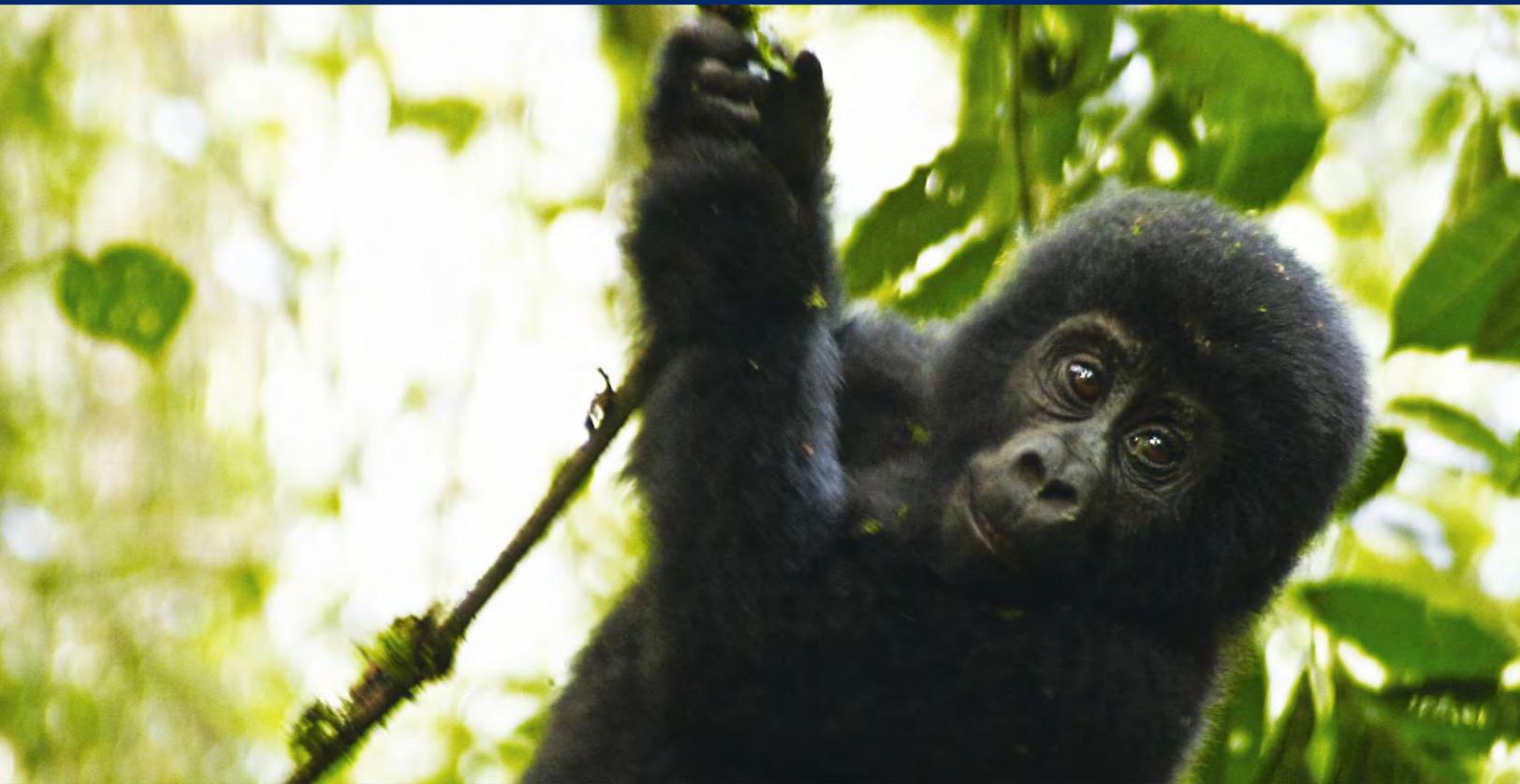




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PRODUCTIVE RESOURCE INVESTMENTS FOR MANAGING THE ENVIRONMENT—WESTERN REGION (PRIME/WEST)

CONTRACTOR'S FINAL REPORT



JULY 31, 2008

This publication was produced for review by the United States Agency for International Development. It was prepared by DAI.

PRODUCTIVE RESOURCE INVESTMENTS FOR MANAGING THE ENVIRONMENT— WESTERN REGION (PRIME/WEST)

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ABBREVIATIONS

| | |
|----------|---|
| ACODE | Advocates Coalition for Development and Environment |
| ASCA | Accumulating Savings and Credit Association |
| AUTO | Association of Uganda Tour Operators |
| AWF | African Wildlife Foundation |
| BACA | Bagungu Community Association |
| BCHC | Bwindi Community Health Center |
| BFEP | Budongo Forest Ecotourism Project |
| BFP | Budongo Forest project |
| BINP | Bwindi Impenetrable Forest National Park |
| BMCA | Bwindi Mgahinga Conservation Area |
| BMU | Beach Management Unit |
| BUCODO | Budongo Community Development Organization |
| BUNCA | Budongo Good Neighbors Community Association |
| CAO | Chief Administrative Officer |
| CBNRM | Community-based Natural Resource Management |
| CBDOTS | Community-Based Direct Observation of Treatments |
| CBWRM | Community-Based Wetland Resource Management |
| CBO | Community-based Organization |
| CDC | Conservation Development Centre |
| CFM | Collaborative Forest Management |
| CFR | Central Forest Reserve |
| CLP | Community Liaison Person |
| COP | Chief Of Party |
| CPI | Community Protected Areas Institution |
| CSO | Civil Society Organization |
| CTPH | Conservation through Public Health |
| DAI | Development Alternatives Inc. |
| DEO | District Environmental Officer |
| DFR | Department of Fisheries Resources |
| ECOTRUST | Environmental Conservation Trust of Uganda |
| EIA | Environmental Impact Assessment |

| | |
|----------|--|
| EL | Element |
| ELES | Enterprise Linked Extension Services |
| EMS | Environmental Management Systems |
| FLC | Frontline community |
| FPPO | Fixed Price Purchase Order |
| FR | Forest Reserve |
| FY | Fiscal Year |
| GAC | Good African Coffee |
| GIS | Geographic Information Systems |
| GMRT | Gorilla Monitoring Response Teams |
| GOU | Government of Uganda |
| GPS | Global Positioning System |
| HUGO | Human/Gorilla program |
| IAI | Inter-American Institute for Global Change Research |
| ITFC | Institute of Tropical Forest Conservation |
| IUCN | World Conservation Union |
| JGI | Jane Goodall Institute |
| KABU CTI | Kazinga-Bukorwe Community Tourism Initiative |
| KAP | Knowledge, Attitudes and Practices |
| KK | Kasyoha-Kitomi |
| KNP | Kibaale National Park |
| LASL | Lake Albert Safaris Ltd. |
| MFNP | Murchison Falls National Park |
| MGNP | Mgahinga Gorilla National Park |
| MIST | Management Information System and Computer Software |
| MOU | Memorandum of understanding |
| MUIENR | Makerere University Institute of Environment and Natural Resources |
| NAADS | National Agricultural Advisory Services |
| NCDF | Nkuringo Community Development Foundation |
| NEMA | National Environmental Management Authority |
| FA | National Forestry Authority |
| PA | Protected area |
| PAM | Problem Animal Management |
| PO | Producer organization |

| | |
|------------|--|
| PMP | Performance Management Plan |
| PRIME/West | Productive Resource Investments for Managing the Environment |
| QECA | Queen Elizabeth Conservation Area |
| QENP | Queen Elizabeth National Park |
| RBM | Ranger Based Monitoring |
| RDC | Regional District Commissioner |
| RMNP | Rwenzori Mountain National Park |
| SAF | Special Activities Fund |
| STTA | Short-term technical assistance |
| TAMIS | Technical and Administration Management Information System |
| TB | Tuberculosis |
| TOR | Terms of Reference |
| TUSC | The Uganda Safari Company |
| UCU | Uganda Conservation (U) Ltd. |
| UNEX | Union Export Services Limited |
| UOBDU | United Organization of Batwa Development in Uganda |
| UPSC | Uganda Primary School Curriculum |
| USAID | United States Agency for International Development |
| USG | United States Government |
| UWA | Uganda Wildlife Authority |
| WCS | Wildlife Conservation Society |
| WCU | Wildlife Clubs of Uganda |
| WHRC | Woods Hole Research Centre |
| WMD | Wetlands Management Department |
| WMC | Wetland Management Committee |

EXECUTIVE SUMMARY

USAID Uganda's productive Resources Investment for Managing the Environment (PRIME/West) Project was implemented between October 2003 and July 2008. This project completion report summarizes the essence of the PRIME/West approach and describes the performance of PRIME/West in terms of overall achievements and lessons learned. Its purpose is to provide guidance for future environment, natural resource and/or biodiversity efforts in Uganda or elsewhere in Africa. It draws principally from the project documents developed over the course of almost five years and equally from personal experience and observations of PRIME/West staff and partners. Much of the material here has been presented separately in those project reports and separate project communications.

The goal of PRIME/West was to increase economic opportunities for rural households and communities in selected regions of southwestern and western Uganda. Its overall development hypothesis was that by increasing income and employment through agriculture- and natural resource-based enterprises, improved land stewardship would result and identified threats to the region's biodiversity assets and environmental degradation would decrease. To meet these challenges, the project combined well-established landscape and competitiveness approaches that sought to bring natural resource management and economic development together into a practical and sustainable model.

The project was implemented in collaboration with some of Uganda's most experienced organizations working in environmental and natural resources management. These included Makerere University, Nature Uganda, the African Wildlife Foundation, ECOTRUST, the Goodall Institute and the Wildlife Conservation Society. It also cooperated with the important national government agencies covering forestry, wildlife, environment, wetlands and a host of district-level offices. One of most important objectives of the program was to build local capacity through direct involvement in activities. These organizations, accompanied by many other local community organizations and companies, directly carried out most activities under the project's umbrella.

Over the five years, PRIME/West achieved in large part USAID's important goals in biodiversity conservation and sustainable economic development for the western region's districts and communities. It did this by delivering results through a combination of innovative community-based natural resources management activities and pilot programs with a vigorous monitoring and evaluation system to measure the outcomes and impact. The two most significant findings are:

- There are relevant and functional models for collaborative – community / local government / national government / private sector – management of natural resources that deliver results within legal, environmental and economic frameworks of rural Africa and reduce the animal-human conflict that threatens biodiversity (see **Element One**);
- There are environmentally appropriate agriculture (e.g. shade grown coffee) production systems and enterprises (e.g. ecotourism) that can raise household and community incomes, increase and protect biodiversity and move individuals away from hunting or encroachment and towards sustainable farming (see **Element Four**).

USAID's 2007 annual report on biodiversity conservation and forestry programs noted that the Uganda program:

“increased habitat under improved management in the endangered Albertine Rift ecoregion, and improved economic benefits for communities, such as the production of 600 tons of Arabica coffee in the Rwenzori buffer zone. In FY 2007, the program maintained 107,238 hectares of selected biologically important habitats and 98 producer organizations were strengthened, for a cumulative total of 260 organizations representing 11,250 individuals since the program began.”

These results are principally attributed to PRIME/West.

PART I: INTRODUCTION AND OVERVIEW

BACKGROUND

PRIME/West was implemented by a consortium consisting of Development Alternatives Inc., ECIAfrica, Management Systems International, Innovative Resources Management and Training Resources Group. Several prominent conservation organizations joined this effort during implementation as either subcontractors or grantees. These included: the African Wildlife Foundation (AWF); the IUCN - The World Conservation Union; the Wildlife Conservation Society; Nature Uganda; ECOTRUST and; the Jane Goodall Institute.

The project was awarded as a design-then-implement contract with an initial design phase based on an illustrative statement of work (SOW) lasting approximately six months – October 2003 to March 2004. Following revisions and approval, full implementation began in April 2004. Subsequently the project saw three distinct phases of implementation that resulted from two realignments of activities and consequent contract modifications and changes to project objectives and targets.

PHASE ONE (APRIL 2004 TO MARCH 2005)

The original goal of PRIME/West was to increase economic opportunities for rural communities in selected regions of southwestern and western Uganda. Additionally, PRIME/West was developed based on the hypothesis that resource users will use their natural resources sustainably if they are able to earn more income. PRIME/West was designed to test this conservation and development hypothesis by increasing the productivity of the agricultural and natural resource systems in the southwest while reducing the following major threats:

1. Environmental degradation resulting from poor land-use practices, particularly on marginal lands that are not well suited for agricultural intensification;
2. Loss of important biodiversity assets that could be conserved and bring economic benefits; and
3. Degradation of “buffer zone” areas adjacent to protected areas and forest reserves where the conflicts between agriculture, wildlife habitat, and biodiversity threaten economic benefits from tourism and other possible or existing income streams.

In this context, PRIME/West was expected to make significant contributions toward achieving USAID/Uganda’s Strategic Objective # 7 of “expanded sustainable economic opportunities for rural sector growth” through the implementation of a program that tracked four critical indicators: households affected, household income, new job creation and new enterprise creation. PRIME/West’s overall development hypothesis was that by increasing household income, employment and agriculture and natural resource-based enterprises, improved land stewardship will increase and threats to the region’s biodiversity assets will decrease.

To tackle the above threats and to maximize USAID/Uganda Strategic Objective #7 (SO7) results, PRIME/West used landscape and competitive approaches to offer environmentally sustainable income-generating and enterprise opportunities specifically accounting for the spatial variability of the threats to the environment. Linking opportunities and threats would help lead to better maintenance of natural resources and would contribute to the conservation of the region's unique natural environment. Specifically, during the first year of implementation, PRIME/West addressed threats, priority development needs and significant challenges in natural resource and environmental management in southwestern Uganda by:

- Encouraging the conservation of the region's key biological assets (wetlands, forest reserves and national parks) through providing adjacent communities with opportunities for deriving tangible economic benefits from improved resource management;
- Promoting effective environmental management of the area's natural resources while diversifying and intensifying the production systems that depend on those resources; and
- Creating new development pathways¹ that integrate natural resource conservation, improved utilization of natural resources and private sector development initiatives.

PHASE TWO (MARCH 2005 TO DECEMBER 2006)

In January 2005, USAID/Uganda informed DAI that PRIME/West had been operating under a Congressional biodiversity earmark since April 2004. A report by a visiting USAID-Washington team recommended the realignment of the PRIME/West program to reflect an increased emphasis on biodiversity as required by USAID/W and the Agency's biodiversity mandate. This required that environmental funds be used to address biodiversity conservation as a specific objective. Natural resource management activities, whether on or off-farm, that do not have an explicit biodiversity objective, such as in the case of several PRIME/West activities that had been initiated, could not be covered by earmark funds. Thus, several of the then on-going and proposed activities (and associated benchmarks and targets) were stopped in February 2005. The revised program goal was then to conserve biodiversity by reducing threats to forest, woodland and aquatic ecosystems through increased economic opportunities and conflict resolution for rural communities in selected regions of southwestern and western Uganda. The program sought to conserve critical habitat and species in a landscape context, within the two landscapes, Greater Virunga and the Murchison/Toro/Semliki that occur in south-western Uganda. The revised PRIME/West SOW had two key Project Intermediate Results:

- PIR1: Enabling environment for biodiversity conservation and improved livelihoods strengthened; and
- PIR 2: Threats to forest, woodland and aquatic ecosystem (lakes and wetlands) biodiversity decreased.

¹ DAI's integrated spatial planning (ISP) tool assists policy makers, decentralized authorities, and local stakeholders to establish conservation priorities, analyze threats and identify economic development options on a site-specific basis. ISP enables stakeholders go beyond identifying conservation needs and livelihood opportunities by helping them explore the tradeoffs that are needed to establish a balanced approach to conservation and development. The identification of areas that are considered optimal for conservation and their relationship to areas designated for livelihood activities creates a map of opportunities that are called *development pathways*.

PHASE THREE (JANUARY 2007 TO JULY 2008)

Following changes during the preceding period in the use of foreign assistance policies to achieve the U.S. goal of Transformational Diplomacy, USAID/Uganda developed a new strategic framework for its program in Uganda, including country priority focus, budget allocation and reporting requirements. This was accompanied by a new set of indicators. The program was repositioned in USAID/Uganda's Economic Growth Objective, Program Area # 8: Environment. The specific Program Element is Natural Resources and Biodiversity. The five final indicators under Environment that PRIME/West included in its revised PMP were:

- Number of hectares under improved natural resource management as a result of USG assistance.
- Number of hectares in areas of biological significance under improved management as a result of USG assistance
- Number of policies, laws, agreements or regulations promoting sustainable natural resource management and conservation that are implemented as a result of USG assistance
- Number of people with increased economic benefits derived from sustainable natural resource management and conservation as a result of USG assistance.
- Number of people receiving USG supported training in natural resources management and/or biodiversity conservation.

In order to meet the demands of USAID/Uganda's new environmental program focus and incorporate selected recommendations from the PRIME/West mid-term evaluation, the project implemented a number of measures:

- a) It reduced the project consortium team for project implementation and closed down field activities in the southwest;
- b) It focused the remaining life of project on improved management of select subcontracts, grants and MOUs under the SAF component of the program.

To accomplish the remaining tasks toward the achievement of the overall PRIME/West results based on the revised scope of work (SOW), PRIME/West operated as a Kampala-based Grants Management and Policy Unit with a small set of core personnel whose overall functions were to:

- Manage the SAF, its subcontracts and grantees;
- Support the Uganda Wildlife Authority (UWA), the National Forestry Authority (NFA), the National Environmental Management Authority (NEMA) and the Wetlands Inspection Division (WID) biodiversity conservation;
- Support UWA and NFA in their efforts to strengthen the policy and legal framework for sustainable conservation of biodiversity;
- Ensure environmental compliance for all partner activities; and
- Ensure partners implement cross-cutting activities as planned.

PRIME/West implemented a strategy that focused mainly on local communities. The rationale was that these are the people closest to the natural resources and who are most likely to affect them either

positively or negatively depending on their perceptions and attitudes. It was also recognized that empowering local communities would be the best way of ensuring sustainability of biodiversity conservation activities in the long term.

THE PRIME/WEST APPROACH

DAI proposed an integrated concept for conserving biodiversity in the Ugandan portion of the Albertine Rift. The project adopted three key components or approaches based on stakeholders workshops on biodiversity conservation, on-going activities, and other USAID/Uganda conservation design documents: 1) a landscape approach; 2) a Community Based Natural Resource Management (CBNRM) approach, and 3) a competitiveness approach.

The **landscape approach**, involved integrating field studies, geographic information systems, remote sensing, statistics and simulation modeling for analysis and problem-solving at varying spatial scales, and was the principal tool used for policy and planning activities. Specifically, the landscape approach was used to: 1) formulate a long-term vision for critical landscapes among stakeholders, one which maximizes both economic and ecological output; and 2) identify, and then monitor, viable resource uses in terms of their environmental, social, and economic impact.

The **CBNRM approach** was used for promoting improved democracy and governance with regard to biodiversity conservation and natural resource management. It incorporated pluralist approaches to managing natural resources to achieve environmental conservation, sustainable use of natural resources and the equitable sharing of resource-related benefits and responsibilities. As a key part this approach, PRIME/West facilitated the establishment of communal property and management regimes by defined groups with rights of inclusion and exclusion in critical habitats within landscapes.

The **competitiveness approach** sought to improve livelihood activities. It was natural resource commodity-based and market driven, and focused on helping the private sector to increase profits and market share through improvements in productivity and business strategy throughout the value chain. The creation of public-private partnerships, raising public consciousness about the importance of competitiveness, and the identification and exploitation of real, solid market opportunities were integral parts of this approach.

The impact of PRIME/West was derived not only in the application of these individual approaches but in their creative combination to yield sustainable solutions in participation with local partners. Thus, landscape principles informed program participants as to the productive potential – both economic and ecological – of the land. The CBNRM approach provided communities with use-rights of the natural resources concerned, along with the ability to decide on when and how to use the resources. The competitiveness approach helped turn economic and environmentally sustainable options and secure tenure and use rights into action within the private sector.

Operationally, PRIME/West team initially comprised two main offices; one in Kampala and another in Kabale in southwestern Uganda:

- The Kampala office housed the Chief of Party, Monitoring and Evaluation Specialist, SAF Manager, Operations Manager and Chief Accountant; and
- The Kabale Office housed the Deputy Chief of Party, CBNRM Team Leader, Enterprise Team Leader, Information Education and Communication Team Leader. Under the CBNRM Team Leader were two

CBNRM Specialists and two Landscape Ecologists. Under the Enterprise Team Leader were three Enterprise Development Specialists and two Institutional development Specialists. The IEC Team Leader had one other staff, the Training Specialist.

Each of the six initial districts had a District Coordinator. Technical staff would travel to each of the six districts to undertake various field activities in collaboration with the District Coordinators. In order to maximize the biodiversity benefits of the program, four subcontracts were issued to non-governmental organizations:

- the African Wildlife Foundation to undertake activities in the Bwindi-Mgahinga Conservation Area.
- NatureUganda to undertake conservation activities at an important wetland in Kabale District, Nyamuro, that was highly threatened by human activity,
- the Wildlife Conservation Society, basically to monitor the impact of all PRIME/West program activities on biodiversity conservation and
- the World Conservation Union (IUCN) to undertake other wetland conservation activities in the project districts. This was terminated prematurely because of restructuring within the PRIME/West program.

Through the Special Activities Fund (SAF) a number of grants were awarded to important local conservation organizations: Jane Goodall Institute (JGI), Wildlife Clubs of Uganda (WCU), Uganda Conservation Foundation (UCF), Environment Conservation Trust of Uganda (ECOTRUST) and the Advocates Coalition for Development (ACODE). Other contractual arrangements such as Purchase Orders were used to procure specific services such as GIS services from MUIENR Geo-Graphic Services (MGGS) and a study on bush meat by the Institute of Tropical Forest Conservation (ITFC).

The PRIME/West program also had a deliberate policy of involving private sector partners in activities that contributed to biodiversity conservation. The cost of the activities would be shared using a 50:50 division between the program and the private sector partner. Such arrangements implemented through Memoranda of Understanding included livelihood improvement activities of potential poacher communities of the Rwenzori Mountains slopes through improved Arabica coffee production with Good African Coffee; a community tourism initiative with Kazinga-Bukorwe community with Wild Frontiers/G&C Ltd and community access to natural resources activities with Lake Albert Safaris Ltd.

PRIME/West's activities, as well as those of its subcontractors, grantees and other implanting partners, were meant to contribute to biodiversity conservation through encouraging natural resource-based enterprises to improve community livelihoods, reduce conflict between communities and Protected Area management, promote behavioral change through education and awareness activities and encourage natural resource stewardship by communities through collaborative management arrangements.

SW UGANDA'S CONSERVATION PRIORITIES – THE ALBERTINE RIFT REGION

The Albertine Rift is an incredibly important region for global conservation, harboring more species of vertebrates than any other region on the African continent². More than half of continental Africa's bird species and nearly 40% of its mammal species occur in the region. There are more endemic mammals, birds and amphibians found in the Rift than any other site in continental Africa. Conservation International recently listed the Albertine Rift as one of the world's most endangered spaces³ based on levels of species endemism⁴ and habitat destruction.

The Albertine Rift extends from 30 km north of Lake Albert to the southern tip of Lake Tanganyika, including the valley and flanks of the escarpment encompassing an area of 313,000 km² (Figure 1). This delineation includes most of western Uganda, the extreme eastern border of the Democratic Republic of Congo, the western flanks of Rwanda and Burundi, south western Tanzania and northern Zambia. The Rift's extraordinary biodiversity is inextricably linked to a remarkably diverse and complex landscape. The region's habitats range from the glaciers and rock at the top of the Rwenzori mountains (5,100 metres), down through alpine moorland (3,400-4,500m), Giant *Senecio* and *Lobelia* vegetation (3,100-3,600m), giant heather (3,000-3,500m), raised bogs (3,000-4,000m), bamboo forest (2,500-3,000m), montane forest (1,500-2,500m), to lowland forest (600-1,500m), savanna woodland (600-2,500m) and savanna grassland (600-2,500m). Around the lakes and some streams are found papyrus and *Carex* wetlands.

Western Uganda is a key component of the larger Albertine Rift. In terms of biological diversity, the forest and lakes within this area constitute one of the richest parts of the world. The Rwenzori Mountains, for example, are reported to have more mammal species than any other site in Africa⁵. The importance of the area for conservation stems from not only the high number of species but also an impressively high level of endemism.

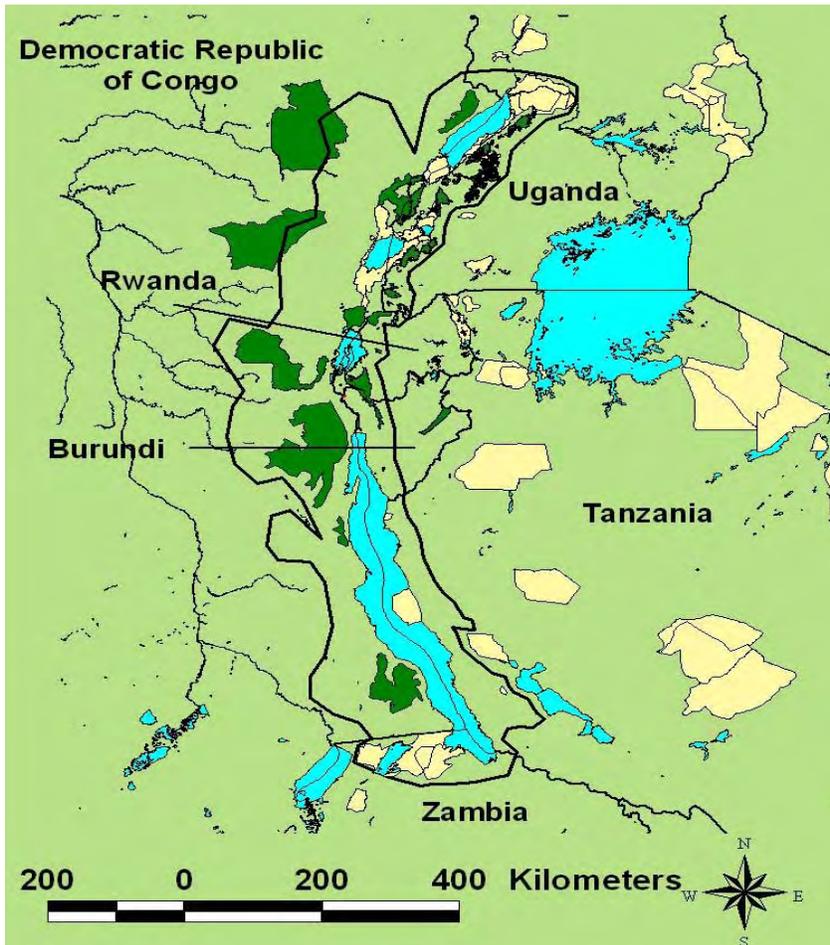
² Brooks et al., 2001

³ CI, Biodiversity Hot Spots, 2/05

⁴ Species found only in a relatively small geographic area and nowhere else on Earth.

⁵ Plumptre et al., 2003

FIGURE 1: THE ALBERTINE RIFT



Lakes (blue), protected areas (yellow) and forest reserves (dark green)

TABLE 1: TOTAL LEVELS OF STRICT ENDEMISM IN THREE ECO-REGIONS FOUND IN THE ALBERTINE RIFT

| | Albertine Montane Rift Ecoregion | | Rwenzori – Virunga Ecoregion | | Victoria Basin Ecoregion | |
|-------------------|----------------------------------|------------|------------------------------|----------|--------------------------|-----------|
| | Total spp. | Endemics | Total spp. | Endemics | Total spp. | Endemics |
| Mammals | 221 | 26 | 61 | 1 | 219 | 3 |
| Birds | 732 | 34 | 180 | - | 623 | 3 |
| Reptiles | 130 | 10 | 9 | - | 119 | 3 |
| Amphibians | 66 | 33 | 4 | 1 | 27 | 1 |
| Plants | 3,200 | High | 400 | Medium | 2,700 | Low |
| Total | | 103 | | 2 | | 10 |

The Ugandan portion of the Albertine Rift runs in a north-south direction from the northern border of the Murchison Falls National Park south to the international border with Rwanda and The DRC⁶, and includes all rift valley natural vegetation and freshwater lakes within approximately 100 km of the DRC border with Uganda (Figure 1).

The Rift in south-west Uganda is home to most of the country's biodiversity crown jewels. It contains a Man and the Biosphere Reserve (Queen Elizabeth National Park), a RAMSAR (Convention on Wetlands of International Importance Especially as Waterfowl Habitat) site (Lake George wetlands), two World Heritage sites (Bwindi Impenetrable Forest and Rwenzori Mountains National Parks), and three sites of regional importance (Mgahinga, Kibale, and Semuliki National Parks). There are also two locally significant lakes (Bunyonyi and Mutanda) plus three regionally important lakes (Edward, George, and Albert) in the southwest. In addition, there are many important forest reserves. Almost all of Uganda's potential for eco-tourism is located in destinations within this region. Mountain Gorilla tourism in Uganda alone generates more than \$18 million per year⁷.

In the southwest, national parks (home to the more than half the world's wild Mountain Gorilla population), wildlife reserves, lakes, and forest reserves are rich in biodiversity. These assets provide a range of practical benefits to local communities that would be extremely costly (if not impossible) to replicate. Forest reserves offer protection to many native species, local streams, rivers, and lakes and reduce siltation of major waterways (which in turn protect important lake fisheries). The forest reserves are also a source of fuel and provide income through harvesting the natural products.

Wetlands also serve as a critical natural habitat and resource. They serve as natural filtration systems to help clean drinking water and are an important source of building materials. Wetlands also maintain critical habitats for wildlife species, such as the Shoebill, *Balaeniceps rex*. Both forest and wetland resources are critical to helping regulate climate, particularly rainfall, upon which the agriculture of the region is almost wholly dependent.

In 2004, a steering group composed of representatives of several international conservation non-governmental organizations (NGOs) mapped the six landscapes that comprise the Albertine Rift⁸. Two of these landscapes occur in Uganda and are:

- **Murchison Falls-Toro-Semliki Landscape.** This planning unit links Murchison Falls National Park through Budongo and Bugoma Forest Reserves down through Kagombe, Kitechura, Muhangi, Itwara forests to the Toro-Semliki Wildlife Reserve. It is confined to Uganda, but there is a need for coordinated planning between the Uganda Wildlife Authority and the National Forestry Authority as well as a need to work with private landowners to maintain forest on their land. At present there is still natural habitat linking these sites and there is a UNDP/GEF project implemented by WWF, part of whose objectives is to maintain the connectivity.
- **Greater Virunga Landscape.** This set of connected protected areas includes the Virunga park in DRC and all contiguous protected areas in Uganda (Mgahinga Gorilla, Bwindi Impenetrable, Queen

⁶ Plumptree et al., 2003

⁷ AWF/IGCP. Economic Evaluation Study for Mountain Gorilla Park, 2004

⁸ A Framework for Conservation in the Albertine Rift, 2004

Elizabeth, Rwenzori, Semuliki, and Kibale National parks, Kasyoha-Kitomi and Kalinzu Forest Reserves, Kyambura and Kigezi Wildlife Reserves) and Volcanoes National Park in Rwanda.

In southwestern and western Uganda, the problems of high population density, few alternative economic opportunities, and weak natural resources governance are becoming acute and threaten biodiversity assets by causing deforestation, unsustainable forest management and habitat loss. Unless these problems are addressed:

- Continued over-harvesting of natural resources will further erode biodiversity assets and reduce productivity of the natural resource base. This will, in turn, reduce the economic benefits derived from (for example, fish, fuel wood, wildlife, and other forest products); and
- Loss/reduction of natural habitat and of key biodiversity assets will reduce the potential economic returns to communities (such as medicinal plants, game meat, forest products, and tourism).

Beginning more than a decade ago, USAID/Uganda made environmental investments in the Western Region, focusing primarily on the southwest. However, these investments were focused primarily on selected aspects of biodiversity conservation (such as park management and planning) and were not strongly linked to threat reduction.

GEOGRAPHIC SCOPE OF PRIME/WEST

PRIME/West targeted communities and institutions engaged in biodiversity and other natural resources management initiatives within the Albertine Rift part of Uganda at national, district, and local levels. Initiatives at national level were mainly targeted at improving the enabling environment. However, during the period up to early 2006 PRIME/West activities were focused in six districts⁹.

This approach was meant to allow PRIME/West to establish the program on the ground and then use the lessons learned to expand to other districts along the Albertine Rift. Expansion into the other districts was preceded by two studies of opportunities for intervention that existed. The first study was for Hoima/Masindi districts and the second was for the Greater Kabalore comprised of Kabalore, Kyenjojo and Kamwenge districts. The first study identified forest related issues as the most urgent in the two districts. Two partners were therefore identified to undertake forest management activities and problem animal management activities respectively. Similar issues were identified for the Greater Kabalore districts but activities could not start because of the restructuring of the program. However, education and awareness activities with two partners were undertaken there.

The focal districts represented a mix of natural resource endowments, population pressures, and environmental constraints. What was common to all of them was that they are all predominantly agricultural, with most agriculture being at the subsistence level. A few – such as Bushenyi, Kabalore and Masindi – have plantations of tea and sugarcane that pose their own environmental problems but on the whole, the threats to biodiversity in all the districts are similar. The other common theme for all the focal districts is that they fall in the Albertine Rift region.

⁹ Bushenyi, Kabale, Kanungu, Kasese, Kisoro and Rukungiri Districts.

PROJECT PERFORMANCE MONITORING AND EVALUATION

PRIME/West adopted a performance-based approach monitoring and evaluation. This persisted across the intervening two re-organizations of the project's framework owing to the USAID/Uganda strategic objective changes noted above. The accompanying Performance Monitoring plans were integral to each successive modification. The established performance monitoring plan was used to assess the project's impacts. It comprises performance indicators and their corresponding targets. An *indicator* is a measurable gauge of the quality and impact of project activities and outcomes; it helps assess how well activities and outcomes achieve the targeted result. The *target* is the specific measure to be achieved. These were agreed to with the USAID technical managers at each iteration and prior to commencing field work under each phase. This performance monitoring strategy facilitated documentation of successes and the achievement the desired results of the PRIME/WEST activities.

The attainment of project goals is conditional upon expected changes occurring as anticipated. These premises are critical to the timely and successful accomplishment of project goals. The PRIME/West project was based on the following underlying premises:

- Increasing local, district and national capacity to use threat and asset-based landscape analysis and planning techniques will enhance decision making with regard to the trade-offs between biodiversity conservation and economic development, leading to the improved management of biodiversity and other natural resources;
- Establishing communal property and management regimes by defined groups in defined areas/critical ecosystems with rights of inclusion and exclusion will result in fewer threats/conflicts and increased biodiversity; and
- Providing economic alternatives to unsustainable natural resource uses will contribute to reducing environmental degradation and will help conserve these critical ecosystems.

PRIME/West's M&E system combined landscape-scale spatial analysis with information generated by project field staff. In particular, it:

- Developed a project monitoring plan that generated information on project accomplishments and the degree to which the project was achieving its objectives. Progress was reported and analyzed in terms of progress made in meeting performance indicator targets.
- Developed a geographic information system mapping and spatial database that permits analysis of the landscape scale impacts that occur under the project.
- Merged these systems so that project-level performance information and landscape-scale biophysical data are stored on the project's GIS. This enabled an analysis of the relationship between project accomplishments, as measured by income and job growth, and changes in the health of the area's biodiversity and natural resource base.

In January 2006, the Wildlife Conservation Society (WCS) and Makerere University Institute for Environmental and Natural Resources (MUIENR) were subcontracted to assist the program in developing a monitoring and evaluation system which tracked the biodiversity indicators. Their efforts notably tracked:

- Changes in knowledge, attitudes and practices among key stakeholders regarding the enabling environment as a result of PRIME/West assistance;

- Threat levels to forest, woodland and aquatic ecosystem resources in selected critical buffer zone areas as a result of PRIME/West interventions;
- Changes in the number of formally reported forest, woodland and aquatic ecosystem-related conflicts as a result of PRIME/West interventions;
- Changes in indicator species in threatened (selected) forest and woodland ecosystems within normal range of population fluctuations as a result of PRIME/West interventions.

Although the overall project goal remained intact, the PRIME/West program focus was revised from economic development and natural resource management objectives to a biodiversity conservation project, where project activities were realigned to reduce threats to biodiversity. These changes incorporated modified project objectives, premises, approaches and some modified activities. Core approaches, such as competitiveness and landscape, and many of the economic development activities remained integral parts of the program. However, the project operated from a threat-based framework to conserve biodiversity, rather than from a sub-sector driven approach.

The final framework (employed in Phase 3) is presented here in summary form and is comprised of four primary elements, each with its respective overarching indicator(s). The four elements are further divided into their respective sub-results and more specific milestones, indicators and targets that allowed for periodic assessments of performance toward achieving project goals and objectives. Performance indicators enabled us to gauge our progress in completing proposed project activities. In contrast, impact indicators enabled PRIME/West and its partners to gauge success in institutional capacity building, knowledge transfer, policy reform and income generation from environmentally sustainable practices.

The four primary elements and associated indicators are:

- **Element 1: Threats to Forest and Woodland Biological Diversity Decreased**
 - **Indicator:** Number of hectares in areas of biological significance under improved management as a result of USG assistance
 - **Indicator:** Number of hectares in areas of biological significance showing improved biophysical conditions as a result of PRIME/West assistance
- **Element 2: Policy and Legal Framework for Sustainable Conservation of Biological Diversity**
 - **Indicator:** Number of policies, laws, agreements or regulations promoting sustainable natural resource management and conservation that are implemented as a result of USG assistance
- **Element 3: Capacity Building, Training and Environmental Education**
 - **Indicator:** Number of people receiving USG supported training in natural resources management and/or biodiversity conservation
- **Element 4: Alternative Livelihoods Improved**
 - **Indicator:** Number of people with increased economic benefits derived from sustainable natural resource management and conservation as a result of USG assistance.

SUMMARY OF PROJECT ACHIEVEMENTS

Implementation of the PRIME/West program began operation in March, 2004 and concluded in July 2008. Over the 52 months, the project established its Special Activities Fund for subcontracts and grants that issued 85 separate purchase orders, subcontracts, grants and MOUs to support on-going project activities across the southwest that included training, technical assistance, institutional strengthening, assessments, evaluations and research. Notable project achievements included:

- Assisting the National Forestry Authority to engage with communities around their major forest reserves in four districts resulting in the signing of ten Collaborative Forest Management agreements;
- Reintroducing three large mammal species that had become locally extinct to Kabwoya Wildlife Reserve; Jackson's Hartebeest, Defassa Waterbuck and Giant Forest Hog;
- Establishing a tourism activity for the ethnic minority Batwa group in the Mgahinga Gorilla National Park.
- Establishing a community-owned enterprise south of Bwindi Impenetrable National Park to own and co-manage with a private sector partner a high end eco-lodge to cater to gorilla tourism;
- Enhancing the tourism activity on the Rwenzori Mountains through supporting the training of mountain guides;
- Reducing serious conflict between communities and management of Queen Elizabeth Protected Area through problem animal interventions, especially elephant trenches;
- Reducing illegal fishing activities on Lake George through education and awareness raising and provision of lake patrol equipment.
- Enhancing the livelihoods of arabica coffee-growing communities in the Rwenzori Mountains by linking them to better markets and curtailing poaching;
- Establishing a partnership of conservation and civil society organizations, local governments and private sector groups to work towards enhancing conservation of bio-diversity;
- Improving the enabling environment for biodiversity conservation in two districts (Hoima and Buliisa) by developing new environment and natural resources ordinances;
- Developing capacity among civil society organizations in eight southwest districts for advocacy/lobbying for biodiversity conservation;
- Providing the Uganda Wildlife Authority with background information necessary for developing a policy and legal framework to regulate the bush meat trade;
- Establishing a viable chimpanzee-based eco-tourism activity in Budongo Central Forest Reserve, the proceeds from which are used in forest conservation;
- Producing and distributing to 2,116 primary schools in Western Uganda the Environmental Education Teachers' Guides for primary grades 5, 6 and 7;
- Initiating, with SCOPE, another USAID-funded program, the idea of geo-tourism circuits on the Ugandan tourist scene resulting in the formation of the Geo-tourism Council of Uganda;

- Making significant advances in application of landscape approach through GIS applications including a State of the Landscape report for south western Uganda, adoption of GIS planning processes in two districts and mapping of wildlife corridors and areas for project counterpart offices; and
- Completing numerous assessments, evaluations, studies and white papers supporting biodiversity conservation and sustainable natural resources management in Uganda.

All the project activities cited here contributed to the technical and operational framework for the project's primary biodiversity and economic development objectives. Details of the project's work by major programmatic element follow below.

PART II: IMPLEMENTATION AND TARGETED RESULTS

ELEMENT 1: THREATS TO FOREST AND WOODLAND BIOLOGICAL DIVERSITY DECREASED

Overall, PRIME/West can show demonstrable success in reducing the threats to biological diversity across the landscapes in the South and West of Uganda. This is evident in the ensemble of activities and intervention supported by the project and reported by implementing partners on the ground. The project met and slightly surpassed its targets for the landscapes under improved management with a final total of 210,700 hectares covered under its activities.

Improvement in the biophysical conditions is likewise noted across the same zone. Not only is this implicit in the hectares under improved management, but is also documented by several key studies conducted by PRIME/West. The World Conservation Society's censuses showed a continually growing gorilla population in the Bwindi Impenetrable National Park increasing from 1997 to 2002 and again to 2006 at annual growth rate of 6%¹⁰. Its 2008 survey of the primates in the forests of the Greater Virunga Landscape¹¹ indicated a stable and slightly increasing chimpanzee population, while showing mixed results for lesser primates with some species in decline and others increasing, depending on species and location. The same report stated that "elephant numbers seemed to have increased but not at the statistically significant 5% level". Limited studies of the herpetofauna¹² indicated that project activities were well adapted to preserving amphibian and reptilian species in the wetlands where activities were carried out. Finally, lacustrine fisheries program participants also reported improved ecosystems and catches where PRIME/West introduced management systems¹³.

One of the projects two underlying hypotheses – that direct involvement of the communities in the collaborative management of neighboring natural resources would improve conservation overall –was tested in this element. It is covered further below. However, through the WCS impact monitoring, it can be shown to be true across the range of conservation activities implemented by PRIME/West. WCS stated that one of its lessons learned in monitoring the project's CBNRM efforts is that "the strengthening of community capacity to police itself is a key to the success of community-based natural resource management." It noted in particular that:

- The number of gill nets and hooks per boat have reduced owing to PRIME/West interventions with Beach Management Units on Lake George

¹⁰ Mountain Gorilla Census – 2006, Summary Report, WCS – McNeilage, Robbins, Gushanski, Gray and Kogoda

¹¹ Surveys of Chimpanzees and other Primates in Uganda's Forest Reserves in the Greater Virunga Landscape – 2008, WCS – Plumptre, Nampindo, Muntungire, Gonya, and Akugizibwe

¹² Monitoring the Impact of Development Activities on Herpetofauna of Selected Wetlands in Western Uganda – Benhangana, 2008

¹³ DAI management visit Trip Report July 2006 – Andrew Watson

- Human signs of encroachment and other illegal activities were reduced in PRIME/West collaborative forest management (CFM) areas compared to what was found during the baseline surveys.

Additionally, ECOTRUST and NFA/Budongo show that incidences of illegal activities have all but stopped in PRIME/West supported collaborative forest management compartments in Budongo forest; communities with CFM plots are policing their plots and controlling outsiders.

With particular regard to collaborative forest management, there are two additional lessons learned:

- The lack of clear boundaries for CFM zones makes it difficult to differentiate between illegal and legal resource harvesting in forest reserves.
- NFA support in the field has been critical to the success of CFM. Unlike UWA, NFA is fairly decentralized. PRIME/West was fortunate to work with NFA Range Managers who truly believe in CFM. As a result, they have sped up the CFM process by giving access rights to CFM groups for deadwood, medicinal plants, etc., at the beginning of the CFM process rather than waiting until the actual CFM agreement has been finalized. Moreover, they have allocated plots to communities for boundary planting to such an extent, that we are not able to keep up with community demand for seedlings. All of this leads to better community - NFA relations, an increased sense of ownership of the forest by the communities, and reduced threats.

TABLE 2: PROGRAM ELEMENT INDICATORS, ELEMENT ONE

| Threats to Forest and Woodland Biological Diversity Decreased | FY2006 Actual (Baseline) | Life of Project Target | Actual Cumulative thru July 2008 |
|--|--------------------------|------------------------|----------------------------------|
| Indicator 1: Number of hectares in areas of biological significance under improved management as a result of USG assistance | 73,155 | 200,000 | 210,732 |
| • Marine/wetland | 5,207 | ----- | 5,557 |
| • Terrestrial/forest and woodland | 67,948 | ----- | 205,175 |
| Indicator 2: Number of hectares in areas of biological significance showing improved biophysical conditions as a result of PRIME/West assistance | n/a | n/a | n/a |
| • Marine/wetland | n/a | n/a | n/a |
| • Terrestrial/forest and woodland | n/a | n/a | n/a |

Indicator 2 was introduced at a time¹⁴ when our partner WCS had already completed establishing baselines for the biodiversity indicators. It was therefore not possible to establish baselines and targets for the relevant sites. In addition, it was agreed initially between the Mission and PRIME/West that given the lack of baselines and targets this indicator be dropped. By the time this position was reversed, we had made considerable progress towards establishing actual results of the entire project. For these reasons, the analyses cannot permit comparisons to be made of actual results with baseline or targets.

¹⁴ This indicator was introduced to the project with contract modification no. 11 of April 2007, 14 months before the end of the project. Initially, it was agreed between the Mission and PRIME/West not to measure it until January 2008 (6 months before the end of the project) when this position was reversed.

Notwithstanding, by analyzing some of our existing data and that provided by our partners, it has been possible to demonstrate more healthy biophysical conditions for selected PRIME/West sites. As shown below the results presented here are just a surrogate measure of the ecosystem health.

TABLE 3: NUMBER OF HECTARES PER ECOSYSTEM THAT HAS SHOWED AN IMPROVEMENT IN BIOPHYSICAL CONDITIONS BASED ON DECLINES IN HUMAN ILLEGAL ACTIVITIES AND WETLAND MAPPING OF IMPROVED AREAS

| Site | Ecosystem type | Baseline 2006 (ha) | 2008 (ha) | Actual increment For LOP (ha) |
|--|----------------------------|--------------------|------------------|-------------------------------|
| Rwenzori Forest | Afromontane forest | | 1,089.0 | |
| Queen Elizabeth Northern sector | savanna woodlands | | 5,876.0 | |
| Ishasha sector | savanna woodlands | | 1,566.0 | |
| Echuya | Mixed bamboo forest | | 2,983.0 | |
| Kasyoha Kitomi -Kyambura WR | Mixed forest and woodlands | | 377.0 | |
| Kasyoha Kitomi -Kalinzu FR | Tropical High Forest | | 1,905.0 | |
| Murchison - Semliki Landscape | Mixed forest and woodlands | | 0 | 236.6 |
| ***Coniferous (Plantations) & deciduous forest (afforestation) | | | 462.79 | |
| Sub total | | | 14,495.39 | |
| **Wetland mapping (ha) | | | | |
| Nyamuro (WCS mapping) | | 455.5 | 617.1 | 161.6 |
| Nyamuro (NU restoration) | | | 850.0 | |
| Mulehe | | 372.6 | 360.4 | -12.2 |
| *Fish breeding zones on Lake George | | | 4,000 | |
| Total area (ha) | | | | 19,506.99 |

* Mapping of BMU was conducted by PRIME Core team together with consultant

** Wetland mapping was done in 2006 and 2008, the figures presented show the change in area

*** ECOTRUST & JGI restoration program in MF-Semliki Landscape

FIGURE 2: LEOPARD WITH ORABI KILL IN MURCHISON FALLS NATIONAL PARK

The areas presented in the table above are based on:

- Analyses of the threat monitoring data for the selected sites, from May 2006 (baseline year) to May 2008. Of the six sites (13,796 ha) selected, a representative random sample plots each measuring 0.5ha and a total area of 133 ha was monitored for 2.5 years. The plots were searched for human activity signs every six months and the encounter rates computed. Analyses of the results have showed a decline in illegal human activities in almost all sites with some local exceptions in 2007 owing to the settlement of cattle herders in QECA causing a slight increase in illegal activities that later gradually declined.
- Analyses of the formally reported conflicts for QECA showed the same declining trend from 2004 at the start of the project to 2007. Comparisons with the UWA MIST data from QECA and Rwenzori



MNP to collaborate the results were not possible due to technical problems with the MIST data input and formatting. UWA is still cleaning their datasets and this might be completed by the end of July 2008.

Within this Element One (decreased threats to biodiversity), three sub-elements were implemented in support of the larger objective by PRIME/West. Each is further described below.

SUB-ELEMENT 1: INCREASED PROTECTION/IMPROVED MANAGEMENT OF WILDLIFE CORRIDORS FOR IMPROVED BIODIVERSITY CONSERVATION

Almost all of the work in the ensemble of protected areas directly supported the preservation of critical landscapes and corridors for biodiversity conservation. However, through its partners, especially WCS when the work shifted exclusively to them, PRIME/West worked extensively in the Queen Elizabeth Conservation Area to address explicitly the maintenance of corridors for protecting that region's wildlife. The result is a comprehensive planning document for the future of the QECA with universal endorsement of that region's key stakeholders.

QECA Corridor Action Plan

The Queen Elizabeth Conservation Area (QECA) of western Uganda is one of Uganda's foremost tourism attractions, owing to its outstanding scenery and diversity of habitats and fauna. The conservation area comprises the Queen Elizabeth National Park and the Kyambura and Kigezi Wildlife Reserves and forms part of the Greater Virunga Landscape (GVL), a 13,000 km² network of protected areas straddling the Democratic Republic of Congo (DRC), Uganda and Rwanda¹. Ranging in altitude from 600 to 5,100 meters above sea level, the GVL is one of the most bio-diverse landscapes in Africa with many endemic and globally endangered species.

Linking between the different protected area components of the landscape are a number of "Wildlife Corridors" comprising narrow tracts of land hemmed in on both sides by dense human settlements and agriculture. These corridors play an important role in the functioning of the GVL ecosystem and in the protection of key habitats, and are especially crucial in enabling the movement of large mammals from one part of the ecosystem to another, in particular elephants, lions and chimpanzees.

This QECA Corridor Action Plan has been developed to ensure the continued functioning of these critical but increasingly fragile wildlife corridors, by providing a framework for coordinating and focusing the efforts of conservation organizations and other agencies working in the area on these weak links in the protected area landscape. The Wildlife Conservation Society (WCS) initiated the development of the action plan with financial support from USAID's PRIME West program. Technical assistance in developing the plan has been provided by the Conservation Development Centre, Nairobi.

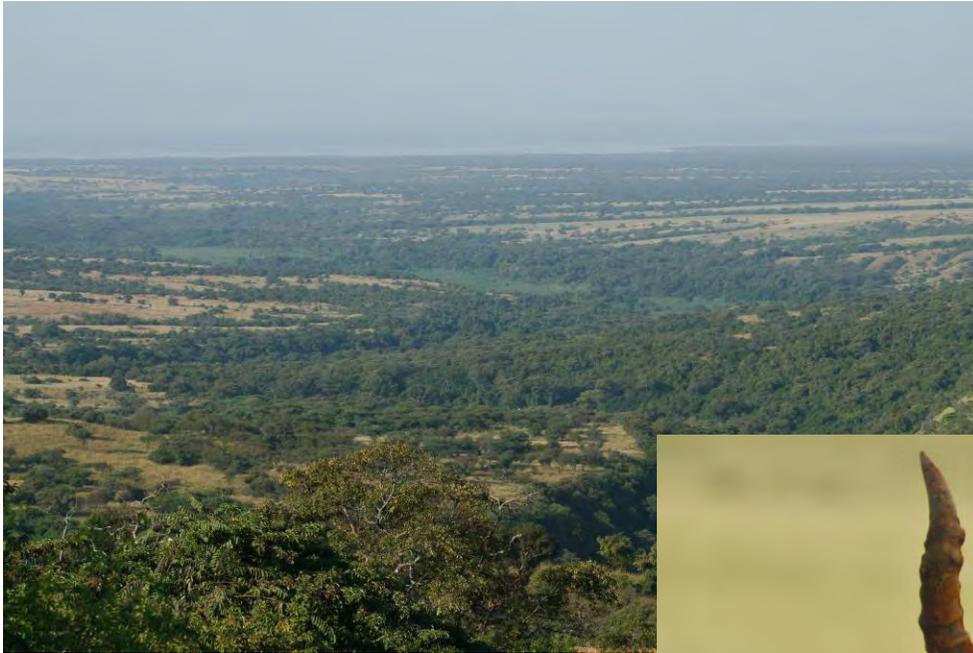
- The overall goal of this action plan is to ensure that the wildlife corridors of the Queen Elizabeth Conservation Area are conserved and that they continue to play their pivotal role in ensuring the ecological integrity of the Greater Virunga Landscape. To achieve these overall goals, the plan has three main functions:
- To provide a framework for government, authorities and NGOs to work together;
- To enable fundraising in support of corridor conservation initiatives;
- To engage local communities in the conservation and use of corridor natural resources.

*Protecting the Wildlife Corridors of the Queen Elizabeth Conservation Area -
World Conservation Society, July 2008*

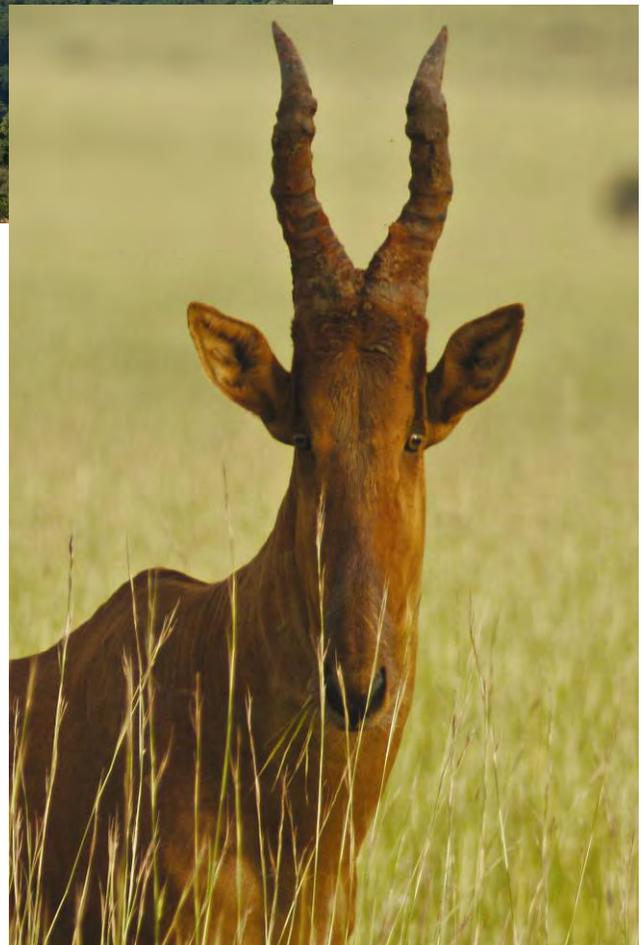
Progress on the Bugoma- Kabwoya corridor continued to be very slow for a variety of reasons. However, as an exit strategy, PRIME/West has provided a detailed map of the area as part of a larger landscape

management agenda with the oil companies. Another significant event that could enhance the viability of the corridor is the granting of an initial hunting quota from Kaiso Tonya to Lake Albert Safaris, Ltd. While considerably less than oil production royalties, the proceeds from the professional hunting activity will go directly to the local community. Once other communities begin to appreciate the value of having wildlife on their land, they will be more willing to have a wildlife corridor. The Jackson's Hartebeest and Waterbuck that were trans-located to Kabwoya WR in late 2007 have acclimatized very well.

FIGURE 3: KABWOYA WILDLIFE RESERVE LOOKING WEST TOWARD LAKE ALBERT



**FIGURE 4: JACKSON'S HARTEBEEBEEST
(*ALCELAPHUS BUSELAPHUS JACKSONI*)**



SUB-ELEMENT 2: INCREASED COLLABORATIVE MANAGEMENT OF FOREST, WOODLAND AND AQUATIC ECOSYSTEMS

PRIME/West contributed to considerable progress made in advancing Collaborative Forest Management (CFM) systems. This is credited to the favorable policies and approaches of the National Forestry Authority (NFA) which is open to the CFM initiatives of the project. The work spanned most of the project's zone. However, the most appreciated work was in the Masindi and Hoima districts where eleven CFM sites were established around the Budongo and Bugoma Forest Reserves¹⁵.

FIGURE 5: REHABILITATION OF FOREST MARGINS THROUGH TREE-PLANTING – IN THIS CASE EXOTIC PINE FOR TIMBER



In the end, over 35,000 ha were included in the CFM management plans incorporating 11 CBOs, two communal land associations, twenty-seven producer group enterprises, and over 1,500 households. Boundary demarcation, fire control, access privileges, environmental education and community patrols were common elements of all areas. The most cited uses were household and community woodlots for timber production and honey production with four communities joining a payment scheme for carbon sequestration.

Although PRIME/West worked in only 5,500 ha of wetlands during its implementation, it contributed important understandings to its conservation and sustainable use of Uganda's wetlands and aquatic systems. Work in the wetlands and aquatic domains was limited to the earlier stages of the project as the final phase re-organization eliminated these as focus areas for project intervention. Still, three of PRIME/West's interventions in this area stand out in particular.

Reducing Wetlands Degradation and Conserving Critical Wetland Ecosystems

Undertaken as a collaborative venture with IUCN, this work sought to ensure conservation of critical wetlands through addressing threats to and degradation of selected wetland ecosystems. It built on the earlier (2002-4) funding by USAID to ECOTRUST for wetland activities in Kanungu, Kisoro and Bushenyi Districts and complemented the on-going wetlands conservation and management activities by Wetlands Inspection Division, Districts and other prominent NGOs.

¹⁵ Promotion of Participatory Forest Management for Forest Reserves and Private/Community Forests in Masindi and Hoima Districts – Final Report, Environmental Conservation Trust of Uganda (ECOTRUST), June 2008

The PRIME/Wetlands project component targeted to achieve the following results or outcomes.

- a) Enhanced capacity for wetlands management and planning, at district/community levels;
- b) District level legislation for wetlands management;
- c) District and community level wetlands management actions and plans;
- d) Collaborative management regimes for various wetland sites and resources;
- e) Enhanced knowledge and understanding of wetland values and resources base;
- f) Income generation from wetland resources based enterprises;
- g) Wiser use of wetland resources.

Project activities were implemented over 15 months (January 2006-March 2007) by IUCN through a technical assistance program to Wetlands Inspection Division and in the Districts of Kisoro, Kanungu, Kabale, Rukungiri, Bushenyi, Bundibugyo, Kabarole, Kamwenge and Kyenjojo.

FIGURE 6: PAPYRUS SWAMP AND LITTLE EGRETS (EGRETTA GARZETTA) NEAR LAKE ALBERT



The significant achievements of the combined activities included:

- Training in Wetland Management and By-law Formulation for 123 people (30% women);

- Training in M&E of National Wetlands Policy Implementation for 25 leaders;
- Initiating the wetland inventory and District Wetlands Action Plans in Bundibugyo;
- Developing a guide to Integrating Wetland Actions into Sectoral and area Development Plans at district and sub-county levels;
- Providing technical support to Kisoro district that led to designation of Lake Mulehe Wetland as a Protected site;
- Designating Mineera a protected wetland by Rukungiri District was initiated;
- Assessing the suitability of 5 sites for community management approach and then supporting its development at two sites: Mineera (Rukungiri district) and L. Mulehe (Kisoro district); and
- Increasing the capacity of two indigenous NGOs/CBOs to manage wetlands.

Nyamuriro Conservation Project

Nature Uganda's Nyamuriro Conservation Project was another important part of the project's work in wetlands conservation. Between May 2005 and September 2007, it completed an integrated set of activities around the Kabale District's most significant wetlands. These included:

- Training of local participant, farmers, enterprises and government officers;
- Creating six new CBNRM enterprises and an improvement in the incomes of 260 participating households;
- Initiating four new collaborative management agreements at sub-district-levels with neighboring communities covering over 1,650 hectares;
- Incorporation of 30 local enterprises into sustainable wetland-based product production that introduced four new locally derived products;
- Facilitating 2 public-private partnerships centered on wetland preservation,
- Completing detailed biodiversity and land-use feasibility studies, zoning and wetlands plans and the creation of buffer strip areas and accompanying maps for local use; and
- Hosting the WSC impact survey for wetland species conservation monitoring.

Lacustrine Fisheries

Between 2004 and 2006, PRIME/West staff worked directly on a limited scale to help educate fisher communities around the Albertine Rift region (Lake George and the Kazinga Channel) on 1964 Fish Act and the 2004 National Fisheries Policy Acts. These establish the foundation for participatory fisheries management (PFM) in Uganda. In order for PFM to be effective, five key conditions must be met:

- There must be clear objectives for the management of the fishery;
- The rights of all parties should be clearly stated;
- The responsibilities (duties) of all parties should be clearly stated;

- The authority of different parties should be clear and in keeping with other legislation;
- The mechanisms and procedures to hold people accountable should be clear.

The Fisheries Policy establishes the vision and objectives for the sector and also spells out the roles and responsibilities of different parties including national and local government, the private sector and fishing communities. The policy also establishes the rights of fishing communities but these are stated more explicitly in the government approved constitutions and bye-laws of the individual Beach Management Units (BMUs). The 1964 Fish Act provided the legislative basis upon which specific authorities can be transferred to BMU members including the right to police a fishery, confiscate illegal gear and arrest people fishing illegally.

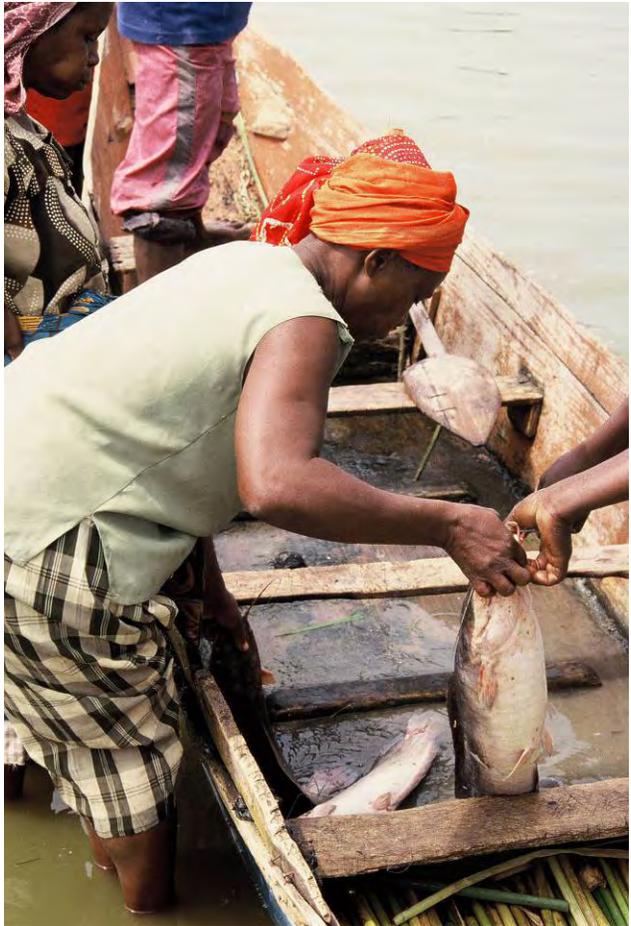
FIGURE 7: THE LANDING AREA AT KAHENDERO BMU ON LAKE GEORGE. FISH MONGERS (MAINLY WOMEN) PURCHASE THE CATCH DIRECTLY FROM THE BOATS AS THEY LAND



The project focused on helping to strengthen BMUs located on Lake George and the Kazinga Channel and other local institutions are ostensibly involved in management of the fisheries. Attempts to create a lake-wide fisheries management body, LAGBIMO, were not successful because the operating costs were to be funded by the BMUs. This body will eventually be essential to have one management entity for the whole lake – one that can support the elaboration and implementation of a lake-wide management plan. However, it is crucial that this body is constituted according to the wishes of the fishers and other members of the BMU Assemblies and that its membership is elected by the fishers and other interested parties.

FIGURE 8: FISH CATCH ON LAKE GEORGE: THIS CATCH CONSISTED EXCLUSIVELY OF PROTOPTERUS AETHIOPICUS, WHICH IS CAUGHT IN THE PAPYRUS REED BEDS BORDERING THE LAKE

The preliminary work that has been accomplished toward supporting the development of fisheries management plans should recognize the need for coordination across the whole Lake George fishery. While individual BMUs can establish specific regulations for different part of the fishery (gear restrictions, season restrictions etc.), the geographical area “managed” by each BMU is uncertain and some parts of the lake are still regarded as an open-access fishery. Since the resource is mobile, a coordinated approach for the whole lake is essential. Although there is currently no institution that is capable of facilitating this coordination, the strengthening of the individual BMUs is probably an essential precursor to the creation of a lake-wide body because it is the BMU membership that must conceptualize the role of the body and elect its members.



SUB-ELEMENT 3: INCREASED RESOLUTION / MITIGATION OF COMMUNITY AND PROTECTED AREA CONFLICT

PRIME/West was highly successful in reducing conflict between communities and wildlife managers where it assisted in problem-animal management interventions. Between November 2005 and late 2007, a total of 935 former wildlife poachers (780 around Queen Elizabeth National Park and 155 around Rwenzori Mountain National Park) renounced illegal hunting, formed ‘anti-poaching’ groups and handed in symbolic but significant numbers of the weapons to park authorities. One group, the Muhindi Anti-poaching Group, went a step further to carry sensitization meetings and drama shows to communities adjacent to protected areas to promote the anti-poaching drive. As part of community conservation activities, programs raised awareness about opportunities for the sustainable use of wildlife resources. Poachers handed over their weapons to harmonize the relationship between the park and the people and gain access to enterprise development services offered by PRIME/West.

The Table below is indicative of this and draws on studies and reports of the WCS for the project.

| Year | District | Forest | Lake | Parks | Wetland | Total number of cases | % of total cases |
|--------------------|----------|-----------|-----------|------------|----------|-----------------------|------------------|
| 2004 | Bushenyi | 9 | 4 | 0 | 1 | 14 | |
| | Kasese | 0 | 0 | 65 | 0 | 65 | |
| | Kanungu | 2 | 0 | 13 | 0 | 15 | |
| 2004 Total | | 11 | 4 | 78 | 1 | 94 | 34.2 |
| 2005 | Bushenyi | 2 | 0 | 0 | 0 | 2 | |
| | Kasese | 0 | 6 | 63 | 0 | 69 | |
| | Kanungu | 0 | 0 | 13 | 0 | 13 | |
| 2005 Total | | 2 | 6 | 76 | 0 | 84 | 30.5 |
| 2006 | Bushenyi | 0 | 0 | 0 | 2 | 2 | |
| | Kasese | 0 | 0 | 26 | 0 | 26 | |
| | Kanungu | 0 | 0 | 7 | 0 | 7 | |
| 2006 Total | | 0 | 0 | 33 | 2 | 35 | 12.7 |
| 2007 | Bushenyi | 1 | 1 | 0 | 0 | 2 | |
| | Kasese | 0 | 0 | 55 | 0 | 55 | |
| | Kanungu | 0 | 0 | 5 | 0 | 5 | |
| 2007 Total | | 1 | 1 | 60 | 0 | 62 | 22.5 |
| Grand Total | | 14 | 11 | 247 | 3 | 275 | |

There are three conclusions drawn from these studies:

First, a reduction in monitored human activities in the ecosystems together with an increase in birds and large mammal sightings is a surrogate indicator for an improvement in the ecosystem's health. In addition, the decline in illegal activities in the protected areas is indicative of the increased support to UWA and NFA management by PRIME/West, support to collaborative forest and wetland management and offering of economic alternatives through the enterprise support to the communities, in particular to the former poachers turned coffee producers in the Ruwenzori area.

The second relates to the fish breeding zones on Lake George undertaken by the PRIME/West team with the BMUs. Whereas total area of breeding zones has not increased per se, improved surveillance by the BMUs has resulted in better conditions in those areas as shown by fish sampling data from the sites.

Third, the analysis of the forest cover change in Murchison Falls National Park – Semuliki Landscape showing a small increase in forest cover in the landscape was attributed to increase in law enforcement and afforestation by PRIME/West's partners ECOTRUST and JGI. It is important to note that the satellite imagery does not cover any interventions/impacts that occurred after 2006. However, interventions by ECOTRUST and JGI made some contribution to forest restoration and afforestation efforts by about 463 ha.

FIGURE 9: ANIMAL CONTROL FENCE CONSTRUCTED NEAR ISHASHA



An important lesson learned by PRIME/West is that animal barriers can be effective where the partnerships among the key stakeholders are strong; e.g. communities/CBOs (for manpower mobilisation); where UWA technical assistance and local government resource mobilisation combined; and where markets for cash crops resistant to animals (e.g., bird's-eye chilli) are sustainable. This lesson was noted through the project's direct work in elephant barriers (trenching) and supported by direct project work in Ishasha. Some of the most important points are:

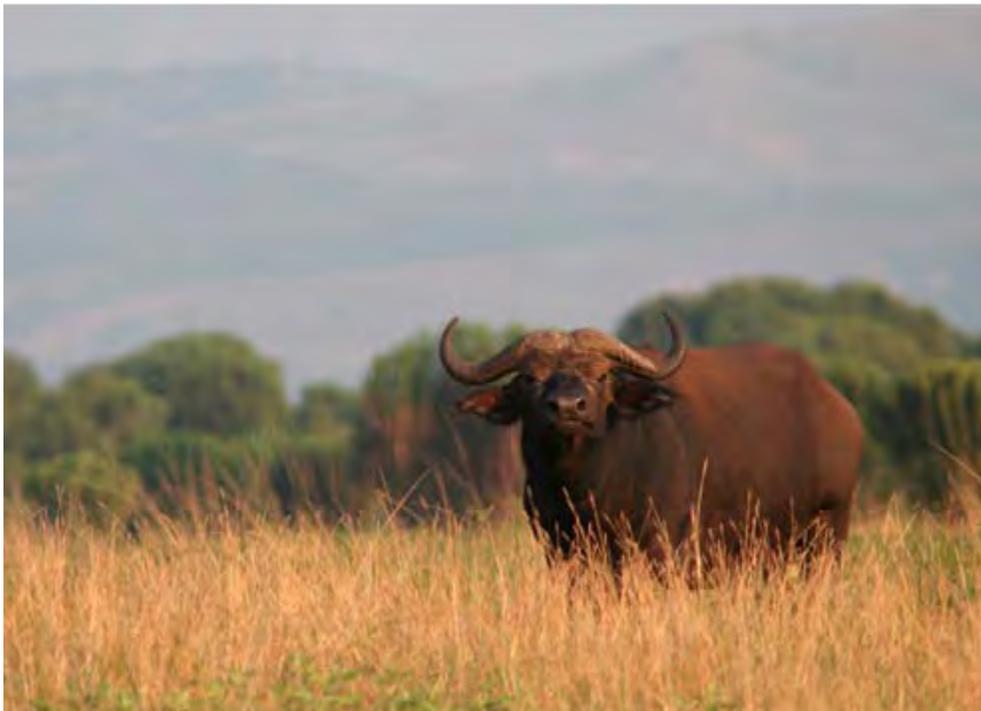
- For overall ownership and therefore sustainability it is better to involve both men and women in all the process of problem identification, analysis, designing, implementation and monitoring and evaluation of the trench project.
- A trench is effective in minimizing crop raids by non-jumping animals (elephants, bush pigs, buffalos, hippos etc.).
- Problem animals can take the advantage of the unfinished portions of the trench to pass and raid people's crops.
- Before activities in [barrier] construction commence, all boundary disputes should first be resolved in order to minimize conflicts."

The AWF Human/Gorilla program (HUGO) activities supported by PRIME/West also demonstrated significant innovation and progress in reducing community tensions along the boundaries of gorilla

national parks. Rangers and community members were trained in data collection, quality control, map reading, forest navigation, GPS and livelihood skills in a bid to reduce threats to bio-diversity conservation and improve the livelihoods of the people that depend on biodiversity.

In the final analysis success in conflict management is contingent upon raising awareness and getting all parties to negotiate. As one project employee stated so well:

"I am happy that the project did increase the awareness of the need for managing natural resource-related conflict between local communities and the Protected Area managers through negotiation. We made tangible advances in Karusandara Sub-county where a real conflict issue was resolved (over access to a degazetted piece of land) and in Kayanga where it was agreed between NFA and the community to re-open a boundary line and resolve a long standing conflict. The approach of PRIME/West to tackle real issues that breed conflict between conservation and development, especially problem animal damage, was excellent, and could have scored lots for project success if projects at all the identified sites had been implemented. Conservation and development projects in Uganda have so far done little on this crucial front."



ELEMENT 2: POLICY AND LEGAL FRAMEWORK FOR SUSTAINABLE CONSERVATION OF BIOLOGICAL CONSERVATION STRENGTHENED

In concept, PRIME/West was designed to work closely with three of Uganda’s leading national agencies directed towards the environment and conservation: the Uganda Wildlife Authority (UWA), the National Forest Authority (NFA), and the National Environmental Management Authority (NEMA). In practice, the project and its teams were much more directly linked through implementation to District Administrators, national agency representatives in the field (where present), non-governmental implementing partners, and the private sector. Over its four years, the project did established excellent professional relationships with these main agencies and their staff. Differing policies and approaches defined the eventual engagement and effectiveness of their contributions to PRIME/West’s final impact.

An excellent illustration of this was the PRIME/West-funded work of the Advocates Coalition for Development and the Environment (ACODE) in the District of Bulisa (Murchison Falls, Budongo, Lake Albert). Here, the local governments LC5, community representatives, citizenry and NGOs have been elaborating a model natural resources ordinance, held to be one of the best in the country. This regulatory exercise is directed at mitigating the impact of poor management on local fisheries, cutting of the forests, controlling charcoal production and protecting its landscapes from the imminent oil and gas exploitation. Lessons learned from the PRIME/West program enriched this debate and draft regulation and project support facilitates the dialogue and policy considerations in the District.

FIGURE 10: PARTICIPANTS IN A COMMUNITY-BASED FORESTRY PROJECT AT KASEETA NEAR BUGOMA FOREST RESERVE VOICE THEIR OPINIONS ABOUT CO-MANAGEMENT AGREEMENTS



PRIME/West also supported NatureUganda in completing a review of the relationship between current technical practices in environmental stewardship and biodiversity. Discussions with Tullow Oil continue in terms of offsets in the corridors linking Bugoma with Kabwoya. The project produced a major study whose main objective is to sensitize key stakeholders, particularly politicians and senior government officials, about the issues of oil exploration and production as they relate to sustainable management of natural resources within the Rift Valley.

Much more needs to be done. Still, major donors in Uganda, with GOU help, seem to be going down the same path they have taken over the past 15 years. Both the EU PAMSU and the World Bank projects are reportedly closing early because one of the major objectives – UWA sustainability – was not achieved. Instead of looking at new approaches to address some of the real policy and regulatory issues in environment and natural resource management in Uganda, the GOU is now conducting a survey of donor support to the environment/natural resource sector in view of seeking additional EU/World Bank basket funding for NEMA, UWA and NFA to continue the same activities that haven't worked in the past and won't work in the future.

This trend continued over the course of the project – much more was accomplished at the local level than at the policy level in Kampala. In the end, PRIME/West can document a limited success on policy formulation in the following nine areas. In December 2007, PRIME/West staff met with the Executive Director of NFA, Damian Akankwasa, and his Director of Collaborative Forest Management, Fiona Driciru to discuss the current status of CFM in Uganda. In comparison to many other countries in the region, progress appears to have been significant. Not only has the NFA devolved decision making authority to the Range Managers but the number of CFM plans that have been approved or are about to be approved is impressive – about 60 in all. Nineteen CFM agreements have been signed (another 12 CFM projects have been initiated but it is not clear if these represent signed agreements or not). Another 10 agreements are being reviewed or are pending approval and 17 more initiatives are either being developed with awareness-raising underway or are of uncertain status. In the case of Kaseeta, the area of forest that will be under collaborative management is just over 3,000 ha. Again, this is an impressive tract of forest in comparison to the areas that are typical assigned to co-management elsewhere in the region. The following table does not include these specific agreements though PRIME/West has directly or indirectly been involved in several of these.

TABLE 5: PROGRAM ELEMENT INDICATOR, ELEMENT TWO -

| Policy and Legal Framework for Sustainable Conservation of Biological Conservation Strengthened | FY2006 Actual (BASELINE) | FY2008 Target | Actual Cumulative thru July 2008 |
|--|---------------------------------|----------------------|---|
| Indicator 3: Number of policies, laws, agreements or regulations promoting sustainable natural resource management and conservation that are implemented as a result of USG assistance | 3 | 20 | 9 |

Within this Element Two (policy and legal frameworks strengthened), two sub-elements were implemented in support of the larger objective by PRIME/West. Each is further described below.

SUB-ELEMENT 1: ADVOCATE FOR PRIVATE MANAGEMENT OF WILDLIFE RESERVES

Many Districts perceived PRIME/West to be the follow-on activity to its predecessor program - the Conserve Biodiversity for Sustainable Development (COBS) project. This dealt extensively with biodiversity and conservation planning at the District-level, providing direct monetary support to the Districts among other things. Although during both the design phase and during the initial months of implementation multiple meetings were conducted in the districts, with operational MOUs obtained in each, there was never a complete engagement with PRIME/West at LC5 offices, especially regarding wildlife management.

The Uganda Wildlife Agency remained particularly reticent to private wildlife management, or even subcontracting for services, preferring the status quo of directly managing vertically – headquarters to field stations – as a government agency. UWA has been slow in embracing the concept of collaborative management. UWA is a centralized bureaucracy with all field decisions made at headquarters more often than not at the Executive Director level. Experience suggests that the more levels of bureaucracy that one needs to go through to reach an agreement, the more people become involved and the risk of finding someone in the chain that wants to profit from the agreement. Corruption remains ensconced as a real disincentive to change. Furthermore, UWA maintains an unprecedented focus on enforcement – more often than not armed enforcement – as the sole means of protecting the nation's parks and reserves.

It is well documented that community attitudes towards wildlife conservation improve considerably when local people receive tangible benefits from collaborative management. Although UWA is slowly moving towards more community conservation and collaborative management activities, it needs to make significantly more effort to get the communities on its side. In order to manage wildlife resources in the country effectively, UWA needs to enlist more support from the private sector, which would invest resources into conservation for profit. Private investment in wildlife reserves would reduce the financial burden on UWA and enable it to channel its resources into better management of national parks. This calls for a strong policy that would entice private sector investment while protecting UWA's conservation objective and ensuring equitable sharing of benefits for local communities.

Even with its experience, UWA has been slow to learn from these initiatives, which by all accounts have been successful in terms of generating income for UWA as well as the communities while also reducing threats. Moreover, there is a growing interest among investors – mainly foreign companies and individuals and some local companies – to manage some of the Wildlife Reserves, particularly Karuma and Bugungu which remain largely unprotected and subject to extensive poaching.

What is needed is a clear policy and associated guidelines that will direct the roles and mandate of the private investors. PRIME/West worked with UWA to turn over management of reserves to the private sector. This did not gain traction in spite of the fact that experience in many other East and Southern Africa countries has shown that improving the policy and legal framework for private sector involvement in wildlife conservation has been responsible for arresting declining wildlife populations and stemming corruption.

SUB-ELEMENT 2: POLICY AND LEGAL FRAMEWORK FOR THE CONSERVATION OF BIODIVERSITY STRENGTHENED

PRIME/West prepared a number of background documents and studies for use by UWA. The level to which these documents have been used was variable.

The *Analysis of Bushmeat Hunting* was one example. It offered a ground-breaking presentation of the scale and scope of wildlife hunting in the pristine parklands of the Albertine Rift, thorough in its presentation of the drivers of the trade, demand and supply issues and the identification of potential solutions. There is little receptivity on the part of UWA to make use of the findings and recommendations. Regional Wildlife conservation NGOs are, however, making full use of the report.

One of the more significant lessons learned is the need to place a greater emphasis on conservation advocacy as well as other non-traditional approaches for biodiversity conservation and environmental stewardship in Uganda. The ethics of environmental stewardship is not well established in Uganda, especially among politicians and agency leaders.

There is a growing trend of land use changing from protected areas to agriculture or industrial expansion via political decisions (degazettement and land grabs). Politicians and investors perceive the protected areas as a land bank for future appropriation for investment. Recently, there have been attempts to declassify Mabira Forest Reserve and build a golf course in Queen Elizabeth National Park; perhaps parts of East Madhi Game Reserve will be declassified to accommodate more sugar cane plantations to supply the Southern Sudan market. Oil exploration permits have been issued for Queen Elizabeth National Park and on Lake George, a Ramsar site, along with a gypsum mining concession in Lake Mburo.

The use of sustainable development principles that contribute to both the conservation of biodiversity and to the social, economic and institutional development of the communities where these activities operate is only nascent. Similarly, the incorporation of sustainable development or environmental considerations into the Government of Uganda's decision making processes is rare. However, senior political leadership in environmental stewardship in Uganda will be essential for improved conservation of biodiversity. A good case is NEMA's management of recent critical Environmental Impact Assessments (EIAs)

Under the NEMA Statute of 1994, (EIA reports are supposed to be made public and discussed by the stakeholders. So far there have been several EIAs developed specifically for hydrocarbon seismic survey and exploratory drilling. These include:

- EIA for seismic survey to be carried out in Semliki Basin – Heritage, June 1997.
- EIA Report for Semliki Basin - Heritage, July 2001
- EIA for Kaiso-Tonya area exploratory drilling (Block 3A) – Hardman, Sept 2005.

An Analysis of Bushmeat Hunting and the Economics of Bushmeat Trade

Overharvesting is a major threat to conservation and a potential hindrance to achievement of full benefit from wildlife resources. Wildlife is a potentially renewable resource, which, if managed carefully, can sustain in evolutionary time. We believe that a lasting solution to any problem must begin with a comprehensive analysis. This report analyses illegal hunting and underlying influences in Uganda's premiere parks and in an expanse of wildlife-rich but privately owned land. The report is intended to provide an understanding of the extent of illegal hunting, some of the factors driving it, and to suggest potential corrective actions. The analysis is performed within the scope of data gathered from four field sites and some urban sites.

Wildlife offers numerous environmental, economic, spiritual and cultural benefits vital to the well being of human society. The potential of these resources to serve society in the long term is however threatened primarily by unsustainable overharvesting and land use change. Uganda for example witnessed breakdown of law and order during the mid 1970s to early 1980s and this led to massive hunting followed by drastic wildlife population declines and extinctions of some species. Prior to this, Uganda had been a prime tourist destination with Murchison Falls National Park as one of the top tourism destinations in Africa. As a result of population declines, Uganda was no longer as interesting and is yet to recover its former glory as a tourism destination.

*May 2008 Wildlife Conservation Society
and the Institute of Tropical Forest
Conservation, Draft Final Report*

- EIA for Butiaba-Wanseko seismic exploration (Block 2) –Hardman, Sept 2006.
- EIA for Kingfisher-1 exploratory drilling (Block 3A) – Heritage, April 2006
- EIS for 2D seismic survey for Lake Albert on/offshore – Heritage, June 2005.

Still, none of these EIAs has ever been published or made public. They are generally considered technically competent in spite of the fact they are contracted by the oil companies themselves with little if any participation in the exercise by NEMA. The principal problem lies in monitoring EIA compliance. NEMA relies on the District Environmental Officers to do the majority of this work, and these individuals rarely have sufficient resources.

National agencies and the international donors alike need to come to grips with Uganda's pervasive corruption. It continues to stymie the most genuine efforts to advance conservation's main goals. An article published in the November 2003 issue of the scientific journal *Nature* investigated links between good governance and conserving biodiversity. The key findings of this work are:

- Changes in national populations of elephants and black rhinos in Africa, both during a period of decline (1987-1994) and during a period of recovery (1994-1998), were strongly related to mean national corruption scores;
- National corruption scores, rather than poverty levels or human population pressure, best explained observed changes in elephant and black rhinoceros populations in a number of African countries; and
- Countries that are targeted for extra funding because they contain areas of high conservation value (based on species richness, endemism and threat) tend to be the most corrupt.

The experience of PRIME/West bears this out. However, its work in private sector engagement, working at local levels and collaborative management involving the communities and households clearly indicate positive avenues for change and improvement.

There remains a clear need for future biodiversity conservation and environmental management and donor activities should focus on increasing the transparency of decision-making processes affecting ecosystems and the accountability of public and private decisions-makers. Stakeholder participation helps reach decisions that are more effective and perceived as just. It can contribute to a better understanding of impacts by the public, increased accountability of decision-makers, and reduced corruption. Specifically, what is needed is a greater donor support to advocacy programs to:

- Strengthen local democratic institutions, by empowering them to challenge and influence elites; and
- Encourage greater understanding and economic literacy among citizens, and thereby empower them to question, challenge and hold their elites to account.

Biodiversity offsets – conservation activities that intend to compensate for the residual and unavoidable harm to biodiversity caused by development projects – are widely seen as a useful tool for managing the adverse impacts of development activities on biodiversity, but generally overlooked in Uganda. Some of the potential benefits of biodiversity offsets include:

- the ability to undertake projects that might not otherwise be possible;
- promoting better relationships with local communities, government regulators, environmental groups and other important stakeholders;

- providing a practical tool for managing social and environmental risks and liabilities;
- the possibility of influencing emerging environmental regulation and policy;
- reducing costs of compliance with environmental regulations; and
- providing a mechanism to encourage companies to make increased contributions to biodiversity conservation, without necessarily requiring elaborate new rules.

In terms of an important collaborative step for the future, the multi-donor environmental committee represents a mechanism to begin to address the issues of transparency and corruption in a more meaningful manner. During the mid to late 1990s, the donor committee, chaired by USAID, was extremely active in bringing to the forefront many aspects of biodiversity conservation in Uganda – both the good and the bad. It was also used as a mechanism to bring all GOU natural resource-related agency heads together to discuss issues, present findings of both internal and external consultant reports and showcase success stories. On numerous occasions, PRIME/West demonstrated to USAID that it could help re-invigorate the donor environmental committee address problems and map out a collective strategy, raising these issues at this forum for transmission to the GOU.

ELEMENT 3: CAPACITY BUILDING, TRAINING AND ENVIRONMENTAL EDUCATION

PRIME/West made environmental education and capacity-building of its partners a critical part of all its work and across all of its grants and subcontracts with Ugandan NGOs and civil society organizations. The Special Activities Fund (SAF) was used to excellent effect over the course of the project, directing resources to specific community-level actions and training as they became identified by the project team. One of the principal recommendations this report can make is to stress the strategic utility of including such a flexible grant making mechanism in community- and partner-oriented programs such as this. It proved an adept way of providing timely and tailored support to local initiatives across the full range of project activities.

PRIME/West demonstrated clearly that communication of information and awareness programmes is relevant in encouraging community participation and engagement. WCS reports that an average of 20% of households surveyed across eight sites has made the linkage between PRIME/West interventions and conservation. Somewhat lower than was expected, in October 2006, the project developed a more extensive outreach and communications program, particularly in light of lessons learned in other projects that found that communities' perception of linkages between enterprise development and biodiversity is more important than the actual linkage and that this linkage can be enhanced through environmental education and enforceable agreements.

In the final analysis, through its grants, training and education efforts, PRIME/West involved 20,384 people in natural resources management or biodiversity conservation related training and has in so doing exceeded the cumulative target by a small margin.

TABLE 6: PROGRAM ELEMENT INDICATORS, ELEMENT THREE

| Capacity Building, Training and Environmental Education | FY2006 Actual (BASELINE) | FY2008 Target | Cumulative Actual for LOP | LOP actual as % of cumulative target |
|---|--------------------------|---------------|---------------------------|--------------------------------------|
| Indicator 4: Number of people receiving USG supported training in natural resources management and/or biodiversity conservation | 13,020 | 20,000 | 20,384 | 102% |
| • number of women | 2,761 | | 6,273 | 1,418 |
| • number of men | 10,259 | | 14,111 | 941 |

Within this Element, there are four sub-elements that were implemented in support of the larger objective by PRIME/West. Each is further described below.

SUB-ELEMENT 1: SUPPORT DEMOCRACY AND GOVERNANCE ACTIVITIES THAT STRENGTHEN THE CAPACITY OF NGOS AND CBOS TO CONSERVE BIODIVERSITY

PRIME/West’s Special Activities Fund was the principal mechanism serving the project’s objectives and partners in this domain. Making grants to local NGOs and CSOs is an effective tool for building capacity that goes hand in hand with the other project activities. At the same time, there were challenges in issuing grants to local community groups. The project had to work carefully to scrutinize these organizations in terms of their capacity to do the work in an effective and transparent manner. Even with this effort, there were occasional difficulties in terms of accountability and performance. Loosening the requirements was never an option. What is needed is a step-wise and methodical effort to work together with potential grantees to achieve the necessary management conditions. Some USAID projects are devoted to NGO strengthening but this was not possible in the case of PRIME/West.

In the final analysis, PRIME/West implementation activities can point to the following successes related to governance, accountability, transparency and capacity-building made possible through the program funding:

- Direct work to strengthen local government structures in 10 districts;
- Four significant subcontracts with Ugandan based conservation organizations;
- Fifteen large sub-grants to Ugandan agencies, conservation and civil society organizations; and
- Twenty five MOUs and purchase orders with private sector and CSOs for project activities.

SUB-ELEMENT 2: UNDERTAKE ENVIRONMENTAL EDUCATION IN SELECTED AREAS OF BIODIVERSITY IMPORTANCE

Environmental education and community sensitization regarding biodiversity conservation were fundamental aspects of most project activities, with advocacy, education, communication and outreach being the essential activities. PRIME/West did undertake some direct environmental education work across the southwestern zone and its principal partners for these activities were the Jane Goodall Institute (JGI) and the Wildlife Clubs of Uganda (WCU).

JGI and WCU both implemented activities in the Kaborole, Kyenjojo, Bundibugyo and Kamwenge Districts that comprise much of Western Uganda, through the Primary School Environmental Education program (JGI) and the Western Uganda Biodiversity Education Project (WCU). In short, the intention was to establish a conservation education program for the lower and intermediate education levels through ensuring that pupils/students and teachers in western Uganda receive environmental education and information. National counterparts were the Uganda Wildlife Authority, the National Environmental Management Authority and the Ministry of Education. Collaboration and coordination among their teams was excellent. The projects distributed teaching materials – guides, pamphlets, brochures, newsletters, posters, etc. – trained teachers and conducted conservation writing and drawing competitions. Over 250 schools were involved and 250 teaching staff trained under these grants.

The JGI also implemented the Bundongo Ecotourism Development Project and the environmental education program associated with the chimpanzee conservation and wildland management initiative in cooperation with the NFA. This is covered in more detail below under Element Four. The objective in the education component was to establish an operational environmental education centre at Busingiro and implement an ongoing educational programme for primary school aged children within the vicinity of the reserve. The many activities included:

- Renovation to the existing visitor centre at Busingiro;
- Installation of education materials and equipment in the visitor centre;
- Purchasing of reference materials and teaching aids;
- Training of field staff in delivering of educational programs to primary aged students, particularly in regards to primary 6;
- Visitation by over 1,300 primary 6 students from 10 of the neighboring schools to the centre Development and implementation of pre and post evaluation visits to the site and participation in the program by the students;
- Training of 30 CCT's, head teachers and school inspectors in the education program for primary 5 teachers manual; and
- Distribution of primary 5 teachers' manuals to all the schools in the district.

SUB-ELEMENT 3: CLEAN-UP OF BUHOMA VILLAGE

The clean-up of Buhoma Village was a large part of the AWF subcontract for the southwest. Since 1993 when gorilla tourism started operating in Bwindi Impenetrable National Park, there has been a rapid and haphazard expansion of Buhoma village that neighbors the park headquarters as community members have opened businesses to take advantage of tourism in the area. This had destroyed the aesthetic appeal and serenity of the approach to the park, which is a World Heritage site. Had this continued, it was bound to have a negative impact on the tourism.

During the project, the main activity was the development of the Buhoma lands-cape planning documents that would help to clean up the village and facilitate sound development. The project hired qualified landscape consultancy firms to develop these plans. Initial stages of work included stakeholder consultation and mobilization meetings in the affected community and the district local council to explain

the process and benefits of cleaning up the area. These meetings helped to prepare for planning and implementation activities.

FIGURE 11: LOCAL GOVERNMENT POSTER PROMOTING GOOD ENVIRONMENTAL MANAGEMENT IN BUHOMA VILLAGE BORDERING BWINDI IMPENETRABLE NATIONAL PARK



The project also built capacity within the planning departments of Kanungu and Kisoro districts to undertake eco-sensitive planning in other potential tourism sites, as identified in their tourism development plans. The project contributed equipment and organized training for two district planning officers. They are to be key to ensuring the sustainable development of tourism potentials that have been identified in existing district tourism plans for Kanungu and Kisoro districts.

A consultancy firm – GIPEA Consultant Ltd. – prepared the Buhoma area landscape plans and completed the following activities:

- A reconnaissance survey of Buhoma and Nkwenda areas;
- A review of existing documentation;
- Completing new Socio-economic, Historic, Land use, Environmental,
- Tourism, and Infrastructure surveys
- Further stakeholder meetings to solicit input;
- Started plan preparation and design; and
- Plan completion and presentation.

FIGURE 12: BASKETWORK PRODUCED IN SOUTH-WESTERN UGANDA



The plan for Buhoma was to provide a framework and guidelines for the future orderly and coordinated development of Buhoma for the period 2007-2017. Among other things the plan would encourage increased economic productivity in the private sector, creation of employment opportunities and foster economic growth, provide increased access to serviced land, improve housing and social services, promote environmentally sustainable development of ecotourism, with conservation of the environment of the area, and promote programs for the vulnerable and disadvantaged groups such as children, women, disabled, the youth and Batwa.

The completed plan made provisions for sites for the sale of crafts and souvenirs, playgrounds, industrial parks and urban agriculture. It accommodated environmental concerns in terms of setting buffer areas for all rivers and wetlands and sustainable use of rivers and wetlands. The plan provided for infrastructure and waste management as well as social services e.g. religious centers, health, schools, information centers police posts, and public sanitation.

Finally, the plan incorporated specific recommendations to the Kanungu district and Kayonza sub-county councils for by-laws that will need to be enacted to fulfil some of the objectives of the Buhoma Physical plan. It is now the responsibility of the two councils to enact the by-laws. The project handed over the final plan to the Kanungu District leadership at the district headquarters in December 2007. The district leadership thanked PRIME/West, USAID and AWF/IGCP for the great contribution that they had made in supporting their District in all their tourism development initiatives, including the development of the Buhoma physical and Landscape plans. Although only begun, the district of Kanungu is enthusiastically pursuing its full implementation.

SUB-ELEMENT 4: IMPLEMENT A TB HEALTH MODEL THAT REDUCES THE DISEASE THREAT TO MOUNTAIN GORILLAS AND OTHER WILDLIFE

Conservation Through Public Health (CTPH) signed a subcontract to implement

FIGURE 13: PHOTO: COMMUNITY HEALTH VOLUNTEERS RECEIVE COMPUTER TRAINING FROM CTPH TO EFFECTIVELY RECORD HEALTH AND CONSERVATION DATA DURING HOME VISITS IN THEIR VILLAGES AROUND BWINDI



conservation health activities for the PRIME/ West program which began in March 2006. The specific task was to implement a Tuberculosis (TB) health model that would reduce the disease threats to mountain gorillas and other wildlife through primary and secondary prevention activities. CTPH managed four specific activity tasks during this time:

- Conduct primary and secondary prevention methods in people to reduce TB prevalence in local communities in and around the gorilla conservation area;
- Strengthen primary and secondary prevention measures in wildlife by reducing disease threats to wildlife by education on human and livestock disease transmission to and from wildlife and improving wildlife clinical signs observation;
- Implement primary and secondary prevention measures in livestock through education and social mobilization by establishing a human/wildlife conflict team made up of community volunteers who will become model change agents for TB control in livestock in and around QENP; and
- Strengthen linkages between the wildlife, livestock and human health sector through education, information and communication.

Major accomplishments included extending the CB DOTS (human TB treatment systems) to surrounding communities and parishes and involving the local healers; tracking rangers trained in gorilla clinical signs and contingency plans; livestock keepers educated on herd and wildlife diseases; wildlife/human conflict management teams trained; veterinary officer training and wildlife TB testing initiated; educational materials in local languages prepared and distributed.

ELEMENT 4: ALTERNATIVE LIVELIHOODS IMPROVED

PRIME/West implementation was founded on two underlying hypotheses. The first was that establishing communal property and management regimes by defined groups in defined areas/critical ecosystems with rights of inclusion and exclusion would result in fewer threats/conflicts and increased biodiversity. The second hypothesis was that providing economically viable and environmentally sustainable alternatives to households and communities would contribute to reducing environmental degradation and will help conserve critical ecosystems. PRIME/West was able to test this hypothesis and confirm its validity through its work. This section presents the details of how sound environmental approaches, coupled with appropriate economic development, can very positively contribute to biodiversity conservation.

FIGURE 14: GROWING PEANUTS ON THE BORDER OF BUDONGO FOREST



TABLE 7: PROGRAM ELEMENT INDICATORS, INDICATOR 5

| | FY2006 Actual (BASELINE) | FY2008 Target | Cumulative Actual for LOP | LOP actual as % of cumulative target |
|---|-----------------------------|------------------|---------------------------------|--|
| Indicator 5: Number of people with increased economic benefits derived from sustainable natural resource management and conservation as a result of USG assistance. | 17,307 | 22,000 | 26,244 | 119 |
| number of women | 2,077 | | 4,286 | |
| number of men | 15,230 | | 21,958 | |

Wet-processed and shade-grown coffee production in the Ruwenzori region shows dramatic results, and these have been confirmed in WCS’s monitoring studies. Results in the other sub-sectors (aquaculture and bamboo) have not been as spectacular and PRIME/West was not able to continue support as a result of the program redesign in 2006. However, all hatcheries supported by PRIME/West are still operational, and environmentally sensitive extension programs are continuing albeit at a reduced level. The bamboo out-planting around Echuya continues on its own, supported by the National Forestry Authority (NFA) and

NatureUganda. There have been no adverse effects reported on the natural bamboo stands. WCS's findings concluded that enterprise development and linking producer groups to markets is a "very good" way to reduce threats and increase incomes." According to WCS' initial field observations, human signs of encroachment and other illegal activities were reduced in PRIME/West collaborative forest management and corridor areas compared to what was found during the baseline surveys, six months earlier.

The table above summarizes the project's achievements against its principal indicator – improved livelihoods. In total PRIME/West provided demonstrable improved economic impact on 26,244 beneficiary households, of whom 16% are women, exceeding the LOP target by 19%.

SUB-ELEMENT 1: ECOTOURISM

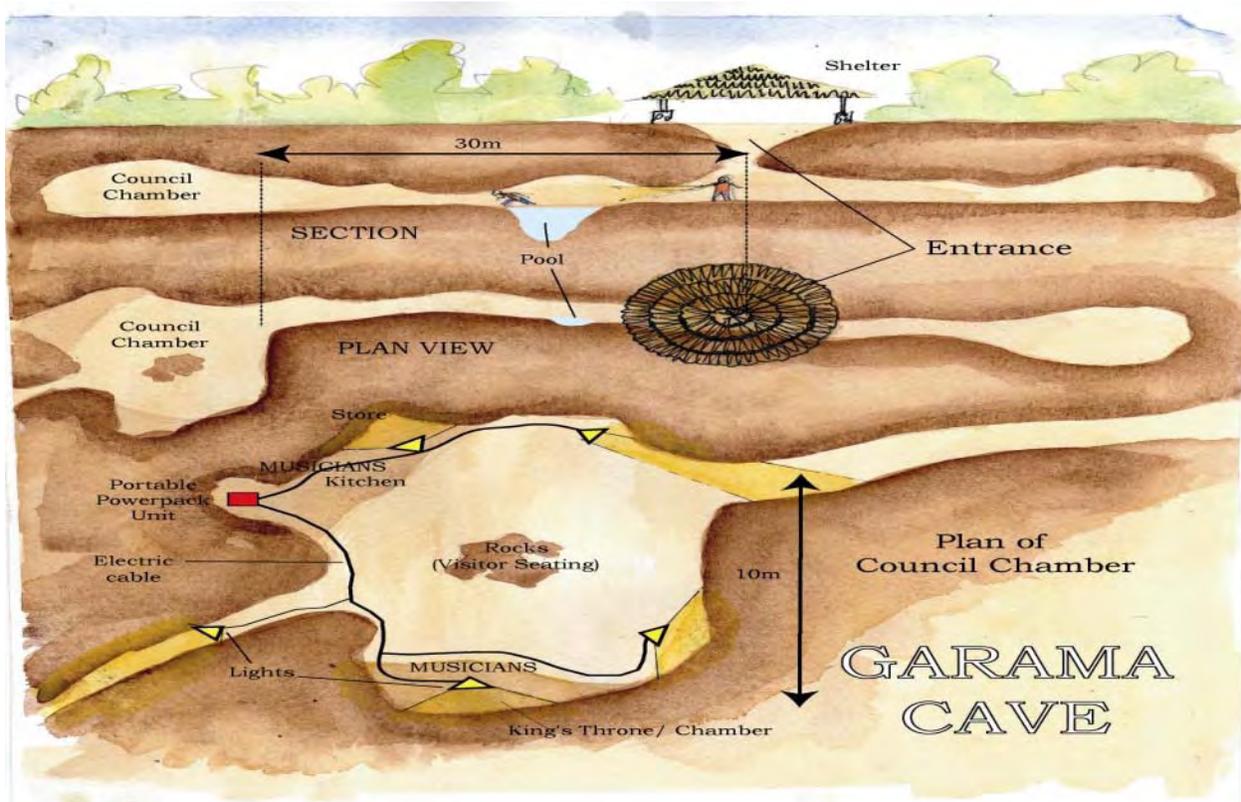
Attempts to encourage community groups to undertake ecotourism showed some initial success in the project's limited interventions. The example of the work in Buhoma was presented above. The AWF's excellent results in Nkuringo are discussed further here. In the main, the expansion of ecotourism was frustrated by the lack of capacity and the inexperience of communities and local NGOs. For example, the small grant to Ndekye Women's Group enabled them to put in place some basic facilities but they did not go further than that when the funds were exhausted.

The JGI initiative in Budongo succeeded in part because JGI had the capacity to implement it well. This work sought to enhance Batwa involvement in tourism and to showcase their heritage and culture to an extent not attempted previously in Uganda. There was an important element of Batwa institutional capacity-building and small enterprise development inherent in the work. Activities centered on the Garama cave and sought to establish critical tourism infrastructure. This included:

- Creating a trail from Muhabura ranger post to Rongi, (through the park);
- Lighting in the Garama cave;
- Identifying artifacts and other equipment in the cave;
- Installing sanitary toilets and shelters;
- Develop a Batwa trail book; and
- Develop the a Batwa cultural brochure.

An 8-km long, 2-meter wide trail, now called the Batwa trail, was constructed from Muhavura ranger outpost through Garama cave to the shelter at the park boundary. This trail was passed through strategic interpretation spots and also to ease movement within the park. Minimal cutting of vegetation was done during the construction to ensure that the project had limited negative impact of the environment. Lights were installed at strategic locations in the cave to light up recesses. The lighting in the cave was not purposely to illuminate the interior of the cave but to offer an unforgettable experience while inside the cave.

FIGURE 15: SHOWING THE POSITION OF LIGHTS INSIDE GARAMA CAVE



Cultural paraphernalia for the Batwa were bought to be installed at specified locations on the trail or inside Garama cave or to be used by the Batwa during interpretation. These include attire, weapons, utensils and tools. The Batwa/Garama cave tourism plan had recommended several types of infrastructure to be constructed and the project completed a shelter at Rongi and a toilet at Garama.

The project filmed the Batwa dance and music events. The music and dance depicts the Batwa cultural relationship with the forests in Mgahinga Gorilla National park (MGNP) and also their current situation outside of the forest. 200 CDs were produced and these will be souvenirs that will be sold to the tourists. Estimated to be sold at about \$20 each, these CDs will initially generate \$4,000. The proceeds will go into supporting the Batwa and the Garama cave project. 6,000 copies of a Batwa enterprise brochure were printed and distributed.

The private sector has shown itself more disposed to undertake investments on their own or with marginal local government associations when required. In Uganda, policies are favorable for partnerships with communities and there are untapped pristine conservation areas around which these efforts can be mounted. Yet ecotourism is not meeting its full potential. The community tourism venture at Ishasha is moving ahead mainly because of the proactive involvement of a reliable private sector partner (G&C). Still, there are good examples of this kind of collaboration.

FIGURE 16: AWF SUPPORTED THE DEVELOPMENT OF A LODGE AND SMALL ENTERPRISE SUPPORTING ECOTOURISM IN NKURINGO AT THE BWINDI IMPENETRABLE FOREST NATIONAL PARK. THE LODGE WAS NEARING COMPLETION AT THIS PROJECT'S END.



Associated activities integral to the activity's success were:

- Customer care and marketing training – 31 members of the community who included board members, site managers of the community walk, community guides and handicrafts producers;
- 22 District council staff (11 men and 11 Women); 14 Sub county councilors (5 women and 9 men) and the NCDF board as hosts who were 25 members (5 women and 20 men) received training in governance and facility management; and
- AWF/IGCP helped the community retain a lawyer for his day today guidance in the business affairs of the company in the names of Murumba and co advocates.
- Decreasing institutional conflict – this was aimed at making the community understand the outstanding conflict between NCDF and the AUTO in Kampala and Kisoro Tourism association. It was also intended to make amends with some people who are residents in Nkuringo area.

Sub-element 2: Arabica Coffee

Improvements to Arabica coffee farming, processing and marketing systems was one of the most accepted and remunerative enterprises for farmers, including former poachers on the Ruwenzori conservation areas. The more successful groups went on to form larger organizations and were discussing issues of organic certification for their product, bulk purchases of inputs and marketing.

Expanding the wet-processing of shade grown Arabica coffee was a major success on all fronts. PRIME/West's collaborative efforts with the Ugandan Wildlife Authority (UWA) and Good African Coffee (GAC) resulted in 4,650 poachers turning over their weapons. Of the total, about two thirds were from PRIME/West's existing coffee producer organizations, and one third from outside of the coffee program. As one ex poacher stated during a weapons handover ceremony:

“...during the 26 years of poaching, I gained completely nothing from it, other than loss of my left arm and injured legs in the

struggle with park rangers, plus full poverty in my family. From now on, NO MORE poaching, and I call to others to come out and denounce poaching.”

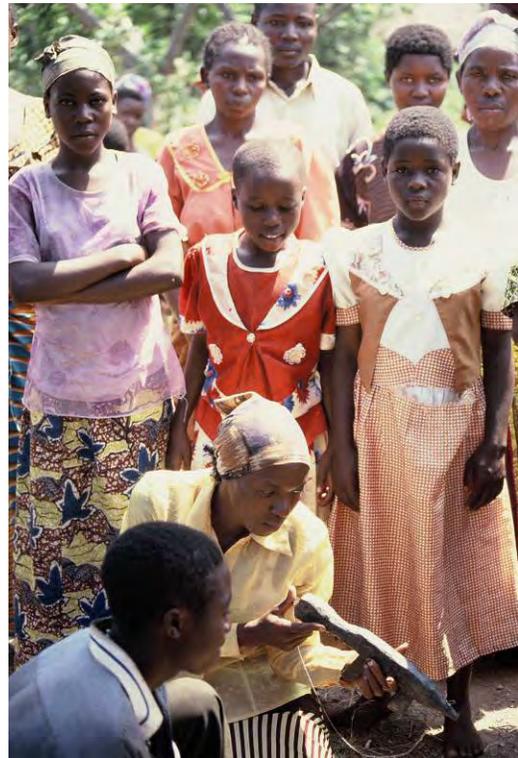
A major reason for this change in attitude is wet processed coffee was significantly promoted by GAC and PRIME/West. Wet processed coffee is one of the few viable alternative livelihoods around Queen Elizabeth and the Rwenzori National Parks. To date, 14,000 farmers (ex poachers and non poachers alike) in Kasese and Bushenyi Districts have increased their household incomes by 40-60% as a result of the PRIME/West-coffee industry partnerships.

Additionally, the emphasis on promoting shade-grown coffee along with wet processing appears to be having a significant impact on biodiversity. WCS's monitoring of bird diversity in PRIME/West-supported coffee gardens in the Rwenzoris reveals interesting findings:

- It is not a common phenomenon for forest-interior species to be found outside the forest. However, some of these species were recorded especially within coffee gardens that were either adjacent to or in the riverine forests. Among these were Regal Sunbird,

PRIME/West recently hosted the grand opening of Uganda's Kaniyo Pabidi Chimp Trekking Facility in Budongo Forest. PRIME/West contributed \$300,000 to the public-private partnership with the Ugandan National Forestry Authority, the Walt Disney Company, Jane Goodall Institute, and Let's Go Travel. This ecotourism site includes a new visitor reception center, cabins for tourists, improvements to 20 kilometers of trekking trails, habituation of chimpanzees in the forest for viewing by tourists, and improvements to the Busingiro Environmental Education Center. The ecotourism facility will generate between \$350,000 and \$400,000 per year in tourist revenue and reflects how biodiversity conservation and sustainable enterprise development can generate improved livelihood opportunities while protecting the endangered chimpanzees.

FIGURE 17: COMMUNITY MEMBERS PERFORM A PLAY EXTOLLING THE BENEFITS OF GROWING COFFEE RATHER THAN POACHING



Rwenzori Double-collared Sunbird, Rwenzori Batis, Yellow-eyed Black Flycatcher, Western Green Tinkerbird and Red-capped Robin.

- Over 30 bird species were found in both the coffee gardens and the forest. Coffee gardens very close to the forest edge recorded more shared species than those that were distant from the forest edge. Species included the Regal Sunbird, Rwenzori Double-collared Sunbird, Rwenzori Batis, Yellow-eyed Black Flycatcher and the Western Green Tinkerbird.
- In general, shaded coffee had more birds in terms of both species and numbers than coffee grown in full-sun. Some of the trees used to shade the coffee bear fruit seasonally and these attract large numbers of birds. They all provide good canopy cover for resting, protection from predators and for breeding purposes.

FIGURE 18: RUWENZORI MOUNTAINS, WESTERN UGANDA



SUB-ELEMENT 3: OTHER ALTERNATIVE LIVELIHOOD ACTIVITIES

PRIME/West began by promoting certain sectors such as poles/wood, bamboo and aquaculture. After restructuring and cessation of direct field activities, the project relied on partners to undertake a variety of activities that would enhance community livelihoods. These ranged from sales of seedlings from commercial tree nurseries, sales of thatch grass and other products such as Artemisia grown in buffer zones.

FIGURE 19: PRIME/WEST PROVIDED OPPORTUNITIES FOR RURAL HOUSEHOLDS TO BREAK FREE FROM TRADITIONAL AGRICULTURAL SECTORS THAT THREATEN FOREST ECOSYSTEMS AND GENERATE LITTLE INCOME



ANNEX: GEOGRAPHIC INFORMATION SYSTEMS (GIS)

INTRODUCTION

Uganda is a landlocked East African nation with a diverse landscape ranging from savanna, dense forests to high mountains. It contains almost half of Lake Victoria, Africa's largest lake and the primary source of the Nile River. Uganda lies in the African 'Inter-lacustrine zone' (area between the lakes). This region receives abundant rainfall and has relatively productive agricultural land, a major determining factor in settlement of the area. A large percentage of Uganda's land mass forms part of the continental interior plateau, this land formation rises in the Southwest region of the country giving rise to impressive mountain topography.

Uganda's growing population exerts pressure on increasingly limited land resources threatening protected areas and associated bio-diversity. Natural resource degradation also translates into decreased eco-tourist revenues, eroding national and local economic potential. Uganda's ecosystems are critical to the conservation of global bio-diversity making it a USAID 'key biodiversity' country. Uganda's bio-diversity is supported by seven of the 18 bio-geographic regions found in Africa. The majority of Uganda's wildlife is located in the protected areas including: National Parks, Forest Reserves, and Wildlife reserves. The Uganda Wildlife Authority (under the ministry of Tourism, Trade and Industry) and the Forestry department (housed in the Ministry of Natural Resources) are the principle agencies charged with management and conservation of the protected areas. Bio-conservation areas of international importance in the six PRIME/West target districts of importance including:

- Queen Elizabeth National Park
- Bwindi Impenetrable Forest
- Rwenzori Mountains National
- Lake George Wetlands
- Mgahinga Gorilla National Park
- Kibale National Park
- Semuliki National park
- Lake Bunyoni
- Lake Mutanda
- Lake Edward
- Lake George
- Lake Albert

PRIME/WEST's Landscape Approach describes the spatial arrangement/variation of landscape features (landforms, land cover, etc) at varying scales, how their distribution affects the way they interact (biophysical/socio-economic factors that influence variation), and to the extent that these features change over time. Incorporating the landscape approach into PRIME/West management plan provided a framework by which a structural baseline could be established and analyzed over time.

An important component of this landscape approach was development of advanced GIS applications that support project planning and providing wide access to the results of these applications. Two overarching STTA deliverables were produced during the PRIME/WEST period of performance: (1) one-off analyses and reports for knowledge dissemination and decision-support; (2) Analysis methods used as pilot programs and taught to extension agents and local government specialists for future use.

One-off analyses resulted in a vast library of resources for federal and local governments to use for reference and decision-making. Included in this library is (1) the results of the corridor boundary selection process; (2) the State of the Landscape report for south western Uganda; (3) a report on the historical and current status of selected wildlife corridors in the Albertine Rift for use by conservation planners; (4) a land use map for the Kabwoya-Kaiso Tonya Wildlife management and surrounding areas which was available to different stakeholders such as UWA, MTTI and PEPD; and (5) a Lake George threat analysis using GPS survey and mapping methods to show where mineral mining activities posed threats to local fishing industry and potable water resources.

While the above analyses were done in collaboration with local experts, the following activities were specifically intended to build local capacity for biodiversity conservation in southwest Uganda: (1) participatory community mapping introduced the CBNRM concept to two pilot villages, through which one community identified land resources for sale back to the government in an effort to extend the functionality of the corridor; (2) a multiple criteria analysis for fisheries provided an "optimized" map to extension officials for planning and monitoring purposes, and provided training to local experts in this methodology; and finally (3) facilitated capacity building workshops in GIS for natural resources management for environmental officers and planners in six districts. Two of these, Kasese and Bushenyi thereafter adopted the use of GIS in their planning processes, including investments in hardware and software.

ANALYSES FOR DATA DISSEMINATION

The following analyses were performed for project planning, resource allocation, or extension services purposes:

Boundary Selection. Clear boundaries that reflect bio-diversity objectives is vital to identifying target communities and establishing a broad scale monitoring approach (i.e., assessing impact of PRIME/West through monitoring forest as an indicator of behavior change). MUIENR Geographic Services completed corridor characterization for three corridors and provided a common understanding and agreement in regard to boundary delineation.

Land Cover Assessments. Knowledge of land cover is critical for making decisions about where and how to implement PRIME/West economic development and bio-diversity conservation activities. Change detection can point to the type of land cover undergoing change, how much has changed and where the change is located. MUIENR performed land cover assessments for a subset of the above biodiversity corridors. DAI performed a land cover assessment for specific protected areas and illustrated how the elephant corridor had become highly compromised over time. WCS also performed land cover

assessments in the north, but these were not vetted through the DAI home office. Wood-based energy demands represent an on-going threat to sustaining bio-diversity in the target area as shown by illegal felling of trees in many protected areas.

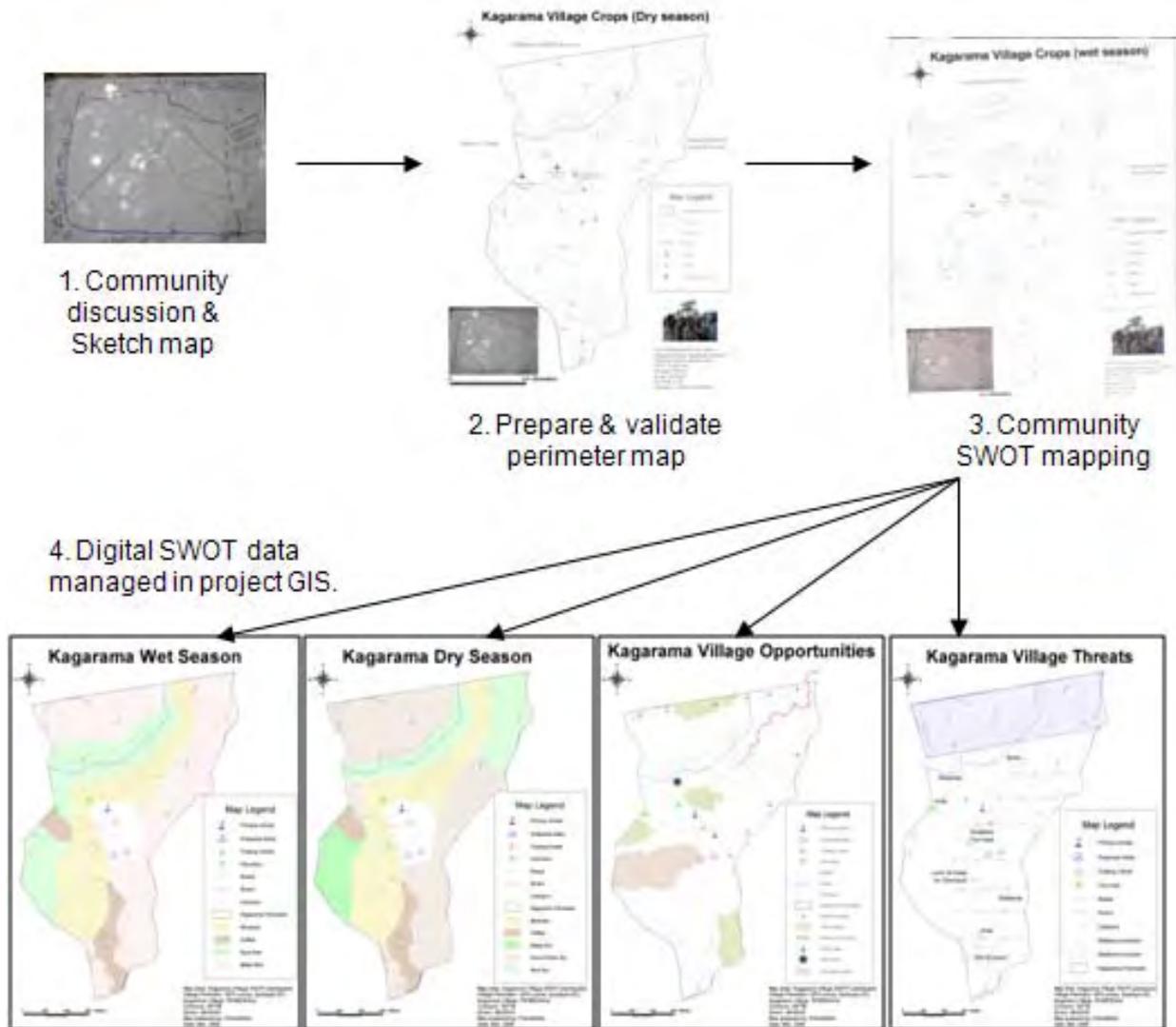
Lake George Threat Analysis. Spatial analysis can help to assess the extent of environment quality threats. The cichlid and clarias fishery is important to maintenance of biodiversity and local economy. Threats analysis using spatially referenced information helps Lake George fishery managers to target interventions aimed at reducing the pressure levied on the fish population from multiple sources. Included in this analysis is a time series highlighting urban sprawl, terrain analysis demonstrating agricultural run-off, and data collection with GPS that shows copper and other affluent dumpsites from mining activities and other hazards. This analysis provided critical information to environmental officers for monitoring purposes.

CAPACITY BUILDING EXERCISES

Community Mapping. Strengths, weakness, opportunity and threats (SWOT) analysis is a vital preliminary step in engaging the community in land resource asset management. Integrating SWOT information with a community perimeter map communicates the type and location of community-defined cropping cycles, opportunities and threats to livelihoods and biodiversity. Thematic SWOT spatial analysis illuminates key relationships between community defined SWOT factors such as wet season crops that are affected by elephant incursions.

The SWOT mapping pilot exercises provided a new resource to extension agents for involving communities in natural resources management. Mapping SWOT effectively communicates consistent/transparent information to illiterate/literate users from village level to national level planners, and in one case, resulted in a landmark community decision. In one community, village members used the maps they helped produce to identify land they were willing to sell back to the Government of Uganda in an effort to preserve the biodiversity corridor.

FIGURE 20: SWOT MAPPING PROCESS



Suitability Mapping. Suitability Mapping is a process by which land use patterns are identified and the current or proposed land use practice is evaluated for practicability from an economic and environmental standpoint. A fundamental component of a suitability assessment is gathering local expertise and integrating this information into the model. Engaging local ‘experts’ in discussion of the factors and criteria required for successful implementation ensures that dialogue/debate has ensued. Composite maps of suitability based on the factors and associated criteria represent collective agreement among the experts. The process of developing suitability factors is as important as the suitability map as it insures a well-thought out and rationalized approach for project resource allocation.

A second fundamental input to a suitability map is an accurate and reliable land use inventory. The PRIME/West team developed discrete ‘suitability’ land classes that were partitioned based on knowledge of soils, climate, elevation and to a lesser extent the physical infrastructure that influence local economies including proximity to roads and market centers. Through deploying a straight-forward approach to

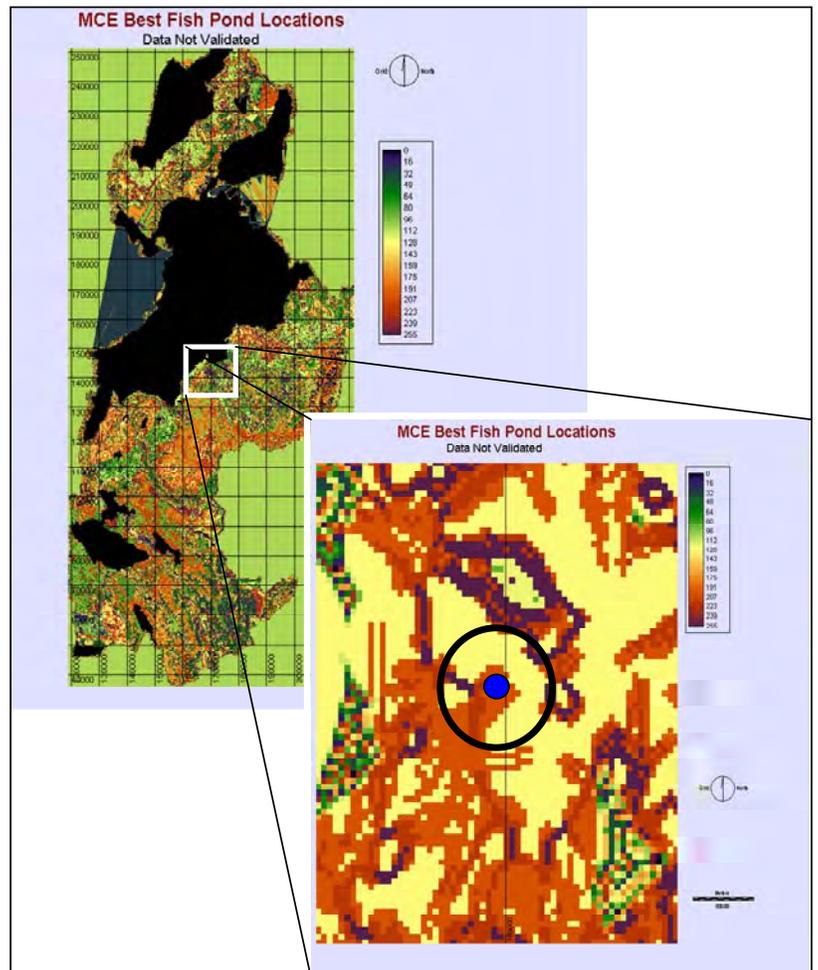
disaggregating the integrated PRIME/West landscape, project technical specialists and district representatives can determine where best to implement economic potential development initiatives.

The suitability maps were not intended as an output of a rigorous academic model of Southwestern Ugandan agro-economics or bio-diversity. A fully integrated agro-economic model must incorporate diverse data that has not yet been collected. However, local experts such as Nahya Nkinzi and others were trained in basic multiple criteria evaluations for continued use of this methodology after the program closed.

Mapped areas of high suitability are not included in the community map for general distribution. The suitability information is included in extension specialists' planning maps to help inform discussion at the community level. The suitability map resource serves to 'guide' PRIME/West field technical teams during the SWOT analysis as it highlights potential sites for successful agro-economic specific initiatives.

Training. Most of the field-based and Kampala based staff had an opportunity to participate in ArcExplorer training. This free GIS viewing application allows district officials to create thematic maps with project map and associated attribute data developed by the Landscape team. The program also funded a workshop for GIS use in natural resources management for environmental officers and planners in six districts. Two of these, Kasese and Bushenyi thereafter adopted the use of GIS in their planning processes, including investments in hard and software.

FIGURE 21: DRAFT UN-VALIDATED FISH POND SUITABILITY MAP. HIGH SUITABILITY IS IN DARK ORANGE LOW SUITABILITY REPRESENTED BY LIGHT GREEN HUES. THE INSET SHOWS THE LOCATION OF MUHOZI FISH POND/FINGERLING HATCHERY (BLUE POINT IN CENTER OF CIRCLE)



SUMMARY

Geographic Information Systems (GIS) technology was adopted by PRIME/West as a tool by which to manage and integrate diverse spatial and tabular data sets to provide insight into how the socio-economic and biophysical aspects inter-relate to comprise the project landscape. Models generated by the team were validated to an extent. Through the modeling process, new data requirements may become apparent after the PRIME/WEST program closes, and strategies for collecting, managing and integrating these data into the suitability models will be required.