results originally envisioned and expected; One likely factor was the insufficient investment from the private sector.

The Nature Conservancy
Komodo National Park

Partnerships Summary Lessons

- Not all partnerships are going to work out as planned. Drawing from marketing experience, potential customers need to hear the marketing message multiple times before they consider the product. In marketing, it is common to have to contact ten potential customers, for every one customer that becomes a regular buyer. Recruiting partners in conservation is a similar yet even more complex process, yet we lack any credible data on how long it should take or what our "recruitment" success rate should be with partners. Continuing with the marketing analogy, there are also categories of customers/partners – government officials, influential community members that may be required to include as partners to achieve the project goals.
- The strategy used in marketing—segmenting the market and devising targeted messages to each segment—should be applied to exploring and developing partnerships. Conservation projects could greatly benefit from investing some of their scarce resources to hire expertise to construct targeted messages to achieve mutually beneficial partnerships with the private sector. By their own admission, conservation projects admit it is a challenge to approach the private sector; "Outsourcing" this function is a strategy that needs greater consideration.

Results

Through its combination of interventions, the project has achieved significant accomplishments, leading to a reduction of biodiversity threats and improvement in park management. Blast fishing has been reduced by more than 90 percent and coral reefs have recovered by more than 60 percent, according to monitoring of 185 sites by TNC.

The project has improved resource use, fisheries, and extractive use of terrestrial habitats. A tourism management plan has been successfully developed and implemented, generating increased revenues to cover a major part of the expenses for park management. Tourism has increased almost 30 percent over the last year, and the Park has raised more than \$500,000 since May 2006 by levying a modest conservation fee on park visitors.

Several fishery groups involved in improved pelagic fishing practices started shifting their attention from reef fishing based on the economic incentive. For example, 159 fishers from the Sub-District of Komodo and 153 fishers from Sub-District Sape were engaged either part-time or full-time in pelagic fisheries activities. These groups together operated a fleet of a 100 boats of which 30 to 40 were engaged full-time in pelagic fisheries at the fish aggregation devices. TNC assessment showed members of the “Harapan Keluarga” fishing group made an average income of more than Rp 800,000 per crew member per month, which was higher than the traditional, destructive fishing practices (Rp 600,000-700,000).

While these results were promising, work with pelagic fisheries is not ongoing. The market for the types of fish that did aggregate around the FADS was not strong enough to sustain this livelihood consistently beyond the life of the project. More investment would have been needed to expand this enterprise and seek out markets that would reward sustainable fishing to create a catalyst for systemic change in the fisheries activities.

Concluding Advice

This case is working to position “sustainable products” in local, regional, and international markets. Fishers use more sustainable fish aggregation devices rather than destructive fishing practices while tourism operators respect the unique and fragile Komodo ecosystem. Yet, markets that seek out products with sustainable attributes are often nonexistent in local contexts, in their infancy in regional markets, and fickle in developed countries. Consumers’ buying decisions can vacillate among wanting to support local communities through fair trade, to reducing climate change, to saving an individual species.

Most community-based enterprises working to protect biodiversity have all these potential sales attributes, but they need to get savvy on which messages to lead with in any given year. Just as fashion colors and designs change quickly, so should the marketing messages that to attract potential private sector partners and buyers for the products/services.

“Think you can’t go wrong amping up a hot-button environmental issue like global warming? ‘Think again,’ advises a new survey from Conscientious Innovation (CI), a green-marketing firm. Turns out consumers are much more interested in personal and social issues such as community engagement, fair-trade, and buying local.”

- *Sustainable Brands Weekly*, 1 May 2008, www.sustainablelifemedia.com

Consumers’ buying decisions can vacillate among wanting to support local communities through fair trade, to reducing climate change, to saving an individual species.

The Nature Conservancy
Komodo National Park

The Nature Conservancy – Mesoamerican Reef: Belize, Guatemala, Honduras and Mexico



Photo courtesy of Friends of Nature

Support for Marine Protected Areas in the Mesoamerican Reef

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Background – Landscape and People

The Mesoamerican Reef (MAR) is the second largest coral reef system in the world, extending for 625 miles from the Bay Islands of Honduras through Guatemala and Belize to the tip of Mexico’s Yucatan peninsula. It is part of a larger interconnected system of coastal habitats and currents that stretch throughout the Caribbean Basin and beyond.

While best known for its rich biodiversity, the MAR also sustains nearly two million coastal people from Mexico, Belize, Guatemala, and Honduras.

The MAR consists of extensive coral reefs and unique offshore atolls that sustain a diverse array of fish, invertebrates, birds, plants, sea turtles, and mammals. The reef is inhabited by 66 species of coral, whale sharks, spiny lobsters, green moray eels, reef fish, and a wide variety of other sea life.



Cayos Cochinos, courtesy of Fundación Cayos Cochinos

In addition to the reef resources, the MAR also contains important coastal habitats such as coastal wetlands, sea-grasses, mangroves, beaches, coastal rivers, and lagoons

that provide critical breeding, nesting, and foraging habitats for numerous species. Closer to land, sea turtles and Central America’s largest population of endangered manatees find shelter in mangrove habitats and sea grass meadows.

While best known for its rich biodiversity, the MAR also sustains nearly two million coastal people from Mexico, Belize, Guatemala, and Honduras. The area is home to the indigenous Garifuna, Miskito, Maya, and Pesch communities, which depend on the reefs for subsistence.

The MAR’s productive fishing grounds support valuable commercial and artisanal fisheries. Its natural beauty and biodiversity also attract millions of tourists each year, providing income to local people and their governments.

The Nature Conservancy
Mesoamerican Reef

This case is part of a series of seven cases under “Lessons on Community Enterprise Interventions for Landscape/Seascape Level Conservation”. Each case study provides some brief context on the site-based project before focusing on the community enterprise component in relation to three learning themes: Threats-based Approach, Scale, & Partnerships.

Threats Analysis

Due to the increasing exploitation of its fragile ecosystem over the years, the MAR faces significant conservation threats. According to site-based assessments conducted by The Nature Conservancy (TNC) and other local organizations, the Mesoamerican Reef's biodiversity health has been affected by the growing intensity and frequency of fishing, especially at fragile fish spawning aggregation sites, which has exhausted the fish population and hurt the ecosystem. Coastal habitat loss and degradation is also imminent because of uncontrolled and unregulated tourism, aquaculture, and coastal development activities. Forest clearing for agricultural expansion has further aggravated the situation by removing natural water filters and allowing silt, fertilizers, and additional pollution to reach the sea. Last but not least, global climate change has accelerated coral bleaching, a phenomenon threatening reefs with extinction.

Unfortunately, the enabling environment needed to support the MAR's long-term conservation is limited by lack of effective management and capacity, a fragmented vision among the four Mesoamerican Reef countries responsible for the MAR's resource management, and unsustainable livelihood practices (i.e., destructive and unsustainable practices in the fishing and tourism industries and lack of diversified, sustainable and alternative livelihoods).

The Mesoamerican Reef's biodiversity health has been affected by the growing intensity and frequency of fishing, which has exhausted the fish population and hurt the ecosystem.

Project Objectives

The threats and limitations identified by the project planning tools formed the basis of the intervention design for the Mesoamerican Reef Program. Since the threats were related to broader-based uncontrolled economic factors and local livelihoods, TNC decided to address the threats through a combination of regional and site-based strategies, including economic interventions. Building the capacity of local partners and a network of actors along the Reef has been key to project design and to achieving long-term seascape conservation.

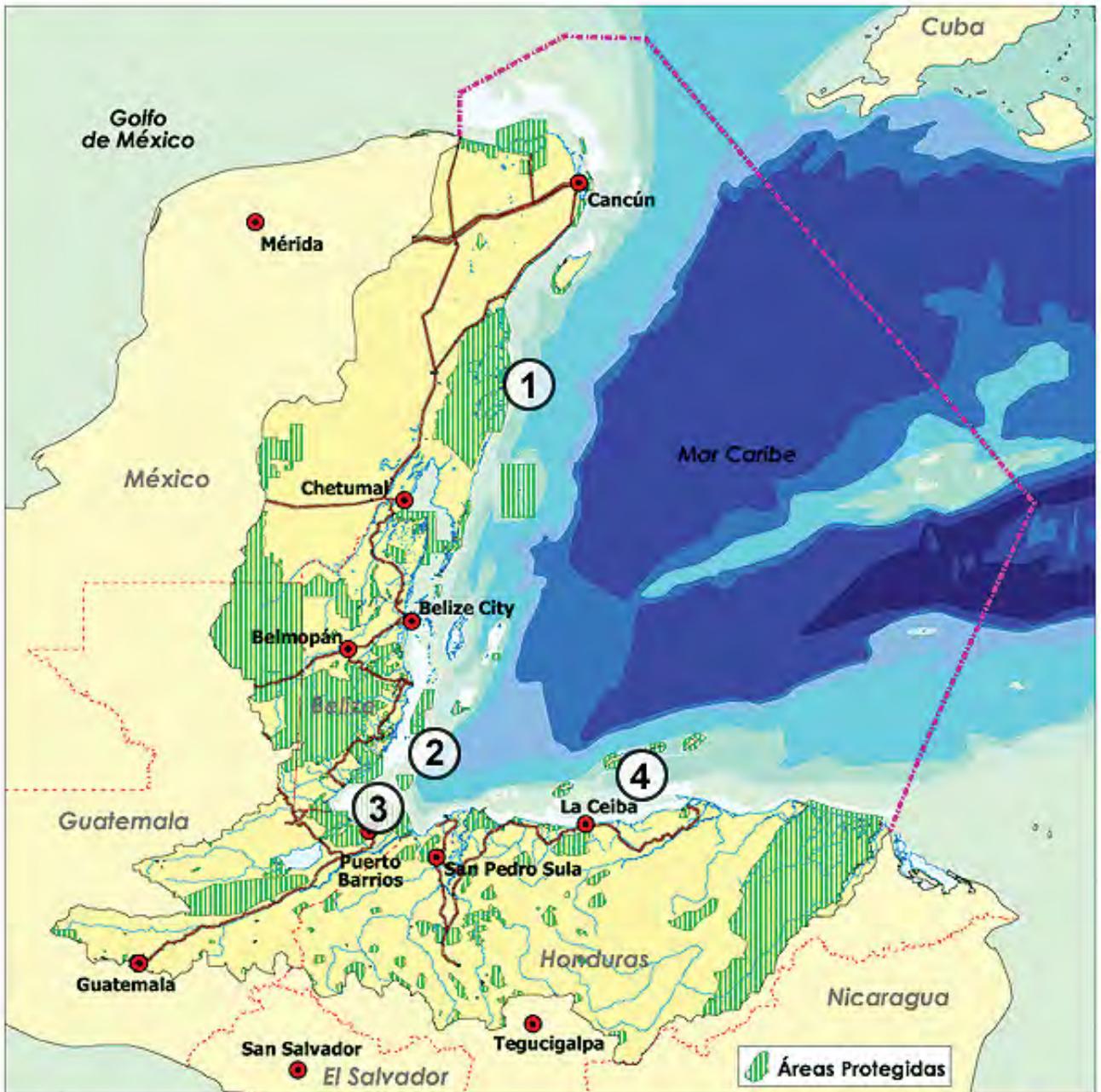
Since the MAR is a large area, TNC has selected a few specific protected areas, referred to as "platform sites" for the implementation of project activities (please see following map). Platform site selection was based on a number of criteria, including: significance of biodiversity, capacity, feasibility of success, and site complementarity to existing TNC work in the region. The four platform sites chosen for the project and the number of fishers in the area are shown in Table 1:

The Nature Conservancy
Mesoamerican Reef

Table 1: Mesoamerican Reef Program Platform Sites

Platform Site	Country	Number of Fishers
Sian Ka'an Biosphere Reserve	Mexico	6,000 across two sites
Cayos Cochinos National Monument	Honduras	
Gladden Spit & Silk Cayes Marine Reserve	Belize	1,800 – 2,000
Punta de Manabique Wildlife Reserve	Guatemala	1,500

Mesoamerican Reef Platform Sites



① *Sian Ka'an Biosphere Reserve, Mexico*

② *Gladden Spit Marine Reserve, Belize*

③ *Punta de Manabique Wildlife Refuge, Guatemala*

④ *Cayos Cochinos Marine Natural Monument, Honduras*

Intervention design for the sites has included four components: science, policy, economic interventions, and a learning center.

1. The science component focused on generating scientific information and understanding coral reef bleaching, spawning aggregations, and ecological connectivity issues.
2. The policy component mostly worked with political bodies on ecoregional planning and the development of common conservation measures in the region.
3. The economic intervention component was designed to ease fishing pressure on reef resources by providing non-extractive income alternatives, included training of local fishery groups, development of a learning centre, socioeconomic modeling, and a labor market study.
4. The learning center component intended to develop a platform for joint learning, sharing and coordination of various conservation and economic development activities in the region.

Intervention design for the sites has included four components: science, policy, economic interventions, and a learning center.

Project Activities

The project has included the following activities:

- Effective Fisheries Management – Developed strategies that conserve the full life-cycle of commercial and endangered fisheries, including spawning aggregations.
- Protection of Key Coastal Habitats – Ensured the effective protection and sustainable management of all coastal priority sites including beaches and dunes, mangroves, and coastal wetlands.
- Development of a Conservation Blueprint – Catalyzed an enabling environment to support priority conservation efforts through the development and implementation of a shared conservation blueprint.
- Creation of a Resilient Network of Marine Protected Areas – Used resilience principles to identify, prioritize, and protect bleaching-resistant coral reef areas along the MAR.
- Improvement of Management and Capacity – Ensured that the management capacity of all critical stakeholders is measurably improved through the development and implementation of a regional virtual learning center and through the effective management of demonstration or “platform” sites.
- Formation of Partnerships – Supported partners to identify and work in platform sites along the MAR. Platform sites are chosen based on biological significance, representativeness of habitat type, capacity to conserve, and resilience.
- Creation of Marine Protected Areas (MPAs) – Facilitated the establishment of marine reserves based on spawning aggregations and other conservation factors.

The Nature Conservancy
Mesoamerican Reef

- Knowledge Sharing – Generated scientific and local knowledge on the MAR (documentation, survey and research, targeted species and site monitoring).
- Knowledge Dispersion – Raised awareness and capacity on conservation practices, protected areas, and target species.
- Promotion of Sustainable Alternative Livelihoods – Created effective and sustainable alternatives that reduce dependence and exploitation of reef resources while generating income and employment opportunities for reef-dependent communities.

The Community Enterprise Component

The assumption: opportunities to gain incomes that are not tied to extracting marine resources will lead fishers to reduce pressure on the biodiversity in the MAR region.

TNC has applied an alternative livelihood approach in the region to generate alternative sources of income for the fishers, based on the assumption that opportunities to gain incomes that are not tied to extracting marine resources will lead fishers to reduce pressure on the biodiversity in the MAR region. In particular, the project has targeted fishers who perceived their short-term livelihoods as being impacted by the creation of the marine protected areas (MPAs).

The entry point for the economic intervention activities was the provision of ecotourism training to fishers. That was followed by the development of a learning center with the much broader objective of promoting job opportunities. TNC also conducted a labor market study to identify appropriate and strategic alternative livelihood opportunities, including and in addition to ecotourism, which could be promoted in the MAR region.

1. Ecotourism

The project has invested a significant amount of effort in Belize, especially with the Gladden Spit and Silk Cayes Marine Reserve (GSSCMR) communities. The GSSCMR is increasingly important for whale shark tourism. There are six villages considered to be under the GSSCMR’s direct influence—Hopkins, Independence, Placencia, Seine Bight, Sittee River, and Monkey River—with a population numbering 6,546. Fishing and fish processing (including employment in the shrimp farms) employs 9.9% of the population. While fishing is important, the overall contribution of commercial fishing to the local economy has been declining due to the growth of the tourism industry. The economically active population has become increasingly involved in tourism-related activities, with participation ranging from 10% to 61%. Still, unsustainable fishing practices continue to greatly threaten the conservation of marine biodiversity.

Given this context, TNC sponsored ecotourism guide training for 29 fishers in the area. The training was meant to transform these fishers into ecotourism guides for fly-fishing and scuba diving. The trainings intended to reduce threats



Restaurant at Punta Allen Tourism Cooperative, courtesy of Matthew McPherson

in the MAR region by: 1) reducing incentives to break MPA rules by directly offering alternative ways to earn a living and 2) fostering a constituency of ecotourism-oriented economic activities that had an interest in protecting the biodiversity of the protected areas as a source of tourism-related income. In addition, the trainings have helped TNC become active in the community, which fostered support for the broader conservation mission.

In an assessment of fisher-targeted trainings conducted by TNC, Mesoamerican Barrier Reef System Project and UNDP from 2003-2005, 44 fishers who participated in a guide training were interviewed. Of these 44 participants, 48% were generating income from work in their field of training; however, only 25% report tourism employment as their primary (or significant) source of income.

2. Learning Center

An evaluation of the fisher training programs showed that, while some increase in earning was achieved through ecotourism training, employment success was better for those with some previous tourism experience than full-time fishers. Knowledge transfer was not found to be sufficient for promoting a significant transition away from fishing. Moreover, although many fishers displayed an interest in economic alternatives, they view these as supplementary activities rather than a replacement for fishing. Coordinated efforts at the landscape/seascape level are also an absolute necessity. This led TNC to conceptualize and develop the learning center, which was designed as a means of:



*Chachaguat fishers,
courtesy of Matthew McPherson*

Although many fishers displayed an interest in economic alternatives, they viewed these as supplementary activities rather than a complete replacement for fishing.

- Allowing sharing and dissemination of common methods, best practices and approaches as well as gaining consensus on common conservation standards.
- Developing a self-training virtual facility.
- Engaging local communities in the sharing of knowledge and skills necessary to secure long-term conservation (e.g., training in alternative, sustainable economic livelihoods).
- Cultivating and implementing opportunities for collaboration at various scales.

The target beneficiary groups for the learning center include decision makers at local and regional levels, practitioners for conservation initiatives, and local community groups. With the development of a conceptual and administrative framework and demand-driven curriculum, the learning center started its operations and services in 2007.

To promote much larger-scale economic interventions commensurate with the landscape/seascape level conservation objectives, the project commissioned a study in 2006, which identified labor market demands and enterprise development opportunities in the region. The learning center will be used to scale up and coordinate the economic development efforts of the project, including the skills development training opportunities identified by the study.

The Nature Conservancy
Mesoamerican Reef

Learning Themes

1. Threats-Based Approach

How has using a threats-based approach influenced engagement with community enterprise interventions?

The ecotourism guide trainings did not overwhelmingly lead the fishers to stop fishing, due to a number of factors: the relatively low number of existing job opportunities, the unequal distribution of livelihood opportunities across the region and resistance to relocation, and finally, the lack of interest in complete abandonment of fishing, which is viewed as an element of cultural identity. It did, however, help them to diversify their incomes.

Developing enterprises to provide alternative income opportunities is outside TNC's area of focus and expertise as a conservation organization. Consequently, TNC identified new avenues for achieving impacts at the MAR-wide level. TNC's thinking and strategy for economic intervention therefore changed to identifying existing labor market opportunities and building the capacity of fishers to tap those opportunities. To this end, in 2006, TNC commissioned a labor market opportunity study that identified the opportunities and dynamics of labor markets in the MAR region.

While the results of TNC's labor market-based alternative livelihood strategy are still pending, TNC is confident in its ability to address the threats of over-fishing. The strategy is not intended to create new enterprises but rather to develop the skills of fishers to tap already available labor market opportunities. Although changing traditions may take generations, a focus on alternative livelihoods is viewed as the best economic strategy to reduce the pressure on resources and address the threats to marine biodiversity. Ultimately, this alternative livelihood strategy seems compatible with the TNC model of protected area systems that restrict the access of local communities to biodiversity resources.

The ecotourism guide trainings did not overwhelmingly lead the fishers to stop fishing... It did, however, help them to diversify their incomes.

The Nature Conservancy
Mesoamerican Reef

Threats-Based Approach Summary Lessons

- The community enterprise interventions initially had a goal of stopping fishing for a percentage of the population. Stopping an activity, such as fishing, that has a very strong historical and cultural component is difficult and requires a longer and broader based effort than could be supported in this program given the other competing program components.
- The targeted enterprise activities were classified as “alternative” enterprises. Individuals and communities were expected to learn new skills and change their jobs, but the new jobs were often not full time or year round. Economic gains varied substantially for the participants, and there was no clear “conditionality clauses” tied to the over-fishing threat (e.g. stipulating that a tour guide would lose his job if he engaged in fishing.) This is not to imply the project should have done this, but rather to illustrate that when there is not an effectively enforced mechanism to stop an activity, economic incentives for environmentally damaging activities remain.

2. Scale

How has the shift in scale to landscape/seascape level conservation influenced choices in enterprise development?

The MAR Program sponsored ecotourism guide training for 29 fishers, with the assumption that once they completed the training, they could find lucrative jobs in the growing tourism industry, thus reducing their involvement in unsustainable over-fishing. These areas of training were seen as ideal because they capitalized on fishers' existing experience and knowledge. The training was designed with a view towards scaling up later in project implementation if found effective. Since fishing is common across the seascape, any successful intervention in the subsector had the potential for replication throughout the program. From project inception through 2007, the total number of fishers trained through the project was minimal as compared to what would be needed to reduce the threats and have a level of meaningful impact on conservation that TNC was planning for the region.

An impact assessment showed that the training provided for ecotourism had limited impact on conservation as it only provided training opportunities for a small number of fishers. Moreover, most of the trained local fishers continued to fish, using tourist guide jobs as a source of additional income. Given the small scale of the intervention, the conservation impact, if any, of the training was minimal. TNC came to realize that for seascape level impact, there needs to be an organizational structure and mechanism to push a much larger scale of interventions in a sustainable way, which led TNC to conceptualize and develop the learning center.

To be effective in a seascape when using a community-based enterprise intervention, one needs to consider the biological scale, economic scale, and cultural scale.

Scale Summary Lessons

- The project could have greatly benefited from a tourism value chain assessment early in the project to better understand scale issues within the tourism guide subsector. While the project did an excellent job of developing an understanding of seascape scale issues, it had far less resources and expertise dedicated to understanding how the economic tourism scale issues impacted the program's economic development activities.
- The project was correct in concluding that the low number of people trained and jobs generated did not produce the desired conservation impact, but the low number of people trained also makes it difficult to draw reliable economic and conservation conclusions that the strategy would not contribute eventually to reduced fishing if the program is expanded using the new learning center mechanism.
- To be effective in a seascape when using a community-based enterprise intervention, one needs to consider the biological scale, economic scale, and cultural scale. This program had a biological area scale of 625 miles of the MAR, which sustains two million coastal people whose culture is dominated by fishing and tourism.

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Mesoamerican Reef

3. Partnerships

How has the GCP leveraged partnerships and cross-sectoral relationships to achieve livelihood/economic outcomes that support conservation at a landscape/seascape level?

Because of the landscape/seascape level approach, conservation efforts in the MAR region have been a collaborative effort involving government, international and local NGOs, scientific institutions, and local communities. Coordination has been mostly loose or informal.

“If you pursue an enterprise option as part of your conservation strategy, include the private sector to be economically sustainable.”

To begin to create a resilient MAR-wide protected area network, it was necessary to bring all the important stakeholders together to agree on a shared vision. To this end, the project took the lead role in organizing a series of regional workshops to produce a “conservation blueprint” for the MAR. The project produced the conservation blueprint at an opportune moment just as all four MAR nations were negotiating National Implementation Support Partnership Agreements (NISPs) to fulfil their commitments under the Protected Areas Program of Work of the Convention on Biological Diversity. Additionally, the Government of Belize was engaged in a national protected area policy and planning exercise. Producing the MAR conservation blueprint was an early action that, apart from its role in MPA planning and ensuring that spawning aggregations protection was fully included, has had far wider implications for reinforcing collaborative working relationships and synergies in general, both within the MAR Program and between the program and its sister initiatives.

TNC played a central role in the development of the Tulum+8 initiatives that sought to reconfirm the four MAR governments’ commitments to the conservation of the MAR and the development of a new, updated action plan. Given TNC’s presence in all four countries and existing partnerships with local organizations, TNC was well positioned to ensure that partner perspectives were fully integrated into the agenda setting for the Tulum+8 initiatives. The MAR Program actively participated in the various activities of the Tulum+8 initiatives, and created an enabling environment to incorporate the key elements of the MAR conservation blueprint into the new Action Plan for the Mesoamerican Reef.

Partnerships Summary Lessons

- Partnership development concentrated on involving the government, NGOs, scientific institutions, and local communities. Protected area management was the emphasis of the partnership activities. These partnerships have produced a rich body of scientific knowledge and guidance on where and when to concentrate conservation efforts. Potentially, this is information that could also be used to recruit and influence private sector business developers, which could create more sustainable jobs for community members now dependent on fishing.
- This case did not have a private sector partner that could be interviewed; this is partly a function of the program activities and partnership development emphasis. Conservation and development practitioners have learned the importance of involving communities early and in a meaningful way in program development and implementation, but this lesson needs to systematically extend to include the private sector. As one of the private sector interviewees from the other learning cases said, “If you pursue an enterprise option as part of your conservation strategy, include the private sector to be economically sustainable.”

For inter-organizational learning and collaboration among the GCP partners, TNC has collaborated with other project implementers to form the Marine Learning Partnership, which has over 20 members, mostly field staffs and managers from Conservation International, the Wildlife Conservation Society, the World Wildlife Fund, and TNC. This partnership built on a growing convergence among these organizations toward a framework for tropical marine conservation that emphasizes resilient, representative marine protected area networks.



Photo courtesy of Fundación Cayos Cochinos

The virtual learning center was developed in consultation with key stakeholders. The learning center plans to develop self-training modules, with the first three to focus on MPA management for MPA rangers, management effectiveness monitoring, and participative planning. These modules are intended to strengthen the capacity of protected area administrators, park rangers, partners of protected areas, local NGOs, local

community groups, and staff working in areas related to protected areas management. The modules, which will be offered on the learning center website and uploaded onto www.conserveonline.org, are being developed in English and Spanish. Further courses and modules will be developed to build the capacity of the relevant stakeholders in the areas of protected area management, planning and monitoring, and livelihoods development.

New skills generated economic opportunities for fishers and their families, empowered community leaders and conservation activists, and improved scientific understanding by both private and public stakeholders.

Results

TNC believes that the program has yielded increased benefits to communities in the region while also increasing awareness of the importance and benefits of conservation. Examples of accomplishments from the Mesoamerican Reef Program include:

- A MAR ecoregional plan was adopted and implemented that reflects agreement by all key conservation partners (local and international NGOs, government agencies and donors) on priority programs and activities, adoption of conservation best practices, and sharing of scientific and program data. The ecoregional plan has been used by WWF to define their fishing conservation area priorities, by the MAR fund to define key geographic areas of intervention, and by the Coral Reef Alliance, the Netherlands Development Organization and TNC for a community-based tourism destination project.
- Four marine protected area priority sites, one in each country, have been well managed by local partners and serve as examples of effective conservation and management for other protected areas within the MAR regional MPA network. Based on the conservation blue print and the strategic plan, TNC is hoping to expand this work to at least 12 priority areas.
- TNC and its partners are supporting the monitoring of six spawning aggregation and helping to protect 15 more along the Mesoamerica Reef through protected areas.

The Nature Conservancy
Mesoamerican Reef

- Spawning aggregation (SPAG) working groups have been established in Mexico, Belize, and Honduras, and are actively progressing in the validation of 76 SPAGs.
- Potentially resilient areas have been identified, along with areas of suitable sizes, scales, and distribution to replenish corals within the MAR system. Approximately 30% are already inside MPAs, while the others still need to be protected.
- The technical, managerial and marine science skills of at least 2,000 people have been enhanced, resulting in improved MPA management. New skills generated economic opportunities for fishers and their families, more effective community leaders and conservation activists, and improved scientific understanding by both private and public stakeholders.

Concluding Advice

The landscape and seascape level emphasis of the GCP has meant that by definition the GCP partners have to work within and outside protected areas, greatly expanding the range of potential partners and project interventions. Working at a landscape level meant most of the GCP projects have a mix of:

- Scientific research;
- Landscape/seascape use planning and associated tenure work;
- Capacity building;
- Sustainable economic development;
- Policy development and coordination;
- Enforcement; and
- Monitoring and evaluation.

Each of the GCP partners has brought to the program an organizational culture and emphasis. For example, with TNC in the Mesoamerican Reef site, their team was more comfortable in engaging in activities from the list above that directly strengthened marine protected areas management, although they did implement a broad range of activities across the landscape and seascape.

One cannot argue that one grouping on the list is more important than another (others could add even more groupings to this list). Rather, the conservation and development community needs to get smarter about how to combine resources and partnerships to better address the mix of interventions. Funding levels for any given project are rarely adequate to do all groupings justice. Typically as organizations take on landscape and seascape level projects, their field staffs are being asked to work on groupings outside their areas of expertise. The field biologist turned community organizer and enterprise developer has become too common in the conservation field. It should not then be surprising that community enterprise development cases still give mixed results and messages on their contribution to conservation.

What can be done at an organizational level is take a hard look at site-level teams' strengths and biases. If the project includes an economic development component as a strategy to conserve biodiversity then it also needs an investment level to start to match the level of threats and numbers of people that need to be included to affect change.

Wildlife Conservation Society – Petén, Guatemala



The ocellated turkey (Meleagris ocellata), courtesy of L.E. Williams.

Community-based Ocellated Turkey Sport Hunting

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Background – Landscape and People

The Petén is home to the multi-use Maya Biosphere Reserve, established in 1990 to protect approximately 16,000 km² of Guatemalan forest.

Guatemala is a land of extremes. It has the highest mountains and some of the wildest landscapes in Mesoamerica, yet also the largest human population in the region. The northern part of the country, known as the Petén, is home to vast lowland tropical forests, wetlands and Maya ruins. The Petén is also home to the multi-use Maya Biosphere Reserve (MBR), established in 1990 to protect approximately 16,000 km² of Guatemalan forest. The MBR, the largest protected area in Mesoamerica, is home to more than 95 species of mammals and 400 species of birds. Since 1992, WCS has worked with local partners to protect the wildlife and forests of northern Guatemala from a wide range of threats.

The MBR is sub-divided into three management zones: the “Core Zone” designated for non-extractive activities (e.g., ecotourism), the “Multiple-Use” Zone for the sustainable extraction of timber and nontimber forest products, and the largely unmanaged “Buffer Zone” for the practice of conventional agriculture and commercial resource use on the southern border. The Core Zone contains nine management units, including Laguna del Tigre National Park, Mirador-Rio Azul National Park, Sierra del Lacandón National Park, Tikal National Park, Yaxha National Park, and the “Biotopes” of Dos Lagunas, Rio Escondido, El Zotz, and Cerro Cahui. All are under the jurisdiction of Guatemala’s National Council of Protected Areas (CONAP).



Photo courtesy of A. Chicchon, WCS

Wildlife Conservation
Society – Petén

This case is part of a series of seven cases under “Lessons on Community Enterprise Interventions for Landscape/Seascape Level Conservation”. Each case study provides some brief context on the site-based project before focusing on the community enterprise component in relation to three learning themes: Threats-based Approach, Scale, & Partnerships.

The Multiple-Use Zone includes two corridor units and 14 forestry concessions. Twelve of these¹ are leased by the government to resident communities within the Multiple-Use Zone and two are leased to private sector firms. In theory, the government lease agreements with the communities stipulate that they are allowed to harvest natural resources as long as they comply with certain regulations (i.e. maintain certification of their timber extraction activities, develop annual work plans for approval by CONAP, pay taxes, and protect their areas from fire and illegal colonization).

The 2001 census of 158 communities in and around the MBR showed a huge increase in the population size in this area over the last few decades with most of the increases due to migration. From a mere 10,000 people living in the MBR in 1985, the population tripled in ten years and then doubled in the next six years to 60,000 people by 2001. The population explosion in the MBR is a result primarily of external migration and high local birth rates. Even if immigration can be controlled, the latter will continue to drive population growth within the MBR as almost 65% of residents are under 20 years of age, compared to 57% in the rest of Guatemala.

Without functional management regimes that regulate access and meter use of natural resources within the MBR, the present populations of the Petén are, like the ancient Maya, in danger of depleting their environment, impoverishing their economies, and provoking conflict over increasingly scarce natural resources that are the foundation of their livelihoods.

Threats Analysis

Guatemala is experiencing rapid population growth and high levels of poverty. In the Petén, traditional communities face new challenges including migration from Mexico and illegal agricultural encroachment by powerful ranching interests.

Major threats facing the Maya Biosphere Reserve include forest fires, unsustainable agricultural expansion, wildlife poaching, and poorly planned large-scale development projects. Combined, these forces result in rapid deforestation that may doom the region's wildlife. Secondary threats include inadequate conservation policy and funding at the local and regional levels.

Though government policies exist to regulate access to and use of MBR resources, they are seldom adhered to by long-term residents or short-term visitors. This is because they conflict with traditional rights and practices, permitting processes are frequently complicated and many require travel to the capital, and government agencies (i.e. CONAP and the Civil National Police) often lack the resources required to enforce the law. Recent migrants that are illegally encroaching on the MBR have in some cases been driven by necessity to obtain access to land and resources, and in others have been emboldened by numerous examples of powerful individuals who openly flaunt the laws.

¹ Two of the 12 community management units have had their timber harvests suspended by CONAP due to inadequate management and land speculation, leaving 10 functional community-based management units. Another two of the 12 face severe challenges, while 8 of the 12 have been largely successful.

Major threats facing the Maya Biosphere Reserve include forest fires, unsustainable agricultural expansion, wildlife poaching, and poorly planned large-scale development projects.

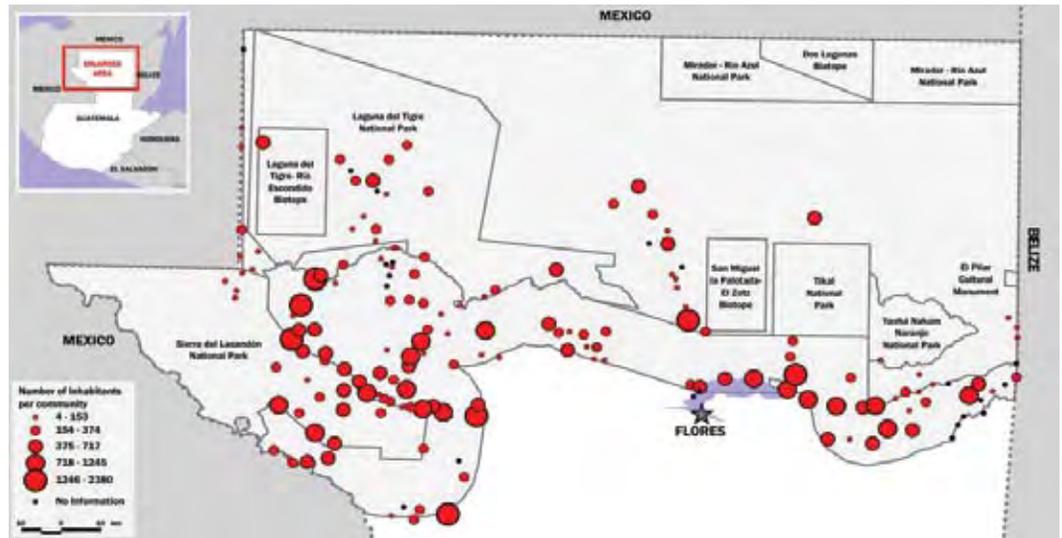
Wildlife Conservation
Society – Petén

Project Objectives

In line with the purpose of the Maya Biosphere Reserve (MBR), the overall goal of this project is “To conserve wildlife species and their habitat in the Maya Biosphere Reserve while maintaining the economic productivity of renewable natural resources”.

The following map shows the location of the core protected areas & population centers:

Conservation interventions are designed to maintain the integrity of the most intact sections of the MBR while maximizing the participation of local community groups.



The Maya Biosphere Reserve (2001), courtesy of WCS

Conservation interventions are designed to maintain the integrity of the most intact sections of the MBR while maximizing the participation of local community groups in natural resource management.

More specifically, conservation activities:

- Used the landscape species approach to design a strategy for the MBR that conserves wildlife across diverse habitats and management zones, focusing particularly on the multiple-use forest concessions.
- Strengthened the institutional capacity of CONAP to manage biodiversity, develop and monitor adherence to community forest concession zoning plans, and strengthen the protection of important biological elements in the Reserve.
- Trained and assisted community members to manage and monitor threatened species and key economic resources within forest concessions. Lessons learned from the project will orient future conservation and development activities and contribute to the maintenance of the forest's biodiversity and economic productivity.

Project Activities

Since 1997, WCS has supported the village of Uaxactún's efforts to attain and manage an 835 km² forest concession dedicated to sustainable forest management and conservation – the largest and most successful such concession in Guatemala. Uaxactún is the only community located in a 10,000 km² area north of the Maya temples of Tikal, and as such serves as the main gateway to the intact eastern part of the Maya Biosphere Reserve.

WCS's activities at Uaxactún include:

- Planning and monitoring the sustainable extraction of nontimber forest resources, including local wildlife management initiatives;
- Training local people in field research, fire fighting and vigilance skills; and
- Monitoring populations of key wildlife species.

WCS assists the Guatemalan Park Service in the management of the Maya Biosphere Reserve and biological monitoring of the reserve's ecological integrity. WCS researchers conduct surveys of wide-ranging "landscape species", including jaguars, tapir, white-lipped peccaries and scarlet macaws, to quantify the impact of threats including habitat loss and poaching. WCS is also strengthening its local partner Asociación Balam, a conservation NGO dedicated to the co-management of protected areas within the Maya Biosphere Reserve.

The Community Enterprise Component

Use of the forest through NTFP collection, ecotourism and low impact logging provides sources of income to many people within the MBR. Recently, WCS has established a new source of income—community-based ocellated turkey sport hunting. This offers another income stream to help augment and diversify local economies. Community-based ocellated turkey sport hunting has a higher value to impact ratio compared to other extraction activities thus, lowering the risk of overexploitation of the resource.



Two Turkeys, courtesy of L.E. Williams.

Wildlife Conservation
Society – Petén

Community-based ocellated turkey sport hunting has a higher value to impact ratio compared to other extraction activities.

1. Ocellated Turkey Sport Hunting

Participating hunters arrive at the regional airport in Flores, Petén from the United States via Guatemala City, Cancun, Mexico or Belize City. Groups of clients arrive weekly during the hunt season. Each group is met by community members at a hotel near the airport and brought to the communities where they have lunch and often purchase local crafts, then proceed to the remote forest camps. Group sizes have ranged from four to six hunters per party because fewer would not be profitable and more would compromise service quality. The annual hunting season is limited to the month-long period after the first week of April that corresponds to the local average seasonal peak of turkey singing.

Local guides and scouts prepare for the hunts by locating as many active roost sites in the harvest area as possible by cueing in on the adult-males crepuscular singing. The guides identify a few good sites to set up a hunter within 100m of the roost and prepare a simple path to the nearest road. Hunting sites must have a natural opening on the ground level such as a tree-fall or open under storey, ideally offering the hunter more than one direction to aim at an approaching turkey. The hunters are driven before dawn and again at mid-afternoon from camp to their respective drop-off points, from which they proceed on foot to the hunt sites near the roost. Accompanied by their guide and one or more scouts they try to reach the sites, conceal themselves, and begin calling the targeted turkey once it begins to sing from the roost before daylight. In some cases the hunters and guides set up cloth or natural material blinds from which to call. Clients are returned to their hotel near Flores on the fifth day after arriving in camp, or earlier if everyone finishes hunting, with either one or two trophies that have been skinned, salted, and boxed for shipping.

Ancient Maya ruins are ubiquitous in the region and there are large Maya sites near each of the campsites, the most spectacular perhaps being the partially restored complex at Tikal National Park and UNESCO World Heritage Site that lies just south of Uaxactún. The hunts are often completed in less than the 4 days scheduled, thus most of the hunters have taken advantage of the opportunity to visit Tikal and other historical sites or to visit the picturesque towns of Flores and Antigua.

The turkey project, “Proyecto Pavo” (PP), has been operating since 1999. At the time, there were no existing national laws to regulate sport hunting in Guatemala, and the concept itself was novel. For the first five years, PP operated as a scientific investigation, and the turkeys harvested by participating clients were permitted through scientific collection licenses provided by CONAP in lieu of hunting licenses. In 1999, surveys were conducted of the ocellated turkey population in the proposed concession area and a series of public discussions were held with the community of Uaxactún. Meetings were also held with the relevant regulatory agencies and the necessary processes were determined in order to acquire permits for a “test hunt” in 2000. The proposed project was integrated into the master management plan written for the proposed community concession of Uaxactún along with complementary guidelines for the management of subsistence hunting.



Turkey feathers are used to ornament Uaxactún corn dolls. Photo courtesy of L.E. Williams

The project conducted its first test hunt in Uaxactún in 2000 and its first sport harvest with four US hunters there in 2001. Since then, the PP has successfully conducted 13 community-based turkey harvests in three community forestry concession units, evaluated two additional units, provided services to over 150 wild turkey hunters, harvested 245 turkeys, and maintained a 100% success rate.

With the advent, in 2005, of national hunting legislation and a state-controlled system for issuing hunting licenses, the legal context of the PP was converted to a CONAP registered commercial wildlife resource operation. Currently hunting licenses cost approximately \$200 per participant. Since 2005 the communities have reported their income from the PP as part of the annual proceeds of each concession.

Local studies of subsistence hunting of ocellated turkeys, which are exploited for food and sometimes for feathers which are used for local handicraft manufacture, indicate annual non-sport harvests of approximately 50 turkeys in Carmelita and 75 turkeys in Uaxactún. At average local values per turkey ranging from US\$5-10 the total value of annual subsistence harvests are estimated between \$250-750. The current market price for foreigners to sport hunt an ocellated turkey ranges from \$2,000 to over \$3,000 which substantially increases the value of ocellated turkeys to local villagers. Currently the communities participating in ocellated turkey sport hunting earn over \$1,000 per turkey harvested, — over 100 times the subsistence value of the birds.

The current market price for foreigners to sport hunt an ocellated turkey ranges from \$2,000 to over \$3,000, which substantially increases the value of ocellated turkeys to local villagers.

Why the Ocellated Turkey is an Ideal Species for Managed Harvest Systems

- 1) It is well-adapted to high natural mortality rates with an impressive reproductive capacity. Only 20% or less of the poults that hatch each spring survive until November, after which time every turkey in the population has only slightly more than a 50% probability of surviving from one year to the next. This high natural mortality rate makes it very likely that under proper conditions, a proportion of the sport hunter harvest is compensatory rather than additive mortality. Hens lay nests of 8-12 eggs, may nest their first year, and are often able to re-nest after being disturbed by predators during the laying process.
- 2) Hens are exclusively responsible for parenting the young, thus adult-males offer no reproductive contribution after mating. Also the species is polygamous and adult male turkeys maintain a strict social hierarchy that restricts annual breeding activity to a minority of the adult-male population (almost all adult hens will attempt to reproduce annually).
- 3) The singing behavior and distinct morphology facilitate the selective harvest of adult males.
- 4) The annual breeding pattern allows selective harvesting to occur immediately following the breeding peak, further mitigating the impact of adult male harvests. The seasonal peak of singing behavior of adult-male turkeys generally occurs at the end of April or beginning of May. This behavior increases as the hens gradually abandon their young from the prior breeding cycle, to mate and then lay and incubate their clutches. Adult male behavior makes the birds most conspicuous as the breeding season ends.
- 5) The species is capable of exploiting a broad range of habitat and dietary resources, particularly areas with a mosaic of agriculture and forest patches. The species would do well in the most impacted areas of the reserve and could potentially even repopulate much of the landscape outside of the reserve if indiscriminant and unrelenting hunting pressure could be controlled.

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Learning Themes

1. Threats-Based Approach

How has using a threats-based approach influenced engagement with community enterprise interventions?

Proyecto Pavo (PP) works directly with CONAP to promote the application of sustainable wildlife resource-use policies that are appropriate for ocellated turkey harvest management. The historical lack of state-regulated hunting and a related curriculum in Guatemalan universities have impeded the development and implementation of appropriate national wildlife resource use policies. Since WCS first proposed the project to CONAP in 1999, many officials have been openly surprised and/or in many cases skeptical that the impacts of hunting pressure can be mitigated through harvest management.

Over the years, WCS has provided numerous presentations to CONAP personnel to educate officials about the basic principles of wildlife resource-use management. The PP has also provided presentations featuring the project at national CONAP events such as workshops for the development of management policy in the MBR and public policy reviews by the Guatemalan national congress. The PP contributed information to the Guatemalan congress via CONAP on several occasions during the development of the current hunting legislation and directly participated in the CONAP workshop that drafted the relevant regulations for that legislation. The regional CONAP officials that attend PP field operations are provided intensive experiences in practical wildlife harvest management.

The PP has been a pioneer in the development of related policy, having contributed the first (and only) wildlife management plan that was subsequently incorporated into a CONAP-approved concession unit master plan. The PP also developed the first (and only) standardized, systematic, monitoring procedure for exploited wildlife populations in the Maya Biosphere's Multiple-Use Zone, and a wildlife harvest management plan protocol with CONAP.

The PP operations benefit other wildlife species indirectly in a number of ways. PP activities have provided approximately \$12,000 directly to the community management authorities of participating concessions, thus supporting the current national policies for the conservation of natural resource in the Multiple-Use Zone and the conservation benefits they bestow on all wildlife. Many PP field activities also facilitate the general administration of participating concession units, particularly road and trail maintenance. Annually the PP improves the trail networks used by all villagers over a significant proportion of each concession each year during the dry season. In addition to facilitating everyone's travel in the area, this work ensures vehicular access immediately prior to the season with the greatest risk of forest fires, thus offering local management authorities improved capacity to respond to forest-fires.

The increased human presence in remote areas of participating concessions provided by PP personnel complements vigilance efforts of the management authorities. PP personnel have identified and reported several camps of outsiders illegally harvesting xate, several groups of poachers, and have assisted forest-fire suppression and monitoring efforts.



The increased human presence in remote areas of participating concessions provided by PP personnel complements vigilance efforts of the management authorities.

In Uaxactún the PP has purchased uniforms and boots for the local control and vigilance committee and on occasion provided fuel, provisions, and wages to support committee patrols or investigations of unlawful activities.

Currently the PP community committees spend net profits on community projects intended to provide obvious benefits to all village members. Alternatively those funds could be invested directly into wildlife management policies that also benefit the general public. One potential application of local project funds for the mutual benefit of wildlife and residents would be support for the control of spring field clearing. The annual period of clearing and burning of fields in preparation for planting coincides with the nesting season of the ocellated turkey. Turkey hens (which nest on the ground) are attracted to agricultural areas for nesting, in part due to the thick groundcover characteristic of recently burned areas. This unfortunate coincidence creates a direct conflict between local subsistence needs and the reproductive efforts of local turkey populations.

Research conducted by Baur on nest-site characteristics confirmed not only that turkey hens make considerable use of agricultural habitat for nesting (60% of all turkey nests reported by locals) but that most of those nests are threatened by fire (92% of agricultural nest sites burned at some point during the season, though in most cases after nests had hatched or been abandoned). Local farmers work individually, each clearing several acres of jungle by hand with machetes under brutal heat, and in the past have had little incentive, much less the capacity to clear proper fire lanes or take other appropriate control measures to ensure that fires are contained within the intended fields.

In Uaxactún, progress had been made in recent years towards the improvement of control over these activities. With WCS assistance fire breaks have been cut around some 60% of the agricultural areas to be burned. In addition, with support from PP profits it would be possible to provide fire fighting equipment and support training of local control and vigilance groups, and provide daily wages to farmers and the coordination necessary to organize farmers into crews that could sequentially conduct well-controlled burns on each crew member's field with the accompaniment of the local control and vigilance committee.

In developing an enterprise option, look for ways to integrate monitoring with enterprise activities and other threat abatement activities.

Threats-Based Approach Summary Lessons

- Addressing a poaching threat to wildlife by promoting an enterprise that kills wildlife is still controversial, but by legalizing the turkey hunting both for trophy hunting and subsistence use, more reputable private sector players are able to participate. Moving beyond “banning” strategies and instead promoting controlled consumption for select species does make sense in some sites. To help assure that the strategy does address the threats, robust scientific data and monitoring must be available and the community must obtain equitable, transparent returns from the taking of wildlife.
- In developing an enterprise option, look for ways to integrate monitoring with enterprise activities and other threat abatement activities. In this case, roads and paths needed for the tourists were also used to access forest fires faster. Similarly, village turkey guides conducted patrols to look for other activities linked to major threats (e.g. illegal clearing and hunting) while scouting for turkeys.

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2. Scale

How has the shift in scale to landscape/seascape level conservation influenced choices in enterprise development?

The ocellated turkey has a geographic range of approximately 130,000 km² in northern Guatemala, northwestern Belize and the Mexican states of Yucatan, Quintana Roo, and Campeche. In theory, it would be possible to replicate this enterprise throughout the range of the ocellated turkey.

The participating units now have wildlife abundance databases spanning several consecutive years that serve as the basis for development of subsistence or sport hunting management.

On the local level the “Proyecto Pavo” (PP) aspires to catalyze a change of attitude towards wildlife use. Many adult residents of the communities where the PP operates are illiterate and those with formal schooling have rarely had the opportunity to study beyond a sixth-grade, primary education level. The lack of relevant education in combination with the traditional, opportunistic wildlife harvest practices prevent the villagers from perceiving wildlife as a natural resource that may be sustainably used. As the subsistence hunters in these communities participate in the managed wildlife harvests and witness that there are no observable negative impacts on turkey abundance, it is hoped that local awareness can develop of wildlife as natural resources that can be managed through harvest pressure control.



Adult male, wagging, courtesy of L.E. Williams

The participating units now have wildlife abundance databases spanning several consecutive years that serve as the basis for development of subsistence or sport hunting management. Another conservation benefit provided by PP operations is the increased capacity for participating community concessions to engage in active wildlife management. On occasion the PP community committees have facilitated public discussion of related topics such as introducing WCS affiliated researchers to the community and providing a public forum for local wildlife policy efforts. Ideally the project’s example will have a collateral effect that will eventually lead to broader application of harvest management policies for the ocellated turkey and the development of sustainable harvest systems for other exploited species.

In July 2008, Uaxactún’s OMYC (Organización de Manejo y Conservación) approved in the General Assembly by a unanimous vote of 200+ to 0, a comprehensive set of “Norms for Control and Vigilance” in the concession of Uaxactún. This includes simple norms for hunting, including listing protected, non-game species, prohibition of external market hunting, allowance of moderate subsistence hunting with daily quotas that can be realistically enforced by OMYC Control & Vigilance Committee. While unanimous in approval, this has not meant a flood of new hunting activities as new operations are undergoing careful consideration and are rejecting opportunities that do not fit conservation, social development and enterprise development criteria.

The PP itself evaluated two other community concessions for potential participation in the program before committing to the current expansion effort in San Andres Forestry Concession (AFISAP). Those were rejected due to lack of vehicular access, the inability to control local hunting pressure, and the lack of a suitable workforce. Similar programs for groups of related species may appeal to trophy-motivated sport hunters from North America. There is the potential for fall hunts of several large bird species including the

crested guan, great curassow, chachalaca, and the large species of tinamou². Deer hunting enthusiasts may be interested in white-tailed deer which has significantly different antler morphology than North American white-tailed deer. There are also red-brocket deer, Yucatan grey brocket deer, white-lipped peccary, and collared peccary.

However, WCS Guatemala has been extremely reluctant to consider the expansion of sport hunting to include other species. It would be very difficult to guarantee the sustainable management of game taken in such enterprises. In the period (5-10 years) required to extend the model to include other species, it would be necessary to have the diligent, determined efforts of stakeholders who are committed to the long-term success of the project, as well as clear economic incentives for local people that would ensure that such harvests not be additive, but rather substitute existing subsistence harvests.

As alternative sources of income based on ecotourism increase, the conditions for multi-species improved game management may indeed improve, following somewhat the pattern of increased employment that made the return of the wild turkey possible in the USA. Until that point however, subsistence game hunting in local villages will likely remain a key source of protein for villagers typically unable to purchase chicken and beef due to the high costs of these foodstuffs in frontier areas. There is potential to incorporate third-party research and management into the project. Williams has proposed a project to trap and relocate ocellated turkeys to suitable habitat in order to demonstrate a sport hunting program that would provide incentives to landowners to manage and commercially hunt their turkey populations. Even if mechanisms cannot be developed for similar commercial enterprises in other places for the ocellated turkey or other species, the project has demonstrated the sustainable and profitable use of a properly managed wildlife population.

WCS Guatemala has been extremely reluctant to consider the expansion of sport hunting to include other species. It would be very difficult to guarantee the sustainable management of game taken in such enterprises.

Scale Summary Lessons

- The use of a charismatic species and project “wow” factor can promote scaling up within sites and throughout a landscape. The uniqueness and controversy of the turkey trophy hunting operation got the attention of government and the community and was turned into an opportunity by the project to get stakeholders focused on broader conservation issues. It is less likely that the Guatemalan government would have moved on the comprehensive set of “Norms for Control and Vigilance” in the Uaxactún concession if they did not have this enterprise activity as a showcase.
- Don’t confuse taking an enterprise model to scale with taking conservation activities to scale. In this case, while there is potential to expand the hunting enterprise across the landscape, WCS and the local stakeholders are being very cautious. The enterprise may not be going to scale across the landscape, but this does not mean that the relationships, capacity building, and trust development all cultivated as part of the enterprise development are not being used to expand conservation activities across the landscape.

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² A species such as the great tinamou (*Tinamus major*), which has similar dietary and habitat requirements to the ocellated turkey can be highly impacted by hunting because of its life characteristics (Baur, 2008) and would need to be very carefully managed for it to be a viable target species.

3. Partnerships

How has the GCP leveraged partnerships and cross-sectoral relationships to achieve livelihood/economic outcomes that support conservation at a landscape/seascape level?

Today the annual harvest operations directly involve five organizations: the US-based company Real Turkeys LLC™ (RTLLC), the Guatemalan company Integrated Environmental & Wildlife Management Services, Sociedad Anonima (IEWMS), two community committees referred to as Proyecto Pavo Uaxactún (PPU) and Proyecto Pavo Carmelita (PPC), and the board of directors of the management authority of the San Andres Forestry Concession (AFISAP). RTLLC is owned and operated by Dr. Williams who attends the annual harvests in Guatemala and also manages all US-based PP activities including marketing, client coordination, payment collection and disbursement to Guatemala, scientific direction, and coordination with the National Wild Turkey Federation (NWTf).

IEWMS is responsible for PP activities in Guatemala that require technical services or legal representation such as the wildlife surveys, harvest management plans, firearm permitting, and facilitation of hunting licenses and related permitting. IEWMS also helps coordinate PPU, and PPC activities, makes client reservations, local fund-raising and coordination with those donors. The PPU/PPC committees are responsible for managing the community accounts, pre-harvest preparations, harvest personnel, participation in public projects, and coordination with concession authorities. The Wildlife Conservation Society continues to provide limited office services in the Petén and to contribute to the PP's wildlife monitoring efforts.

Make the cost and revenue structures of the value chain transparent. When negotiating a partnership that involves revenue generation, there needs to be an appreciation that all parties are entitled to make money.

Partnerships Summary Lessons

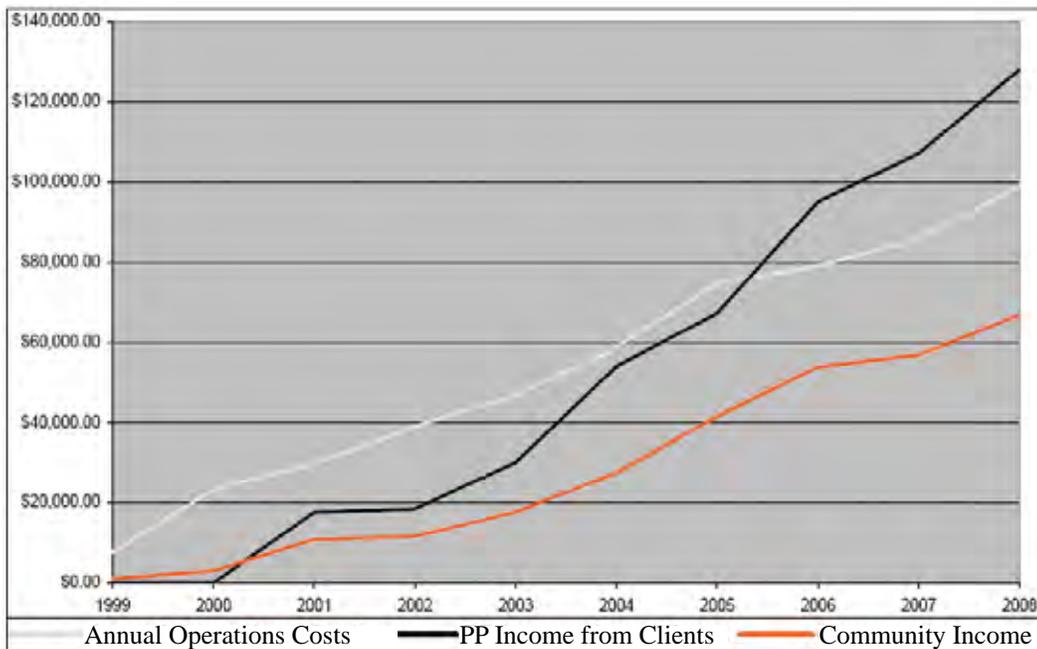
- The turkey trophy hunting enterprise is possible because of grant-supported scientific research and monitoring conducted on the turkeys and their habitat. Enterprises in high biodiversity areas require scientific monitoring support, but these costs may not be fully recoverable in an enterprise cost-structure model. However, there is strong anecdotal evidence that well run enterprises in high biodiversity areas that involve communities in a meaningful way do foster partnerships and stakeholder buy-in for a broader range of conservation activities.
- Partners should concentrate on their relative strengths. This case illustrates how an NGO (WCS) did not try to co-manage the fundamental business operations of enterprise, but instead facilitated a partnership with a private sector tour operator that marketed the trophy hunting, booked clients, handled overseas payments, etc. WCS had an appreciation for the trophy hunting value chain function and sought out partners that were strong in each function.
- Make the cost and revenue structures of the value chain transparent. When negotiating a partnership that involves revenue generation, there needs to be an appreciation that all parties are entitled to make money. In the trophy hunting value chain, the revenues going to each group of stakeholders were transparent and perceived as equitable. But, even with full transparency, there will be skeptics that question the validity of the information and those unhappy with “their share”. Pleasing all the people all of the time is an unrealistic goal.

In an interview with Real Turkey’s LLC (RTLLC) it was noted that without WCS working to bring down barriers to entry at the site which included: transparent access to trophy hunting permits, guiding capacity of the community, and stakeholder acceptance of the enterprise, it would not have been likely that the private enterprise would have gone to the area. RTLLC also noted that the conservation messages were not noted in marketing to the hunters (rather the unique opportunity to shoot an Ocellated Turkey was emphasized). But, when the hunters got to the sight, conservation context and messages were introduced over the course of the hunt. This illustrates a valuable lesson in attracting traditionally “non-conservation” partners. There may be other attributes that capture the attention of partners (power, social equity, unique opportunity) to bring them to the conservation discussion and obtain their support for a broader set of conservation activities.

Results

During the developmental stage of the project, annual operations benefited from a small amount of funding support from donor institutions. Only since 2006 has RTLLC shown a profit (See Figure 1). RTLLC pays the community organizations \$1,450 per hunter for the services and the right to harvest one ocellated turkey. If a hunter takes a second turkey, an additional \$700 goes to the community. Once the hunter shoots at a bird, the project considers its obligation to provide the hunter with an opportunity to harvest a bird completed. Through nine years of harvests, however, 100% of the clients have harvested at least one turkey, slightly more than half have harvested two birds.

Figure 1: Spending Versus Income Generated, 1999 - 2008



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Income from the turkey hunting enterprise is seasonal, but comes during the dry season. Traditionally the dry season offers the least opportunity for income generating activities, leading some villagers to increase pressure on wildlife and forest resources precisely during an important period in the annual reproductive cycle of many species. One of the PP's major objectives has been to provide as much temporary local employment as possible to adult men in order to reduce subsistence hunting pressure.

Since the PP has been operating it has contributed funds for traditional community celebrations, provided teacher's salaries and materials for the construction of a new schoolroom, provided support for the OMYC Control and Vigilance Commission, restored the community's potable water system, and paid over \$8,300 to support concession management. The road maintenance undertaken by the enterprise also benefits all community members. A breakdown by year of the incomes generated since 2001, as well as the trend over time for the number of clients and harvest impact (number of trophies taken) is provided in Table 1.

Table 1: PP Economic Indicators 2001 – 2008

Year	Clients	Difference	Harvest	Difference	Income	Difference
2001	8	n/a	9	n/a	\$10,800	n/a
2002	6	- 25%	8	- 11%	\$11,600	+ 7.4%
2003	13	+ 117%	13	+ 63%	\$19,100	+ 65%
2004	20	+ 54%	22	+ 69%	\$30,650	+ 61%
2005	21	+ 5%	36	+ 64%	\$41,525	+ 36%
2006	27	+ 29%	46	+ 28%	\$53,850	+ 30%
2007	30	+ 11%	49	+ 7%	\$56,800	+ 5.5%
2008	35	+ 17%	58	+ 18%	\$66,850	+ 18%

Local residents have jobs as supervisors, field logisticians, camp builders, trail maintenance workers, guides, scouts, cooks, drivers, and data collectors. Precisely because the PP intended to provide a lucrative alternative to other activities, daily wages are set from 33% to over 200% greater than local rates for comparable positions³. The camp staff are fed, housed, and equipped, at far higher levels relative to other extractive-camp settings and to which the staff generally responds with great enthusiasm.

Although the PP does not specifically address gender issues, women have and continue to hold important administrative positions in the community committee groups (Currently the longest-running member of the PP in Uaxactún is a woman). The employment benefits of the project for women have been limited to culturally traditional work, such as cooks, local services such as washing camp equipment and providing meals or refreshments for meetings or events, and the sale of products crafted by local women's groups to PP clients. Although annual PP earnings generate only one-tenth the annual gross income provided from timber revenues, PP activities are superlative in other criteria.

³ 1,500 Q/day for guides (compared to OMYC Q600/day on timber work) and Q100/day for scouts, cooks and drivers (builders make Q75/day).

The PP spends a higher proportion of its gross income within the community (70-80%) annually, and spends a higher proportion on community labor (40-50%). Local production, market value, and demand are all highly variable for most NTFPs, whereas the earnings per trophy hunting client and overall demand have either improved or been consistent since the beginning of the project.

With regards to ecological results, annual PP resource inventories provide minimum population counts of ocellated turkeys and other game species, thus providing additional assurance that harvest levels do not exceed local population requirements for adequate reproduction.

Concluding Advice

A number of factors that brought together biological, cultural, and economic/enterprise considerations have been instrumental in the successful establishment of the PP in Guatemala:

- WCS, mainly in the person of Roan McNab, and Erick Baur had established long-standing and trusting relationships with the communities of Uaxactún and Carmelita, respectively, prior to setting up the enterprise.
- The blend of key actors have English and Spanish language fluency, as well as a fundamental understanding of both the North American hunting culture and the local Guatemalan culture of the Petén. Having a North American (or American-like) project manager who is able to put US clients at ease in an environment that is extremely foreign to most of them is crucial.
- Community members were integrally involved in setting up the enterprise and even those who did not initially benefit from employment eventually saw the benefits through local community works. The project has also gone to great lengths to publicize benefits, going so far as to hand out fliers with information on annual income and investments in social works.
- Uaxactún and Carmelita differ from many communities in the region in that they are well-established forest communities with the majority of their residents of local origin (76.26% and 62.11 in 2000, respectively) or from the Petén region (7.7% and 16.49%, respectively), rather than external immigrants (Ramos *et al.*, 2001). This gives them more of a vested interest in managing their resources and more of a communal culture than a newer settlement of recent migrants might have.
- Access although not completely straightforward is not an insurmountable obstacle with the airport in Flores and some road infrastructure. Yet access is such that local control over the extensive project management areas is possible.
- The ecology of the ocellated turkey helps make this a viable venture.
- The consistent determined efforts of attentive stakeholders in the process.

Community members were integrally involved in setting up the enterprise and even those who did not initially benefit from employment eventually saw the benefits.

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World Wildlife Fund – Terai Arc, Nepal



Photo courtesy of Shubash Lohani, WWF US

Biodiversity Conservation through Economic Development & Local Livelihoods Improvement

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Background – Landscape and People

The Terai Arc Landscape¹ (TAL) is globally important for its biodiversity and regional socioeconomic significance. It spans about 49,500 square kilometres and encompasses protected areas, dense forests, grasslands, human settlements, agricultural land, rivers and bodies of water from the Bagamati river of Nepal in the east to India’s Yamuna river in the west. Part of the Terai-Duar Savannah and Grasslands Ecoregion is at the foot of the Himalayas and contains one of the most biologically diverse habitats on this planet. The alluvial grasslands and evergreen *sal* forests of the Terai harbor 86 species of mammals, 550 species of birds, 47 species of herpeto-fauna, 126 species of fish, and over 2,100 species of flowering plants.

The Terai boasts some of the world’s most magnificent species, including tigers and Asian elephants. It contains the second largest population of one-horned rhinoceroses in the world and one of the highest tiger densities, at a time when there are less than 8,000 tigers left in the wild. In addition to its rich biodiversity, the Terai is important for its immense contribution to the livelihoods and well-being of its 6.7 million human inhabitants. Not only does the Terai supply the majority of the country’s timber and forest products, but as one of Nepal’s most fertile agricultural regions, it contributes immensely to agricultural production. It is popularly known as the country’s “Rice Bowl”.

The Terai Arc Landscape faces an array of threats that are endangering the existence of its wildlife species and habitats, as well as the sustainable livelihoods of local communities.



TAL Landscape, courtesy of Shubash Lohani, WWF US

World Wildlife Fund
Terai Arc, Nepal

This case is part of a series of seven cases under “Lessons on Community Enterprise Interventions for Landscape/Seascape Level Conservation”. Each case study provides some brief context on the site-based project before focusing on the community enterprise component in relation to three learning themes: Threats-based Approach, Scale, & Partnerships.

¹ The Terai Arc covers an area of 49,500 km², connecting the protected areas of Chitwan National Park, Parsa Wildlife Reserve, Bardia National Park, and Suklaphanta National Park in Nepal and Corbett National Park, Rajaji National Park, Sonanadi Wildlife Sanctuary, Kishanpur Wildlife Sanctuary, Dudwa National park, Katarniaghat Wildlife Sanctuary and Valmikinagar Wildlife Sanctuary in India.

Threats Analysis

The Terai Arc Landscape faces an array of threats that are endangering the existence of its wildlife species and habitats, as well as the sustainable livelihoods of local communities. WWF Nepal, using a Root Causes Analysis (RCA) methodology, concluded that the direct threats that had to be immediately addressed in the Terai were habitat loss and fragmentation, human/wildlife conflicts, and poaching and wildlife trade.

Encroachment and clearing of forest areas is increasing, and over-harvesting of forest products is regular. The over-harvesting is done mostly illegally and includes timber felling, cutting wood for cooking fuel, and over-grazing livestock in the forest under story. All have led to loss and fragmentation of wildlife habitat that has not only created fierce competition among wildlife for food and water and resulted in declining wildlife populations, but is also causing conflict between humans and wildlife as wildlife forays into farmers' fields and inhabited areas.

Conflict between humans and wildlife takes on many forms, but generally involves crop damage by wild herbivores and predation of livestock by wild carnivores. Among the most serious incidents reported are the destruction by elephants of a poor farmer's entire season of crops in one evening's visit, and tigers killing families' milk cows and even people. Predictably, people have retaliated by poisoning the wildlife and hunting the animals down. Forest degradation has also led to a scarcity of forest products—such as fuel wood, fodder and timber—adversely impacting people's subsistence and forcing them to spend extra hours in collecting the forest products they need.

Poaching is also on the rise. This includes the destruction of globally endangered species like rhinos for their horn and tigers for their bones and skins, all of which are in great commercial demand in illegal international markets outside Nepal. Poaching is not primarily practiced for subsistence but, rather, is engaged in for profit.

At the root of the threats facing both wildlife and people in the Terai is the sharp increase in population size due to in-migration from the hills. The Terai supports a human population of more than 6.7 million people which, if left unchecked, stands to double in another 25 years. In-migration from the hills into the region continues unabated, leading to illegal settlements within the national forests and the conversion of natural habitat to cropland and the over-exploitation of the sites. Agricultural demands in this region, which were already high, are increasing.

Conflict between humans and wildlife takes on many forms, but generally involves crop damage by wild herbivores and predation of livestock by wild carnivores.

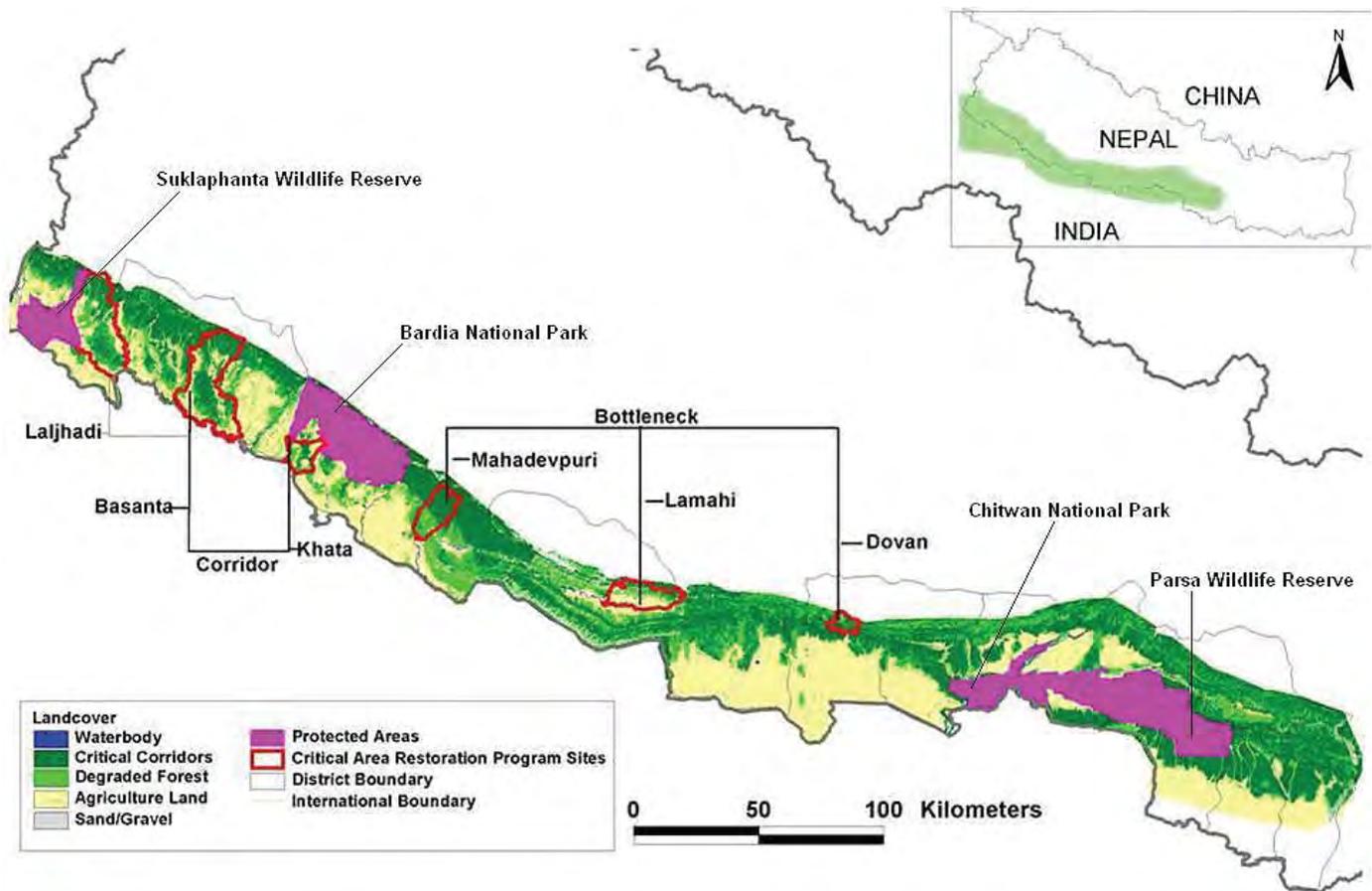
Project Objectives

With support from USAID's Global Conservation Program, the Terai Arc Landscape (TAL) program was initiated in July 2001 to conserve the biodiversity, soils, and watersheds of the Terai and Churia hills in Nepal and India. The main objective of the TAL program is to restore and maintain the ecological integrity of the landscape by maintaining forest connectivity and linking protected areas.

The major ecological units of the program are forest corridors that function as links between the protected areas and are considered critical for the movement of large mammals such as rhinos and tigers. These forest corridors are in various stages of degradation and fragmentation as a result of human population and poverty pressures. The following map shows the Terai Arc landscape area.

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Terai Arc, Nepal

Terai Arc Landscape



Restoring wildlife facilitates the dispersal and genetic exchange of wildlife populations and ensures the long-term survival of key endangered species. Moreover, sustainable management of these corridors and ecological services in the landscape prevent soil erosion, flash floods, and declining water tables, all of which are detrimental to the well being of local communities.

In order to leverage its limited resources and get the most impact out of its efforts, WWF decided to target critical areas that have large roles in maintaining the ecological connectivity and integrity of the Terai Arc. To this end, WWF decided to work in:

- Two priority corridors (the Khata corridor and the Basanta corridor) that link protected areas in Nepal and India where immediate attention was required in order to put a halt to what would otherwise be irreversible breaks in the landscape.
- Three bottleneck areas (Mahadevpuri, Lamahi, and Dovan) in the remaining contiguous forest east to west along the Churia foot hill.
- Four protected areas (the Suklaphanta Wildlife Reserve, the Bardia National Park, the Chitwan National Park, and the Parsa Wildlife Reserve) and their buffer zones.

WWF plans to develop the proposed corridors into fully functional trans-boundary forest corridors within 15 years.

Project Activities

The objective of restoring forest corridors in the Terai needed a strategy that combined forestry management and community development efforts. To this end, WWF has designed and implemented activities in the following major program components:

- Policy and advocacy;
- Institutional strengthening and coordination;
- Sustainable forest management and forest regeneration (community forestry);
- Species and ecosystem conservation (anti-poaching activities, improved management of protected areas etc);
- Sustainable livelihoods promotion (enterprise development, income generating activities);
- Conservation education and awareness; and
- Research and monitoring.

The project activities have focused on restoring the corridors and addressing bottlenecks by building, strengthening, and mobilizing local community-based organizations (CBOs) such as Community Forestry Users' Groups (CFUGs); promoting alternative energy schemes; and improving livestock management practices to control grazing. Likewise, the project activities in species and ecosystem conservation have focused on improving National Park management through poaching control, habitat management, human-wildlife conflict reduction and research and monitoring, enhancement of community services, dissemination of conservation education, and enhancing socioeconomic conditions amongst local communities.

WWF felt that an integrated conservation and development approach was the best approach to effectively address the threats and promote conservation and community development in selected areas. As a result, integrated conservation and development activities have been carried out in selected villages in the districts of Kanchanpur, Kailali, Bardia, Banke, Dang, Palpa, Nawalparasi and Chitwan. WWF Nepal has developed a Sustainable Livelihoods Strategy to guide the design, planning and implementation of sustainable livelihoods enhancement activities and to ensure linkages between sustainable livelihood development and conservation outcomes. Enterprise development and sustainable livelihood promotion remain the focal area for WWF's conservation strategy.

WWF felt that an integrated conservation and development approach was the best approach to effectively address the threats and promote conservation and community development.

Table 1: Project Area, Population, and Households in Project

Parameter	Landscape	Project Area (% of landscape)	Enterprise Intervention (% of landscape)
Area (km ²)	23,199	4,800 (20.6%)	2,000 (8.62%)
Population	6,700,000	473,823 (7.07%)	117,000 (1.75%)
Household	1,030,000	73,000 (7.09%)	18,000 (1.75%)

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The Community Enterprise Component

The problems facing conservation efforts in the Terai were linked irrevocably to the negative impacts of unchecked population growth and poverty in the region. The communities' daily subsistence and livelihood activities drew heavily on forest products and other natural resources. Local populations without alternative means of income had little choice but to over-use natural resources in order to meet their subsistence needs. Not only did such practices lead to biodiversity loss and environmental degradation, but they also furthered impoverishment as communities' only valuable resources continued to shrink. Thus, it was essential to promote income generation and sustainable livelihood activities that could provide alternative incomes to local people while promoting sustainable natural resources management and biodiversity conservation.

The first two years of the project were an economic intervention learning phase. WWF focused on conventional income generation activities by providing training for job skills, such as bicycle repair, sewing, and weaving. Participating households made yearly incomes of around \$100-\$200 per household. There was, however, little linkage to biodiversity conservation. The enterprises were not showing indications that they promoted behaviour change by the local people that supported the dual goal of conservation and income generation.

WWF's strategy changed beginning in the third year. A sustainable livelihood framework was used to guide the design and implementation of the economic development activities. The sustainable livelihood development activities were aimed at reducing pressures on natural resources by simultaneously providing alternative livelihood opportunities to the local communities while at the same time mobilizing them for conservation activities. Thus, the program emphasized the development of positive linkages between communities' economic activities and biodiversity conservation.

The TAL program focused on enterprise and income generation activities in order to provide alternative livelihood sources to the local communities that were dependent on forest resources. To achieve this objective, the project promoted both household level microenterprises as well as community based enterprises that made explicit the link to biodiversity. Since the poorest groups were most dependent on forests, particularly when landless, and women were most often the main collectors and harvesters of forest products, women and marginalized groups such as *Dalits* were given priority for income-generation activities.

The project promoted both household level microenterprises as well as community based enterprises that made explicit the link to biodiversity.

1. Livestock Management

People in the Terai Arc landscape keep large herds of cattle, which are neither productive nor economically significant in terms of monetary income. Grazing by this large number of cattle, however, poses a serious threat to the forest's condition. To address this particular threat, the TAL program designed an intervention aimed at the improvement of livestock management practices through stall feeding, breed improvement, veterinary service enhancement and marketing of livestock products. This intervention has not only been instrumental in developing livestock-based enterprises as a means of enhancing local farmers' income, but it has also played a crucial role in reducing the number of unproductive livestock, thereby reducing grazing pressure.

2. Mentha

Another program intervention is aimed at addressing wildlife revenge killings that threaten Terai's wildlife, especially ungulate populations. *Mentha* and other non-palatable alternative crops have been promoted as a barrier to prevent wildlife from ravaging farmers' major crops. Promoting a range of activities—cultivation, processing, local manufacturing and marketing—has increased market demand and the price for *mentha* products, making *mentha* cultivation a lucrative farm enterprise. *Mentha* enterprises are starting to serve not only as a safety valve to mitigate revenge killings of wildlife that had been ravaging crops, but also help local populations by providing them with an alternative and new source of income.



Mentha Plantation, courtesy of WWF Nepal

WWF has encouraged the *mentha* industry by facilitating the development of a community based distilling enterprise in the area. The value added by the community based *mentha* enterprise helps farmers increase their income three-fold over the base period. Naturally, many more communities have entered into this business. Two of them bought their own distilling plants, encouraging their members to further expand *mentha* cultivation and increase their incomes.

Mentha enterprises have expanded to 500 households in three of the five project intervention sites. WWF has also promoted a farmers' cooperative to support nontimber forest product marketing. The farmers' cooperative is now able to establish linkages with NTFP traders and deal with them to negotiate prices for its products. In 2007, *mentha* farmers sold US\$116,000 worth of menthol (the essential oil extracted from *mentha*).

The value added by the community based mentha enterprise has helped farmers increase their income three-fold over the base period.

3. Marmelos

Another community-based enterprise intervention showing similar success has focused on building *marmelos* juice enterprises. *Marmelos* trees are widely grown in the forest areas, but their fruit went to waste every year because there was little local use for it. Based on the findings of a market and feasibility study conducted by WWF, a decision was made to support local communities in establishing a local juice making enterprise. The enterprise has become so successful that it paid back the entire initial investment in two years and started processing 40,000 bottles, which sold at Rs. 25 per bottle in nearby towns and cities. The enterprise is registered as a formal private company, has a business manager running its operations and is independent from WWF.

The community based enterprise has allowed participating households to make a per capita income higher than the national average, just from their involvement in this enterprise activity. The enterprise provides full time employment to 24 local people and supports over 100 *marmelos* supplying households. The success of the enterprise has shown local people the value of the forests and motivated them to adopt measures that protect and conserve the forests and the resources within them.

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4. Nontimber Forest Products

Local communities' lack of knowledge about the economic value of nontimber forest products (NTFPs) has led to unsustainable harvest practices, which have further contributed to forest degradation. WWF's promotion of NTFP-based enterprises has helped local populations learn about market prices and better appreciate the environmental significance of NTFPs. These communities have now become more involved in forest conservation by adopting sustainable NTFP harvesting practices tied to product price tracking and negotiations, species monitoring, and protection practices.

Table 2: Enterprise Activities, Threat Addressed, and Size

Enterprise	Threat Addressed	Households Involved
<i>Mentha</i> cultivation and processing	Human-wildlife conflict, revenge killing	700 households in 9 sites
<i>Marmelos</i> processing	Habitat loss	25 CFUGs (2,100 users) , 24 people directly employed and 100 households directly benefited
Livestock (piggery, goatary, stall feeding)	Habitat loss, over grazing	14,000 households involved
NTFP Marketing	Over-harvesting and habitat loss	Data not available

Learning Themes

1. Threats-Based Approach

How has using a threats-based approach influenced engagement with community enterprise interventions?

At the initial stage, the project was directly involved in promoting income generating activities at an individual household level that were not directly tied to the threats. The income generated from these activities was used to meet subsistence needs at a family level. In the course of implementing project activities, WWF learned that household level income generating activities alone were not sufficient to address the magnitude of threats.

Thus, the project shifted its strategy to enterprise promotion that took a sector perspective and had direct ties to key threats impacting the biodiversity. By looking at the threats first, this strategy also required other interventions to complement the traditional enterprise development activities. Necessary interventions have included alternative energy promotion activities, protected area management activities, and capacity and partnership building efforts. In addition to saving fuelwood, alternative energy promotion and the use of biogas has also helped to improve families' health, reduced work loads, and improved productivity through the appropriate use of slurry.

Capacity building has also been required at all levels and areas to address the threats to biodiversity. The GCP funding has been used to address capacity building for sustainable natural resource management at a community level and address local institutional development. The capacity building services offered by the project have helped local institutions identify their livelihood development needs, set priorities, and plan and implement activities for enterprise development and livelihoods improvement in the context of biodiversity conservation.

WWF strongly believes that careful analysis of enterprise opportunities for target groups is important to any program's success. WWF applied subsector analysis and value chain tools to learn more about landscape level enterprise interventions. The project experience illustrates how important it is to provide opportunities for local people to directly experience project successes. To this end, WWF organized observation tours and established demonstration enterprises to motivate local people. By establishing learning and sharing networks and opportunities, WWF has reinforced this co-learning and co-motivating mechanism among key project stakeholders.



Firewood collection is one of the major threats in TAL.
Photo courtesy of Shubash Lohani, WWF US

The support of local populations has been essential for the conservation of corridor areas and biodiversity. These populations used to be scared of conservationists and conservation programs because they led to protected area establishment and restrictions governing forest products. In their first attempts to visit project sites, WWF staff was literally chased away. This only reinforced WWF's belief that local livelihoods are very much linked to biodiversity and that local populations need to witness important benefits from program interventions early on. This realization led WWF to make a conscious decision to change the conservation equation and strategy, expressing it as local livelihood improvement through biodiversity conservation.

Household level income generating activities alone were not sufficient to address the magnitude of threats.

Threats-Based Approach Summary Lessons

- The most promising economic interventions that deliver benefits to the communities and conserve biodiversity are directly linked to *in situ* biodiversity.
- Enterprise development built from people's existing economic activities – farming, livestock, and nontimber forest product (NTFP) collection. These activities, as done by the community prior to the project, were the top threats to biodiversity. Addressing the threats was turned into an opportunity to reduce livelihood risk (wildlife conflict) and increase incomes, through an enterprise intervention.
- By working with value chains that included the main economic activities of the community (e.g. farming and NTFPs), the project was able to include high numbers of beneficiaries, but required a long-term commitment, capacity building, explicit link to threats, and fundamental changes within the value chains (production, processing, marketing, and monitoring interventions) to achieve conservation goals.

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2. Scale

How has the shift in scale to landscape/seascape level conservation influenced choices in enterprise development?

WWF believes that flora and fauna conservation should not be confined within limited areas of national parks. Areas outside of protected areas are equally important for biodiversity conservation and they are the gateway to vast resources and biodiversity. There is a large landscape to be conserved in the Terai Arc Landscape and WWF had been in the process of undertaking a landscape level planning exercise when the GCP project opportunity presented itself. It fit in nicely with WWF plans. This was the first WWF project at a landscape level in Nepal.

The project promotes both individual household and community-based enterprises. To develop household level enterprises, the program has institutionalized micro-enterprise development support through micro-credit schemes. In the latest project stage, all enterprise development activities have been linked with cooperatives and the private sector. Thus, the project did not have to deal at a household level directly but, rather, works with local firms and cooperatives to promote enterprise development interventions.

Working with local finance organizations has been instrumental in scaling up the program's economic interventions in terms of broader coverage and sustainable financing across the biological landscape. The program has concluded that creating and strengthening independent micro-finance institutions, in contrast to making lending an NGO project function, can be an effective way to scale up economic interventions and expand conservation enterprise criteria into lending practices.

From a regulatory/tenure resource access standpoint, there are broadly three types of enterprises: 1) enterprises dependent on natural resources found on common properties, 2) enterprises that draw raw materials from private land or other sources not directly related to common properties, and 3) enterprises based on skills and services.

Scale Summary Lessons

- The shift to a landscape level meant working outside protected areas and direct interactions with households.
- Choices of enterprises and people's rights and responsibilities over resources are influenced by zoning, regulatory, and tenure rules. These rules are often new and evolving, and they require the NGO to assist in organizing the community to gain tenure that then supports the enterprise option.
- Consolidating households and community tenure groups in cooperatives facilitated scaling up and allowed the project to transmit the conservation messages more effectively.
- Explicit integration of community tenure instruments and landscape level conservation planning and networking was key to the project's success.



Packaging Marmelos Juice, courtesy of WWF Nepal

Mentha cultivation and processing, poultry, and piggery do not have any common property resource management issues and, therefore, no resource access related issues. Other types of enterprises, however, such as *marmelos* processing and wild NTFP collection and marketing, do need to deal with access issues that necessitated the communities seeking formal tenure.

WWF has linked community based forest enterprises to the Nepali Government's community forest resource management system to make the activities conservation friendly. In terms of enterprise management, each enterprise has its own set of organization, governing, and management procedures and systems, but now need to operate within the conservation goals of the community forest user group (CFUG) system of the Nepali Government.

To ensure access to local communities and resource management, WWF has facilitated the formation of community forest groups so that they can regulate the resource harvesting and promote sustainable practices. WWF has facilitated group formation, institutional strengthening, forest management plan preparation, forest area handover, and capacity building in forest management. In addition to enterprise related resources, the community forest user group mechanism has been instrumental in providing group members with legal access to forest resources, such as firewood, fodder, and timber needed for subsistence purposes.

With the community forestry tenure instrument, these groups regulate the harvest of *marmelos* to make it more sustainable. When forest areas that were degrading everyday were handed over to the local communities with management rights and responsibilities, there was improvement in forest management, cooperation from the groups in conservation activities, and even community investment in conservation. For example, when communities in Khata secured the tenure rights and saw the economic benefit from their *marmelos* enterprise, they started taking care of their forests by promoting natural regeneration, adopting sustainable harvesting practices, and even planting cane in fallow lands.

The community forest groups have formal governing structures and clearly laid out procedures and plans for their forest management activities. The forest management plan and group charter includes details about resource harvesting procedures, timing, and allowed area, as well as measures (punishment and procedures) to discourage violation of the local rules and regulations. There are also provisions for reporting the rule breaker (spoiler) to district forest offices for further action if required.

Motivated by the community commitment, WWF has also encouraged and supported local youth to undertake anti-poaching and other conservation activities. Seeing conservation benefits in terms of real incomes, the groups have caught and reported wildlife poachers to government officials for legal action.

Consolidating households and community tenure groups in cooperatives facilitated scaling up and allowed the project to transmit the conservation messages more effectively.

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Terai Arc, Nepal

3. Partnerships

How has the GCP leveraged partnerships and cross-sectoral relationships to achieve livelihood/economic outcomes that support conservation at a landscape/seascape level?

WWF realized the need to understand and support the selected value chain. The project undertook value chain studies and linked community-based enterprises to value chains by providing them with business development services and market linkages. Micro and community-based enterprises have been linked to Community Forest Coordination Committees (CFCC) and farmers' cooperatives as well as local and regional traders and private enterprises in the area.

Use of the value chain tool gave a better understanding of how enterprises fit within the landscape and helped to identify a broader range of partners to support conservation goals.

Collaboration has been fostered between CFCC and Himalayan Herbal Private Limited, a leading private sector natural product manufacturing and marketing company, for the purpose of promoting market linkages to support *marmelos juice* and other NTFP value chains. Likewise, linkages have been established between farmers' cooperatives and traders at local and regional levels in order to market menthol. The major private partners in economic development include regional NTFP traders, NTFP exporters, associations of NTFP traders, and processing and marketing companies, especially Dabur Nepal, and Himalayan Herbal Private Limited. These private partners are important links for marketing the community products in national and international markets.

To attract partners, WWF temporarily assumed enterprise promotion, management, and financing roles WWF then worked to facilitate partnerships to provide these roles. For example, until local capacity developed, WWF promoted cultivation of *mentha* and the establishment of the *mentha* distilling unit in the initial years of the project's enterprise initiative. The initial small volume made it difficult to attract outside buyers. As the community enterprise developed capacity, it increasingly took control of the process. In the absence of financial institutions and lack of financing options for poor entrepreneurs and groups, WWF also extended financial support of about \$150 to household level and \$800 to group level enterprises to promote enterprise development. In the end, WWF totally disengaged from every enterprise related activity. As a facilitator, WWF has promoted enterprise and market development by providing training, enterprise planning, and market linkages development support.

Partnerships Summary Lessons

- Use of the value chain tool gave a better understanding of how enterprises fit within the landscape and helped to identify a broader range of partners to support conservation goals.
- Partnerships with private sector players have leveraged the conservation message to reach broad constituencies in Nepal and internationally.
- The NGO was key in bringing the business opportunity to the private sector and helping to mitigate barriers to entry (overcoming the poor capacity at the community level and gaining legal resource access through CFUGs).

Apart from the private sector, WWF has partnered with associations or networks of community based organizations (coordination committees) to help coordinate forest management and development activities of community groups. Coordination committees have not only served as an important platform for sharing and developing plans for their member groups, they have extended micro credit to their member groups who then further extended it to the entrepreneurs in their respective groups. In developing the community forest program and conservation activities, WWF has worked closely with the Department of Forests and its district and field offices. Similarly, it has worked with the Department of National Parks and Wildlife Reserves and its field office for protected area management issues and to promote community development activities around the project areas.

Apart from the private sector, WWF partnered with networks of community based organizations to help coordinate forest management.

WWF has also collaborated with other projects such as Business Development Services Production & Marketing Services with NGO partners to promote market linkages and community based enterprises in the project area. In addition, through the project, WWF has attracted additional funds for the Terai Arc Landscape Program. For example, it received funds from DFID through WWF UK, which is more focused on livelihood/economic development in the area. A good amount of these funds were used as a matching fund to scale up the activities planned and implemented under the GCP.

Making the Terai Arc vision a reality requires working closely with local communities through community forestry activities, capacity building, alternative income generating activities, park-revenue sharing, gender mainstreaming, and awareness building. Past experience in the Himalayas has proven that conservation cannot be achieved without people's participation and, more importantly, that long-term conservation cannot be guaranteed unless local communities are thriving. WWF's approach takes into account the need to have full participation and support of local stakeholders (including the private sector), government agencies, non-governmental organizations, foundations, and donors.

Results

The project efforts have made the local communities realize the economic benefits that can be realized from biodiversity. It has changed the local people's perception of the conservation programs. Enterprise interventions are crucial in changing the attitude of the local communities and getting local support for conservation.

The program has made good progress in knowledge generation in the area of integrated conservation and development, conservation education, community forestry, sustainable forest management, restoration of degraded areas, integrated livestock management, and livelihood improvements for local communities. The program's major achievements with regard to conservation threat mitigation and livelihood improvements can be summarized as follows:

- Positive attitudinal and behavioral changes have been realized towards protected areas and conservation practices. The program's emphasis on conservation education and communication has strengthened the role of community-based organizations such as eco-clubs, eco-club networks and youth organizations in increasing conservation awareness through campaigns and other effective communication tools for the dissemination of conservation messages.

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- Local communities' stewardship of natural resources and biodiversity, such as wildlife, has increased as a result of improved understanding and realization of livelihood benefits from conservation, as well as increased levels of awareness.



Grazing, courtesy of Shubash Lohani, WWF US

- Poaching, revenge killing, and human-wildlife conflict have been significantly reduced.
- Grazing pressure on the forests and protected areas has been reduced through the improvement of livestock management practices as a result of community-based veterinary services, promotion of stall feeding practices, and increased awareness of sustainable grazing practices. With improved livestock productivity and practices, the total number of livestock in the area dropped from the baseline period.

- Knowledge, understanding, and cooperation about the protected areas, livelihood options, threats, and integrated conservation and development strategies have increased.

- Pressure on forest resources has been reduced through the introduction of alternative energy technologies that help save 23,600 metric tonnes of fuel wood annually. These technologies include 3,623 biogas plants for middle-income households and businesses and 7,308 improved cooking stoves for poorer households. This activity was financed by WWF's network funding support as a match to the GCP.

- Development of marketing linkages for NTFPs has resulted in NTFP trade worth over US\$120,000 per year. As many as 731 farmer households have benefited directly from the NTFP marketing intervention. Likewise, income generating activities have been consolidated and streamlined by bringing them under micro-credit schemes. Micro-credit schemes have so far benefited 2,000 households.

- The program has supported several activities contributing to sustainable livelihood development: development of community facilities including drinking water and irrigation facilities, support for one school, and income-generation at household and group level.

While it is difficult to quantify the contribution enterprise activities make in achieving conservation goals, enterprise development is one of the most important ingredients in WWF's strategy.

World Wildlife Fund
Terai Arc, Nepal

Concluding Advice

WWF believes that the key to program success has been the mix and variation of program activities. While it is difficult to quantify the contribution enterprise activities make in achieving conservation goals, enterprise development is one of the most important ingredients in WWF's strategy. In WWF's estimation, without enterprise development activities, it would have been impossible to have such positive outcomes, no matter how good WWF had been in education and its other conservation activities. Enterprise development has made the critical difference by changing the mindset of the local communities and illustrating the direct benefits that can accrue to them from conservation.

This publication and a companion PowerPoint presentation are available for download.
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