

**A Landscape Approach For Reviewing
USAID Uganda Activities In The
Southwest**

April 2001

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Prepared for:
USAID/Kampala
And
USAID/Africa Bureau – Office of Sustainable Development

April 2001

Environmental Policy and Institutional Strengthening Indefinite Quantity Contract (EPIQ)

Partners: International Resources Group, Winrock International, and Harvard Institute for International Development

Subcontractors: PADCO; Management Systems International; and Development Alternatives, Inc.

Collaborating Institutions: Center for Naval Analysis Corporation; Conservation International; KNB Engineering and Applied Sciences, Inc.; Keller-Bliesner Engineering; Resource Management International, Inc.; Tellus Institute; Urban Institute; and World Resources Institute

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Acronyms

AFRENA	Agforestry Research Networks for Africa
AWF	African Wildlife Foundation
BINP	Bwindi Impenetrable National Park
CIP	International Potato Research Center
DTC	Development through Conservation Project
EPED	Environment Protection for Economic Development Project
GMU	Grants Management Unit
ICRAF	International Council for Research in Agroforestry
IGCP	International Gorilla Conservation Project
ILM	Integrated Lake Management Project
ITFC	Institute for Tropical Forest Conservation
IUCN	International Union for the Conservation of Nature (World Conservation Union)
LC	Local Councils
KNP	Kibale National Park
LMNP	Lake Mburo National Park
MEMD	Ministry of Energy and Mineral Development
MWLE	Ministry of Water, Lands and Environment
MGNP	Mgahinga Gorilla National Park
NARO	National Agricultural Research Organization

NEAP	National Environmental Action Plan
NEMA	National Environmental Management Agency
PEAP	Poverty Eradication Action Plan
PMA NSCG	Program for the Modernization of Agriculture Non-sector Conditional Grant
QENP	Queen Elizabeth National Park
RMNP	Rwenzori Mountains National Park
RMS	Rwenzori Mountaineering Services
SNP	Semliki National Park
UWA	Uganda Wildlife Authority
WCS	Wildlife Conservation Society
WWF	World Wildlife Fund

Executive Summary

Results from the Mission's investments in biodiversity conservation, natural resource management and sustainable agriculture in southwest Uganda (SW) over the last 12 years are impressive. They have helped to conserve populations of endangered species and their habitats, improve and diversify the livelihoods of thousands of producers, maintain and enhance critical ecological services, reduce soil degradation, strengthen governance through decentralization, and foster people's abilities to plan, organize and control activities that address their needs. Many of these initiatives have produced quantifiable results. Others have nurtured the development of civil society, a requisite step in the process to improve livelihoods among the greatest number of people. These investments are now being capitalized upon and substantially broadened.

In the mid-late 1980's, at the same time Uganda was emerging from a debilitating civil war, USAID started supporting conservation work (under the biodiversity initiative) that incorporated rural development activities (in addition to inventory, research, training, education and protection) as part of the overall conservation strategy. This was done for a number of reasons. One involved introducing new or improved varieties of plants and animals that would not only increase household productivity, but could readily substitute for many of the goods that were being extracted from the conservation area. Another was to demonstrate to target populations that conserving the natural resource base would produce tangible benefits, both through the introduction of improved technologies and by conserving critical environmental services provided by the conservation area. In many cases, a third element of the approach would directly train and sometimes employ residents of the communities in the production of goods and services (nursery development and management, extension agents, ecotourism guides, inventory technicians, guards, etc.). As many of these initiatives grew, they also started addressing needs in health, education and governance. USAID/Uganda became involved in this type of work in the late 1980s.

At the same time the Mission was providing support to the agricultural sector in the SW through the development of non-tradition agricultural exports, research, and capacity building through training. The Mission's efforts in conservation, development and agriculture in the SW have led to thousands of rural households benefiting from improved practices and systems, and thousands more ready to gain as these practices and systems are extended. In addition to improving livelihoods, the Mission's initiatives strengthened the argument that the condition of the natural resource base (including protected areas) is integrally linked to economic development of the whole SW.

Beyond direct conservation and economic results, USAID/Uganda has made progress in strengthening governance through the decentralization process. The Mission's partners are assisting local governments at all levels toward better public administration and greater

accountability to their constituents. Mission support is also effectively directed at empowering villagers and their representatives to plan, organize and take charge of their development needs. At the institutional level, Mission support has promoted inter-sectoral collaboration among agencies responsible for natural resource management, forestry, fisheries, agriculture and livestock- a critical target of the Plan for the Modernization of Agriculture (PMA).

One conclusion of this report is that the rationale for USAID involvement in the SW was valid at the time the program was developed, and it is still valid today.

In sum, past investments by APE, SO2 and SO1 programs have set the stage for accelerated results in terms of number of people improving livelihoods and moving out of poverty, gaining control over factors that affect their livelihoods and well-being, reducing environmental degradation and conserving biodiversity. We recommend that SO7 capitalize on these results.

General recommendations are the following

- Further develop and extend technologies and systems that increase productivity, diversify the household economy, and reduce natural resources degradation.
- Support the establishment and strengthening of institutions (e.g., Local Governments, producer groups, etc.) that empower people and enable them to address their needs.
- Support the establishment and strengthening of institutions that provide technical assistance to producers.
- Promote policies and initiatives that provide for communities proximate to parks, wildlife reserves, forest reserves, wetlands and other natural areas to share management authority and responsibility with GOU agencies.
- Increase the capacity of GOU institutions (UWA, Forestry, Fishery and Wetlands Departments, etc.) to manage the natural resource base.
- Measure the following as indicators of progress at the SO level: Number of people who have improved their livelihoods and are moving out of poverty; Number of people who have more control over factors that affect their livelihoods and well-being; Area where the natural resource base and environmental services are conserved; and, the status and condition of Biodiversity.

Specific recommendations covered in Section Four include

1. Build upon existing activities in the target districts and promote conditions that will allow for proven technologies to be extended to the greatest number of people.

2. Expand the Mission's zone of operation from the five target districts northward to cover the entire Albertine Rift Valley area found in Uganda (ten districts in all).
3. Develop an information management scheme for SO7.
4. Integrate SO1 activities more thoroughly into the Western districts.
5. Target the greatest amount of Mission resources under the new SO7 toward field based activities (as opposed to central institutions, policy review and analysis, legislation development – much of which was accomplished during the 1990s). This would mean about 80%-85% of resources going to the field.
6. Stratify the areas within the Western districts when developing a monitoring and evaluation program.
7. Promote the development of natural resource co-management schemes between GOU agencies and local communities including the private sector.
8. Adapt the landscape approach for program design under SO7.

Questions (criteria) that should be asked once the landscape analysis is complete and prior to the detailed design of a planned program or project:

- Do the activities provide technologies or systems that have the potential to increase productivity, conserve the natural resource base, and diversify household economies over a large part of the landscape?
- Do they provide people with skills and confidence to negotiate agreements and implement those agreements?
- Do they provide people with greater control over factors that affect their livelihoods?
- Do they provide or protect environmental services?
- Do they have the potential to affect most or much of the landscape or even have effects outside of the targeted landscape?
- Do they have a positive or neutral effect on biodiversity?
- Do they build upon promising on-going activities?

I. Introduction

This report is designed to provide the mission with a brief analysis of the SW region of Uganda, and to develop an analytical landscape approach (derived from the SW) that could be applied anywhere in Uganda for program development.

For the purposes of the study, the SW region of Uganda is defined by the administrative boundaries of the following districts: Kasese, Rukungiri, Bushenyi, Kabale and Kisoro.

1.1 Rationale For USAID Support In The South West

The SW region of Uganda has been the focus of a great deal of mission support for over a decade, particularly in the fields of the Environment/Natural Resource Management (ENR) and agriculture. The SW was chosen as a mission focal area largely based on several factors. It is an area that contains some of the highest population densities of the country. Since most of the residents practice agriculture, there is a great deal of pressure to increase productivity on a limited resource base. And since most of this region is hilly to mountainous, soil erosion is a constant threat. The SW is also an integral part of a much larger landscape known as the Albertine rift. The Albertine rift, particularly the region near Uganda, is the one of the world's richest ecological regions in terms of biodiversity and endemism. It is home to numerous threatened and endangered species, some of which have great economic value (mountain gorillas, chimpanzees, mahoganies and other tropical timbers, *Prunus africana*, a tree from the rose family, for pharmaceutical products). It is also a region of critical watersheds that are tributary to the Great Lakes of Africa and the Congo and Nile River systems. On a more local scale, the forested water catchments of the Albertine Rift assure a steady supply of water for resident populations' domestic and agricultural uses and help conserve the soil resource base. Finally, the Mission understood the region is known for its spectacular landscapes, and this, together with its biodiversity richness constitute a source of tourism potential which could generate revenue for a struggling economy that is dangerously over dependant on one tree crop, coffee.

1.2 Overarching Themes

1.2.1 ENR, Agriculture and Livelihoods

There are several overarching themes that are critical to the development of this report. The first is the relationship between the environment, natural resources, agriculture and livelihoods. In Uganda (as many other parts of the world) agriculture is the dominant livelihood, and it is often said that agriculture will be the engine that pulls the Ugandan economy through the transition phase from subsistence livelihoods to ones based on market driven agricultural commercialization and beyond. This scenario has occurred, more or less, in a number of other

countries during the past century, and could very well be the one that plays out in Uganda. However, for Uganda to learn from others and avoid the costly mistakes that could result from this strategy (short-term economic gain at the expense of resource viability), it is important to keep in mind the relationship agriculture has to the environment, more specifically, the natural resource base (see box below).

Box 1: An Example from the US - The Comprehensive Everglades Restoration Project (CERP)

The Everglades wetland complex is truly one of the most important and complex natural systems in the world. It covers the southern half of the Florida (this includes the series of lakes and rivers that feed the Everglades). The Southern part of Florida is also the home to over 5 million residents who are dependent upon this wetland for water. The Everglades are extremely rich in biodiversity and have high tourism value.

Over fifty years ago, the US Army Corps of Engineers spent hundreds of millions of dollars building canals, levees and other structures to drain large parts of the Everglades and regulate the water flow. Much of this was done to promote agricultural development (mostly sugar cane and cattle) in the northern part of the Everglades. Agricultural production led to dramatic increases in phosphorous runoffs and industrial development has added mercury, which in turn has altered the ecological balance of the Everglades. Changes in the hydrology led to increased fires and the widespread establishment of exotic species at the expense of the natural ones. In a relatively short period of time (10-20 years) there was a dramatic deterioration of the ecosystem and its services, which are essential for the residents of Southern Florida.

Realizing the catastrophic potential of events, the State of Florida and the Federal Government joined forces to pass the Everglades Forever Act of 1994, and began plans for one of the greatest ecological restoration efforts in history - The Comprehensive Everglades Restoration Project. It is a long-term activity (38 years) that will cost around 7.8 billion dollars. The goal of the project is to restore the ecological systems of the Everglades while ensuring quality, quantity, and the regular distribution of water (www.sfwmd.gov). Most of this is to undo the costly and ecologically damaging work that was carried out over 50 years ago.

Agriculture, which has been practiced for roughly the past 10,000 years in certain parts of the world, essentially involves the manipulation and management of the natural resource base for the production of essential goods. Agriculture has focussed largely on the domestication of select plant and animal species with the objective of increasing and maintaining productivity. In this sense, agriculture is clearly derived from natural resources. As the natural resource base is degraded, so too is the potential for agricultural productivity. Therefore, rather than placing environment and natural resources in sectors not directly related to agriculture, it is more appropriate and correct to view environment and natural resources as the foundation upon which agriculture is developed.

Historically, traditional agricultural systems were based on the productivity of indigenous plant and animal species that are well adapted to their environment. It is only during the past several hundred years that widespread global movement has led to the introduction of many species and varieties outside their native range. In the case of Uganda (and the rest of Africa), most of the

current staple crops actually have their origins in different continents. This means that they are more susceptible to damage from climatic fluctuations (droughts, excessive rainfall, etc.) and biological agents (insect pests and diseases). In many instances the introduction of these crops led to environmental degradation and the loss of critical ecological services. At the same time, most of the indigenous crops that were used for centuries, and are well adapted to local environmental conditions, are less important at the household level.

The overall development strategy for Uganda as articulated in the PEAP and PMA is focused on agriculture. And much of the emphasis is on the commercialization of agriculture. Producing for the household needs (subsistence) is viewed as the beginning point in a process, which will eventually be left behind. The likely reality is that twenty-five years from now the majority of cultivators will be practicing a mix of subsistence and commercial agriculture at larger scales (with many others having moved to other sectors). What is imperative for a smooth transition to take place is for both subsistence and commercial systems to be productive during this time.

What is also critical for all concerned parties is to understand that it takes time for this process to move forward and patience to stick with an activity that promotes this transition. In the case of ENR and agriculture, research takes at least a few years to produce results (though there is a wide misconception that agricultural research produces more immediate results), and additional time to integrate the technologies into household and commercial systems. For example, within the PMA the NAADS, which privatizes agricultural extension services, will be implemented on an experimental basis beginning with six pilot districts. The reason, of course, is to test assumptions and see where problems arise before moving forward on a national scale. Capacity building is part of this strategy, and the process will take time and patience for it to succeed. This is true for NAADS, NARO, the PMA NSCG as well as other programs/projects working toward PMA goals (e.g., USAID SO1).

1.2.2 ENR and Health

Another theme is the relationship of ENR to health (one of the principal elements that defines quality of life and ability to improve livelihoods). ENR links to the health sector are fundamental and in many cases, obvious. Without critical environmental services, it is impossible to improve health standards and therefore the quality of life. Substandard health conditions also mean lower productivity levels, regardless of the livelihood.

A common interest of the world's population is to have a continuous supply of clean water and air. Polluted water and water born diseases are among the most debilitating causes of poor health in developing countries (including Uganda). Dysentery (normally a result of contaminated water) is one of the main reasons for unacceptably high child mortality rates in many parts of the world.

Other deadly diseases come from stagnant or polluted waters resulting from the destruction of our natural purifiers (wetlands and forests). In the case of Kabale district, it appears that wetland draining has led to an increase in the mean daily temperature of the wetland near town, which allows the malaria protozoa to exist where it once could not survive. Kabale, which had been malaria free, has suffered from several acute malaria epidemics in recent years.

Air quality is a major concern throughout the industrially developed countries as well as most of the urban areas of the developing world. The increase in respiratory ailments over the past century is unprecedented. Chronic diseases like asthma are now commonplace in many societies and frequently lead to other serious problems like bronchitis and pneumonia.

Maintaining satisfactory health standards also requires good nutrition, access to medicines and adequate shelter. As indicated above, agriculture is directly derived from the natural resource base. As this base is degraded so to is the potential to produce the food required to maintain proper nutritional requirements. As plant diversity is destroyed, so is the supply of material that most pharmaceutical products are derived from. Research developments in this field are only just beginning to tap into the enormous healing potential many species contain. However, once the species disappear they are gone for good. In developing countries (including Uganda) most dwellings are constructed with wood, and the vast majority of the population rely on wood as a source of fuel for heating, water purification and food preparation. The links between ENR and health are many. Clearly, any broad-based health strategy must take ENR considerations into account.

1.2.3 ENR and Education

Traditional societies have understood many of the concepts and relationships between ENR and human survival that are now taken for granted. However, during the last half of the 20th century, science has made great strides in understanding these relationships on a more detailed and a general scale. Understanding the earth's processes and functions is essential for the development of societies and sustained improvement of livelihoods. This message is being transmitted world wide through numerous avenues. As a result, regardless of the livelihood, ENR considerations and principles are better understood and more adequately incorporated into daily life.

The value of sound ENR practices is also recognized as a primary component of formal and informal education programs. For these and other reasons, ecological concepts are now part of the standard school curricula from the elementary level through university. Many non-formal education programs (health, nutrition, management, resource exploitation, etc.) incorporate ENR into their design as well. The importance of ENR as a part of education is widely understood and appreciated, and will only grow in importance as our understanding of our environment, as well as our role within the environment, is improved.

1.2.4 ENR, Governance and Conflict

Throughout history, ENR has also been a focus of governance and a source of conflict. This is the final overarching theme. A prime responsibility of governance has been the distribution and utilization of natural resources. Since ancient times some natural areas (forests and wetlands) were protected for the common good while others were set up for some level of exploitation. Some natural resources have been continuously exploited for centuries (coppice oak forests of the Mediterranean, water management systems of Bali) and others for millennia (paddy rice soils of China). Some of those same principles practiced for sustainable utilization in the past hold true today.

More recently (past century) governance has increasingly concentrated on setting standards and guidelines for natural resource use and environmental management, particularly in light of more recent scientific findings. Most of this is in response to man- induced changes in the environment (increased levels of greenhouse gasses, higher levels of toxins in water supply, widespread land conversion, etc.) that have taken place. Governance and the ENR management will always be inextricably linked, especially if degradation of the natural resource base increases and areas continue to experience resource shortages. These are often the conditions that lead to conflict.

Access to and distribution of natural resources have been at the source of conflict between social groups and states during the history of humanity (Libiszewski 1992). Environmental degradation often leads to four conditions, any one of which could initiate conflict:

1. Decreases in agricultural production,
2. Economic decline,
3. Population displacements, and
4. Disruption of social institutions.

(Horner-Dixon 1992).

Environmental conflict usually manifests itself as political, social, ethnic, religious, or territorial conflicts. It is also often explained as being a conflict over a resource that is in a states national interest.

Environmental conflict focuses on renewable resource use that could lead to environmental degradation as opposed to depletion (the case of non-renewable resources like petroleum and minerals). Most renewable resources cannot be substituted for (water, air, food, climate) and are therefore more critical for survival. Degradation of these natural resources is usually a result of

overuse, or overstressing the capacity of the environment to provide necessary services (to deal with wastes, pollution, flood control, soil stabilization, etc.).

Within the context of Uganda and East/Central Africa there have been numerous conflicts (and there still are) as a result of environmental degradation. In neighboring DRC and Rwanda, conflicts are often described as ethnic. But this is the most densely populated part of Africa where the competition is acute for a limited land resource base, where soil erosion is a continuous threat to productivity, and fuelwood is scarce. On the Great Lakes (Edward and Albert) there are frequently small-scale conflicts over fishing rights and access. In the Rwenzoris, there is still rebel activity that has its origins in land use and resource access disputes. In Eastern and Northern Uganda there is ongoing conflict over grazing land, cattle theft and resource access. On a more regional scale, the most threatening and serious conflict could be over water and the management of the Nile.

1.3 Why Use a Landscape Approach?

A landscape approach (also known as landscape ecology) involves the study of variation within landscapes (at varying scales) and the biophysical and societal causes for this variation. It is a dynamic approach that focuses on the process of how and why the landscape patterns vary over time. It is also broadly interdisciplinary and links natural science with related human disciplines (IALE 2000). In this sense, it is a useful tool for obtaining a current picture of the landscape in question (development of the baseline) and setting the framework for future analysis of change in the landscape (monitoring).

The landscape approach is being used in this report because it represents a comprehensive method of analyzing the major characteristics of an area and its potential to be developed for improved livelihoods. This approach focuses on three characteristics of the landscape:

1. Structure (what kind of systems exist),
2. Function (flows of energy and how the systems interact), and
3. Change (how this affects the systems over time) (McGarigal 1999).

It is a useful approach because the analysis demonstrates linkages within and across the landscape (or landscapes) that may otherwise be missed. It readily points out gaps in information and identifies areas for potential development or conflict.

Perhaps most importantly, because the landscape approach takes a comprehensive look at the biophysical and social elements, it minimizes the chances of overlooking areas having development potential, even if they are not initially apparent. In this regard, it is a useful tool for

the development of strategies, programs, or projects designed to improve livelihoods by enhancing environmental services, increasing household productivity, and fostering economic growth.

1.3.1. A Landscape Approach For The South West

Several points are worth noting in relation to the term landscape. First, although the study focuses on the five target districts, there are a number of issues that pass their boundaries. Ecological zones are perhaps the most obvious. For example, Kasese district covers about 60-70% of the Rwenzori Mountain National Park (RMNP). The rest of the park is located in Kaborole and Bundibugiyi districts. This park is also international (or transboundary) in that about 2/3 of the mountain range is located in Uganda, and the rest is in the Democratic Republic of the Congo (DRC). Lake Edward is also a shared resource between the two countries, with most of the lake (and the deepest part) located in the DRC. Mgahinga Gorilla National Park (MGNP) is part of the Virunga volcano mountain range which crosses three countries - Uganda, Rwanda the DRC.

A second point is the distribution of ethnic groups in the region. For example, two groups linked to the protected areas mentioned above are the Bukonjo in the Rwenzoris and the Banyarwanda in Mgahinga. Both ethnic groups are found in Uganda and neighboring countries (DRC for the Bukonjo and DRC/Rwanda for the Banyarwanda). Families and clans live on both sides of the border and movement back and forth is very common and conducted on a regular basis. These are just a few of the more recognizable biophysical and social factors that fall outside the five focus districts. Clearly, any analytical activity that attempts to use the landscape approach within the confines of administrative units will have to take into account adjacent areas. Although most of this report addresses issues within the five target districts, it is impossible to appropriately represent and discuss the natural resource base and resident populations without looking outside these boundaries.

Finally, what has become increasingly apparent during the past ten years is that this region is also the setting for a considerable amount of conflict. Rebel groups operating in the DRC have created insecurity along the borders in all the target districts. Some of them have also used the protected areas as places of temporary refuge and from which to launch operations.

1.4 Structure of the Report

This report is broken down into four sections. Section one is a description of the landscape (target districts). This section is divided into three parts, the first two comprise the landscape: Biophysical Factors and Socio-Cultural-Economic Factors. The third part is a list of activities in the area that are related to the design of the new SO7 and are included to provide guidance for synergy development.

Section two is the recommended landscape approach for SO7. It is a framework that uses the information in section one to demonstrate how a landscape approach defines gaps and pulls together important pieces of information for analysis. The framework and the guidelines that are provided are relatively simple and could be used for any part of Uganda.

Section three is the analysis of constraints and opportunities for developing strategies, programs or projects. Once again, for this section the SW target districts were used as the model, and the information contained in this section are from site visits to the SW and discussions with a wide audience during two separate visits to Uganda in December 2000 and February 2001.

Section four contains the major findings and recommendations for SO7 in relation to the objectives of this work. Appendix one is an assessment of the above-ground carbon values for the target district. This information is primarily for climate change monitoring and reporting. It may eventually be used for carbon credits if and when an international system is adopted. Appendix two is a table that lists development projects supported by the Mission in relation to the landscape elements presented in section two. Appendix three is a more detailed description of the target districts.

2. Describing The Landscape Of The South West

A more comprehensive description of this section is contained in Appendix 3.

2.1 Biophysical Factors

Climate

The general climate pattern of the region has two dry seasons - December to January and June to August. There is considerable variability in the annual rainfall received within the five target districts, with a range of 1,000 mm near Queen Elizabeth NP to 2,000 mm in Kisoro (near Mgahinga).

Topography and Geology

SW Uganda is part of the western rift valley (Albertine Rift) that stretches from the Uganda/DRC border in the north to the southern border area of Malawi and Mozambique. The Albertine rift is one of the most seismically active regions of the world. The SW region includes two mountain ranges that contain some of the highest peaks in Africa - the Rwenzoris and the Virunga Volcanoes - as well as foothills and lesser mountains associated with both ranges. There is an escarpment that runs through Bushenyi and Rukungiri Districts in a southwest to northeast direction. The SW is also noted for the lakes and associated wetlands that cover a considerable portion of Bushenyi and Kasese districts.

The parent material of SW Uganda is mostly Precambrian, with some more recent sedimentary formations associated with valleys, lakes and volcanic bodies. There are valuable minerals located in several areas, and there are hydrocarbon resources in the greater Albertine rift valley, including known oil seeps located north near the Lake Albert and the Nile River.

Soils

Three major soil groups are found in the SW - Oxisols, Ultisols and Inceptisols. Oxisols are the oldest and most highly weathered of the earth's soils, and they are the largest soil group represented in the target districts. Ultisols look like, and have similar properties to, Oxisols. They are also heavily weathered and are usually derived from acidic parent material (granite). Phosphorous fixation commonly occurs in both soil groups, which is a limiting factor for agricultural production. There are sections of Ultisols in the border area of Rukungiri and Ntungamo districts. Inceptisols are usually very young soils that are found in volcanic or alluvial zones. They are generally quite fertile and are heavily cultivated in the SW.

Water and Wetlands

The target districts are part of a critical regional watershed that feeds the Nile River system. Within the districts there are several smaller watersheds (mostly associated with catchment forests) that flow into Lakes George and Edward. Lake Edward is one of the African Great Lakes associated with the Albertine Rift Valley. Both lakes are important regional fisheries.

There are three extensive wetland areas in Kabale district. Two have been drained for agriculture, and a third is still relatively intact. There are numerous streams and small rivers throughout the districts. Hot springs are located about 40 kilometers north of Kasese district (Bundibugyo district) adjacent to Rwenzori Mountain National Park and Semliki National Park. This is also an area of frequent seismic activity.

Flora and Fauna

The flora and fauna of the Albertine Rift is internationally known as one of the richest areas in the world for biodiversity and in particular, for its high levels of endemic species. Uganda is known as one of the richest countries in the world for species diversity, with over 315 species of mammals, 1000 species of birds and 1200 species of butterflies (a key taxa for determining the relative health of ecosystems) (MWLE 1999). The forests of the Albertine Rift harbor a large number of species, and they are frequently referred to as “Pleistocene refugia”.

Biodiversity inventories have been conducted for most of the protected areas of the SW. Some of these have been comprehensive while others have only covered certain groups. There are a large number of commercially valuable timber species found in these forests (including some of the African mahoganies, *Entandophragma excelsa* and *Khaya sp.*), as well as others that have commercial medicinal value (*Prunus africana*). Studies to date indicate that the SW contains three of the five most important national parks for conserving birds and mammals: QE, Bwindi and Rwenzori Mountains.

Protected Areas

SW Uganda has the highest concentration of PAs in the country. In the five target districts there are four national parks, two wildlife reserves and four forest reserves (out of the 39 priority forest reserves nation-wide that were selected for nature reserve establishment). If the landscape approach is viewed in strictly the biophysical sense, then at least two other national parks should be added, Semliki and Kibale (which is actually one of the main forest sectors that is contiguous with QE). Semliki National Park is in Bundibugyo District, Kibale NP in Kabarole. Other areas also warrant consideration; these are discussed in the recommendation section. The following is a brief list of protected areas in the target districts (Lamprey et al., 1999), (MWLE 1999).

QENP

This park contains mostly woodlands and savanna bushlands. It also contains some mid-altitude closed forests, wetlands and lakes. It was established in 1952 and covers an area of 2,091 km². It is located in three of the five target districts (Kasese, Bushenyi, Rukungiri).

RMNP

The Rwenzori Mountains are a combination of high-altitude evergreen forest, alpine vegetation and non-vegetated mountain and glacial areas. It was originally classified as a forest reserve. The area was upgraded to National Park status in 1991. RMNP is 998 km² and located in three districts: Kasese, Kabarole and Bundibugyo.

BINP

Bwindi Impenetrable National Park was also a reserve that became a national park in 1991 (along with RMNP and Mgahinga). BINP is a mid-high altitude evergreen forest that is most well known for its resident mountain gorilla population, high levels of endemism (particularly birds - over 20), and great diversity of tree species. BINP is home to about half of the remaining population of mountain gorillas.

MGNP

This is the smallest national park in the system, 38.6 km², but is part of a much a larger complex known as the Virunga Volcanoes. It is entirely located in Kisoro district. This is a transboundary park, which adjoins other mountain gorilla habitat protected in Rwanda (Parc Nationales des Volcanes) and the DRC (Parc Nationales des Virungas).

Kyambura Wildlife Reserve

KWR is a 156 km² woodland protected area that borders QENP and Lake George. It is also connected by a small strip of forest area to Kasyoha-Kitomi forest reserve.

Kigezi Wildlife Reserve

KIWR is a 359 km² reserve (woodland and mid-altitude forest) that also acts as a buffer for QENP.

Kasyoha-Kitomi Forest Reserve

KKFR is a 399 km² mid-altitude evergreen and deciduous forest that was established as a reserve in 1932. It is situated on the escarpment overlooking the rift valley, and it is located mostly in Bushenyi district.

Kalinzu-Maramagambo Forest Reserve

KMFR is 584 km², with most of the vegetation being classified as either high forest or medium to low forest. The reserve is located in Bushenyi and Rukungiri districts and is next to QENP.

Echuya Forest Reserve

Echuya is a relatively small (35 km²) reserve (*Hagenia abyssinnica* forest and bamboo) situated on the border with Rwanda. It is located in both Kabale and Kisoro districts.

Mafuga Reserve

Mafuga is 38 km², of which 30 km² are plantations of exotic tree species (*Pinus patula*, *Cupressus lusitanica* and *Eucalyptus sp.*).

Table 1. UWA National Parks and Wildlife Reserves listed in order of biodiversity and landscape scores.

Note that nine of the top eleven are in the Western region. (Adapted from Lamprey 1999). It is also worth noting that in the Forest Departments ranking of forest reserves for biodiversity importance (which includes former forest reserves that are now national parks – Bwindi, Rwenzori, Kibale, Mt. Elgon and Semliki as well as 60 others) Kasyoha-Kitomi came out second overall (only behind Bwindi), Kalinzu-Maramagambo fifth (ahead of all national parks except Bwindi), and Echuya ninth.

Protected Area	Biodiversity and Landscape Score	Socio-economic and Management Score	Total Score
Bwindi Impenetrable NP	140	132	272
Queen Elizabeth NP	136	121	257
Kibale NP	129	109	238
Murchison Falls NP	126	143	269
Rwenzori Mountains NP	124	119	243
Mgahinga Gorilla NP	121	116	237
Mt. Elgon NP	120	106	226
Kidepo Valley NP	118	130	247
Toro-Semliki WR	117	111	228
Semliki NP	114	88	194
Kyambura WR	113	84	196
Lake Mburo NP	102	129	232
Pian-Upe WR	102	88	189
Matheniko WR	94	67	161
Otze WS	92	76	168
Aswa-Lolim WR	91	59	150
Bugungu WR	90	89	179
Ajai WR	86	83	169
Katonga WR	86	88	173
Bokora Corridor WR	85	72	157
Kigezi WR	85	78	163

2.2 Socio-Cultural-Economic Factors

The People

The Great Lakes region of south-central Uganda, Rwanda and Burundi were the center of the most well established and powerful kingdoms of the entire East/Central African region. These kingdoms dominated their respective areas during a period in excess of 600 years (Kesby 1977). In the target districts there are several ethnic groups that have their origins tied to these powerful kingdoms. They are the Banyankore, Batoro and the Banyarwanda. Other groups that reside in the target districts include the Bakonjo and the Bakiga. All are considered members of the Bantu family that migrated from the west (Congo), and speak languages that are derived from a Congo Bantu group of languages.

The Bakonjo are mainly cultivators and farm on hillsides surrounding RMNP. The Batoro were known as pastoralists and settled in the lower elevations and valleys where they could graze their livestock. The Bakonjo were at one time controlled by the Batoro kingdom, and there are still lingering tensions that periodically flare up between the two groups.

The Banyankore occupy most of Bushenyi District, parts of Rukungiri, and areas east of other districts (Mbarara, Ntungamo) (www.uganda.co.ug/Bankore). The Banyankore actually have two recognized groups: the Bahima (pastoralists) and Bairu (agriculturists). Within this Banyankore, the Bahima hold a higher caste.

The Bakiga occupy the hills and more mountainous zones south of Banyankore land and comprise the largest group in Kabale district. They also live in Rukungiri and Kisoro. The Bakiga are cultivators who arrived into the area they now settle at least 500 years ago.

The Banyarwanda (also known as the Bufumbira in Kisoro) are found in all areas along the border and have in fact spread out into other regions of Uganda over the years. Within this large classification there are actually three distinct groups: the Batutsi, the Bahutu and the Batwa.

The Batwa are forest people and the earliest residents of this area. They are a pygmoid race related to the Mbuti pygmies of the Congo (Trenchard 1998). It should also be noted that for decades the Batwa have been hired by protected area management agencies because of their vast knowledge of the forests. They are excellent forest hunters and they also practice pottery.

Population and Livelihoods

The following population statistics are projections that were made in 1999 (www.government.go.ug.)

Table 2. Population of Target Districts and Land Area

Target District	Population	District Area
Bushenyi	556,000	5,396 km ² total, (490 km ² water)
Kisoro	258,800	730 km ² total, (85 km ² water)
Kasese	436,500	3,205 km ² total, (481 km ² water)
Kabale	512,000	1,827 km ² total, (132 km ² water)
Rukungiri*	517,500	2,300 km ² total, (230 km ² water)
Totals	2,280,000	13,458 km² (1418 km² water)

The population of Uganda is 20.3 million. The target districts represent 11.2% of the total population of the country. The total area of Uganda is 241,000 km² - the target districts comprise 5.5% of the total area. The five target districts have some of the highest population densities in all of Uganda. Taken together, the average number of people per km² is 170. The national average is 84 people/km²; 78/km² if the three largest urban areas (Kampala, Jinja and Entebbe) are not included.

Protected areas cover 4,700 km² of the target districts, or 35% of the total area. The total percentage of Uganda land area covered by protected areas is 16.9% (MWLE 1999). In the case of the target districts, the population densities are just over twice as high as the national average while areas set aside as PA's are also twice as high. The target districts are clearly an area where population pressure on the natural resource base is among the highest in all of Uganda.

Most of the population is directly involved in agriculture. However, there are other significant activities that include fisheries, forestry, mining, and manufacturing.

Agriculture. Crops common to most districts include potatoes, sweet potatoes, maize, beans, and to a lesser extent, bananas and cassava. Sorghum is also grown in most districts for beer making. Kisoro and Kabale grow wheat at higher elevations, as well as pigeon pea (*Cajanus cajan*), bush beans and pole beans. Kasese, Bushenyi and Rukungiri grow millet, soybeans, groundnuts and yams. Cash crops include coffee, cotton (Kasese) and tea. There is also sugar cane and fruits production in some areas.

Homegardens. Homegardens play an important role in the livelihoods of most target district residents. They are generally used for the production of "market crops" that improve household nutrition (cabbage, carrots, onions, lettuce, etc.), medicinal plants, utility wood and forage. Traditional homegardens of the SW are multi-storied.

Animal husbandry. Livestock are found in all target districts, and are very critical to the household economy. Cattle, sheep and goats have been part of the landscape for centuries. Cattle also hold considerable cultural and spiritual importance. Dairy farming as an industry (mostly using exotic varieties or crosses) is practiced in Bushenyi, Rukungiri and Kabale districts.

Fisheries. Fishing is the most important livelihood in parts of Kasese, Bushenyi and Rukungiri districts. Lake George and Lake Edward fisheries have been very productive (tilapia, catfish), but are declining due to poor practices. Less important national fisheries are associated with Lakes Bunyonyi and Mutanda in Kabale and Kisoro Districts.

Forestry. Legal timber harvesting takes place in Bushenyi district in the Kalinzu Forest Reserve (where the private, commercial Nkombe sawmill is located – average cut was about 72 m³ per year in mid 1990s). Kasyoha-Kitomi reserve had an annual legal pitsawing allowable cut of over 800m³ per year between 1986-1990 (MWLE 1999). Throughout the region there are numerous private woodlots (mostly *Euclalyptus sp.*) that supply a steady stream of products for fuel and construction.

Mining. Mining is locally important in several districts, especially Kasese where the mining of cobalt, copper, and sulfur is concentrated at the Kilembe mines. Gold mining has taken place in BINP over the years.

Poverty trends

Preliminary estimates for the Uganda National Household Survey (UNHS), which worked with 10,000 households in 1999/2000, indicate that the number of Ugandans being classified as poor has progressively dropped during the past eight years. Another way of stating this is that the UNHS “appears to show growth and poverty reduction accelerating”. This is based on comparable household surveys that have been conducted between 1992 and 2000. The percentage of Ugandans estimated as poor in 1992/93 was 56%. By 1997/98 this figure dropped to 44%, and the UNHS figure estimates that the percentage of Ugandans classified as poor is now 35%.

Because of security reasons, four districts were not included in this survey. One of the districts is Kasese, a target district. The rest of the country is divided into four regions: West, Central, East and North. All of the target districts are included in the West region. Between the last survey (conducted in 1997/98) and the current survey, the fall in poverty was most pronounced in the East and West, where rates fell by about a third. The fall in the East (54% to 37%) was perhaps the most noteworthy, since prior surveys indicated that little progress was being made in the East from the early 1990s. The other noteworthy trend is in the North, which is the only area where poverty actually increased between the two surveys (62% to 67%). Poverty declined in the

Central region (28% to 20%) and the West (43% to 28%). Urban areas showed greater declines than rural areas.

As would be expected, there are also strong correlations between certain groups and poverty reduction. Between the 1992 and 1997 surveys indicated that the greatest reduction was among households headed by coffee farmers, government employees and traders. Coffee prices were very high worldwide during that time. Lesser reductions in poverty were noted for crop farmers not cultivating coffee. However, poverty in this group has also dropped off significantly from 1997/98 to 2000 (on the average of 25% and roughly comparable to coffee growers and other groups mentioned above). Others that have seen large drops in poverty include households where the head works in mining, public utilities, trade, hotels, transport, communications, and construction. There were no poor households whose head worked in the public utilities sector. Poverty was reduced less in the manufacturing sector. Groups that have not recorded a drop in poverty during the latest two surveys include heads of households who are involved in fishing and livestock (Appleton 2001).

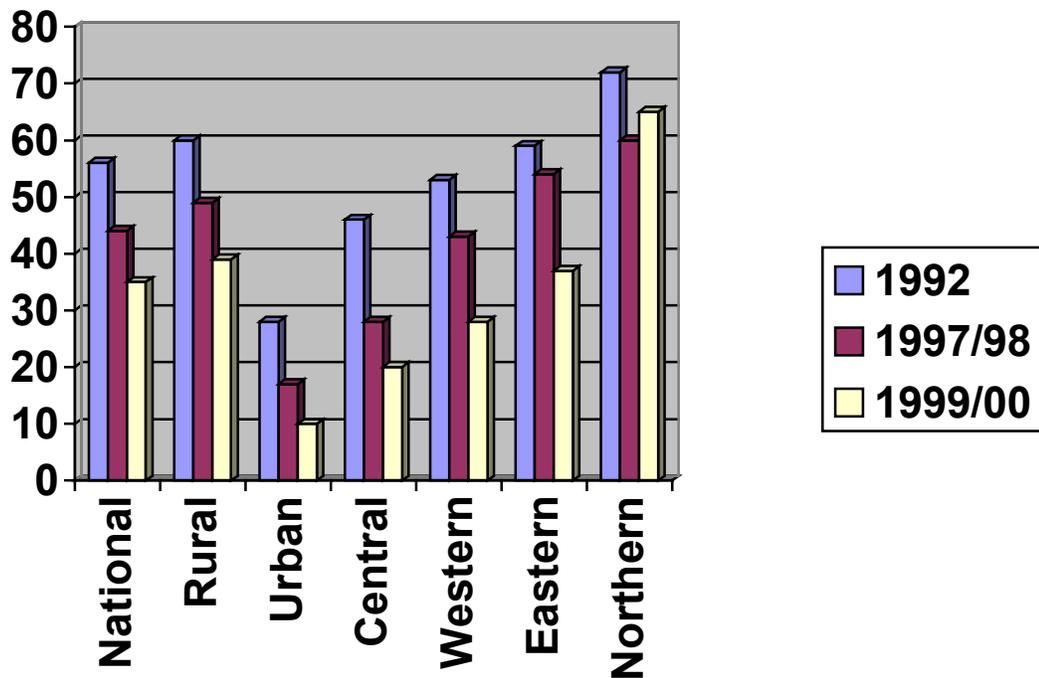


Figure 1. Comparative Poverty levels in Uganda (Adapted from Appleton 2001)

Governance

The target districts have a long and rich history in governance (three kingdoms). The NRM government recently officially reestablished the Kingdom system in a number of areas (including

Banyankore and Batoro). Traditional chiefs and leaders at all levels are still important in Ugandan society and have a great amount of influence on the national and local political scene.

Following the end of the civil war in 1986, Uganda developed Resistance Councils at all levels of Ugandan society. The Resistance Councils evolved into Local Councils, which today represent the backbone of modern Ugandan democracy.

Uganda has also undertaken a number of other extremely important initiatives during the past decade. One is the completion of the Constitution in 1995, which recognizes the principles of good governance as the main requirement for sustained economic development. The Constitution also calls for, among other things, the establishment of publicly accountable institutions, a transparent legal and regulatory framework, free and fair elections, a free press and the assurance of fundamental freedoms and human rights.

Another post civil war initiative is the development of sector policies and policy reform. These include policy and legislative developments in the areas of education, the environment, health, and economics. Other programs have focused on the reform of trade and structural policies and the civil service system.

Decentralization of government responsibilities has developed at a rapid pace in Uganda when compared with many other countries that are struggling with similar programs. Decentralization officially became a national policy in 1992, is part of the Constitution and was enacted into law through the Local Government Act of 1997.

2.3 Conservation And Development Activities In The South West

The initial activities supported by the Mission included the Development through Conservation Project (DTC – CARE Int.), the Rwenzori Mountains Conservation and Development Project (WWF-US), the Kibale Forest Conservation and Development Project (Wildlife Conservation Society) and the Lake Mburo Community Conservation Project (African Wildlife Foundation). All of these projects have produced significant results and highlight both strengths and weaknesses in the strategy to use development activities to attain conservation objectives. Two projects (DTC, RMCDP) were located in similar agro-ecogocial zones, and target districts for this report.

At the same time, the Mission's agriculture portfolio (ENR was part of the Agricultural Development Office) included several initiatives in the same region. Most were focused on research activities of a particular commodity. This included work with the International Potato Research Center (CIP), the International Bean Research Center (CIAT), the International Council for Research in Agroforestry (ICRAF). In 1991 the ICRAF activity (AFRENA Project) was transferred to the ENR program.

Other Mission agricultural projects doing work in the SW included Heifer Project International, the Agricultural Non-traditional Export Project (ANEP), the Agricultural Cooperatives Assistance Project (CAAS), and to a lesser extent the Manpower for Agricultural Production (MFAD). The conservation activities worked directly with CIAT, CIP, and ICRAF by exchanging information and by extending technologies developed at research stations to the farm level. There was only limited collaboration with the other agricultural projects.

Today, DTC is still very active in the region (although with Danish funding). Africare began to work in the SW in 1997 and has made considerable progress. Their collaboration with AFRENA is especially encouraging. Other conservation activities (ITFC, IGCP, Mgahinga/Bwindi Trust) have been supported by the Mission since the early 1990s. Also, Mission's support to the National Environmental Management Agency (NEMA) has developed capacity for planning and management at the local level through the work of ARD and CARE in three of the target districts. RMCDDP was suspended because of the security situation in Kasese district.

ICRAF, CIP, CIAT and Heifer Project International are all still operational in the SW (all collaborate to varying degrees with DTC and Africare). Land O' Lakes began some work in the area in the mid-1990s. The IDEA Project has replaced ANEP, but is doing only limited work in the SW. CAAS and MFAD projects were closed out during the 1990s. A brief description of these projects and others that have worked in the SW is included in Appendix 3.

Projects that have or are currently receiving support from the mission in the target districts include:

DTC (originally USAID funded, but now funded by CARE-Denmark.).

CIP (International Potato Center).

CIAT (International Bean Research Institute).

ANEP (Agricultural Non-traditional Export Program).

Rwenzori Conservation and Development Project (WWF).

Rwenzori Mountaineering Services (Local NGO).

Mgahinga Bwindi Impenetrable Forest Conservation Trust (MBIFCT)

Institute of Tropical Forest Conservation (ITFC).

AFRENA Uganda (International Council for Research in Agroforestry).

Heifer Project International (HPI)

IGCP (International Gorilla Conservation Project – AWF, lead agency).

IDEA Project

Land O' Lakes.

Africare.

The following activities have received support from the mission. The Kibale Forest Project is located just outside the target districts; the others concentrate on assisting organizations and agencies on a national level, or a combination of national/local.

Kibale Forest Conservation and Development Project.

PVO-NGO NRMS.

Land Tenure Center (U of Wisconsin) and Makerere University Institute for Social Research (MISR).

MUIENR (Makerere University Institute for Environment and Natural Resources).

Manpower for Agriculture Development (MFAD).

CAAS Project (Cooperatives for Agriculture).and Title II.

Action Program for the Environment.

COBS.

Peace Corps.

Non-USAID activities related to the target districts include:

Natural Forest Management and Conservation Project (European Union support to the Forest Department)

National Biomass Program (Forest Department with support from NORAD)

Environmental Management and Capacity Building Project with NEMA

World Bank support to UWA

IUCN – Kibale and Semliki Project.

Integrated Lake Management project—CARE with DfID funding

Faith based organizations.

Local Government Development Program (LGDP)

Plan for the Modernization of Agriculture Non-sector Conditional Grant (PMA-NSCG).

3. Landscape Approach for SO7

Describing the landscape for the target districts in the previous section contained three general layers:

1. Biophysical
2. Socio-Cultural-Economic, and
3. Conservation and Development project activities.

Obviously, there could be additional stratification within either of the first two layers. As presented, the first two layers are essentially a static snapshot of what a particular landscape (biophysical and social environments) could look like at any one time (in this case, the current situation of the five target districts in the SW).

The only extraneous layer is the development projects, which is not necessary for developing a landscape approach model for Uganda. It was added for perspective regarding what has, and still is taking place on the ground that should be considered part of programmatic analysis (further developing links, synergy, the more efficient use of available resources). Beyond that, the first two layers could easily stand-alone and form the foundation upon which a generic landscape approach model could be developed.

Using the landscape characteristics described earlier (structure, function and change), the purpose of this section is to further refine what can be done with the baseline landscape information from Section One (structure), and define critical elements that can be derived from that process for mission planning and programming (function and change). To do this, in addition to the biophysical and social aspects, this section expands on the livelihood concept by adding resource valuation and enabling conditions for moving the poverty reduction agenda forward.

The critical landscape elements are explained in relation to the target districts of the SW. They are listed in order of relative importance. This is also the rough chronological sequence in which they should be addressed. The analytical sequence within each type of element is to move from the general to the more specific. The types of elements to be assessed are:

1. Biophysical
2. Social
3. Resource Value

4. Enabling conditions.

3.1 Biophysical Elements

The landscape approach should identify the most important biophysical elements that are common throughout a great part of the area in question. They could include a particular landform, cover type, drainage pattern, soil series, wetland system or others. Most landscapes contain more than one of these features.

For example, in designing a “landscape approach” for USAID Madagascar, part of the eastern rainforest block was used as the binding biophysical landscape element (within that element there are a number of different forest types). Another critical element (social) was added to that landscape, the surrounding hillside communities (where extensive forest clearing for upland rice agriculture was being practiced). A third element was the location of project activities within that landscape that the mission was supporting or planning to support. At least initially, two layers (one biophysical, another social) were the critical elements that defined the landscape for USAID Madagascar. Project presence or absence helped further define the physical limits of this landscape and programmatic direction at the end of the process.

In the case of the five target districts of the SW, there are at least four biophysical elements:

The Albertine Rift

This continental landform is marked by locally and regionally important catchment forests that contain high levels of biodiversity and economic potential (timber, non-timber products, recreation, etc.). Fossil fuels and minerals are associated with many sections of the Rift, and the Great Lakes fisheries (Albert, Edward, George, Kivu, Tanganyika and Malawi) have considerable economic importance and endemic biodiversity significance. Tourism value is extremely high as well. The management of the Albertine Rift is truly a “transboundary” challenge. From an Ugandan perspective, this is especially true for relations with neighboring Rwanda and the Congo.

District Watersheds

With the exception of parts of Kabale and Bushenyi districts, the rest of the area is a regional watershed that feeds Lakes George and Edward and the Semliki River. The districts do not comprise the watershed in its entirety, but they are the source of the more important rivers that feed the lakes. Again, looking at natural features on a larger or transboundary scale, this watershed eventually flows into Lake Albert and the Nile River, which affects millions of livelihoods many kilometers from its source.

Biodiversity and Endemism

The districts harbor a unique zone of biodiversity and unusually high levels of endemism. The forests of the Albertine Rift have been singled out by numerous international organizations as being one of the world's most important conservation areas. It is well known for its primate populations (especially the mountain gorilla) and high level of endemic birds and plants. Global assessments of biodiversity consistently place the Albertine Rift Valley among the most important regions in the world (see Appendix 3 for more detail).

Carbon Value for Climate Change

Compared to the rest of Uganda, the target districts have high carbon values in relation to global climate change. The five target districts contain some of the largest blocks of tropical evergreen forests in the country. Maintaining these and similar carbon pools is a critical part of the strategy to mitigate the effects of global warming. On a per hectare basis, tropical evergreen forests contain many more times the amount of carbon than non-forested land, and are the richest of any global forests in terms of carbon content (except the coniferous forests of coastal North America – California north to Alaska). A carbon value assessment of the five target districts is included in Appendix 1.

3.2 Social Elements

Social elements could be ethnicity, structure (kingdoms, clans), livelihoods, migration patterns, resource use, or one group's relation to another. Elements that form the social landscape could also be based on heterogeneity and diversity (for example, the Lake Albert region of Uganda is an area of great diversity from in-migration where there are numerous ethnic groups and languages - this constitutes a critical social element).

Based on this assessment, livelihood is the single greatest common social element, as most residents in all districts still rely heavily on agriculture. It should not be overlooked, however, that there are strong pockets of fishing communities, especially in Kasese, Bushenyi, Rukungiri and Kabale districts, and forestry (legal and illegal) is practiced around the forest reserves.

Within the context of the target districts, there are several other social landscapes (at smaller scales) that stand on their own. There are three kingdoms and a minimum of five ethnic groups. Each kingdom and ethnic group is a social landscape (multiple social elements). Another social element is the relations between groups (cultivators and pastoralists as with the Bakonjo and Batoro, and within the Banyarwanda – Bahutu cultivators, Batutsi pastoralists and Batwa forest people).

Each group will have some common elements (perhaps linguistic origins, ritual, some livelihood practices, etc.) as well as some different characteristics (knowledge of traditional forest uses, soil

conservation techniques, inheritance rights, etc.) from which to develop opportunities. Certain groups (i.e., Batwa for forest exploitation, Bahima and Batoro for livestock development, Banyarwanda for homegarden intensification) may be more well situated to undertake certain agricultural, forestry or fishing initiatives than other groups. Any of these factors could be significant during the design of development initiatives.

3.3 Valuation of Resources and Ecological Services

This element essentially ties together the biophysical and social by expanding on livelihood. The importance of this element is self-evident; if there are limited or no values associated with the landscape in question, from either a resource or ecological service perspective, then there is really no justification for developing a program in that area. The vast majority of landscapes, however, will have both direct and indirect values.

Direct Values

Resource value covers a wide range of goods and services. Some of them have clear measurable market values (cash crop like coffee, timber, minerals, fisheries, and tourism), while others; the market value is less clear, more problematic to determine or not yet developed (medicinal plants, wildlife, non-timber products, wetland products, bio-prospecting, etc.). Many of these are poorly understood and barely investigated.

Compounding the problem (resource valuation) is that for most of the examples listed above, there is a black market associated with each resource. Both official and black market values have to be considered as well as an estimate of the probability a resource producer will sell the product on the black market or the official market. The probability to sell is largely a function of the efficiency of the enforcement agencies; where there is little control, the producer will sell the product on the market providing the best return (black market).

There is also value associated with resource products consumed at the household level that never enter the market place. The value of these goods can directly affect the production of market resources. In many cases, assuring that there is a steady stream of household resources available encourages the conditions necessary to move the household more into the production of market goods (roughly in line with PMA objectives). There are at least two ways to assess these values. One is the current market value of the good if it would have to be purchased on the market instead of produced at the household. The other is the value of the time and labor capital that was put into producing the resource (value of the output). Both of these measurements need to be taken into consideration when endeavoring to get a better picture of resource values throughout the system.

Indirect Values

Valuing ecological services is more difficult, but necessary, particularly if any form of land conversion is to be considered within the context of the development strategy. A great deal of work has been done to arrive at values for services such as clean water, soil conservation, waste assimilation, disturbance regulation, climate regulation, global warming and others. These services are not accurately captured in commercial markets, and therefore are often overlooked or downplayed when programming and planning activities on any level. However, the world economies would cease to exist without the services of ecological support systems, as these services are the flows of materials, energy and information from natural “capital stocks”, which combine with manufactured and human capital services to produce human welfare.

On a global scale, recent conservative estimates place the value of ecological services at about \$33 trillion per year. The global gross national product for the same time period is around \$18 trillion per year. This value is almost certainly under representing the actual value of global ecological services, but even at these rates, the ratio of total ecosystem services to GNP is 1.8 to 1. Nutrient cycling alone accounts for \$17 trillion per year. A little over one third (\$12 trillion) of the global estimated value is attributed to terrestrial systems; \$4.7 trillion is from forests and \$4.9 trillion comes from wetlands (Constanza et al. 1998).

A key issue in determining the value of ecological services is defining the boundaries of the services to be considered. The example listed above is based on global services. In relation to the SW districts, this could (and probably should) be estimated on at least three levels. First, on a macro scale, are the services that the Albertine Rift supplies in terms of water and nutrients as part of the Great Lakes and the Nile River system. Second, on a more regional scale, the value of these same services can also be estimated as well as values for biological services (biodiversity enhancement through movement between ecosystems within Uganda and transboundary), or climatic functions (including climate change). Third, many of these same services can also be measured at the individual forest or wetland level (see example below). The list of services provided above are merely illustrative, and there are additional ones that would have to be added to each level when an assessment is carried out.

Box 2: Estimating the Value of Nakivubo Wetland, Kampala, Uganda

The Nakivubo wetland is 5.3 km² area of southeast Kampala. It is the main part of a total catchment area of 40 km². The wetland is mostly vegetated by papyrus, cattails and reeds. Most of the shallow areas at the margins are cultivated; the average population density around the wetland is 5,580 people per km². The wetland lies between the central business and industrial districts, several residential areas and a sewage treatment plant. It empties into Lake Victoria at Murchison Bay (3 km from the water intake for Kampala at Gaba). The wetland is owned by the GOU, but all surrounding land is in private hands. The wetland's main role is as a sink for much of Kampala's domestic and industrial effluent. It is threatened by residential and industrial sprawl.

In 1999 the Department of Wetlands with assistance from the World Conservation Union (IUCN) conducted an assessment of the wetland's direct (wetland resources) and indirect values (wetland services). Wetland resources included crops, papyrus, fish-farming and brick making. Resource value was estimated at about \$215,000 US per year. More importantly, wetland services included treating raw sewage for 40% of Kampala's residents (465,000 people), and wastes from 15 medium-large industries (factories, slaughter-houses, etc.) as well as 200 smaller producers (bakeries, shops and others). All of these industries directly discharge wastes to the wetland. If the wetland were to be developed, the replacement costs for the wetland services would focus on establishing pit latrines for residents, expanding the sewage treatment plant, and moving the current water source for Kampala further from the discharge area in Murchison Bay. Based on this assessment, total annual value of the resource services is about \$1.2 million US. This is a minimum estimate. Non-use values (including ground water recharge) and future values were not included in the overall assessment. The development of the Nakivubo wetland would most directly affect the poorest of the wetland users (resource producers). (IUCN 1999)

Optional and Non-use Values

The concept of Total Economic Valuation (TEV) is a tool that can be used to get the most complete estimate of value for the resources in question (Phillips 1998). In addition to the direct and indirect uses listed above, TEV includes two other values that are added to the analysis. One is the option value, or the future use of a resource that has not yet been developed. This could include potential agricultural, pharmaceutical, cosmetic, and bio-prospecting values. Another is the non-use value, or valuing the resource simply because it exists. In the context of the SW, this would most likely be the protected areas because of their biodiversity. These areas are widely viewed as world treasures that merit being conserved based on that fact alone. The GOU, the donor community and international organizations recognize this and are ready to invest resources to maintain their integrity. The amount of investment could be viewed as the non-use value.

Centers of Renewable Resource Use

Once the values of resources and ecological services are estimated, the livelihood aspect (social element) can be brought back into play. In the case of the target districts, the livelihood list would include (but not be limited to) agriculture, livestock, fisheries, forestry, tourism, mining, crafts, wildlife use, and manufacturing. In most cases, the prevailing livelihoods are generally reflected (or have evolved) directly in relation to the natural resource base.

Based on the best available biophysical, social and value baseline information, the planning or design then looks to where livelihoods and resources could be most effectively linked to increase productivity while maintaining or improving upon critical ecosystem services. In this regard, the landscape would be further subdivided into “centers of renewable resource use”. These centers could be viewed as mini-landscapes, each possessing a unique range of resources that could potentially be effectively utilized.

For the SW target districts, one such center could be the forest complex of Kasyoha-Kitomi and Kalinzu-Maramagambo. In addition to the regular ecosystem services they provide (which would have to be estimated beforehand), these forests also possess a wide range of marketable goods. Valuable tropical hardwoods are being exploited both legally and illegally. If the proper social environmental conditions were established (community organization, transparent production systems, etc.) the efficiency of this resource use could be increased substantially with a greater percentage of the benefits accruing to a broader group. Medicinal plants and herbs could also be structured in a similar way. The forests also have recreational tourism value that could be further developed. Depending on international proceedings, the carbon value of this forest complex could also be calculated, not only in terms of ecological services, but (if cash values are attached to carbon credits) as per the given market value as well.

The wetland systems of Kabale district could become another center of renewable resource use. While two of the three wetlands have been drained (and hence some important environmental services lost), the third is still relatively intact. The ecosystem services for this wetland could be estimated and then compared to the value per unit area to the two drained areas. This could help the drained wetlands to regain some of the lost service while still remaining under some level of production. It could also indicate the best ways of more productively managing all three wetlands given the current situation.

There are a number of different ways that the five target districts could be divided into centers of renewable resource use (lakes, plantations, riparian zones). In some ways, where soils are intensively managed (some zones in Kabale district), they could also be regarded as centers of renewable resource use in relation to agriculture and forestry. The point of this section is not so much to identify all centers of renewable resources within the five target districts, but to provide a range of values associated with the natural resources and demonstrate how they are tied to livelihood potentials through which resources can more effectively be managed.

3.4 Enabling Conditions.

This is the last step in the landscape approach and represents the link between landscape analysis and program design. Enabling conditions can be international, national and local. At the international level Uganda is signatory to a number of agreements, protocols and treaties that could directly impact on the management of the landscape and associated resources. Examples

include the Convention on Biological Diversity, which Uganda signed in 1993, the Convention on International Trade in Endangered Species (CITES), the Ramsar agreement on the conservation of wetlands, and the Kyoto Protocol on Climate Change. All of these (plus others) set parameters and guidelines through which resource use can be more effectively managed.

On a national level there is the Constitution as well as policies, legislation and programs which provide structure and guidance on resource management and use. Some of these include national policies for the environment, water, wetlands, soils, wildlife, forests, and decentralized government (the agriculture policy is outdated and due to be rewritten – many view the PMA as provisional agriculture policy). There is a draft fisheries policy and it is likely that the Fisheries Act of 1967 will be rewritten (it was most recently amended in 1996). Samples of legislation include the Environmental Statute, the Wildlife Statute, the Land Act and the Local Government Act.

Almost all of the more recent policies and legislation provide for increasing the involvement of local communities and governments in the management of the resource base. Some of these call for local communities to “advise” the central authority responsible, while others allow or encourage the full participation both in responsibility and authority of the management. The Constitution and the Local Government Act even provide for two or more local government administrative bodies to cooperate in the areas of culture and development by forming special Councils, Trust Funds or Secretariats. These structures could be used to resolve disputes or clarify management responsibilities in relation to shared resource (Tumushabe 2000).

Conflict or the potential for conflict has to be considered as part of the enabling condition analysis. The western part of Uganda, including the SW, has been the setting for a considerable amount of conflict during the past decade. It has ranged from the deep SW where civil war in the DRC and genocide in Rwanda have led to the in-migration and periodic attacks (Buhoma), to the northwest sector where local rebels are supported through the ongoing civil war in southern Sudan. In between, there is the continuing instability around the Rwenzoris with rebel attacks in Kasese, Bushenyi, Kabarole and Bundibugyo, as well as heavy cycles of in-migration in the Lake Albert area (Congolese fleeing civil war). All of these problems are having a profound impact on the natural resource base, and hence the possibilities for development.

Potential conflict is not only local in nature, but can be regional as well. One growing concern is the projected water shortage that is associated with the Nile River Basin. The population of Egypt is entirely dependent on the Nile, and given current population projections, it is unlikely that the Nile will be able to address Egypt’s water needs. Compounding the problem is that there are ten independent states in the Nile Basin, the largest number for any river basin in the world. Each country (Uganda is of course one of the key countries) has their own needs and programs in relation to the Nile. The potential for conflict is great.

There are some experts who believe that it is in the best interest of the United States to use its influence among Nile Basin states to encourage the development of Nile waters as a whole. The US could play a more active role in heading off a potential conflict in three ways. First by strengthening the working group investigating issues affecting Nile waters. Second, by helping develop a policy for the Nile that recognizes the interests of all riparian states. Third, by encouraging Egypt, Ethiopia and Uganda to develop the Nile waters together (Collins 1999). Working to conserve the Albertine Rift, a key component of the Nile watershed, is directly in line with this initiative.

Finally, enabling conditions should include considerations of previous Mission investments and ongoing projects. The list of projects that the Mission has supported in the SW is considerable (and is covered in other parts of this report). Some have had greater impact than others have; however, all have produced results and lessons learned. These should be used to further define which activities are the most appropriate given the range of factors assessed with the landscape approach.

3.5 Summary Of Landscape Elements For The South West And Suggested Follow Up

3.5.1 Biophysical Elements

- i. *Albertine Rift* – Conduct a rapid best estimate (literature review) of water and nutrient flows from the Albertine Rift watershed (as it feeds into the Nile system).
- ii. *District Watersheds* – Similar assessment of the district watershed system with special attention to soil erosion, impacts on lake fisheries and wetlands.
- iii. *Biodiversity* - Use existing information to determine baseline and gaps. Conduct a comparative analysis of this information with similar work conducted in other parts of the world.
- iv. *Climate change* – An initial assessment of the carbon value of the target districts is included in Appendix 1. This can be further refined once the National Biomass Study releases its report on the national biomass inventory (over 4,000 plots throughout the country). This information would then be used with the district level biomass maps.

3.5.2 Social Elements

- i. *Livelihood* – Comprehensive assessment of livelihood status of target districts (based on information from Uganda Household Survey, Uganda Bureau of Statistics, District Profiles, etc.).

- ii. ***Ethnic Groups*** – Assess past and present trends related to: migrations, livelihoods, rituals, religion, governance, conflict, health, education.
- iii. ***Group Relations*** – Rapid assessment of the history and current status of relations among the district ethnic groups, including noteworthy relations with outside groups as well.

3.5.3 Valuation of Resources and Ecological Services

- i. ***Resources*** – Compile market information for all resource base commodities, including ecotourism. Estimate the added value of agriculture through intensification. Assess the potential for other resources that are less well know (based on examples from elsewhere). .
- ii. ***Ecological Services*** – Using information from Biophysical Factors, estimate the current and projected value of ecological services supplied from the target district on an international, regional and local scale. Also include best estimates of option values and non-use values.
- iii. ***Centers of Renewable Resource Use*** – Once the resources and ecological service assessments are completed, design centers of renewable resource use (which includes the maintenance of ecological services) within the target districts, and recommend general development actions to be taken.

3.5.4 Enabling Conditions

- i. ***International agreements*** – List and assess agreements or principles Uganda has approved to that are related to SO7 concerns in the SW
- ii. ***Domestic policies and legislation*** – List and assess all policies and legislation that would impact (positively and negatively) on natural resource management and agriculture in the SW.
- iii. ***Capacity for Local Management*** – Assess the level of capacity building in relation to program planning and implementation that has taken place in target areas. Propose ways to improve this if necessary.
- iv. ***Conflict*** – Assess past, present and projected trends.
- v. ***Projects and Programs*** – Review of all project and program evaluations and recommendations. Identify all areas where collaboration and information exchange can be improved and where.

4. Constraints, Opportunities And Synergies

4.1 Historical Perspective

It is important to keep in mind that Uganda is only 15 years removed from one of the bloodiest and most divisive civil wars of the 20th century. As recently as 1985, Uganda was viewed by all of its neighbors as being the least desirable and most unstable country in the region (and in some respects, all of Africa). Ugandan society was ripped apart by civil war, and most geographic regions and many ethnic groups were polarized into one camp or another. Although the current government has made very significant strides toward pulling the country together, there is still a great deal of mistrust at all levels of Ugandan society. This does not go away overnight.

During the late 1980s, and for a good part of the 1990s, many of Uganda's institutions passed through what was commonly referred to as a "rehabilitation" stage. The goal was to invigorate the institutions with financial and technical resources after years of degradation as a result of civil strife. The majority of projects and programs at that time had the word "rehabilitate" in them. The political message from the highest levels of government was that, following the devastating period of the mid-late 1970s and most of the 1980s, all sectors of Ugandan society needed assistance, and working closely with outside organizations was a prerequisite to moving the process forward. This unwritten policy would at times provoke a certain level of resentment, particularly among the more senior level government officials who had grown up during the days when there was peace and stability.

The work called for reform and development across all sectors. Outdated policies and legislation were to be changed, government ministries streamlined, others (marketing boards and others) transformed or abolished all together, government decentralized, and large parts of the military retrenched. And all of this was initiated within the context of a rapidly growing health catastrophe (AIDS) and regional instability (conflicts in the North, civil war and genocide in neighboring Rwanda, rebel activity in the West).

Local security in most urban areas (particularly Kampala) was not good. Following the civil war, weapons were everywhere. During the late 1980s and early 1990s, driving anywhere in the country after dark was equated to taking unnecessary great personal risk. In Kampala there were usually multiple shootouts in various neighborhoods virtually every evening. Municipal police authorities were overwhelmed. Most neighborhoods relied on giving financial support to Local Defense Units (LDUs were roughly local militia – residents who organized themselves for security). The NRM government dealt with this problem aggressively by confiscating weapons and training retrenched military (often the perpetrators of crime were ex-military). By late 1992 and early 1993 security conditions throughout Uganda were improving.

Also during this time, numerous NGOs and donor projects and programs were initiated and completed. Some were designed and implemented with GOU counterpart institutions and included local government officials in the implementation stage. Others operated “semi-autonomously”, bypassing government structures in an attempt to provide the greatest level of resources to target populations. Most projects and programs incorporated elements of both approaches. Often, central government was viewed as being largely composed of self-serving institutions interested only in retaining the maximum amount of resources at the central level.

Considering the conditions listed above, Uganda has made considerable progress by anyone’s standards. But there is still a great deal to be accomplished. Much of this will continue to take place within the context of decentralization as this process continues to develop and mature. While the focus has correctly shifted to preparing local government to perform at high quality levels, the donor community will be continuously faced with the challenge of balancing resource allocation between central institutions and local government. As the most recent household survey indicates, however, the fact that the urban centers and government employees have made some of the greatest gains this past decade in reducing poverty means that the main focus will more appropriately be at the local level for the foreseeable future.

4.2 Poverty, Empowerment and NRM

Problem Statement

The PMA document describes poverty as “a feeling of powerlessness.” Rural producers who do not control factors that affect their livelihoods certainly share a sense of powerlessness. This group includes farmers in the lower parts of watersheds who are at the mercy of those on the upper slopes; producers who do not have access to markets or equitable prices for their produce; people living proximate to parks who have no equitable way to negotiate compensation for crop damage by problem animals; people living next to forest reserves who have no say in who legally harvests or how the forest is managed; producers on the margin with few technical options to increase productivity and decrease erosion; and, fishermen who have little say on rules regulating fishing.

The Community Based Natural Resources Management (CBNRM) experience across Africa shows that people who have little control over factors affecting their livelihoods will likely degrade rather than invest in the natural resources base. This is a simple matter of survival; if they do not cut the last tree or erode the hillside or pasture, someone else will. This behavior,

even if driven by short-term needs, has long-term consequences for livelihoods as well as for the environment.¹

However, experiences in SW Uganda and elsewhere show that people—even those with few apparent resources—who gain control and who have appropriate technologies are likely to invest in practices and systems that both improve livelihoods and reduce degradation. Indeed, as we will report in detail in a later section, the Mission’s investments in Local Governments, outreach, and new technologies have contributed to an increasing number of people investing in such practices.

The larger story, however, is that the Mission’s investments are contributing to new relationships between communities and government bodies that is setting the stage for both a) stronger and genuine governance and b) broad-based investments in practices that improve livelihoods and decrease degradation.

The SW contains a large number of Protected Areas, bodies of water, and forests, the management for which central authorities have had prime responsibility. However, the GOU is in the process of decentralizing some of these management authorities and responsibilities to District Councils (LC V). Moreover, UWA and the Forestry Department are considering ways to devolve other management authorities, responsibilities and benefits to communities proximate to Parks and Reserves. This broader sharing of authority and responsibility over natural resources landscapes creates a nexus that inextricably joins natural resources management with livelihoods and governance. Not only do local governments and communities gain more control over factors that affect their livelihoods, but they also have compelling reasons to organize themselves to address management challenges that transcend administrative boundaries. And, in order to get the most out of their new authorities, they require new levels of organizational skills that will allow them to more effectively negotiate agreements on managing new enterprise opportunities and sharing benefits. Finally, the new authorities bring new responsibilities. The central authorities such as the UWA and Forest Department require someone with whom to negotiate agreements and to be held accountable.

This nexus offers an opportunity for SO7 to build on. The Mission’s investments have contributed to a strong foundation. Much of the difficult work that broke old paradigms (central government has to have total control over Parks and Reserves, people will not organize themselves, etc.) has been done. The gaps are much clearer as are the actions necessary to close those gaps and accelerate the impacts of these new concepts of decentralization, governance, and

¹ These lessons drawn from CBNRM experiences in Uganda, Botswana, Mali, Madagascar, Namibia and Niger

collaborative management. At this stage, we think that continued support of many of the activities is necessary in order to allow them to achieve a stage where they continue on their own. And, given that there is a much better sense of the gaps, SO7 is in an excellent position to get accelerated returns from its investments.

Progress and Gaps

4.2.1 Decentralization of Government

The decentralization movement has devolved decision making power and the means to exercise that power to five levels of local governments. They are called Local Councils I to V and include the community, Parish, Sub-county, County and District levels. The LC IIIs (sub-county) and LC Vs (Districts) have budgets and authorities to manage some of the forest reserves in their areas. The LC III level is particularly important because the Subcounties are the lowest level of government that can generate their own revenues (collect taxes, user fees, etc.) as well as receive funds from central government. Some funds are conditional while others are discretionary. They also have a great deal of autonomy in planning how to use their budgets. Basically, the Subcounty level is as close to the “people” that government can get with any structure that has a level of planning and budgeting autonomy.

With these new authorities and budgets, the Local Councils require planning, management, and organizational skills. The Mission, through the work of APE and later COBs, EPED and Africare, has been instrumental in working with Local Councils to strengthen these skills, particularly through the wide-scale adoption of environmental planning and management in target areas. The capacity building methods employed by Mission contractors and grantees for environmental planning and management are generic enough to be transferred to any sector, whether it is health, education or governance. As indicated above, this fact is recognized by the PMA NSCG and is being incorporated into their criteria for disbursing funds through this mechanism (as well as the LGDP) to districts that may not have received training under LGDP, but have gone through the DEAP process. In this way, capacity developed through environmental training is having very significant spin-off effects.

Currently, the COBs program is effectively doing its share in the SW through the development of DEAPS and by helping local government bodies to be more responsive, accountable, and entrepreneurial. EPED has done the same in Masindi and is preparing to undertake a similar initiative in Nakasangola. At the village level in the SW, Africare is working on the development of over 100 Village Action Plans under their Uganda Food Security Initiative. Nevertheless, while a considerable amount of capacity building has already taken place, the work of the Action Plans really only starts with their design. As critical or more so is the learning and adjustment that goes on as these plans are implemented. If support to this process were to stop before a full cycle of implementation, the full value of the Mission’s investment would not be realized.

4.2.2 Using Local Government and Local Organizations for ENR Management

There are clear indications that people are starting to organize themselves at the ecosystem level to reduce their risk to environmental damage and limits to production (see Box 3). In a fundamental way, these local organizations are the basis of strong governance. Threats to peoples' livelihoods through environmental degradation give people a reason to come together, to negotiate and plan, to advocate for priorities, and to implement activities. Organizations and initiatives that are formed around these basic threats to livelihood can become organs that people actively use to achieve their priorities.

DTC CARE personnel have observed that groups are moving from a passive to active approach to managing watersheds and habitats. They thought that people were more discriminating in selecting projects with which they would collaborate and taking more control in how the project functioned. Many still produce much of their own food, but by the PMA's definition, they have taken a major step in moving out of poverty.

Box 3: Example of Governance in Action: The Kyantobi Watershed

This example involves the Kyantobi watershed near Kabale town. In this case treating erosion problems on a watershed level requires collaboration of people who may otherwise have no need to work together. Heavy rains recently produced a flood that did considerable damage to fields in the lower end of the drainage as well as to a number of hillside farms. The LC1 Chairman at the bottom of the watershed used the Local Council system to organize producers in his community to start to treat their part of the watershed. The LC1 also contacted AFRENA to provide technical assistance in developing a management plan for the community.

The LC1 Chairman first organized community members (LC1) to treat their part of the watershed. This required convincing all forty members of the LC1—including those on the upper slopes of the hillsides—to work together to strengthen terraces through the establishment of agroforestry trees along the contours. In addition he was able to persuade his LC to initiate their own nursery for agroforestry trees.

The chairmen also initiated discussions at the LC3 level to form a watershed-wide organization and to solicit additional funds for anti-erosion measures that individual producers would not likely be able to pay for. In addition, since the watershed includes communities in a second LC3, the chairman is petitioning the LC3 to work jointly with the second LC3 to form a single watershed organization.

In the preceding example AFRENA was asked to provide the technical assistance and guidance with the agroforestry initiative. The LCI Chairman sought out AFRENA. In fact, the assistance that AFRENA is providing is beyond what is in their annual work plan. It is a dynamic and relationship that started to grow at the village level, and due to wise management by AFRENA staff, has been consistently growing ever since. This effort has even produced secondary benefits, as AFRENA has also been requested to hold a meeting with representatives from 129 LC1s (spanning 8 Subcounties) to discuss watershed management and other NRM issues.

In addition to the Kyantobi example mentioned above, there are other communities dealing with watershed management issues by organizing and developing bylaws on grazing and terrace management.

There is a strong potential for two-way interaction between these local governments and natural resources management decisions. In fact, that interaction is already taking place in the SW (see example in above box). As noted above the issues that surround natural resources management often go beyond the boundaries of a single household, a single village or a single sub-county. If people want to deal with watershed issues, forest management, problem animals, or tourist-based enterprise opportunities, they need to come together to negotiate responsibilities and benefits, to implement plans, to manage financial issues, and to deal with issues as they arise. Because natural resources management is integrally linked to livelihoods in the SW and because NRM issues cross boundaries at all levels, people have a very compelling reason to organize themselves.

Natural resources problems do not always respect administrative borders. CARE has helped Local Councils reach across Districts (LCV) to address challenges that span those jurisdictions. According to the Local Government Act, two or more districts can cooperate in the areas of culture and development through Councils, Trust Funds or Secretariats.² This is an argument that CARE's Integrated Lake Management Project is considering in trying to develop an inter-district management institution that could exercise legislative authority as delegated by the cooperating districts (Tumushabe 2000). See also Box 3 as an example of how opportunities to manage large natural resources landscapes also provide opportunities for communities to create institutions that address challenges that span administrative lines. Here again where the transboundary nature of natural resources management provides a very compelling reason for people, who may not ever have the occasion to work together, to come together, negotiate agreements, and implement agreements so that everyone is better off. It is no accident that ENR is a leading sector in helping Democracy and governance grow in Uganda. And, the Mission's investments in the COBs and other programs is helping that synergy take place.

² Section 39(6) states: "Subject to the provision of the Constitution, the Council may, in an Ordinance delegate its powers to legislate to a Council, Trust Fund or Secretariat formed under section 9 and Article 178 of the Constitution, which power shall be discharged by making rules or orders under the enabling Ordinance or as may be agreed upon in the Charter".

Box 4: Protected Area Management as a Means to Strengthen Governance

Given the programs that spanned Parish and subcounty borders and complexity of the problems around the gorilla parks, the local councils formed the Community Protected Area Committees (CPACs) to strengthen collaboration between Park authorities and the local communities and to deal with issues that spanned administrative boundaries (problem animals, conflict resolution, distribution of gate fees, etc.) Each Parish around the PA sends a representative, who must be a member of the Parish Production and Environment Committee. The significance of the CPAC is that it is a way to deal with issues that cut across so many local governments and agencies. (This is a similar situation to CAREs work around Lake George. The situations are similar—both are large bodies of natural resources that cut across administrative boundaries and provide Districts with a compelling reason to develop trans-District plans.) It also gives the GOU one entity to discuss and negotiate complex questions like problem animals and conflict resolution. Anticipating that other areas of Uganda will be facing similar levels of complexity in the future, the CPAC approach may have broader applications beyond the borders of the SW.

4.2.3 Collaborative Management Of Parks, Reserves, And Other Natural Areas

The UWA is also working to help Local Councils set up local institutions to be more effective partners. One program initiated by UWA in the early 1990s aimed at incorporating local concerns into the management of the national parks. These were the Participatory Management Advisory Committees (PMACS). PMACS were operational for a few years prior to the implementation of the decentralization program and represented in many ways the first official attempt by UWA to reach out to local communities by including their concerns in management planning.

PMACS have been disbanded, and UWA is operating within decentralized local government structures to utilize existing institutional mechanisms that promote community participation in PA management. These are Local Council sectoral committees for Production and Environment (LPECs). However, UWA realizes that communities living adjacent to PAs have common interests in PA management that require horizontal linkages among themselves and across local government boundaries. Thus, UWA proposes that “Community-PA Institutions” be formed from LPECs at the LC II or LC III bordering the PA (see UWA, Community-PA Institution Policy, Sept. 2000).

UWA, along with the Forestry and Fishery Departments are considering collaborative management relationships within which the State and communities would share authority, responsibility, and benefits.³ (In several conversations with personnel from these institutions, they observed that the institutions could not properly do their job of managing parks, forests, or bodies of water without the active collaboration of proximate communities.) The transfer of

³ This information comes from both strategy papers by the institutions and conversations with personnel.

managerial responsibility for certain forest reserves from the Forest Department to the districts, the establishment of locally-managed, tourist-based enterprises, and the sharing of gate receipts are examples of promising collaborative approaches. Also, in the case of the Bugungu Wildlife Reserve and several other protected areas under the management of UWA, authorities are studying the possibility of entering into some form of collaborative management strategies with local government, communities and the private sector. The EPED project, an SO2 activity, has been at the forefront of this initiative and conducted the Bugunugu options for management assessment (EPED 1999).

The UWA Strategic Plan for 2001-2005 calls for degazetting a number of areas (mostly former Game Department Controlled Hunting Areas and parts of Wildlife Reserves) and perhaps more importantly, recommends piloting areas to test approaches to collaborative management. Establishing “special cases” to experiment with co-management has been an effective approach. Progress in co-management in Mali, Niger, Namibia, Burkina Faso, Chad and Botswana was substantially accelerated after a series of localized cases gave government officials the opportunity to see that the approach would not lead to the total destruction of the resource (be it wildlife, forests, or fisheries).

It is also worth noting that UWA is making progress on the institutional side. Just a decade ago most UWA personnel had training in basic wildlife biology and anti-poaching operations (law enforcement), not much beyond that. Community conservation was a relatively new concept. Since that time UWA has recruited numerous technicians with community structure and communication skills and have conducted in-service training for most of the existing staff. The experience of UWA staff and personnel today represents the much broader technical needs essential for protected area management at the end of the 20th Century.

SO7 can help set the stage for a further transformation of the sector by helping UWA and the Forestry Department to carry out these initiatives. Design and implementation would require a mix of partners, and for this SO7 should look to organizations that have a proven track record. This would include ARD’s presence in the COB’s program, as well as CARE, ACDI/VOCA (EPED) and Africare’s experiences in local level resource management issues. The SO7 team may also want to look outside the current partners to solicit proposals from groups that have a track record in building capacity amongst community-based organizations.

4.2.4 Building Local Management Capacity

A lesson from CBNRM experiences was that, if authority and responsibility for managing parks, reserves, bodies of water, etc. are to be more fully shared with rural communities, then governments will require assurance that these communities can be held accountable for following agreements into which they enter. Part of the same lesson is that groups that are well organized and have good management skills can optimize the benefits derived from increased

authority and responsibility over parks, reserves, bodies of water, etc. as well as from on-farm activities.

Some of the community organizations that have been formed in the vicinity of protected areas in the SW include the Buhoma Community Campground Development Association, the Bwindi Progressive Women's Group, the Nyakena Community Group, Amajambere Iwacu Cooperative Group, Turambe I and II, and the Kigarama Women's Group. A recent analysis indicated that all of these groups lacked business skills and focused on a limited range of income-generating activities dependant on tourism. But it was also noted that these groups have a comparative advantage in their areas to reduce poverty, given the fulfillment of certain training needs. Much the same can be said of the Rwenzori Mountaineering Services, which has been criticized in the past for its lack of sound, transparent accounting and business skills. Some local organizations, however, are already managing financial resources and making collective decisions. The Parish councils around the Gorilla Parks manage revenues from the MBIFC Trust (USAID contributed to the establishment of the Trust) to address their priorities, and they will soon be receiving 20% of the gate revenues.

While some progress has been achieved in training community-based organizations and other NGOs, the lack of self-selected, self-managed, business-based groups is a gap in Uganda's quest to improve rural livelihoods and reduce degradation. Development of such groups around NRM-based enterprises would allow many of these communities to have more control over factors that affect livelihoods.⁴

4.3 On-Farm Productivity and Production Options

Problem Statement

Rural producers in the SW struggle with a multitude of challenges including steep slopes, soil fertility problems (acid soils), fragmented farms, and high demographic pressure. First and foremost, they are with soil erosion. But, terracing is hard work that usually takes land out of production for the first several years after the terrace is constructed. Traditional terracing uncovers soil in the upper part of the terrace, which is usually less rich and more compacted. Consequently, some producers prefer not to terrace even at the risk of higher erosion that causes problems for both the farmer, people down the watershed, and, eventually, into Uganda's western lakes and the Nile.

⁴ Community-based cooperatives with good business skills have been instrumental for groups in Mali, Botswana, Niger, and Senegal to gain control over natural resources linked to their livelihoods and to optimize the benefits from better management.

In addition to erosion, the management approaches lead to low soil productivity and excessive fallows. Other challenges include poor nutrition (according to one authority, close to 50% of children under five in Kabale District are malnourished), a 40% shortfall of fuelwood, high post-harvest losses, and, until now, few options for addressing these constraints.

Progress and Gaps

4.3.1 Soil Management

Research by AFRENA has developed mixed farming systems that substantially **increase** yields, reduce fallow periods, diversify household incomes, and produce new crops for niche markets (see Box 5). Outreach by Africare and CARE, amongst others, shows that producers are interested and willing to try these new practices and approaches.

Box 5: AFRENA's Research Results

Rotational Woodlots

Maize Yields: An increase from 1.2 tons/ha to 4.8 tons/ha.

- **Wood Yields:** 25 tons/ha/3 yrs (40% shortfall of fuelwood projected for Kibale District is estimated to be worth about \$9.0 million US/year which provides ready market)
- **Soil Nitrogen:** 20% to 60% increase
- **Soil Moisture infiltration:** Doubled
- **Soil Carbon content:** 80% increase
- **Fallow requirement:** Should substantially reduce the 25% that is currently under fallow

Hedgerows

Wood Products: One meter of hedgerow will produce 1.5 kg of wood and 6 to 8 stakes for pole beans.

Soil Conservation: On average, after 3-6 years the soil behind a hedgerow will be 14 cm thicker, translating into 127 tons of soil saved for every 100 meters of hedgerow

Fodder: One meter of hedgerow produces about 3.5 kg of high-quality mulch (100 g of N, 35 g. of P₂O₅); between 125 to 250 meters of hedgerow will provide supplement for one cow. Producers can get an extra one to two liters of milk per day using this supplement. Depending upon price per liter of milk, this nets producers between 70,000 to 115,000 USh additional income per year per head.

Introducing high value temperate fruits into Kigezi highlands. Currently working with a total of 70 cultivars of 17 fruit species. The results of this research should have application in other afro-montane regions in Uganda (two of which are in the SW).

Forthcoming report by AFRENA will provide cost:benefit analyses of various agroforestry options

Using an agroforestry-based system called “rotational woodlots,” AFRENA researchers have produced on-station maize yields approaching five tons per hectare compared to 1.2 tons on

control plots.⁵ The researchers attribute the increase in yields to a) reducing the bulk density of the soils in the upper parts of the terrace, increased nitrogen, and c) increased soil organic matter. The rotational woodlots are also producing an average of 25 tons/ha of fuelwood every three years that has a ready market in a District where AFRENA projects a 40% shortfall in fuelwood. This increased production of maize, wood and other crops provides smallholders with viable opportunities to increase yields, diversify the household economy and move beyond subsistence.

It can also reduce the amount of land lying fallow (a critical achievement given the high demographic pressure). It is estimated that more than 25% of the fields in the hillside farm system of Kabale District are out of production at any one time, and that 60% of the fallowing can be remedied by improved soil management. The mixed agroforestry systems allows producers to keep more of their fields under production.

In addition to rotational woodlots, AFRENA and others are developing and extending hedgerows comprised of trees and trash lines. Besides increasing yields, these agroforestry practices keep substantial amounts of soil out of Uganda's lakes and rivers, provide stakes for beans, provide fuel and construction wood, and provide high quality fodder (see later discussion on collaboration between AFRENA and the Heifer Projects).

The high-quality animal feed that comes from the trees and grasses in the hedgerows and that will come from the rotational woodlots also allows people to practice zero-grazing, a practice whereby producers stable their animals and bring feed to them. Zero-grazing reduces damage to hillside fields inflicted by free-ranging livestock (and reduces tensions amongst livestock owners and land-owners) and increases the amount of animal waste that can be returned to the fields. And, having a ready source of high quality cattle feed reduces the labor required to collect it (conversation with producers).

4.3.2 Nutrition, Homegardens, Livestock and Crops

According to an authority in the Kabale District, close to 50% of children under five in Kabale District are malnourished. And although the Western section of Uganda made considerable progress in reducing poverty during the 1990s, there are still significantly large areas within all of the target districts that suffer from this problem.

Africare and CARE are working to improve household nutrition through the intensification and diversification of homegardens and introduction of small animal husbandry. To date, Africare has helped women's groups to establish over 4,300 homegardens in the project area. Over 10

⁵ Fifty farmers are testing rotational woodlots on their farms

vegetable species are now being cultivated to supplement family diets, and at times provide for on-farm income. In some gardens, herbs and medicinals are included as well as vegetables.

Small animal husbandry has become part of the homegarden system, especially pig and rabbit rearing. Africare has completed 10 rabbit breeding centers stocked to provide distribution. Some individuals are producing, distributing the rabbits required in the scheme and selling surplus rabbits thereby generating addition on-farm income. Twelve pig breeding centers (pilot farmers) have also been established.

Box 6: AFRICARE: Uganda Food Security Initiative (Fourth Year)

Sustainable Agriculture

34,000 benefits in 106 villages in 13 subcounties (50% of targeted population)

119 community nurseries established

Nearly 2.2 million trees outplanted (since 1998) providing soil erosion protection for 729 ha.

Demonstrations include trash line plots (125), composting (1,800), water-harvesting techniques (240), and improved stoves (49)

Village Action Plans developed in 106 communities that include bylaws and an MOU with UFSI

Total of 326.5 tons of seed potatoes have been produced over the last five years after an initial provision of 72.7 tons by UFSI (one bag of seed potatoes is worth about 50,000 USh compared to 12,000 Ush for table potatoes).

380 tons of potatoes stored in improved storehouses where losses reduced from more than 40% to 26% (storage allowed producers to hold stock and sell at higher prices).

Potato yields increased from a baseline of 7.8 T/ha to 16.1 T/ha

Climbing bean yields have increased from 800 kg/ha to 1,519

Starting with 1.3 tons of improved variety of climbing bean (resistant to root rot), producers have generated over 48 tons of improved seed

UFSI distributed 74,000 vines of improved variety of sweet potato (high yields, matures quickly, high in Vitamin A) to 106 villages for multiplication by producers

UFSI distributed 467 kg of improved maize and producers have generated 8,645 kg

Community Roads

Constructed 9 rural roads covering 88 km that have opened up rural communities to markets and health care and reduced cost of transport of produce by 40%. Est. that roads serve 67,500 people.

Increase in number of households receiving inputs and sending goods to market from 0 to 9,642

The cost of transporting produce has been reduced by over 50%

Increase of daily vehicle use increased from 0 to 10.

Village centers have been turned into market centers for local produce to be sold to outside merchants

AFRICARE reports that that traders can now reach previously isolated communities. Urban-based merchants come from as far away as Kampala and Mbarara and have substantially increased the amount of produce sold on the market (no numbers).

Community Nutrition

4,300 household gardens established producing more than 10 vegetable species (primarily for home consumption)

Rabbit and pig rearing recently initiated to improve protein intake.

Ten rabbit breeding centers completed and stocked with 40 mother to provide distribution stocks. 367 offspring supplied to 204 households (person with whom we spoke had both distributed and sold rabbits—thus there is economic diversification also going on)

Twelve pig breeding centers established

AFRENA's work on hedgerows has contributed to both soil conservation and production of high quality fodder for dairy cattle where they work with Heifer Project International. *Calliandra calothyrsus* is the preferred species it improves the diet of the livestock, and increases milk

yields. For a relatively low one-time initial investment (50,000 Ush) producers can average an additional 450 liters of milk per year that would sell for between 200 Ush and 300 Ush/liter.

Outreach and improved varieties have increased productivity of potatoes, sweet potatoes and climbing beans. Potato yields have gone from a baseline of 7.8 tons/ha to 18.8 tons/ha (Africare 1998). Potato storage losses have dropped from 40% to 26% due to improved facilities. New varieties of sweet potato have also been introduced, which produce high yields and contain high levels of vitamin A. Climbing beans produced on the average 1,519 kg/ha as compared to the baseline of 800 kg/ha. Beginning with only 1.3 tons of improved bean seed (resistant to bean root rot), Africare has generated over 48 tons of high quality climbing bean seed. Maize production is mentioned above.

Another way of improving production is by using improved varieties of crops, trees and livestock. Improved germplasm is being provided by CIAT, CIP, AFRENA and HPI. However, even stronger links can be developed with NARO and other organizations working to improve productivity and disease resistance.

4.3.3 Agorforestry, Forestry and Fruit Trees

AFRENA is working on hedgerow productivity for terraces, native multi-purpose tree species, and the introduction of improved fruit varieties. Though still in the research stage, the fruit tree research shows promise to increase revenues and diversify incomes. AFRENA currently has seventy cultivars under trials.

Work on natural forest species trees (most seed comes from BINP through ITFC) centers on species that have either agroforestry value or can be grown on the farm site for commercial or traditional uses. One species is *Prunus africana*, which as indicated earlier in the report, contains medicinal properties that are in high demand, especially in Europe. The bark of *Prunus* is used to treat prostate cancer. The demand for *Prunus* has skyrocketed over the last decade, and this species has been placed on the endangered list because of extirpation in many parts of its range (pan-African, including Madagascar).

Other indigenous species tested and extended by AFRENA include: *Entandophragma excelsa* (a mahogany) *Maesopsis eminii*, *Podocarpus* sp. and *Lovoa* sp., all of which produce valuable furniture wood. *Dodonea viscosa* (fast growing secondary species used as hedgerows on terraces and produces poles for beans), *Polycias fulva*, a traditional agroforestry species that has multiple uses (soft wood for household utensils, fruit for medicine, bee keeping), and *Myrianthus holstii*, an important forest fruit tree (both for the locals as well as for wildlife) are also part of the program. *Myrianthus* also has high vitamin C content.

Unfortunately, the security situation has curtailed a very important activity supported by the mission in the area (WWF Rwenzori Conservation and Development Project), and there was not enough time to assess the impact of others (i.e., CARE ILM).

Nevertheless, there is some information on activities conducted during the last year of the WWF Rwenzori project. Activities focused on soil conservation (43 kilometers of contour plantings, 24 kilometers of grass strips), improved beehives (1,000 in all), tree planting (109,000) and energy savings through the introduction of improved stoves (288). The WWF project also facilitated the development of community management plans and improved conservation awareness among the target population through radio programming and newsletters. Bushenyi district is also one of the three target districts receiving support for capacity building and environmental planning under the COBS program.

In sum, there is a trend developing in parts of the SW characterized by intensified mixed-farming systems that increase yields, diversified sources of livelihood, reduced degradation, and improved nutrition. Collaboration is strong between AFRENA, Africare, ITFC, HPI and DTC. All of the projects also collaborate with CIP and CIAT to certain a degree (difficult to assess at what level because there was not enough time to visit with personnel from CIP and CIAT). The potential to further strengthen these links is great. Also, many of the technologies that are being tested and adapted could easily be extended to similar agro-ecological zones further north (Kasese, Bushenyi, Kibale, Hoima). Another positive link that should be developed is that the new national agricultural extension program (NAADES) has selected Kabale and Kibale districts (two of the ten Western districts) among the six pilot districts nationwide where they will initiate their program later this year.

4.4 Environment and Natural Resources Management (including Biodiversity)

Problem Statement

The pressure on Uganda's natural resource base is increasing in most parts of the country. Non-gazetted natural forest areas are being cleared for agriculture and charcoal making. Illegal pitting is widespread in most forests that have not been classified as nature reserves or protected areas. Wildlife outside of protected areas is being harvested and sold in urban areas. Some wetlands are still being drained and converted into agricultural zones. Illegal fishing practices have led to dramatic declines in fishing stocks in many key rivers and lakes. Soil erosion is accelerating in many mountainous areas.

Constraints and Progress to Date

4.4.1 Protected Area Conservation

Despite the problems listed above, there has been a great deal of progress made in ENR and biodiversity conservation over the past decade, much of it directly attributed to USAID's program. Perhaps the most noticeable effect is that ten years ago, many of the conditions listed above (poaching, pitsawing, over-fishing, etc.) were common in almost all of Uganda's protected areas. That is no longer the situation. USAID and its partners are largely responsible for improving management and decreasing the level of threat to Bwindi, Mgahinga, Kibale, and Rwenzori national parks. USAID also provided limited support to activities at Queen Elizabeth, Mt. Elgon, Semliki, Murchison Falls and Lake Mburo national parks as well as key forest reserves (Budongo, Mabira, Kalinzu, Kasoyha-Kitomi, and some smaller reserves). Overall, USAID played a key role in consolidating what was once a very fragmented and disorganized protected area system. In a similar respect, the mission was at the forefront of converting the six key forest reserves to national parks. Their conversion was attached to a condition that resulted in the disbursement of over one million dollars. Since these areas have become national parks, timber harvesting has come to almost a complete standstill.

However, it is true that illegal pitsawing is taking place in many parts of the country, including forest reserves. Most of this is going to support the demand for this undervalued resource in the Kampala market. Timber that normally would be demanding high prices on the international market (mahogany as well as others) is being irresponsibly used for secondary and tertiary construction uses in Kampala and other urban centers. The amount of mahogany used for window framing, floorboard molding, and other structural uses that could be more effectively covered by the softwood plantations and lesser value hardwoods, is alarming. This is an ongoing problem that must be addressed. More intensive management and marketing of wood from the Mafuga Forest Reserve (in the target districts), the largest softwood plantation in the country, would go a long way toward solving this dilemma.

4.4.2 Climate Change and Biodiversity

In the early 1990s the international discussion on climate change was largely restricted to the scientific community. However, as data accumulates, and demonstrates that for the first time in the history of the world, humans are having a direct effect on global climate change (by increasing mean temperatures throughout the world), this message is being delivered across all borders and is touching on many levels of society. USAID is now integrating climate change programming into agency wide activities. From a terrestrial ecosystem management standpoint, climate change and biodiversity are directly linked; the richest biodiverse areas of the world are the tropical forests which also happen to contain by far the largest and most important carbon pools. In the case of Uganda, monitoring the importance of land use management on carbon for

climate change will focus on the forests. In some ways, the fact that Uganda's most important biodiversity areas are also its largest carbon pools adds value and importance to the conservation of these areas. Biodiversity conservation has been greatly improved throughout the protected area system (particularly in the SW) during the past decade and with it the capacity to better safeguard Uganda's greatest carbon pools.

Through USAID support, biodiversity inventories have been carried out in some of the national parks (Bwindi, Mgahinga, Rwenzori, Kibale) and partially carried out in many other protected areas. USAID was one of the original donors to support the Biodiversity Data Bank (which has done work throughout the country) and in the early 1990s, provided some financial assistance to the Forest Departments biodiversity inventories of the 65 forest reserves. The level of baseline information for all key protected areas is much greater today than it was ten years ago. There are still information gaps, but most of them can be filled in the next couple of years. This information is vital for monitoring the management and use of the protected area system. Also, another area that will receive increased attention is the level of biodiversity outside protected areas. With decentralization districts are requesting assistance in conducting inventories to get a better estimate of the resource base. Some of the Mission's institutional contractors and grantees are well positioned to assist in this regard.

4.4.3 Local Community Participation in ENR

Co-management of natural resources between the GOU and local communities is a topic of much discussion. However, little direct activity has taken place on the ground as of this time. This is considered a necessary step by many if Uganda wants to conserve its protected area system and natural resource base.

Nevertheless, both UWA and the Forest Department have made efforts to integrate the concerns of local residents into the management of protected areas during the 1990s. This could be considered a positive first step in the co-management process. In 1991 a USAID conditionality under APE called for both organizations to develop initiatives that would encourage this approach. A product of this conditionality was the development of the first protected area participatory management plans for Uganda and the creation of management advisory committees (which have since been replaced by LPECs and special interest organizations).

Both institutions have come a long way to promote improved communications and more direct involvement of local communities in the management of the parks and reserves. EPED and COBS support to UWA have been instrumental moving this work forward in their respective areas of activity. There is still work to be accomplished in this regard, but a good foundation has been established. Specifically, collaborative management will be advanced by example. Setting up co-management trials under SO7 would allow GOU officials and communities the opportunities to assess the benefits and costs of sharing authorities and responsibilities. It will

also allow those who will benefit as well as be held accountable what type of skills and organization they will need.

Also during that time, tourism officially began in a number of SW protected areas that involved local communities. This began at BINP in 1993 and caught on quickly with more than 3,000 tourists a year between 1995-98. For the Buhoma Community Campground Development Association, numbers were 3,320 visitors (revenues of 38.4 million Ush) in 1997; 1,883 (revenues of 59.4 million Ush) in 1998; and 1,021 (28.3 million Ush) in 1999. For the first seven months of 2000, more tourists visited than during all of 1999 (1,064) and revenues are also projected to surpass 1999 (22.1 million Ush for first seven mos.).

Mgahinga was gazetted a national park in 1991. Tourism started in January, 94 with gorilla tracking being main earner. In FY 99/00 UWA earned 346,292,000 from MGNP, of which 311,227,000 came from gorilla permits. For the Mgahinga Community Campground, the number of visitors and revenues peaked in 1998 (633 and 3.8 million Ush respectively), fell to 303 and 1.8 million Ush in 1999, and rose to 329 and 3.3 million Ush over the 8 months of 2000. Local communities also participated in the tourism activities in the Rwenzoris MNP, Kalinzu FR, Kyambura WR, Kasayoha-Kitomi FR and Kibale Forest NP

4.4.4 Institutional Development

Work is far from complete on an institutional level as well. The two agencies most directly responsible for protected areas (and hence terrestrial biodiversity), UWA and the Forest Department, have had to deal with personnel problems in recent years. The Fisheries Department has been known over the years as a relatively weak organization.

Fortunately, progress is being made with most of the institutions. Both UWA and the Forest Department are going through major restructuring procedures (the Forest Department will become an authority). Both also have relatively new policies and guidelines that should prevent some of the problems that have arisen in the past from happening again.

During the 1990s environmental management progressed considerably. In addition to the development of sound policy and legislation, environmental management has moved along at the institutional level as well as on the ground. As a result of the NEAP process, the National Environmental Management Agency (NEMA) was formed. As indicated elsewhere in this report, in addition to NEMA, the NEAP process produced sector wide environmental policies and guidelines, environmental standards, information systems and legislation (Environmental Statute).

4.4.5 Decentralization of Environmental Management

Although environmental awareness, planning and management have improved greatly over the past decade, there are still a number of key challenges that need to be met. One is the continued decentralization of environmental management at the district, subcounty, parish and village level. Most districts have not yet prepared a State of the Environment report or have completed the DEAP process. Also, there is still a shortage of qualified and trained personnel to oversee this work at the local levels.

In many ways the decentralization of environmental management has taken hold at many levels of Ugandan society, but the job is more or less only half-complete. However, the most difficult part of the process is completed as most of the pilot districts have attained many of their initially stated objectives. Though this process has received good support from the donor community, there is a risk of donor fatigue setting in at a critical time when NEMA and the decentralization process is preparing to complete that task.

Through APE and now COBS, USAID has been a key partner with NEMA in assuring that this work is integrated at the field level. Products of this work include the District level State of the Environment Reports and District Environmental Action Plans (including Subcounty and Parish level action plans). NEMA is now entering a phase where the original pilot districts (7 that are completing DEAPs during the past several years) are looking towards ways of integrating environmental planning more completely into the District Development Planning process. This is also one of the recommendations of the PMA-NSCG, and is an important step that will need donor support. It would appear to be a logical fit for USAID's new SO7, since it brings together environmental planning and management in direct contact with agriculture at the local level.

4.5.6 Tourism

If security is maintained, Uganda's regional comparative advantage in the tourism sector will likely increase. Gorilla visits are the largest tourism draw at this time. Unfortunately, many tourists only go the Gorilla Parks. However, within a days drive are attractions such as the Rwenzoris—which are unique in their own way, QE, Forest Reserves, hot springs, Chimpanzee visits, as well as others that have the potential to encourage people to stay weeks instead of days. Add Murchison Falls, and Uganda becomes the only country in the region that could offer this magnificent range of tourist attractions. These sites also lend themselves to locally-managed enterprises—if people have the enterprise and organizational management training.

The Ugandan tourism industry is largely dependent upon nature tourism liked to biodiversity. In addition to protected areas being better conserved over the past decade, a series of hotels, which were formerly owned and managed by the GOU, have been privatized. Concessions have been awarded to many private sector groups. Many of the enabling conditions for tourism

development are in place (USAID played a major role all of these developments). However tourism, like many other sectors of the Ugandan economy (ag. exports - coffee, vanilla) go through good and bad periods. This happens internationally as well.

Neighboring Rwanda and Kenya have gone through several fluctuations in the tourism cycle over the past decade. In the case of the US, the largest tourist destination is Florida, and its economy is highly dependent upon the tourism revenues. In the mid-1990s a number of European tourists were murdered. Tourism numbers dropped off dramatically, which had a profound impact on the State's economy. It took a series of measures by Florida law enforcement agencies, and a renewed marketing and advertising to stop this trend. Overall, it took several years for this situation to be corrected.

The point of these examples is to help demonstrate that support for sectors of the economy should not be overlooked when the sector goes through a difficult period. Tourism in Uganda is largely privatized (an objective of USAID ten years ago), and the biodiversity base is better conserved. Within the context of diversifying Uganda's economy, and given increased security measures, tourism will almost certainly play a much greater role than it is playing today.

Globally, tourism is one of the fastest growing business sectors. Tourism development in Uganda paralleled the world trends for most of the mid 1990s until a series of security related problems thwarted this growth. Since 1999 tourism appears to be growing once again, albeit modestly. Will it become as important as it was in the late 1960s and early 1970s (when gorilla tourism was just starting in the DRC – had not yet been developed in Rwanda nor Uganda)? Not likely in the next decade or so, but given the right conditions, tourism should contribute significantly.

4.5.7 Summary

In the case of the SW, the Mission has supported biodiversity conservation and environmental management for over ten years and merits recognition for sticking with a program long enough to produce results. In spite of civil strife and insecurity as well as increasing demographic pressure, key ecological services have been conserved, habitat protected, and wildlife populations stabilized and in some cases increased (the gorilla populations in the two parks, elephants in the QE/Kigezi Wildlife Reserve). In the SW, many communities used to have an adversarial relationship with the parks—due to problem animals and lack of benefits. Some of them are now requesting UWA to habituate groups of primates so that they could set up tourist operations.

In addition, the conservation approach that USAID helped pioneer in the late 1980s continues to evolve and bear fruit in terms of changing people's attitudes and perspectives. The initiative directly supported by APE to decentralize environmental management in the early to mid 1990s has moved across many districts. Direct benefits of this work include a much broader

understanding of the role environment plays in everyday life, how to include environmental concerns and issues into development planning at all levels, and village based action plans tailored to address needs as they are perceived by villagers themselves. But, while these advances show that the program is on the right trend, as indicated above, there are constraints that remain to be addressed before the full measure of benefits from past investments can be realized.

Although relatively small in terms of global impact on biodiversity conservation and climate change, Uganda's value from an ENR standpoint and one justification for continued USAID support, is that there are good policies in place; competent, performing GOU counterparts, and transparent accounting systems. In addition, there are a range of USAID partners that understand each other and work very effectively together. Some of these include the GOU institutions (UWA, Forest Department, Fisheries Department) and others include the NGOs (WWF, AWF, Africare, CARE, ACDI/VOCA) and contractors (ARD).

4.6 Business Management Capacity and Savings to Improve Livelihoods

Problem Statement

As noted in several places above, benefits will flow to communities and producer groups that are self-selected, self-managed, that can negotiate and be held accountable for their agreements, and that are run in a business-like fashion. This would apply to communities within a watershed, groups of milk producers trying to gain access to markets and equitable prices, groups of seed potato producers, communities trying to attract tourists to use their camps and facilities, or a confederation of tourist-based enterprise groups trying to get tourists to visit multiple rather than one site. However, at this time there appears to be a shortage of these groups as well as institutions that are qualified to provide capacity building services in this area.

Constraints and Progress

4.6.1 Business Management Skills

Uganda has only limited sources of technical services that are needed to promote business management and planning in the natural resources (including of course, agriculture) sector. The concept of "farming, forestry, fishing as a business" has not yet taken sufficient hold within Ugandan society, particularly in the SW.

However, there are encouraging signs. Africare is planning on training target farmers in basic business skills and strategic marketing of agricultural produce. They plan on working with the Kabale Farmers Association, the Kabale Private Sector Promotion Center and Pride Africa-Kabale. ACDI/VOCA will soon launch its "Farming as a business" program that offers an

opportunity for some communities to gain this training. Apparently, AWF offers business training under a grant from the EU. Africare and CARE also have track records in other countries in building business-based producer groups. Again, in the SW Africare is currently indirectly working with this issue; their community road rehabilitation program have opened up isolated rural communities to markets and health centers.

There are also the community based service organizations and women's groups that are listed in an earlier section of this report that represent fertile ground upon which to further develop business management skills. The Uganda Community Tourism Association (UCOTA) was established in 1998 by representatives of various community groups throughout Uganda to help local communities achieve sustainable development through tourism. UCOTA has provided capacity building and tourism-related services to some CBOs.

How can SO7 help foster these activities that are developing self-selected, self-managed organizations run on a professional level? Based on lessons from Mali, Botswana, and elsewhere, building these organizations requires partners with the know-how and a track record. Fortunately for SO7, the organizations listed above bring that expertise to the equation.

Effective training is a demanding task that can not be done by short-cut or by people with limited experience. In Mali, the development partner provided regular TA to the Associations through one full business cycle. In addition, the TA worked as an intermediary between the banks and the Associations to build mutual confidence. Subsequently, the TA team provided assistance on an as-needed basis to reinforce the necessary skills and help them go to the next step.

A certain number of the Botswana Trusts (a CBO) share management responsibility and authorities with the Wildlife Department (WD). The Trusts, not the WD, tender the offers to private operators for such enterprises as hunting and photo tourism. They negotiate the contracts and how much they are to receive from the enterprise. They may also negotiate other agreements including the number of people from the CBO that are to be trained/employed by the operator. The WD is responsible for developing the management plan but the Trusts play a role both in its establishment and implementation. In addition to Trusts formed around wildlife-based tourism, others have formed around veldt-based enterprises.

AFRICARE Business Skills Training

USFI (AFRICARE) to train target farmers in basic business skills and strategic marketing of agricultural produce (e.g., Kabale District Farmers Association, Kabale Private Sector Promotion Center and Pride Africa-Kabale)

“Under the current liberalized economy, farmers are being encouraged to form village marketing Associations and to pool their produce in marketing centers to improve their bargaining power and reduce exploitation of middlemen.”

The 76 storage facilities constructed by USFI serve as seed banks that will allow producers to keep produce until prices are optimal.

In Mali, producer groups formed themselves into Village Associations (VA) in order to better benefit from cotton production. The benefits of the associations have gone much beyond cotton. Access to capital is one major change brought about by being a member of a VA. Whereas individual farmers were ignored by banks prior to the development of the VA's, they now have access to loans as members of a recognized VA. Given the high repayment rates of the VA's, banks now seek their business. Some of the VA's have used their collective power to purchase equipment that increases productivity. Others have negotiated agreements with the Forestry Department such that commercial harvesting is no longer allowed on village lands.

While the Botswana Trusts focus on wildlife and veldt-based enterprises and the Mali Village Associations focus on agriculture and natural forest management, the results are the same: both people and the resources are better off. And, while the communities in both cases benefit from particular resources, similar results have been achieved in Niger where the natural resource base is much more marginal.

4.6.2 Savings

CARE has actively initiated saving schemes developed on traditional systems that have been used in the SW for years. The traditional systems are based on group savings. These groups are an integral part of community life and are often the only source of security. Individuals are often members of more than one group, gender does not appear to have a negative effect on membership. Roughly 50% of the members are female. The groups collect small sums (about 1000 Ush per month) and the committee then reviews requests for loans. About half of all loans are used for income generating activities. Land O'Lakes has also been working with farmers in the SW to improve on savings and credit programs.

Fortunately, there are also several programs based in Kabale that are designed to assist farmers in developing basic business and financial management skills related to savings and credit. One of these is a GOU program run by the Cooperative Department of the Ministry of Trade, Tourism and Industry. Another institution is the Private Sector Promotion Center, a joint project of the GOU and UNDP. A final one is with a local bank (Centenary Rural Development Bank). While all of these programs offer programs that compliment each other, they are not able to reach out to a sufficiently wide audience. So while Uganda has some challenges ahead in management and business training, the SW has a foundation to build upon.

4.7 Markets and Capital

Problem Statement

The recent report of the PMA-NSCG study team noted that in all districts visited residents stated repeatedly that the lack of reliable markets was the single biggest limiting factor to increasing

agricultural productivity. Residents complained of being overexploited by transporters and other middlemen, and obliged to sell off their surpluses when the prices were not the most favorable. In most cases, production capability was cited as secondary to reliable market access.

Constraints and Progress

As indicated in the preceding sections, there are a growing number of opportunities in the SW for producers to diversify their household economies and move beyond subsistence (or even out of farming). However, if these opportunities are to be realized on a substantial scale, producers will require increased access to markets and capital.

Most producers in Uganda hold the same perspectives as their counterparts in other countries: while they are risk averse and protective against catastrophic failures, they are also interested in trying new practices and approaches that would move them beyond subsistence. As such they are interested in the experiences of their colleagues in the next community or next country. And, there are a number who were trying a number of new systems in order to build a more secure and prosperous livelihoods.

4.7.1 Intensifying Production and Services

Household economies will require higher productivity through intensification to move toward commercialization. Currently, AFRENA, Africare and others are promoting intensification through agroforestry, zero grazing, more systematic rotations, and more effective use of manure and residues. That intensification does, however, require additional inputs of time and other resources.

Intensification examples in the SW include:

- HPI helping farmers enter the market economy by providing high-quality milking cows. Pre-requisites include the producer having a minimum bank account (to show that they can afford the recurring costs) and producing a minimum amount of high-quality feed on his/her farm.
- AFRICARE helping producers acquire rabbits to raise and breed. The sale of the offspring diversifies household economies and helps people move out of the subsistence spiral. Producers need capital to build proper hutches and purchase supplies.
- AFRENA testing temperate climate fruit cultivars that have the potential to provide new and increased sources of revenue to producers in the Kigezi and Rwenzori highlands. Producers need to acquire horticultural skills.

- Africare providing seed potatoes that get a 400% mark-up over table potatoes. They require quality storage sheds that require an initial investment.
- IGCP, MBIT and Peace Corps assisting communities proximate to the wildlife reserves to compete with national and international companies for the tourist trade. They require capital and business skills to optimize those benefits.

4.7.2 Capital Requirements

Capital is a necessary input to help producers and communities in the SW move out of poverty and into a cash economy. Linking capital to small-holders has been a challenge across Africa and has met with various degrees of success and failures. Uganda is a bit behind in helping small-holders gain access to commercial capital and could benefit from experiences elsewhere.

The IDEA program in Uganda is doing laudable work with producers in parts of the country who can borrow commercial money from banks as individuals. However, in the SW, most of the producers that work with SO2 partners would not be able to negotiate a loan as an individual, but perhaps they could adapt an “IDEA-type” assessment to identify the “upper tier” farmers.

An alternative for most producers would be to belong to legally-recognized producer groups that could borrow as a group and then re-lend to its members. In contrast to countries like Mali, Senegal, and Botswana, there appear to be few such groups in the SW. If producers are to borrow, they need commercial partners such as banks. But, it appears that there is little confidence on the part of commercial banks that small-holders would be reliable and viable business partners. Here, also, Uganda is a bit behind some other countries and could benefit from their experiences.

4.7.3 Transport and Processing

Transport is often the key limiting factor in getting producers and markets to operate smooth and predictable manner. Processing methods and location can also play a critical role. At this time, products processed in the SW appears to be minimal. There is one cheese processing plant in Kabale (at least) and one functioning milk processing plant in Mbarrara (three others recently closed down). There are, however, milk surpluses in Kabale during the rainy season. Honey is processed and bottled in Kisoro

Land O’ Lakes is working with producers in the SW to transport and process the milk in a more efficient manner. Land O’Lakes is also working with nutrition groups in an attempt to increase milk consumption in key markets like Kampala. The Banyarwanda and Banyakore both have strong traditional ties to milk products. The problem in those regions is the supply side, whereas in the Central Ugandan market there is a lack of demand.

Other examples of transport and processing activities and potential include Africare's work in road rehabilitation that is connecting previously isolated communities in Kabale to markets. Markets that could be further developed for climbing beans and seed potatoes include Rwanda and urban areas in Uganda. Milk was a good market crop until recently when the price given to producers has declined drastically. AFRENA predicts that the temperate fruit produced in the highlands as well as fast-growing timber trees will have ready markets. Consequently, while there are opportunities for diversifying the on-farm economies in the SW, there are also pitfalls and uncertainties associated with transport and processing.

There is a group of organizations working with goods and service producers in the SW that are supported by SO1 and SO2. Most of them are listed in above. Others, like IDEA, which is not directly operational in the SW, could easily bring its expertise to the advantage to a range of key producers. The Mission once again, has a comparative advantage in the SW in that it is well placed to leverage its influence to bring a greater level of collaboration among a large group of players.

5. Summarized Findings and Recommendations for SO7

The recommended strategy aims at achieving four interrelated results that are directly linked to the critical landscape approach:

- a) **Improved livelihoods and reduction of poverty** (Social elements/Value of Resources and Ecological Services elements)
- b) **Increased biodiversity conservation** (Biophysical elements/ Value of Resources and Ecological Services elements);
- c) **More effective governance and empowerment at all levels of society** (Social elements/ Enabling Conditions elements);
- d) **Enhanced ecological services** (Biophysical elements/Value of Resources and Ecological Services elements).

We recommend that SO7 capitalize on the results from the past investments by the Mission and its partners. We do not recommend this merely because we think that the Mission should necessarily “stick-with-it.” To the contrary, we encourage it to walk away from those investments that have not produced promising results. However, we found that SO2 and its predecessors produced a myriad of results to build upon and have developed close working relationships with competent organizations that bring complementary skills to the playing field.

5.1 Findings

The principle accomplishments that SO7 can build upon include the following:

- The development of agricultural, horticultural and agroforestry practices and systems that improve livelihoods by (a) increasing yields; (b) diversifying household incomes; (c) reducing degradation; and, (d) improving nutrition.
- The introduction of new agriculture crops and varieties, livestock and forestry/agroforestry species that have the potential to increase and diversify revenues.
- The capacity of local government, NGOs and CBOs strengthened through training, planning and the implementation of activities (District State of Environment Reports, DEAPS, Community action plans – Subcounties, Parishes plans, etc.)

- Protected area management agencies strengthened through training, management planning, field level support.
- Biodiversity and key ecological services (water supply and purity, climate change, soil conservation, flood control, waste cycling, etc.) associated with protected areas conserved and maintained.
- Baseline information and research on natural resource base greatly improved and expanded; numerous technologies tested and extended.
- Synergy developed and strengthened among key partners.
- Level of environmental education improved at many level; links to health and nutrition enhanced as well.

Market strategies and access improved in certain locations

To fully capitalize on the results from past investments and achieve broad-based results, we identified the following constraints (based on analyses of experiences in Uganda and other countries where progress toward broad-based impacts have been achieved):

1. Lack of political will (resistance from central government) to move forward with collaborative management schemes for natural areas that involve sharing authority and responsibility with local communities.
2. Lack of self-selected, self-managed, business-based producer groups that are competent in negotiating agreements, implementing those agreements, and accountable to those agreements. Similarly, lack of larger associations/unions or other representative producer groups.
3. Lack of viable relationships between commercial interests (dealers, banks, etc.) and rural producer groups.
4. Inadequate flow of information among all parties concerned with SO7 programs and issues.
5. Readily measurable market values for natural resource goods and services are usually the only value considered in planning. Total economic value is frequently ignored.
6. Lack of reliable markets.

7. Local and regional conflicts.

5.2 Major Recommendations

5.2.1 Strengthen And Expand On Current Successful Activities

This report indicates in a number of places where projects and programs have demonstrated competency and effectiveness. There has been significant advances made in capacity building and planning (COBS, EPED, Africare) which is proving to be a main vehicle for empowering villagers and local representatives. This work is fairly well advanced in some of the target districts and behind in others.

Local Government support will continue to be a national priority as decentralization continues to involve. The Missions contractors and grantees have done excellent work in promoting democracy and good governance through their capacity building work. The LGDP and PMA NSCG activities are also focussing on this priority. In fact, progress made in environmental planning is cited in the PMA NSCG guidelines as a logical entry point for combining initiatives and developing synergies. This process should continue to receive Mission support.

The Mission should also help build capacities of local organizations (LCs, other CBOs) to organize, negotiate, manage enterprises, and be held accountable. Since this type of training is best done in the act of managing an activity—particularly a revenue-generating activity, we recommend that communities that have an enterprise underway or have capital that could be invested in an enterprise be trained first. (Candidates would include LC IIs around the gorilla parks that receive grants and gate receipts, diary producers, seed potato growers, honey producers, etc.) The training is intensive and should be conducted by an organization that has a track record in training self-managed, business-based community-based organizations. We recommend that this activity be put out to bid unless one of the current partners can demonstrate a track record.

Synergy already exists but could be strengthened between research institutions and organizations that are extending productive technologies. The collaboration between AFRENA and Africare is particularly noteworthy and exemplary. It is a model that could be easily replicated in other zones. CIP and CIAT also offer great opportunities (and do collaborate to varying degrees) with other development organizations and projects. Heifer Project International is also working closely with some partners in the SW. ITFC is providing AFRENA with a steady source of natural forest seed for field testing native species in agroforestry and woodlot configurations. This work is also demonstrating considerable productivity. Although DTC is no longer directly funded by the Mission, they are willing partners that have vast experience in the region (all five target districts when including the Integrated Lakes Management project as well) and should prominently fit into the partner matrix. The Mission should encourage this cooperation and

synergy by assuring that these activities are specifically written into grants and contracts when they are negotiated. Similarly, the Mission should develop a SO7 working group that includes representatives of all projects and programs funded under the SO.

5.2.2 Expand Current Target Area To Entire Albertine Rift Districts

As indicated in this report, the Albertine Rift is a critically important landform on local and international levels. In Uganda there are about ten districts that cover the Albertine Rift. This report directly addressed five of the ten. The Mission is, however, currently supporting work in one other (Masindi) and has a history of recent project support in two more (Bundibugyo and Kabarole). Out of the ten districts the Mission actually has experience in eight. If Nakasongola (EPED work) district is added (adjacent to Masindi and important for Lake Kyoga and the Nile), then the Mission is working in nine out of eleven. The Mission has a clear comparative advantage based on a long history of working in this important region.

The Albertine Rift districts represent Uganda's contribution to the northern African Great Lakes (Albert, Edward and George) and a significant portion of the water resources flowing into the Nile. These districts also contain 75% of Uganda's national parks and about 90% of Uganda's evergreen tropical forest reserves. This means that these districts contain the highest levels of biodiversity and are among the most important in relation to climate change and other ecological services.

Technologies developed for the highlands and mid-altitude elevations are appropriate for these districts. Excluding Nakasongola, the ten Albertine Rift districts account for 20.5% of Uganda's population and 18% of its land area. Given the extremely high percentage of land classified as protected area, the population pressure on the natural resource base is extreme. In terms of poverty, the western area (which would include all of these districts) is behind the central area by about 10%. The central area actually has a poverty level comparable to the United States (roughly 20%).

For the Mission, this would mean supporting work once again in Kabarole district (which has the largest population of any western districts, 860,000 and is second in size only to Masindi) and Bundibugyo (which has been difficult to work in due to insecurity). It would also mean continuing work in Masindi (already active with EPED), and considering activities in Kibale and Hoima. ACDI/VOCA with the EPED project is well positioned to follow up with activities in Hoima and possibly Kibale. CARE or Africare could begin work in Kabarole. COBS could extend their activities to any of these districts, and AFRENA, CIP and CIAT technologies would be appropriate for the entire area.

5.2.3 Support The Development Of An SO7 Information Service Activity

The number of development activities taking place in Uganda is very high and changing all the time. The political will to move the country forward has been evident since the NRM government came to power at the end of the civil war. It is difficult for technicians and managers to stay abreast of the most recent developments and activities in their sectors. It is even more difficult to stay up to date with other sectors that are doing work that is related. This is true even in the mission.

Since SO7 is combining a range of activities and organizations, it would be prudent to have a project or organization be responsible for tracking progress and disseminating information about all ongoing activities in the sector. This could include bringing in information from outside the country as well. The main functions of the project would be to monitor and collect information on all SO7 related activities in Uganda (including non-USAID funded), and assemble the information so that it could be distributed to the widest audience possible.

In addition to promoting information exchange within the SO and among partner organizations, this activity would also enhance the development of synergy and collaboration among different players: a stated objective of the mission. It could also assist the GOU with monitoring and tracking development work by setting up an official link to the Department of Planning within the Ministry of Finance and Economic Development. It would benefit line ministries and institutions active in the sectors. Considering the amount of ongoing activity in Uganda, this would be an important task. This could be carried out through an institutional contract or grant to an organization like the Ecotrust (formerly GMU) or subcontracted to current contractors or grantees.

5.2.4 Integrate Activities Of SO1 More Thoroughly Into The Western Districts

There are a number of activities supported under SO1 that are on a successful track (IDEA, Title II, and others). The geographic focus of a lot of this work is outside the Western districts (quite a bit of it appears to be in the Central region). However, many of the interventions carried out by these projects are appropriate for the Western districts as well. The Mission, with their SO7 partners, should develop a strategy where ongoing and planned projects for the Western districts could take advantage of the accomplishments and lessons of the SO1 activities.

In some cases these projects could directly initiate activities in these areas where they would also benefit from the experiences of others funded under SO2. This is a good time to sit down with all partners and look for areas of common interest to develop a strategy that most effectively addresses the Missions stated goals and objectives. Discussions should also take place with the other SO's in the Mission to see where efforts could be collaborated more closely.

5.2.5 Program The Majority Of Mission Resources To Field-Based Activities

As indicated earlier in this report, the late 1980s and most of the 1990s saw the GOU and its institutions go through a considerable period of rehabilitation and development. This included the design of progressive policies and legislation in many sectors, and the reform of government ministries and the military. Most of these enabling institutional conditions have been completed, or are well on their way to completion. Decentralization is also advancing at an impressive rate. The need at the central level is not as great as it once was.

Reinforcing this argument is the results of the most recent poverty survey. As indicated in the Uganda National Household Survey, the region with the lowest levels of poverty is the Central region (Kampala in particular- poverty levels for the Central urban regions are listed as 7% - considerably lower than US urban levels). Furthermore, one of the groups that gained the most from Uganda's recent economic growth is government workers. The groups that have gained the least are the poorest rural households (Appleton 2001).

With Uganda's natural resource base under extreme threat following the civil war, the Mission's strategy during that period was to target most of its ENR resources to the field while maintaining some support for emerging institutions (UWA, NEMA, Forest Department, Makerere University). This strategy was largely successful. There is no reason to change this strategy at this time. While it is important to continue supporting technical assistance and training at the central institutions (especially to maintain an "active seat at the table"), most of the resources should go directly to the field whenever possible. The ratio should be in the area of 80%-85% for the field, and the rest to central institutions and related activities.

5.2.6 Stratify Areas In The Western Districts For Monitoring And Evaluation Purposes

Mission support to the Western districts demonstrated progress at different rates. Overall, the extreme SW (Kabale and Kisoro) and Masindi appear to have moved forward more rapidly. This was not the case in the early to mid 1990s. During that time Kasese and Kabarole were out in front of the others (especially Kasese which was probably the most progressive district for the decentralization of environmental management in the country in 1995, and RMS was also the most advanced local NGO dealing in tourism services). Bundibugyo, which was widely regarded as among the least developed districts in all of Uganda, was even making considerable progress on a number of fronts. The unstable security situation in that region essentially ended the momentum that had developed.

If the Mission becomes active again in these districts (recommendation #2), as well as add Hoima and Kibale (areas with limited experience) then standards and expectations will have to be different. Progress cannot be expected to happen as rapidly as it would in areas like Masindi,

Kabale, Kisoro, Bushenyi and Rukungiri. It has taken the better part of the past decade for conditions in Kabale and Kisoro to develop to where they are today. Similarly, there has been concerted work in Masindi for most of the past six years that is starting to pay dividends.

The Mission is currently planning a five- year strategy (and looking to develop impact indicators for even shorter time frames). In some of the Western districts where the Mission would break new ground (Hoima, Kibale) or where it builds off past investments in areas of potential conflict, the planning time frame should conceptually be extended to at least a ten year period.

It has been demonstrated in many parts of Uganda (and elsewhere throughout the world) that capacity building and empowerment takes time. Though a five-year window would be enough to develop a number of activities that demonstrate tangible impact, it would still be the early stages for creating the conditions for alleviating poverty on a broad scale. If in five years the Mission decides to discontinue support to these areas, then at least many groups and local governments will be well positioned to search for other funding sources or simply be better able to take care of themselves. For the more advanced districts the Mission can already start setting targets that correspond to rates through which demonstrated technologies can radiate outward.

5.2.7 Promote The Development Of Pilot Co-Management Schemes Between Central Government Agencies, Local Communities And The Private Sector

As central governments realize the importance of involving local interests in the management of the natural resource base (including protected areas), the decentralization of management authority and responsibility is becoming more prevalent in many parts of the world. The process is often problematic and certainly not without risk. However, many agencies simply realize that they do not have the resources necessary to effectively carry out their mandate and are willing to take measured chances on devolving some authority over a resource.

As indicated earlier, Uganda is in the middle of discussing this option. The Mission and its partners should encourage and support the establishment of several low risk schemes (experiments) with UWA, the Forest Department, Wetlands Department and Fisheries Department where trial co-management activities could be carefully designed, implemented and monitored. The Forest Department has already turned over management of a number of forest reserves to local government, and community based ecotourism operations have developed in a number of the other reserves. However, the transfer of management responsibilities and authority has not yet taken place. This is the next logical step in a process that encourages productive community support for a natural resource while enhancing the prospects for improved livelihoods.

5.2.8 Adapt The Landscape Approach Model For SO7 Strategic Planning

Over half of this report concerns the use of a landscape approach for planning and monitoring activities. There is no need to write more about it here except to point out that it has proven to be an extremely useful tool for the development of this report. It is recommended that the additional information listed at the end of Section Two be completed so as to develop a more comprehensive picture the Albertine Rift landscape as it is found in Uganda. It is also recommended that the landscape approach be used for programming and planning activities in other parts of Uganda. It may require a bit more time in the initial stages to complete this work, but a little extra time invested now will greatly increase the chances of developing activities that effectively improve livelihoods.

Appendix 1: Carbon Value Assessment of South West Districts

The purpose of this assessment is to provide the mission with an estimate of the relative Carbon Value of the target districts. This information will be useful for planning as well as for reporting on climate change indicators. An analysis has been completed for each district. Five other districts in Uganda were also assessed to provide a basis for comparison. These districts include: Gulu, Kotido, Kumi, Lowero, and Mbarara.

The materials used for this preliminary assessment are the National Biomass Study Land Cover Stratification Map (scale, 1:900,000), and “Table 3, Carbon stored in aboveground vegetation and rates of annual carbon accumulated in aboveground biomass for selected forest biomes,” from Clausen and Gholz, 2001. This value includes a “risk factor” derived from the global status of the biome/system in question. It is also worth noting that soil carbon is not included in these calculations since it is relatively stable, and annual changes in soil carbon are very small when compared with changes in above ground carbon levels.

Biomass and productivity values for the world’s major vegetation systems have also been used to provide estimates of carbon for bushlands and grasslands (Aber and Melillo 1992). Normally, a forest carbon value assessment would not take into account grasslands and other non-forested areas. For this report, these values have been added to illustrate the relatively small amounts of carbon contained in these systems.

The methodology is explained for one target district (Kasese was chosen because it contains the highest number of vegetation classes relative to the other districts).

Kasese District contains six vegetation classes: Tropical Forest, Woodland, Bushland, Small-scale farmland, Grasslands, and Plantations (agricultural – sugar cane, same biomass as grasslands). Wetlands were not included in this analysis. The Biomass Study classifications are then matched with the forest biomes/systems in Table 3, and vegetation values from Aber and Melillo. The values from those sources are applied to the classification in question (CV) and multiplied by the percentage cover for the district. The result is a Final Carbon Value by vegetation type. The individual values for each vegetation type are then summed to provide the final district value. The higher the final carbon value the more important the district is for carbon management. For example:

Biomass Study	Table 3/Aber/Melillo % of Cover	CV	Final Carbon Value
Tropical Forest	Tropical Evergreen 15% (1,500 + meters)	359	54
Woodland	Tropical Deciduous 20%	205	41
Bushland	Aber/Melillo 13%	28	4
Small-scale farm	Agroforestry/Home Gardens 40%	32	13
Grasslands	Aber and Mellilo 15%	4	1
Plantations	Plantations (agric.) 2%	4	<.5
Total District Carbon Value			113

In the case of Kasese the two non-forest vegetation types comprise roughly 4% of the total district carbon value, but cover 25% of the district. Agroforests and homegardens make up about 10% (covers 40% of the district), and the forest systems about 86%, although they cover 35% of the district.

The forest biomes/systems from Table 3 and the vegetation classes from Aber and Mellilo are left out for the other districts. They were included in the preceding example to illustrate the relationship between the various systems.

Biomass Study Classification % Covered CV Final Carbon Value

Bushenyi District

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	20%	432	86
Woodland	5%	205	10
Bushland	5%	28	1
Grassland	10%	4	1
Small-scale farmland	60%	32	19
Plantation (agric. or forestry)	<1%		0
Total District Carbon Value			117

Rukungiri District

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	15%	432	65
Woodland	8%	205	16
Bushland	4%	28	1
Grassland	20%	4	1
Small-scale farmland	53%	32	17
Plantation (agric. or forestry)	<1%		0
Total District Carbon Value			100

Kabale District

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	8%	359	29
Woodland	1%	205	2
Bushland	<.5%		0
Grassland	12%	4	1
Small-scale farmland	75%	32	24
Plantation (agric. or forestry)	3%	54	2
Total District Carbon Value			58

Kisoro District

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	17%	359	58
Woodland	0%		0
Bushland	0%		0
Grassland	3%	4	0
Small-scale farmland	80%	32	26
Plantation (agric. or forestry)	<1%	0	0
Total District Carbon Value			84

Non-Target Districts

Kotido

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	0%	0	0
Woodland	15%	205	31
Bushland	20%	28	6
Grassland	55%	4	2
Small-scale farmland	10%	32	3
Plantation (agric. or forestry)	<1%		0
Total District Carbon Value			42

Mbarara

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	0%	0	0
Woodland	3%	205	6
Bushland	18%	28	5
Grassland	60%	4	2
Small-scale farmland	18%	32	5
Plantation (agric. or forestry)	<1%		0
Total District Carbon Value			18

Luwero

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	0%	0	0
Woodland	50%	205	102
Bushland	15%	28	4
Grassland	15%	4	1
Small-scale farmland	30%	32	10
Plantation (agric. or forestry)	<1%		0
Total District Carbon Value			117

Kumi

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	0%	0	0
Woodland	5%	205	10
Bushland	5%	28	1
Grassland	15%	4	1
Small-scale farmland	75%	32	24
Plantation (agric. or forestry)	<1%		0
Total District Carbon Value			36

Gulu

Biomass Study Classification	% Covered	CV	Final Carbon Value
Tropical Forest (1,000 – 1,500 meters)	0%	0	0
Woodland	35%	205	72
Bushland	5%	28	1
Grassland	15%	4	1
Small-scale farmland	45%	32	14
Plantation (agric. or forestry)	<1%		0
Total District Carbon Value			88

Based on this analysis, all of the SW districts, with the exception of Kabale, have high values for carbon management. Kabale's value is mid range when compared with the other districts. Luwero (vast areas of woodland forests – highly threatened from charcoal making) has the highest carbon value of the non-target districts assessed, followed by Gulu (high percentage of woodlands). Districts with high percentages of grassland areas have the lowest values (Mbarara and Kotido). Grasslands are often left out of the analysis as their overall carbon content is minimal when compared to forested or even partially (i.e., woody savanna) forested areas.

More precise estimates of tons of carbon per hectare should be available within 4 – 6 months when the Biomass Study completes the first inventory report. Average figures for vegetation types can then be directly used in Table 3, added to sequestration rates and multiplied by the risk factor for a final carbon value. Also, district, project or site specific information can be improved by using district vegetation maps (scale 1:155,000) from the Biomass study.

Appendix 2: Projects As They Relate To Landscape Elements

Project	1. Biophysical Elements	2. Social Elements	3. Value Elements	4. E/ Conditions
IDEA	Central plateau,	Middle class farmers	Maize, beans, cut flowers, vanilla	Export policies, laws?
AFRENA	Eastern highlands	Bakiga and Buganda subsistence farmers	Soil conservation and fertility, staple crops, wood production, fruit trees.	Comparative information from region
EPED	SW highlands,	Ethnically diverse; over fifty ethnic groups	Staple crops, wood, development planning, PA use.	Environmental Statute
ITFC	Central plateau	Bakiga and Banyarwanda	Natural forest utilization, ecotourism, biotech.	Links to universities
COBS	Central plateau, Lake Albert Basin/Albertine Rift, woodland PA	Multiple: subsistence farmers of the SW; residents near protected areas.	Development planning, ecotourism mgt.	UWA Statute, Env. Statute, Local Govt. Act?
IGCP	Afromontane forests of the SW	Residents near protected areas	Ecotourism	Three country program(Uganda, DRC, Rwanda)
Heifer Project International	highlands/Albertine Rift	?	Milk production, improved nutrition, energy savings	Church of Uganda- first partner.
Land O'Lakes	SW districts, National parks, Wildlife reserves	Associations	Milk production and marketing	Revised Cooperative Law
Bwindi Trust	Virunga volcanoes, Bwindi INP	Parishes adjacent to protected areas	Honey, botanicals, ecotourism	Off-shore endowment
CIP	Central plateau, northern Uganda, SW highlands	Multiple: SW subsistence farmers, central plateau farmers	Potato production	Part of international research group (CGIAR)
CIAT	Central plateau, eastern highlands	SW subsistence farmers	Bean production	Same as for CIP
Africare	BINP and MGNP	Subsistence farmers	Staple crops, wood production	Strong links to AFRENA
CARE DTC	SW highlands, Central plateau	Subsistence farmers	Staple crops, wood production	Multiple donors
	SW highlands, ?			
	SW highlands			
	SW highlands			

Recommendation: Review all ongoing projects under SO1 and SO2 within the context of the landscape approach. The main features of this recommendation are the three elements that address biophysical, social and economic aspects of the activity. The fourth, enabling conditions is added to provide a general idea of the most significant policy or institutional condition related to the activity. There could be others that warrant mentioning. Also, this table should be viewed

as a partial example of what could or should be put together by the study team and the mission during the analytical period to determine the best way to combine the two strategic objectives. What is presented in this table is an incomplete picture of ongoing activities covered under SO1 and SO2.

For example, if you select the SW highlands, SO1 and SO2 support eleven projects currently working in this area. All are working with subsistence farmers of the SW, and eight are addressing issues related to natural resource productivity (AFRENA, Africare, Heifer PI, DTC, CIP, CIAT, ITFC and Bwindi Trust). AFRENA, CIP, CIAT and ITFC concentrate on research while the others are extending technologies. From an economic criteria perspective, almost all projects are dealing with natural resource production (crops for nutrition and income, trees and other vegetation for nutrition, energy, shelter and income, livestock for nutrition and income). COBS, IGCP, ITFC and the Bwindi Trust are all involved in ecotourism support while COBS and DTC are also working to strengthen local government through capacity building. IDEA is indirectly working in this area through the Kibale Farmers Association.

Another example is the Central Plateau. There are at least eight projects supported by SO1 and SO2 that are working in this area. They are IDEA, EPED, AFRENA, Land O'Lakes, Heifer Project International, COBS, CIAT and CIP. In relation to social criteria, some are working with subsistence farmers (AFRENA, Heifer, CIP, CIAT and EPED) while others are dealing with associations (Land O' Lakes) or farmers that can access credit (middle class farmers – IDEA). AFRENA, Heifer and EPED all deal with associations as well. One other group (COBS and EPED) are dealing with protected areas and institutional capacity. Most projects share productive economic criteria; some concentrate resources on developing productive technologies (AFRENA, CIP, CIAT) while others focus more on extending these technologies (IDEA, EPED, Land O'Lakes, Heifer PI). COBS and EPED have direct links through protected area management and local government capacity building.

Given the information contained in the above examples, the Mission is well positioned to assure that grants and contracts are written or modified to encourage and include direct collaboration and information exchange among all the activities.

Appendix 3: Describing The Landscape Of The South West

Biophysical factors

Climate

The general climate pattern of the region has two dry seasons - December to January and June to August. There is some variability in the amount of rainfall received within the five districts, but the general range is from about a low of 1,000 mm near Queen Elizabeth NP to a high of about 2,000 in Kisoro (near Mgahinga). The average over the 5 districts is about 1,400-1,500 mm per year. Average temperatures also vary and can be as low as 15° C in Kisoro and highs of 24° C in parts of Kasese, Rukungiri and Bushenyi districts. The relatively high level of temperature and precipitation variation for a region on the equator is attributed to the broken and rugged topography that includes some of the highest mountain ranges in all of Africa.

Geology and Topography

As mentioned above, SW Uganda is part of the western rift (also known as the Albertine rift) which stretches from the Uganda/Sudan border in the north to the southern border area of Malawi and Mozambique. The Albertine rift is one of the most seismically active regions of the world. The fault pattern is extensive and is prominent throughout the length of the rift valley. In the northern zones the fault pattern is more complex, particularly near the area of the Rwenzori Mountains. Most earthquakes seem to originate in this area, and the most serious earthquake of recent times occurred near Bundibugyo in 1966 (magnitude of 6.7-7.0).

Most of the parent material of SW Uganda is Precambrian in origin and the geology can be divided into four broad zones. The first is the undifferentiated gneiss that is moderately to highly metamorphosed. This formation is found in the Rwenzoris and associated foothills, in Bushenyi above the escarpment, and south to Rukungiri (north of Bwindi Impenetrable National Park). The second is known as the Buganda-Toro formation that consists of partially metamorphosed phillites, schists, quartzites and amphibolites, and is found adjacent to the undifferentiated gneiss formation mentioned above. The third zone is the Cenozoic rift valley sediments and moraines that are associated with Lake George and Lake Edward. They comprise roughly 20% of the target districts. The fourth zone is the volcanic bodies associated with the extreme southwest and parts of the escarpment.

There are minerals located in several zones. In the Rwenzoris, mining for cobalt, copper has been taking place since the colonial period. Gold mining has been carried out in some parts of Bwindi Impenetrable NP as well as in Kalinzu and Kasyoha-Kitomi Forest Reserves.

Most of the target area is also part of what is known as the Albertine graben. A graben is a depressed segment of the earth's crust, and the Albertine graben comprises the northwestern portion of the western rift valley. Within the graben there are a number of basins and sub-basins. Globally, rift basins represent only 5% of all basins, but they contain 12% of the world's proven oil reserves and 4% of the areas having natural gas (MEMD 1997).

Since the mid-1920s there have been periodic studies conducted in an effort to determine the hydrocarbon potential of the Albertine graben. There are known oil seeps, most of which are located north near the Lake Albert and the Nile River. There is, however, active petroleum exploration taking place in the Semliki basin, just north of the Rwenzoris.

There are a number of geomorphological features that characterize the SW region and that can be described in general terms. First, there are two mountain ranges that contain some of the highest peaks in Africa - the Rwenzoris and the Virunga Volcanoes. In relation to the target districts, the Virungas are located in Kisoro and Rwenzoris in Kasese. Mt. Margarita in the Rwenzoris is the third highest peak on the continent at 5,110m. The Virunga Volcanoes form a chain that stretches from SW Uganda in a southwesterly direction into DRC. There are no active volcanoes in the Rwenzori range, while the Virungas are still volcanically active.

Another feature is the foothills and lesser mountains that are associated with both ranges. Most hills are in the 1,500-2,500 meter range and they are located in parts of all the target districts. Most mid to lower slopes of these hills are being cultivated, while the upper slopes are often used for grazing. There are also several important forest Protected Areas (Forest Reserves) found in this zone, as well as some smaller forest reserves that have been handed over to local government for management. The hillside landscape also usually includes small private woodlots.

A third factor is the escarpment associated with the rift valley that runs through Bushenyi and Rukungiri Districts in a southwest to northeast direction. There are several forested areas located on the escarpment. East of the escarpment lies the landform most commonly found throughout Uganda, the mid-elevation plateau with gently rolling hills that continues eastward to the shores of Lake Victoria and northward to the banks of the Nile River.

The last feature is the lakes and associated wetlands that cover a considerable portion of Bushenyi and Kasese districts. This is where Lake George and the Kazinga channel empty into Lake Edward. Lake Edward is the lowest point in the target districts at 912 meters. Other lakes and wetlands of considerable local importance are Lake Bunyonyi and Lake Mutanda in Kabale and Kisoro districts. There is also extensive wetland systems in both districts, many of which has been drained for agriculture (in Kabale, dairy farming by one influential resident that owns large tracts of the wetland).

Soils

Most soil information available for Uganda comes from the soil surveys that were conducted from 1958-1960 by the Soil Unit working at the Agricultural Research Station at Kawanda. The soil maps produced from this survey were at a scale of 1:250,000. More detailed surveys of Uganda's soils have only been carried out in selected locations. The information from this survey is too general for site specific assessments, and for the purposes of this report, discussion of soils will remain descriptive and at a very broad level.

In the 1960s, soil taxonomy differed greatly throughout the world, and at that time Uganda's classification was based on Hoore's system. Since then international efforts have been made to consolidate the number of soil classification systems and most countries are using either the FAO or United States systems.

Using the US system, there are three major soil groups that are found in the SW - Oxisols, Ultisols and Inceptisols. Oxisols are the oldest and most highly weathered of the earth's soils, and they are the largest soil group represented in the tropics. They are characteristically red and contain a high concentration of hydrated oxides of iron and aluminum. The cation exchange capacity of oxisols is very low; they are nutrient poor and are usually very permeable. Oxisols are well suited for less intensive uses such as shifting cultivation, forestry, grazing or plantation crops with soil amendments. Most of Kasese, Bushenyi, Rukungiri and Kabale district soils are Oxisols.

Ultisols look like, and have similar properties to, Oxisols. They are also heavily weathered and are usually derived from acidic parent material (granite). Phosphorous fixation commonly occurs in both soil groups thereby making phosphorous a limiting factor where these soils are found. Ultisols erode more quickly than Oxisols, and unlike Oxisols, pH and texture change abruptly with depth of the profile. They also commonly have a clay layer or clay skins, and they are generally found in more humid conditions than Oxisols. There are sections of Ultisols in the border area of Rukungiri and Ntungamo districts.

Inceptisols are usually very young soils that are found in volcanic or alluvial zones. They rapidly develop profiles and often contain horizons that result mostly from alterations of parent material. For example, in volcanically active areas (like the Virungas) each eruption will have its own chemical signature, which can be used by scientists to date the events. Most of the inceptisols of the Central African region belong to the suborder, Tropepts. They are generally quite fertile and can be developed for agriculture even within a generation or two.

There is so much soil variability within the five target districts that any meaningful analysis related to soil fertility and productivity would have to be done on a very local scale. There are a

number of institutions that have good data related to site- specific soils (AFRENA, CIP, CIAT, as well as others), and this information should be sought as appropriate

Water and wetlands

The five target districts contain several important watersheds, and most them flow into the Lake Edward system. Lake Edward is one of the Great Lakes of Africa that lies on the western Rift Valley. It is about 65 kilometers long, with a maximum width of 38 kilometers. The deepest end is in the DRC (112 meters); the Ugandan side (average depth is 17 meters) is much less steep and rises with an almost uniform gradient toward the Ugandan shore.

The main inflows to Lake Edward are the Nyamugasani River (southwest end of Rwenzoris), the Ishasha, Rutshuru and Rwindi Rivers from the Kigezi, Rwanda highlands and Virunga volcanoes, and the Kazinga channel (from Lake George). There is one main outflow, the Semliki River in the northwestern part of the lake. The Semliki river flows north and east, coming back to the Ugandan border north of the Rwenzoris in Budibugyo district and eventually empties into Lake Albert. Both Lake Edward and Lake George fisheries are very important to the local economy.

As mentioned above, the districts of Kabale and Kisoro contain two relatively small lakes, Bunyonyi and Mutanda. Both lakes have local economic importance, although the fishing stocks in Lake Bunyonyi have been severely depleted. This lake is known, however, for its high quality stocks of crawfish, which are consumed locally and exported to Kampala. Given its scenic setting, Bunyonyi is also the site where a number of islands have been developed for ecotourism.

The stream and river network associated with the watershed forests of the target districts is extensive. Due to the water capturing abilities of these medium-high altitude forests, the resident population has access to potable water even during the dry season. This system also feeds into the extensive wetland areas that are found in most of the districts.

Kabale has three extensive wetlands; two of which have been drained for agriculture and livestock (dairy cattle). Some of the areas have been used for over 30 years. Recent survey work indicates that areas drained in the early 70s have less soil organic matter, and are hence less productive, than those drained 10-15 years later. It is not clear at this time if the critical factor is soil subsidence, the location of the sites or a combination of both factors (personal communications). Groundwater information for the target districts is limited and dated (last survey work is from the 50s).

Flora and Fauna

The flora and fauna of the Albertine Rift is internationally known as one of the richest areas in the world for biodiversity and in particular, for its high levels of endemic species. The forests of the Albertine Rift are frequently referred to as “Pleistocene refugia”. During the most recent periods of glacial advance, the lower margins of the alpine and high altitude ecosystems descended as much as 1,000 meters. This allowed the migration down-slope of higher altitude species and opened up the opportunity for exchanges with other systems. During interglacial periods (some of which were warmer than the one we are in now) the alpine and high altitude vegetation line moved higher up the mountains, placing these flora and fauna into periods of isolation. This oscillation occurred several times during the Pleistocene. It is believed that this alternation between isolation and reunion was (is) an effective way to enhance diversity. In Uganda, the Albertine Rift contains four biogeographic vegetation communities including the Guinea-Congolian, the Sudanian, the Afromontane archipelago and the Lake Victoria Regional Mosaic, all of which are considered regional centers of endemism.

The biodiversity of the Albertine Rift has been rated among the world’s highest conservation priorities by no fewer than four studies. The most recent is the WWF US “Global 200: Conserving the Earth’s Distinctive Ecoregions” assessment which rates both marine and terrestrial ecoregions. The Albertine Rift Montane forests received the highest rating in this study, both critical and endangered classifications. Two other ecoregions of the SW were also included in this list: the montane shrublands of East Africa (includes the higher elevation zones of RMNP), and for freshwater fauna, the African Rift Valley lakes (which includes Edward, George and Albert). This study also cited the Albertine Rift as “having the highest level of endemism in Africa for an ecoregion of equivalent size” (Olson et al., 2000).

The Albertine Rift is also cited by IUCN (Heywood 1996) and Birdlife International (Stattersfield et al. 1997) as being an area of exceptional biodiversity and endemism. Conservation International’s “Twenty Five Biodiversity Hotspots” does not include the Albertine Rift (only three of the world’s 25 spots are in Africa) because it did not meet one criteria: it is not sufficiently documented enough. The Hotspot report does, however, list the Albertine Rift as one of five global areas that should be included on the Hotspot list in the near future once additional inventory work is completed (Myers et al 2000).

The highest mountain ranges of the Albertine Rift are the Rwenzori Mountains and the Virunga Volcanoes. It is near the upper elevations of these ranges where the unique tropical alpine vegetation is found (consisting of *Scenecios* and *Lobelias* among others). These areas are above the “tree line” and they have often been compared to montane tundra of the temperate zone. The differences, however, between the temperate montane tundra and the tropical alpine areas are considerable. The temperate zones experience long and sometimes extreme seasonality, and the vegetation is frequently buried by snow for long periods of time. In the tropical alpine, the

temperature fluctuations are on a daily basis; with evening temperatures usually going near or below freezing and then warming up to 15 – 20° C during the day.

The vegetation classification for this report and the carbon assessment (Appendix 1) is taken from the National Biomass Study. The cover classes taken from the Biomass study and relevant to the SW vegetation are: Tropical high forest, Tropical high forest (degraded), Woodland (average tree height greater than 4 meters), Bushland (average height less than 4 meters), Grassland, Wetland, and Tree Plantations. Using this system, roughly 25% of the five districts is under some form of forest cover (high forest/high forest degraded/woodland/plantation). The districts with the highest percentage of forest cover are Kasese and Bushenyi, the districts with the lowest level of forest cover are Kabale and Rukungiri. Most of the forested areas in the five districts are associated with protected areas.

Bushland cover less than 10% of the total land area in the five districts, and most of this is associated with Queen Elizabeth National Park (QENP) with a much smaller percentage in the high elevation zones of the Rwenzoris. Grasslands comprise roughly 10-15% of the five districts. Most of these are associated with QENP, but there are also significant grassland areas in eastern Kabale and Rukungiri districts and southern Bushenyi district. Wetlands (excluding the water bodies) comprise less than 5% of the overall district area. The rest of the area (45%-50%) is classified as small holder agricultural land.

As with the flora, the fauna of the five districts contains a rich assortment of diversity. In all of the national parks (QE, Rwenzori, Bwindi and Mgahinga) comprehensive inventories have been conducted for large mammals and birds. Bwindi also has complete inventories for butterflies, reptiles and amphibians as well. Rwenzori has complete inventories for all animal groups except reptiles and amphibians. Some limited work has been carried out in the other parks for the remaining animal groups.

Inventory work has also been carried out in Kalinzu Forest Reserve (FR) and Kasyoha-Katomi FR, but there are still gaps to be filled. Most of the inventory work conducted in Semliki NP and Kibale NP are comprehensive (Kibale and Semliki NPs fall outside the target districts, but are key parts of the biophysical landscape and represent areas where USAID has invested resources in conservation).

Nationwide studies indicate that three of the five most important national parks for conserving birds and mammals are located in the SW. They include QE, Bwindi and Rwenzori Mountains. QE leads all other park in both categories, while Bwindi is second in mammals. QE is the home to some of the better known East/Central African large mammals like the elephant, lion, leopard and buffalo as well as the highest number of bird species recorded in Uganda (547). Bwindi and Mgahinga are home to almost half of the remaining mountain gorillas (*Gorilla gorilla berengei*).

Bwindi is also one of the only areas where mountain gorillas share habitat with chimpanzees. The rare golden monkey is found in Mgahinga, and the Rwenzoris are known for its black and white colobus population.

Protected Areas (PAs)

SW Uganda has the highest concentration of PAs in the country. In the five target districts there are four national parks, two game reserves and four forest reserves. If the landscape approach is viewed in strictly the biophysical sense, then two other national parks should be added, Semliki (Bundibugyo district) and Kibale (which is actually one of the main forest sectors that is contiguous with QE and is in Kabarole district). There is also another game reserve, Toro/Semliki (Bundibugyo) and the Itwara Forest Reserve (Kabarole) that could be considered part of this landscape complex as well.

Uganda's protected area system has its origins in three institutions, Uganda National Parks, the Game Department and the Forest Department. Prior to 1991, there were only four national parks - QE, Murchison Falls, Kidepo Valley and Lake Mburo. Game reserves and controlled hunting areas were usually located adjacent to the national parks and served as buffers to the core area. Most of these areas were created during the colonial period and focused on conserving the large mammals (elephant, buffalo, giraffe, lions, leopard, etc.) as well as hunting zones. The Forest Reserves were mostly created for the extraction of commercial timber and the protection of important mountain watersheds.

Uganda National Parks and the Game Department were merged in the mid 1990s to form the Uganda Wildlife Authority (UWA). There are now 10 National Parks (six key Forest Reserves were upgraded to National Park status in the early 1990s) and 12 Wildlife Reserves (formerly game reserves). Even with the transfer of six important forest reserves to Uganda National Parks, the Forest Reserves still account for the largest percentage of protected areas in Uganda (11,410 km², or 35%), and there are 730 of them in all. Most of the forest reserves (roughly 650) are less than 5,000 hectares. There are 28 reserves that are greater than 10,000 hectares that comprise 60% of the forest estate. It is also noteworthy that there are about 350 km² of forested area under dual management (where both UWA and the Forest Department are responsible for the same forested area).

During the past decade, the management focus for both organizations has shifted considerably in recognition of the vital role PAs play in providing critical ecological services, harboring unique and important biodiversity, and spurring economic development on a local and regional scale. The mandates of both institutions now reflect these factors.

The following is a brief description of the PAs in the SW that includes an overall rating of their conservation value (for national parks and wildlife reserves only). The conservation value is

based on a compilation of biological values, landscape and amenity values, socio-economic factors and conservation status. This is a PA scoring system developed by Martin and Bell (1984) and adapted for Uganda by Lampery et al. (1998). Scores and descriptions follow:

Score	Conservation Importance
7	International Significance – World Heritage, Man and Biosphere Reserve, Ramsar site.
6	International Significance - IUCN listings.
5	Important for conserving a landscape, ecosystem or species at the African Regional level.
4	Nationally important for conserving a landscape, ecosystem or species.
3	Supplements other PAs in conserving specific area.
2	Of some conservation importance if protection is improved.
1	No further conservation significance (due to settlement or status change).

QENP - This park was established in 1952 and covers an area of 2,091 km². It is located in three of the five target districts (Kasese, Bushenyi, Rukungiri). QE contains a number of different vegetation zones including wooded savannas, grasslands, wetlands, deciduous forests and medium altitude evergreen forests. It has a very high scenic and landscape value. It is partially located on the Albertine Rift escarpment with a clear view of the Rwenzori Mountains and contains parts of Lakes George and Edward, has crater lakes and Kyambura Gorge. The northern part of QE is contiguous to Kibale National Park and serves as a corridor for the seasonal movement of wildlife. QE has the largest number of mammals and birds recorded for any national park, and it is an important conservation zone for chimpanzees, lions, elephants, hippos, giant forest hogs, Ugandan kob and the shoebill stork. QE is a Man and the Biosphere Reserve, a Ramsar site and has the highest conservation value score, 7.

RMNP – The Rwenzori Mountains were originally classified as a forest reserve. The area was upgraded to National Park status in 1991. RMNP is 998 km² and located in three districts: Kasese, Kabarole and Bundibugyo. The area is most well known for its rugged mountains, series of hanging glaciers, tropical alpine vegetation and high altitude lakes. RMNP is a transboundary park, with about 30% of its area being in the DRC. In the DRC, the Rwenzoris are part of the

first national park created in Africa, Parc Nationale des Virungas (established in the 1920s by Belgian colonial authorities). RMNP is an internationally known destination for hikers, mountaineering enthusiasts and ice climbers. The shortest tourist loop on the Ugandan side of the Rwenzoris takes 5-7 days, depending on the prevailing weather conditions and the physical condition of the tourists. The vegetation consists of high altitude forests, moorland (peat bogs), and the alpine areas. Mammals include forest elephants (very few left), chimpanzees, giant forest hog, and several species of monkeys. RMNP is known for its high number of endemics (over 40). RMNP is a World Heritage site and has the highest conservation value score, 7.

BINP – Bwindi Impenetrable National Park was also a forest reserve that became a national park in 1991 (along with RMNP and Mgahinga). BINP is a mid-high altitude evergreen forest that is most well known for its resident mountain gorilla population, high levels of endemism (particularly birds - over 20), and great diversity of tree species. BINP is home to about half of the remaining population of mountain gorillas. Three groups of gorillas have been habituated since 1992, and visits to these groups have become one of the most popular tourist attractions in Uganda. The forest is also known for its resident population of chimpanzees, and is one of the few places where chimpanzees and mountain gorillas coexist. Other prominent mammal species include forest elephants, giant forest hog, and several species of monkeys. BINP is one of the few parks that established special use zones for the local population in well-defined areas. BINP is a World Heritage Site, a priority conservation area for mountain gorillas, and has a conservation value of 7.

MGNP - This is the smallest national park in the system, 38.6 km², but is part of a much larger complex known as the Virunga Volcanoes. MGNP is entirely located in Kisoro district. This is a transboundary park, which adjoins other mountain gorilla habitat protected in Rwanda (Parc Nationales des Volcanes) and the DRC (Parc Nationales des Virungas). MGNP is known for its volcanoes, mountain gorillas and the rare golden monkey. MGNP contains some high-altitude evergreen forest (*Hagenia abysinnica* is the dominant species) and bamboo. It is also the destination of tourists who want to visit habituated gorillas and climb volcanoes. MGNP is considered a regionally important park, and has been assigned a conservation value of 5.

Kyambura Wildlife Reserve - KWR is a 156 km² protected area that borders QENP and Lake George. It is also connected by a small strip of forest area to Kasyoha-Kitomi forest reserve. It was created in 1965 and is entirely located within Bushenyi district. Vegetation is primarily grasslands and wooded savanna, and KWR is known for its high diversity of large mammals and birds, especially the flamingoes located on crater lakes (only place they are found in Uganda). A private concessionaire currently manages this reserve, (the lease expires in 2001) and there are discussions underway to make KWR part of the QENP. KWR has been determined to have national importance for conservation, and has been given a conservation value of 4.

Kigezi Wildlife Reserve – KIWR is a 359 km² reserve that also acts as a buffer for QENP. It was established in 1962 and is located in Bushenyi and Rukungiri districts. KIWR straddles the rift escarpment, and has several vegetation zones including grasslands, wooded savannas and medium altitude evergreen and deciduous forests. It has a large population of birds and the large mammals (especially elephants) appear to be increasing in number. Maramagambo forest is part of the reserve and this is one of the areas that has dual management with the Forest Department. KIWR has been determined to have national importance for conservation, and has been given a conservation value of 4.

Kasyoha-Kitomi Forest Reserve - KKFR is a 399 km² forest that was established as a reserve in 1932. It is situated on the escarpment overlooking the rift valley, and it is located mostly in Bushenyi district. Most of the reserve consists of middle-high altitude evergreen forest, with about 15% covered by grasslands associated with hilltops. The forest is relatively intact as there has never been mechanized cutting and there is little agricultural encroachment. This forest has the highest protection and management category within the Forest Department system; it is classified as a CORE Conservation Forest (citation) due to its high level of biodiversity. It contains a vegetation type (*Albizia, Markhamia* forest) which is not represented elsewhere in Uganda's PA system. Of 65 forests inventoried in the 1990s for biodiversity, KKFR ranks second only to BINP. Conservation values have not yet been developed for forest reserves.

Kalinzu-Maramagambo Forest Reserve - KMFR is 584 km², with most of the vegetation being classified as either high forest or medium to low forest. The reserve is located in Bushenyi and Rukungiri districts and is next to QENP. The Maramagambo forest part of the reserve has dual management with the UWA. KMFR is also an important forest for biodiversity and ranked fourth out of the 65 forests inventoried. It is also a CORE Conservation area, and serves as a vital watershed for Lake Edward. The Kalinzu part of the reserve has a sawmill which has been legally harvesting timber for a number of years. There is also a fair amount of illegal pitsawing that takes place in other parts of the reserve. Both KKFR and KMFR are surrounded by communities with very high population densities (207 people and 328 people/km² respectively).

Echuya Forest Reserve – Echuya is a relatively small (35 km²) reserve situated on the border with Rwanda. It is located in both Kabale and Kisoro districts. The reserve occupies a high altitude ridge (2270 – 2570 meters), and contains a large swamp that runs north-south in the center of the reserve. The vegetation is dominated by either high altitude evergreen forest (*Hagenia-Rapanea*) or bamboo (*Arundinaria*). Of the 65 forests inventoried for biodiversity, Echuya ranks eighth; it supports ten species that do not appear anywhere else in Uganda. It is also classified as a CORE Conservation area. The forest is also an important watershed in a highly populated zone (305 people/km²). The Muchya swamp acts as a reservoir and drains to the north supplying communities with year round water supplies.

Mafuga Reserve – Mafuga is 38 km², of which 30 km² are plantations of exotic tree species (*Pinus patula*, *Cupressus lusitanica* and *Eucalyptus*). This forest contains the largest exotic tree plantation in Uganda, and as such has great economic potential. It is located in Kabale and Rukungiri districts. The reserve is also an important part of the watershed feeding the Ishasha river that empties into Lake Edward. Mafuga has been given a category of “secondary” conservation area.

Socio-Cultural-Economic Factors

The People

The Great Lakes region of south-central Uganda, Rwanda and Burundi were the center of the most well established and powerful kingdoms of the entire East/Central African region. These kingdoms dominated their respective areas during a period in excess of 600 years. It remained that way until the European colonial powers began to carve up East/Central Africa during the early part of the 20th Century. The kingdoms remained, but they became part of a larger colonial administration system (Kesby, 1977).

In the target districts there are several ethnic groups that have their origins tied to these powerful kingdoms. They are the Banyankore, Batoro and the Banyarwanda. Other groups that reside in the target districts include the Bakonjo and the Bakiga. All are considered members of the Bantu family that migrated from the west (Congo), and speak languages that are derived from a Congo Bantu group of languages.

Two groups, the Bakonjo and the Batoro primarily inhabit Kasese district. Both are relatively recent immigrants to the QE/Rwenzori NP area, and settled there in the early 19th century. The Bakonjo are sometimes referred to as a “stateless” group, in that they were not historically linked to a traditional state or kingdom. They are mainly cultivators and farm on hillsides surrounding RMNP. They are also known as “mountain people” in that they have traditionally used the higher elevations of the Rwenzoris as a place of refuge during times of conflict. The Bakonjo have settled the entire region around the Rwenzoris, and are well established in both the DRC and Uganda. There are several main trading and transport footpaths regularly used by the Bakonjo that cross the mountain range at various points and connect Uganda with the DRC. Some of these were turned into tourist circuits by the Bakonjo, which is how the local NGO, the Rwenzori Mountaineering Services was originally formed.

The Batoro were known as pastoralists and settled in the lower elevations and valleys where they could graze their livestock. By the middle of the 19th century the Bakonjo were paying a form of taxes to the Batoro, and this situation was exacerbated with the arrival of British colonialists who placed the Bakonjo in the Batoro Kingdom. This eventually led to conflict between the two groups that saw the Bakonjo fighting for independence for most of this century (Langlands

1975). This also led to the establishment of the Rwenzururu Movement in the 1960s, which became a successful rebellion and gained independence for the Bakonjo from the Batoro Kingdom.

Resource use and ownership also came into conflict within the context of Bakonjo-Batoro relations. There was an instance during the past decade where Batoro moved cattle into a Bakonjo area town to graze. The Bakonjo had been using the land on a seasonal basis to grow cotton, but the Batoro claimed the land as their own, although they hadn't made use of it during the previous 25 years. Their herds had been on the other side of the Rwenzoris in the DRC. The Ugandan government feared that this could develop into a serious conflict and took active measures to resolve the situation by eventually providing government land to the herders. In the interim, the pastoralists were temporarily allowed to graze their animals in QENP (Trenchard 1998).

Another noteworthy point from the Rwenzoris is the importance of "ridge elders" in conflict resolution and resource use. Ridge elders are traditional local leaders who are responsible for land use practices and the division of land. They also played an important role in conflict resolution. Park officials have worked closely with these local leaders during in recent time to initiate new conservation measures or mitigate problematic situations (GMU 1995).

Another group is the Banyankore who inhabit the districts of Bushenyi, Mbarara and Ntungamo. The origins of the Banyankore can also be traced to the Congo region, but were established in their current area several centuries before the immigration of the Batoro and Bakonjo. There are actually two recognized groups within the Banyankore, the Bahima (pastoralists) and Bairu (agriculturists) with the Bahima holding a higher caste. Clans had members of both groups, and both groups recognize a common ancestry. Both groups also lived together and depended on each other for needed goods.

The predominant livelihood among the Banyankore was (and still is to an extent) largely a function of where they are located within the kingdom; people living in the drier eastern areas were more likely to be pastoralists while those living in the wetter western zone (near the escarpment) practiced more agriculture. The King of the Banyankore is known as the Omugabe, and this is one of the Kingdoms that were restored by President Museveni in the 1990s.

The Bakiga occupy the hills and more mountainous zones south of Banyankore land and comprise the largest group in Kabale district. They also live in Rukungiri and Kisoro. Like the Bakonjo, the Bakiga are also known as "stateless" people and cultivators who arrived into the area they now settle at least 500 years ago. Although the Bakiga speak a language similar to the Banyankore, there is no indication that the Bakiga were ever part of a larger state. Bakiga was mostly composed of dense autonomous settlements lacking a strong central authority. They also

lack a local authority like the ridge elders of the Rwenzoris, and decisions are usually made on more of a communal basis. Favorable soil fertility, temperatures and rainfall were all reasons for this area to be settled, and at this time this is still one of the most densely populated parts of Uganda.

The last group to inhabit the target districts is the Banyarwanda (or Bufumbira). The Banyarwanda are found in all areas along the border and have in fact spread out into other regions of Uganda over the years. Most of this area belonged to the Rwandan kingdoms, but was taken from the German Protectorate after World War I and given to the British. Ethnically they are the same people as the Rwandans. It is in Kisoro district that they are also known as Bufumbira, and this is the only district that is inhabited almost exclusively by Banyarwanda. The language they speak is Kinyarwanda. Within this large classification there are actually three distinct groups: the Batutsi, the Bahutu and the Batwa.

In the case of the Banyarwanda (and the Barundi to the south), the generally accepted (but rarely challenged and studied) theory first put forth by Meinhof (1912) and later supported by Baumann (1948) outlines the following scenario. After the arrival of the Batwa, the Bahutu settled into this area and they are believed to be the first agriculturist that migrated into the region from the west. Their arrival has been estimated sometime between 800-1000 AD. The third wave of migration, originating somewhere in the vicinity of the Horn of Africa or the Mid-Nile Valley, brought the pastoralists Batutsi into the region sometime around the 14th Century. The Batutsi, also known as fierce warriors, progressively dominated the Bahutu and the Batwa, established kingdoms, and continued to control the most important political and economic aspects of society. Batutsi are sometimes classified as belonging to the Nilotic group of Africans.

Historians and politicians have used the classic conflicting lifestyles of the “pastoralists versus the agriculturist” to explain past and present internal struggles in the region. However, others believe that historical events were more complicated, and point to other issues that put this generally accepted theory in doubt. One such issue is language. Kinyarwanda (and Kirundi) is derived entirely from the Congo Bantu group of languages. There are literally no words in Kinyarwanda that have origin or kinship to the languages of the Horn region or the Mid-Nile Valley. Even in extreme cases where an outside group has assimilated the language of another group there are always at least some vestiges of the original language, especially when the conquering group spoke the missing language.

Another issue involves the Central African Kingdoms. People from the Horn of Africa, and to a certain extent the Mid-Nile Valley, did not have states or kingdoms. No one has yet discovered states established by one stateless people conquering another. States are either formed by endogenous developments, such as probably happened at the beginning of this region, or else by people with a state tradition over-running people without one and ruling them for a time (Kesby

1977). It would appear that both Bahutu and Batutsi have inhabited the region much longer than formerly believed.

The Batwa are forest people and the earliest residents of this area. It is largely unknown when the first Batwa arrived in the area and, as indicated above, they are believed to be among the earliest inhabitants of East/Central Africa. There are very few Batwa in the region left (they only number about 2,000 or so). The Batwa community is not well understood, but it is known that the forest has always represented a source of food, medicine, income and security for them. Unfortunately, the social status and overall condition of the Batwa has deteriorated over the past several decades as they are being forced into a more sedentary lifestyle. It should also be noted that for decades the Batwa have been hired by protected area management agencies because of their vast knowledge of the forests. They are excellent forest hunters and they also practice pottery.

As with most societies, religion plays an important role in everyday Ugandan life. Christianity is well established in Uganda (and the target districts) and is pretty well divided between Protestants and Catholics. There is also a significant number of Muslims in some of the urban centers. Traditional religions are also still active in some parts of the target districts. Additional information is needed in this area as many faith-based groups are doing developing work throughout the target districts.

Livelihoods

Although situated in the same geographical area, the target districts reflect a significant degree of diversity in relation to livelihoods. The greatest percentage of the population is directly involved in agriculture. However, there are other significant activities that include fisheries, forestry, mining, and manufacturing.

Agriculture. Crops common to most districts include potatoes, sweet potatoes, maize, beans, and to a lesser extent, bananas and cassava. Bananas and cassava are grown more extensively in Bushenyi and Kasese districts. Sorghum is also grown in most districts for beer making. Kisoro and Kabale grow wheat at higher elevations, as well as pigeon pea (*Cajanus*), bush beans and pole beans. Kasese, Bushenyi and Rukungiri grow millet, soybeans, groundnuts and yams. Of course, this district breakdown is a broad generalization, and it is likely that all of the crops, in addition to others mentioned above can be found in all of the districts, depending on the specific location.

Most of the crops listed above are consumed on a subsistence basis, but are also frequently used for income generation and barter depending on the time of year and the quality of the harvest. Cash crops are also grown in most districts, and the most common is coffee. Cotton is grown near Kasese. Tea is grown near the escarpment in Bushenyi, Rukungiri and Kisoro districts where there are tea factories and associated plantations. Both tea factories also purchase tea from

small holder outgrowers, and in many areas along the escarpment tea make up part of the farming landscape.

In the case of BINP, a road was constructed through the forest years ago in the last valley before the border with the DRC. The road runs essentially north-south and was used to connect the small holder tea growers in Kisoro district with the tea factory that lies about 20 kilometers north of the forest (in Rukungiri district). This valley is also where three groups of gorillas have been habituated for tourism. For a while in the mid 1990s, after the tea factory was rehabilitated, there was some controversy surrounding the reopening of the road so that farmers could once again bring their tea to the factory. An eventual solution was negotiated where at certain specified times villagers would drop off their tea at a designated site near the edge of the forest to be collected by factory employees.

In addition to coffee and tea, there is also sugar cane and fruits production in some areas. The sugar cane is grown mostly in Kasese, while fruit production can be found throughout most of the districts. Tobacco is also grown in some select areas, and tobacco curing is one of the industries for Bushenyi district. Additional information is needed on all the cash crops of this area.

In terms of land use practices and agriculture, terracing is one issue that directly impacts on Kabale, Kisoro and to a certain extent Rukungiri districts. The terraces of this region have correctly been the focus of a great deal of study. Because these districts have been intensely cultivated for so long, people have traditionally practiced a number of soil conservation techniques.

However, during the colonial days, the British authorities made farmers construct terraces to certain specifications. Law enforced this practice, and post-independence years saw a decline in the maintenance and productivity of these terraces. However, during the past 10-15 years increased efforts are being made by farmers to maintain and in some cases rehabilitate the terraces through a variety of means (Tukahirwa 1992). For the most part, these are the only terraces found in Uganda.

Homegardens. Another feature of the SW landscape is homegardens. Homegardens play a vital role in the livelihoods of most residents in the target districts. The productivity of homegardens is generally under appreciated, but it has been demonstrated that in many situations they are actually the most productive part the general household. It has been demonstrated in several studies that homegardens use only 15% (check figures) of the typical farm inputs, but produce as much as 65% of the household productivity.

Composting and recycling of household wastes is easily done in homegardens. Cattle manure is also widely used on traditional SW homegardens as a source of nutrients. Similarly, some of the

indigenous nitrogen fixing species such as the *Sesbanias*, *Trephosias* and *Crotolarias* are used for fallows and soil enrichment as well.

Traditional homegardens of the SW are multi-storied. The lower layer is where most of the medicinal plants and herbs are frequently established. Some of these would be transplanted from the natural forest, while some of the over story species would be left in the field close to the home when the land was cleared (ie. *Polycian fulva* – seed used for medicinal purposes, wood for tools and beehives, *Markhamia sp.* – similar uses). Many so-called “market crops” such as carrots, onions, eggplant, cabbage, lettuce and chilies are grown in small quantities in the homegarden as dietary supplements or to be sold at the local market place. Along with the herbs and medicinal plants, the market crops usually form the understory layer of the homegarden. Banana, taro, beans, groundnuts and others can be grown close to the home as well.

Other productive features of the homegarden include live fencing. There are a number of species that are used in SW homegardens today that include members of the genera *Dracena sp.*, *Euphorbia sp.*, *Ficus sp.*, *Erythrina sp.*, and *Solanum sp.*. Of this group, the Dracaena, Ficus and Erythrina also have other important traditional uses. The Euphorbs contain poisonous white latex, which inhibit livestock and other animals from destroying the fence. Solanum and Erythrina are thorny species that are used to keep out livestock, wildlife and thieves or assailants (Clausen 1998).

Animal husbandry. Livestock are import part of the population’s livelihoods in all target districts, and are very critical to the household economy. Cattle, sheep and goats have been part of the landscape for centuries. The indigenous cattle are mostly Ankole; a rugged breed that can withstand a relatively wide range of temperatures (though they do best in the cooler zones) and are well adapted to most of the local pathogens. The meat quality of Ankole is excellent, but they produce low quantities of milk. Most milk producing races that have been introduced from outside have had mixed results. Some of the exotic breeds crossed with Ankoles have been productive.

Cattle distinguish themselves from the rest of the livestock species in their cultural and spiritual importance. Some local traditional beliefs hold that cattle herders are chosen by God to be the elite caste within society. Cattle are also a sign of wealth. Herding is chiefly the responsibility of the men in the household. Where there are no male heads of household or adolescent/teenage sons, women will tend to the cattle as well.

Dairy farming as an industry (mostly using exotic varieties or crosses) is practiced in Bushenyi, Rukungiri and Kabale districts. Marketing and transportation problems are chief constraints to the development of this industry. Some of the milk produced was processed in Mbarara where there were until recently four processing plants. Three have closed down.

In addition to goats and sheep, most households have chickens while others have ducks and rabbits. Where ducks and rabbits have been introduced they have become important sources of protein. This has been particularly useful in areas where game meat was commonly used to supplement the household diet, but has been disappearing due to habitat destruction or over hunting.

Fisheries. Fishing is an extremely important livelihood in parts of Kasese, Bushenyi and Rukungiri districts. Traditionally, the Lake George and Lake Edward fisheries have been very productive. However, in recent time yields have been declining. Much of this can be attributed to poor fishing practices, illegal nets and exploitation of breeding grounds. This is an important concern for the resident villagers and Ugandan authorities.

There are fishing activities taking place in Kabale (Lake Bunyonyi). It is reported that productivity of the fisheries in this lake has dropped off considerably in recent years. As mentioned earlier in the report, it is still a source for crawfish.

Forestry. As indicated earlier, legal timber harvesting is taking place in Bushenyi district in the Kalinzu Forest Reserve. The timber is being processed at the Nkombe sawmill, which between the years 1992 through 1995 extracted about 72 m³ on an annual basis. There is also believed to be large volumes of timber pitsawn illegally. Kalinzu's average volume per hectare of stems in excess of 50 cm diameter at breast height is 82 m³ (Forest Department).

Kasyoha-Katomi reserve had an annual legal pitsawing off-take of over 800m³ per year between 1986-1990. It is believed that there is a considerable amount of illegal pitsawing taking place in this forest as well. Average volume per hectare of stems greater than 50 cm DBH for this forest is 55 m³. Information on cutting intensities for Mafuga reserve was not available at the time of this report. Echuya forest is not an important source of timber.

Throughout the region, particularly in Kabale district, there are numerous private woodlots that supply a steady stream of products for fuel and construction. Most of the woodlots consist of Eucalyptus. Additional information should be collected to better determine how important this source of wood products is to the household economy.

Mining. Mining is locally important in several districts. It is perhaps the most important in Kasese, where the mining of cobalt, copper, and sulfur is concentrated at the Kilembe mines. There is also a cement factory in this area and a plant where foam mattresses are manufactured. Limestone is quarried in both Kasese and Bushenyi, and there is a limited amount of gold mining taking place. In Kabale district there is mining for wolfram and tin.

Other livelihood activities in the region include brick making, furniture making, black smith industries (tools made in Kisoro), cotton ginning (Kasese) and coffee processing (Bushenyi and

Kabale). A more complete listing of these and other activities can be obtained for each district in the District Development Plans and the District Environmental Profiles.

Governance

As indicated above, many parts of Uganda (including the target districts) have a long and rich history in governance. Recognizing their historical and cultural importance, the NRM government has recently officially reestablished the Kingdom system in a number of areas. Traditional chiefs and leaders at all levels are still important in Ugandan society and have a great amount of influence on the national and local political scene.

At the same time, and since the end of the civil war in 1986, Uganda has effectively developed a well functioning form of representative government through the National Resistance Movement. Following the civil war the NRM moved quickly to form Resistance Councils at all levels of Ugandan society. These councils were to be led by locally elected representatives that were responsible for a range of administrative issues as well as security. The Resistance Councils evolved into Local Councils, which today represent the backbone of modern Ugandan democracy. Both the traditional and the LC systems are critically important for the governance and development of Uganda.

The NRM Government has also undertaken a number of other extremely important initiatives during the past decade. One is the completion of the Constitution in 1995, which recognizes the principles of good governance as the main requirement for sustained economic development. The Constitution also calls for, among other things, the establishment of publicly accountable institutions, a transparent legal and regulatory framework, free and fair elections, a free press and the assurance of fundamental freedoms and human rights.

Another initiative is the development of sector policies and policy reform. These include policy and legislative development in the areas, education, the environment, health, and economics. Other programs have focused on the reform of trade and structural policies and the civil service system. Under civil service reform the objective was to strengthen the public sector by producing an efficient civil service and by reducing the role of government in production and commercial activities. As a result of this program, the civil service has been reduced by half.

Decentralization of government responsibilities has developed at a rapid pace in Uganda when compared with many other countries that are struggling with similar programs. Decentralization officially became a national policy in 1992, is part of the Constitution and was enacted into law through the Local Government Act of 1997. The process empowers local authorities from the village level (LC I) up through the districts (LC V). The two levels of government that have been provided with the most authority is the LC V (district level) and the LC III (Subcounty level)

where the transfer of power from central government involves political, financial and planning responsibilities.

Infrastructure

Paved national highways connect Kasese, Bushenyi and Kabale districts to regional cities (Mbarara, Masaka) and the capital, Kampala. There is also a network of relatively well-maintained dirt or gravel roads that stretches through all of the districts, especially Rukungiri and Kabale. Many of the secondary roads are not passable during periods of heavy rains.

Generally, however, as with most sectors in Uganda, the road situation has improved dramatically during the past decade. In 1990 it took approximately 10-12 hours to go from Kampala to Kabale. Kabale to the Buhoma area (site of gorilla tourism near Bwindi) was another six hours. Kabale to Kisoro town was another 3-5 hours. The trip from Kampala to Kasese was sometimes completed in two days. These times have been reduced by more than half.

The number of health facilities varies from district to district. Kabale is listed as having one hospital with 212 beds and 31 health centers. Kisoro has two hospitals and 7 health centers with a total of 238 beds. Bushenyi has two hospitals and 22 health centers. The government hospital at Kitagata is listed as having 106 beds. Kasese has two hospitals with 260 beds and 38 health centers. Information for Rukungiri was not available.

Educational facilities for Bushenyi include 429 primary schools, 40 secondary schools, 5 technical institutions and 3 teacher training colleges. Kabale is listed as having 274 primary schools, 29 secondary schools, 2 technical institutions and 2 teacher-training colleges. Kasese has 170 primary and 15 secondary schools, 1 technical institution and 1 teacher training college. Kisoro has 112 primary and 11 secondary schools, 2 post secondary institutions and 1 private vocational institution. A qualitative assessment of both the health and educational facilities was not available for this report.

Finally, the majority of residents in the target districts rely on wood and wood products for their primary energy needs. In most areas this is sometimes supplemented by agricultural by products and waste (burning husks, etc.). Energy demand is a critical element of the household economic base, and it is one that is frequently overlooked when designing or assessing programs, particularly ones related to agricultural productivity.. Some of the urban centers in the target districts benefit from hydroelectric power (Bushenyi), generators; industrial plants (tea factories) as well as the national grid.

Development activities

A complete list of ongoing and past development activities in the target districts is outside the scope of this report. As with other aspects of the report, there simply was not enough time to collect a lot of the information on activities that are not directly supported by the Mission. It would be a worthwhile endeavor, however, to progressively complete this work during the upcoming design phase of the combined SOs. This report attempts to cover most of the activities related to the new SO7 that are covered (or were supported by the Mission at one time). There is also a brief, and very incomplete section on activities supported by other donors.

USAID-Supported

This section will focus on the activities and projects related to ENR and the agriculture sector that the Uganda mission has supported during the past 15 years in the SW. Many of the details are deliberately left out (funding levels, number of project amendments, evaluations, etc.). All of this information is available at the mission, NGO and project offices, or with counterpart GOU agencies and can be easily accessed in Kampala. This section is roughly structured around the chronological sequence of events.

DTC (originally USAID funded, but now funded by CARE-Denmark). As indicated above, this project was originally designed to take care of the “out forest” work related to the conservation of Bwindi and Mgahinga. In the late ‘80s WWF received Biodiversity funds from USAID/Washington to initiate development activities outside what were then the Bwindi and Mgahinga Forest Reserves. WWF subcontracted CARE Int. to do this work, and this eventually became the Development Through Conservation project (DTC).

Initial activities focussed on agroforestry extension, improved agricultural practices, woodlot development, small animal husbandry, soil conservation, conservation education, and support to Uganda National Parks for the management of Bwindi. The project later became a leader in Uganda by promoting the sustainable utilization of resources within a Park setting through the delineation of special use zones (developed the first General Mgmt Plans for the two Parks). DTC and ITFC and Uganda National Parks collaborated regularly in planning (including the development of participatory management plans), training, and all other aspects of protected area management. In 1993, DTC employed a full time chief technical advisor to the Park warden. In addition to USAID, DTC has received considerable support form European donors, particularly in recent years. CARE has also expanded its activities into other sectors in the area (health).

CIP (International Potato Center)

This is a research activity that was initiated in the 1980s in several agroecological zones in Uganda. One of the research stations was located in the Kisoro highlands at a site called

Kalengeri. A team of Ugandan and international scientist tested and extended on farm a number of potato varieties that are well adapted to the cooler temperatures associated with the highlands. The station has been successful with a several varieties that have increased production at the household level. The station has received regular support from USAID during most of this time.

CIAT (International Bean Research Institute)

This is another applied research activity under the Consultative Group for International Agricultural Research (CGIAR) umbrella (like ICRAF and CIP) funded from different sources (USAID Washington and the mission). CIAT in Uganda began to receive funding from USAID in the late 80s. Like CIP, CIAT had research activities going on in a number of different zones within Uganda. At the Kabale station effort was been put into testing and adapting different bean varieties. CIAT (get more info) was instrumental in introducing climbing beans on a wide scale into the SW. Climbing beans are very productive and appropriate for areas where land is limited. Replacing bush beans with pole beans is one way of promoting crops that produce higher quantities per unit area. USAID encouraged both CIP and CIAT to work with CARE DTC to test and extend some of the promising new varieties.

ANEP (Agricultural Non-traditional Export Program)

This project was the predecessor to IDEA and worked to promote a number of cash crops and well as the commercialization of some of the well known staples. ANEP began in the 1980s and was replaced by IDEA in 1994. In the SW ANEP began work with farmers on snow peas and with women's groups for mushroom production.

Rwenzori Conservation and Development Project (WWF)

This activity was originally funded through USAID DC Biodiversity funds in the late 1980s. Ground activities did not begin, however, until 1991. The project was originally based in Kasese and subsequently the headquarters were moved to Fort Portal for logistical reasons (Fort Portal was a better location for maintaining regular communications and coordination between Bundibugyo and the Kasese area). Following phase one funding (which took the project through 1993) the project was awarded a grant from the mission. Activities focused on reinforcing UNPs capabilities to manage the park, conservation education, agroforestry and agricultural development, capacity building. The project was suspended in the late 1990s due to insecurity in the region. Prior to that time, this project was one of the most important NGO conservation and development projects funded under the Grants Management Unit and the mission.

Rwenzori Mountaineering Services (Local NGO)

As indicated earlier in this report, RMS was a local organization that was formed by villagers (entirely Bakonjo) who had been traditionally hired as guides and porters for mountain climbers.

John Matte was the founder of RMS, and he was later replaced by Stanley Bwambale and Johnson. RMS received local currency support from the Mission beginning in the 1980s. When the Rwenzori Forest Reserve became a Park, RMS acquired the concession rights from UNP to continue guiding tourists into the mountains. RMS also generated donations from other international organizations to help develop infrastructure near the park headquarters at Ibanda. The deterioration of the security situation in the area (park was officially closed in 1997) has led to a drastic reduction in the amount of activity in the Rwenzoris.

Mgahinga Bwindi Impenetrable Forest Conservation Trust (MBIFCT)

An offshore trust (initial GEF investment of about \$4 million) that was established in the early 1990s to ensure that Mgahinga and Bwindi would always have the resources necessary to manage the Parks and provide development support to residents living in close proximity. It took almost two years to set up the trust and begin operations. At present the corpus is worth about \$7.5 mill. USAID and the Netherlands supported the recurrent costs of the Trust so the principal could grow untouched. The Netherlands is now the major supporter, and should continue another three years. There is a Board and a Director of the trust itself. The MBIFCT has a project office in Kabale town, and it operates “two parishes deep” beyond the Park boundaries. To date, the Trust has been responsible for the development of health clinics, schools and other infrastructure in the target zone (Phase I activities) and it is now moving to Phase II - support for activities like tree nurseries, water delivery systems, fish farming, bee keeping, etc.). MBIFCT works closely with ITFC (ITFC oversees students funded through the trust), DTC and IGCP. There is some periodic communication between AFRENA/Africare and the Trust as those NGOs are not working in the same target areas as the Trust.

Institute of Tropical Forest Conservation (ITFC)

In the mid to late 1980s the mission provided local currency support (generated through food imports) for the establishment of a permanent research center in what was then the Bwindi Impenetrable Forest Reserve. The center also led the initiative to publicize the importance of conserving the diversity of Bwindi (which was being heavily exploited by pit sawyers and gold miners at the time), including the gorilla population. It was in the forefront of the initiative to elevate Bwindi and Mgahinga's conservation status from Forest Reserve to National Park. This was an Action Program for the Environment (APE) conditionality for non-project assistance that was added to the program in 1991.

AFRENA Uganda (International Council for Research in Agroforestry)

The AFRENA project was a four-country initiative designed to address agroforestry productivity systems for the East/Central African highlands. The technical lead is the International Center for Research in Agroforestry (ICRAF). The four participating countries are Uganda, Kenya, Rwanda

and Burundi. The objective was to test different interventions in the four countries with the goal of generating an exchange of ideas and technologies. AFRENA still is actively supporting agroforestry research and extension in all of the countries except Burundi. AFRENA has been supported by USAID (Washington funding for the overall initiative) and the Mission (local currency and now a grant) to varying degrees. AFRENA/Uganda began to actively collaborate with NGO development projects in the early 1990s (most notably DTC at the time, and more recently Heifer Project Intl and Africare) to extend technologies to the farm site and test other promising possibilities on farm. AFRENA/Uganda has made great progress in this regard during the past 5-6 years. AFRENA is also vigorously testing a wide range of temperate fruit trees in an effort to improve household nutrition and generate on-farm income.

Heifer Project International (HPI)

This organization has been working in Uganda since 1982. They were initially invited to work in the northern section by the Church of Uganda, one of HPI's oldest partners. HPI began work in the Kabale area in 1985. A lot of their time and resources are focused on training to assure that once a cow is given out all the proper necessary requirements are met. Some of the basic groundwork that must be in place includes fodder trees planted (this is being coordinated with AFRENA and Africare), pasture area established, and soil erosion measures in place (planting on contours). Most of the animals that are used are crosses between the traditional Ankole and the highly productive Friesians and Holsteins. HPI is also involved with the production and distribution of on-farm biogas systems that are relatively low cost and require little maintenance. HPI has received USAID support since 1985. HPI was also involved with training programs during the demobilization of the military.

IGCP (International Gorilla Conservation Project – AWF, lead agency)

IGCP was developed in the early 1990s as a means of coordinating mountain gorilla research and conservation that was taking place in Rwanda, Congo and Uganda. As such, IGCP had offices in all three countries. IGCP is a consortium of several international conservation organizations; the lead agency for Uganda has been the African Wildlife Federation (AWF). IGCP was able to begin operations in Uganda through grant funds from the mission. IGCP's objectives focused on information exchange between projects in the three countries, capacity building by supporting protected area management agencies and research. IGCP has also worked closely with ITFC, the Bwindi Trust and other conservation agencies.

IDEA Project

The IDEA project was initiated in 1994 as a follow-on to the ANEP project that was focussing on the commercialization of non-traditional agricultural export (NTAEs) crops. IDEA continues this work with NTAEs but also has a traditional focus as well. IDEA principally targets that

subset of farmers who have the potential to move from subsistence to commercial production. Its approach is market-led, and focuses across the production chain – inputs, production, marketing, extension (a network of project-supported specialists). A large proportion of IDEA’s resources are being directed at maize, beans and cut flowers. IDEA is also working with other crops such as vanilla. The SW is not a target area for IDEA, but they do work in the Kabale area through the Kabale Farmers Association.

Land O’ Lakes

Land O’ Lakes began working in Uganda in the early 1990s. Their country program focuses on training farmers in improved dairy management skills, improving the genetic base of the dairy industry (work with the World Wide Sires program), and the promotion of zero-grazing techniques and practices. In the SW, Land O’ Lakes is promoting zero-grazing. They are also trying to encourage the establishment of associations (cooperatives) and assist them with marketing and reducing costs of inputs. They are currently working with two groups in Kabale—the Kigezi cooperative and a women’s group.

Africare

Africare has been active in the SW area for over three years. They are funded through the Mission’s Title II program and implement the Uganda Food Security Initiative (USFI) primarily in Kabale District. USFI has four components – rural feeder road rehabilitation, soil conservation and agroforestry, agricultural productivity & post harvest handling, and household level nutrition (education and animal husbandry). They work closely with AFRENA in their NRM/agroforestry activities – a relationship that is paying off with increased adoption of technical packages on-farm. In addition to AFRENA, Africare is working with UNDP (private sector development), and may expand activities that include working with the World Food Program, ACDI/VOCA, Technoserve and World Vision.

The following activities have received support from the mission. One of these is located just outside the target districts; the others concentrate on assisting organizations and agencies on a national level, or a combination of national/local.

Kibale Forest Conservation and Development Project

This activity is located in Kabarole district, which is directly of Kasese and north of Bushenyi. USAID support originated with a AID/Washington Biodiversity grant to the Wildlife Conservation Society (WCS) in the late 1980s. The project also received support from the mission in local currency. Smaller projects were “attached” to the station and individually funded by local currency from the mission. They included chimpanzee research, crater lake aquatics, ecotourism development as well as others. Work of the main project focused on infrastructure development at the Kanyawara research station, initiating out-forest development work (village

tree nurseries), training, and support for national and international research projects, and ecotourism development (Kanyencu site). At this time, Kibale is one of the most studied mid-altitude forests in all of Africa. In 1992 WCS received a large grant directly from the mission for activities to be conducted over a five year period. The field station is known as Makerere University's Biological Field Station. The field station has numerous links with higher educational institutions in Africa, Europe and North America, including the University of Florida, which still conducts annual field training studies for during the summer months at the field station.

PVO-NGO NRMS

This was an Africa-wide program that worked originally eight countries to promote capacity building of local NGOs and CBOs in the field of natural resource management. Uganda was one of the participating countries. PVO-NGO NRMS was managed by a group of international NGOs that included CARE, WWF US and World Learning. Each NGO took the lead for the PVO-NGO NRMS program in specific countries. World Learning was the leader for Uganda. Some limited activity was conducted by this project in the SW.

Land Tenure Center (U of Wisconsin) and Makerere University Institute for Social Research (MISR)

Most work conducted by LTC and MISR was outside the SW (a great deal of work was done in Buganda land with the Milo system, and on land markets in the south-central region). LTC and MISR did provide periodic guidance to DTC (on land fragmentation) and others working in the area.

MUIENR (Makerere University Institute for Environment and Natural Resources)

USAID supported a number of initiatives started by this institution, several which directly involved the SW. One was a joint study by MUIENR and the World Resources Institute in the early 1990s on land management in Kabale area. Other support involved the National Biodiversity Data Bank. The mission supported several visits by the Nature Conservancy to Uganda in an effort to build capacity at the Data Bank. The mission also provided local currency for some of the Data Bank's field work. The Data Bank conducted or helped facilitate inventories in many of the SW protected areas.

Manpower for Agriculture Development (MFAD)

This program was started in the early 1980s and focused resources on training (both formal and informal education), the development and support to the national agricultural research program (in the Ministry of Agriculture). Ohio State University was one of several organizations involved

with the implementation of this projects. It is unclear at this time, what type of MFAD activities were conducted in the SW (if any).

CAAS Project (Cooperatives for Agriculture).and Title II

Limited information at this time. Suggest the SO7 Assessment Team look at this.

Action Program for the Environment

The APE program was designed in early 1991 and implementation began later that same year. It was a \$40 million program. The grant agreements with the GOU were signed in August 1991. APE was designed to rationalize and provide better support to the range of natural resource-related activities in Uganda supported by the agency. As indicated above, USAID was supporting several international NGO initiatives through AID/W Biodiversity grants, over 25 NGO and government activities with local currency generated at the Mission (GOU counterpart funds) from food imports, and several regional projects (AFRENA, PVO-NGO NRMS, University of Wisconsin Land Tenure Center through the Makerere University Institute of Social Research (MISR). Also, during the latter stages of the pre-design period, which took place in 1990, the Mission was asked by the GOU, the World Bank and other donors, to participate in the development of a National Environmental Action Plan. USAID was supporting NEAPs in other parts of Africa, and agreed to provide resources for this initiative as well. APE originally focused on three areas: 1) Project assistance at field level conservation (eventually through a Grants Management Unit); 2) Support to the NEAP process (Department of the Environment, the National Environmental Information Center, institutional strengthening of Uganda National Parks, the Forest Department, Tourism Department (and respective Ministries) and Makerere University; and 3) Non-project assistance (NPA). Of the \$40 million, \$10 million was for NPA, roughly \$4 million for the NEAP and institutional support, and the rest for field-based projects (mostly through international NGOs such as CARE-DTC, AWF, IGCP, WWF). Most of APE's field based initiatives were located in the SW due to the high-density population and biodiversity of the region. In 1996, APE was extended for three years, and again for a fourth year (ended Dec. 2000).

COBS

The COBS program is a direct successor to APE and is the acronym for current SO2- *Critical Ecosystems Conserved to Sustain Biodiversity and Enhance Benefits to Society*. COBS builds on many of the initiatives developed by APE and is the principle mechanism for supporting UWA (PA planning and implementation) and the National Environment Action Plan (NEAP) such as environmental planning, implementation and EIS at the local level. COBS is also providing support to ECOTRUST, a newly registered NGO that evolved from the SO2 Grants Management Unit. COBS finalized the General Management Plan (GMP) for QEPA, and is completing one

for Murchison Falls Conservation Area (MFCA). In the next several months it will support PA operations and management the two gorilla Parks. In relation to decentralized environmental management, COBS (with CARE as sub-contractor) is directing the District Environmental Action Plan process in three key target districts of the SW - Rukungiri, Kisoro and Bushenyi. In this respect, COBS is at the forefront in promoting “bottom-up” capacity building for environmental management. It works with local authorities to develop the planning framework that other partners (such as Africare, AFRENA, DTC and the MBIFCT) in addition to itself can invest in for implementation.

Peace Corps

Peace Corps reopened a country office in 1991. One of their technical focus areas was natural resource management. The Peace Corps NRM program grew rapidly (as did the entire country program) and by the late 1990s they had already working relations and ongoing projects within many areas of the SW. The following is a brief summary of some of the ones initiated (and in some cases completed) in the SW during the early and mid-1990s.

- BINP. Several groups of PCV worked at both Buhoma (site of gorilla tourism) and Ruhija (research center, location of ITFC). The volunteers at Buhoma assisted with gorilla habituation (took roughly 6 months - 1 year to prepare each gorilla group), program operations, training and community development of tourist facilities (establishment of accommodations constructed with local materials, organization of village association to manage the facilities and services, etc.). The Volunteer at Ruhija supported UNP with in management.
- QENP (Kyambura gorge). At least one volunteer worked at this site establishing an ecotourism program. The focus of this program was getting in close proximity to a group of resident chimpanzees. The PCV successfully tracked and habituated a group of chimpanzees for over one year (note, it is considerably more difficult to habituate chimpanzees for tourism than for gorillas, especially in rugged terrain – chimpanzees are much more mobile and less predictable than gorillas). Hiking trails were also established and the PCV spent a considerable amount of time training counterparts.
- RMNP. Several series of volunteers worked for UNP on an assortment of activities including: reinforcing park management skills (this was at a time when UNP was given the responsibility of managing six new forested parks – wardens and rangers up until that time were largely trained for anti-poaching work in savanna parks), establishing a conservation education program for the area, and some development work (water delivery systems, assisting local groups providing services for tourist, etc.)

- Kibale Forest National Park (KFNP). Most of the work conducted here focused on the village of Bigodi, near the tourism center of Kanyanchu (located in the southern part of the park). The PCV trained villagers in providing ecotourism service and help them establish accommodations as well. Kanyanchu (park site) has only limited camping facilities; anyone not wanting to camp and stay in the area would use the facilities at Bigodi. The PCV also trained villagers to be tourist guides. Although this site is not located in a target district, it is included because it located only several kilometers from Kasese district and is part of the QENP-KFNP complex.
- Kasyoha-Kitomi. PCVs worked with the Forest Department for the development of village based tree planting work and ecotourism development. The PCV worked in one of the neighboring villages that exerting pressure on the reserve for wood resources.

Peace Corps also worked with UNP (UWA), the Game Department and the Forest Department in many other areas throughout Uganda. On numerous occasions, officials from all agencies expressed their satisfaction with the valuable work that the Peace Corps NRM program was achieving. SO2's program worked very closely with the Peace Corps NRM program and provided direct support to their activities on numerous occasions. SO2 was also directly involved with the site selection and placement of PCVs in many areas of the SW. The Peace Corps program was closed in 1998, but reopened in 2000. Its first group of volunteers will focus on teacher training within 150-200 km of Kampala.

Non-USAID Activities

Natural Forest Management and Conservation Project (European Union support to the Forest Department)

EU has supported the Forest Department for well over a decade. A number of very useful initiatives have been completed with EU support, including the biodiversity inventories of all the major reserves (65 in all) and the development of the Forestry Nature Conservation Master Plan. The biodiversity inventories and the Nature Conservation Master Plan (plus other information) are available on CD Rom at the Forest Department for \$100. The complete bound set of biodiversity inventories alone costs over \$300. As indicated earlier in this report, some of the key forest reserves are located in the SW.

National Biomass Program (Forest Department with support from NORAD)

This study was completed over the past decade and has produced a number of useful products, including vegetation maps of the target districts at a scale of 1:250,000. Four thousand permanent inventory plots have also been established throughout the country. It is not clear at

this time how many are located in the target districts. A complete report of inventory findings will be available with 4-6 months.

Environmental Management and Capacity Building Project with NEMA – World Bank

The Bank supported EMCBP Phase I and now Phase II (five years each) with Phase II to commence in April 2001. EMCBP II is building on progress and lessons learned during Phase I, and has been designed within the context of the Bank's commitment to support Uganda's economic transformation and poverty reduction strategy as detailed in the PEAP. The overall goal of EMCBP II is to “enable the people of Uganda to take control of environmental issues, improve the state of the environment, and contribute to sustainable development and poverty eradication”. This project reinforces the government's sector wide program based on sound environmental management for improving the productivity of ENR to accelerate economic growth and improve human welfare. The objectives focus on capacity building and environmental awareness at all levels of Ugandan society, the development of community focused programs that enhance natural resource management and productivity, and the promotion of sound environmental management during the agricultural modernization and industrialization processes.

World Bank Support to UWA

ICB/PAMSU Project

IUCN – Kibale and Semliki Project

This activity was initiated in 1992, and is providing support to UWA in the management of these two national parks and working with local communities by providing technical assistance for improving livelihoods.

Integrated Lake Management project—CARE with DfID Funding

This is an initiative that is designed to assure improved management of Lake George, which is an important fishery and source of livelihoods for resident populations in Kasese, Bushenyi and Kabarole districts. The approach stresses an integration of several components including the improvement of water quality and overall health of the lake through natural resource management strategies and work with local communities. It is forming close working relationships in local environmental management with USAID/COBS in Bushenyi and Kasese

Faith Based Organizations

They are numerous in all target districts and conducting a lot of small-scale development work. Team should review more important initiatives.

Local Government Development Program (LGDP)

The Local Government Development Program (LGDP) has been operational for two years. It is a mechanism/program designed to provide support to the subcounty level in the form of conditional grants from central government. LGDP focuses on “Pillar Four” types of activities that are described in the Poverty Eradication Action Plan (PEAP). These are essentially grants that are to be used for public service infrastructure investments (designed to improve the quality of life), like roads, schools, health clinics, etc. LGDP has specific conditionalities that must be met at the District and subcounty level before funds for these activities can be accessed. Most of the conditions are concerned with proper accounting procedures and transparency. Only 17 Districts to date have met the criteria (conditions) and have received funds through the LGDP mechanism. Other Districts have received capacity building support funds through LGDP and will be evaluated again this year for compliance.

Plan for the Modernization of Agriculture Non-sector Conditional Grant (PMA-NSCG)

The PMA-NSCG is designed to support “Pillar Three” of the PEAP -- public services linked to improving incomes and generating economic growth for the poor. It may also be used to support non-government activities as well, including the private sector. The mechanism for disbursing PMA-NSCG funds will be the same as for the LGDP. Essentially, funds for both programs will pass through the same “window”. In addition to the conditions established for LGDP, there will be a few others added for PMA NSCG. One involves the integration of ENR criteria (largely through the efforts of SO2), an issue that was neglected in the design of the LGDP. One of the assumptions of the PMA is that government structures are developed to the point where they are ready for programming assistance as opposed to project assistance. Hence, the pooling or “basketing” of resources by a range of donors that will be programmed and disbursed to sub-counties through the PMA-NSCG (similar operations for the proposed NAADS grants as well).

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