



118/119 Biodiversity and Tropical Forest Assessment for Sierra Leone

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ACRONYMS

AU	African Union
BATS	Biodiversity Analysis and Technical Support for USAID/Africa
BSAP	National Biodiversity Strategy and Action Plan
DACDF	Diamond Assistance Community Development Fund
DCD	Diamond Community Development Fund
DEPAC	Sierra Leone Development Partnership Committee
DFID	Department for International Development
EC	European Commission
ECOWAS	Economic Community of West African States
EIA	Environmental Impact Assessment
EPD	Environment Protection Department
FAA	U.S. Foreign Assistance Act
GDA	Global Development Alliance
GDP	gross domestic product
GOSL	Government of Sierra Leone
ha	hectare
IDMP	Integrated Diamond Management Project:
JCSP	Joint Country Strategy Paper
LEAD	Livelihood Expansion and Asset Development
LINKS	Promoting Linkages for Livelihood Security and Economic Development
MAFFS	Ministry of Agriculture, Forestry and Food Security
MLCPE	Ministry of Lands, Country Planning and Environment
NaCEF	National Commission on Environment and Forestry
NEP	National Environmental Policy of 1994
NEPA	National Environmental Protection Act of 2000
NGO	non-governmental organization
NRM	Natural Resource Management
OKNP	Outamba-Kilimi National Park
PAs	protected areas
SLDC	Sierra Leone Diamond Company
SL-PRSP	Sierra Leone Poverty Reduction Strategic Paper
SMARTER	Sustainable Mining by Artisanal Miners

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EXECUTIVE SUMMARY

The USAID Mission to Sierra Leone commissioned this study to help formulate its Operational Plans in the immediate as well as consider biodiversity and tropical forest conservation concerns over the medium- to long-term. This Biodiversity and Tropical Forest Assessment has been prepared to provide information and analysis, as requested by USAID/Sierra Leone, required by the U.S. Congress, and stipulated in the U.S. Foreign Assistance Act (FAA) of 1961 Sections 118 and 119. A four-person team was fielded for two weeks in February 2007, as part of the Biodiversity Analysis and Technical Support for USAID/Africa (BATS) program.



Children in a village near Tiwai Island are part of the chiefdoms that benefit from the sanctuary's Community Development Fund. PHOTO: JOE KRUEGER

BIODIVERSITY AND TROPICAL FOREST CONSERVATION STATUS

Due to the drastic decline in mature forest cover and the continual pressures of population growth and rudimentary farming techniques practiced, the status of the forest resources should be considered at risk. While some actions have been taken at both the government and non-governmental organization levels to manage forest resources, these efforts are not sufficient to fully combat deforestation in Sierra Leone. The limited funding available for the Government of Sierra Leone (GOSL) to distribute to the 48 designated reserves is a significant challenge that is being offset only partially by the donor communities' involvement. Sierra Leone is rebuilding after years of conflict, and the government is now hesitant to focus scarce resources on what are perceived to be secondary priorities.

Outside of designated protected areas, the large number of people in Sierra Leone combined with their extremely limited economic situation is resulting in land degradation and loss of forest cover. There appears to be a lack of cultural awareness of the value of the existing natural resources and the need to protect them to provide for a sustainable future for these communities. The non-sustainable natural resource management practices can be attributed partially to the decade-long civil war and the resulting lack of adequate livelihoods and ensuing poverty that are evident in many former colonies. Numerous discussions with local Sierra Leoneans indicated that colonialism broke down indigenous and sustainable land use practices¹.

In addition to efforts by the government and donors, local activists and community organizations are critical to achieving awareness of the conservation needs of Sierra Leone. These organizations can increase the visibility and strength of conservation activities through community-based education and trainings. A few notable examples include the Tacugama Chimpanzee Sanctuary effort as well as the efforts of the Conservation Society of Sierra Leone and Environmental Foundation of Africa.

¹ Personal communication, Chris Squire. February 2007.

LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

Since gaining independence in 1961, Sierra Leone has struggled to achieve socio-economic stability. In the late 1980s, enabled with an abundance of natural resources available for managed revenue creation, the GOSL in consultation with its development partners introduced a series of macroeconomic and structural reforms aimed at stabilizing the economy and restoring growth. During and after the war, much of Sierra Leone's economic and physical infrastructure was destroyed and resource exploitation intensified, particularly in rebel-held strongholds. The decade-long conflict exacerbated Sierra Leone's poverty situation and caused the population to exert enormous pressure on the land and its resources for subsistence, livelihood support, and income — the results of which continue to be observed today.

General environmental management is covered by Sierra Leone's National Environmental Policy (NEP) of 1994 and the National Environmental Protection Act (NEPA) of 2000. In fulfilling its obligation under the Convention on Biological Diversity, the Government of Sierra Leone prepared the [National Biodiversity Strategy and Action Plan](#) in 2003.

The institutional and legislative frameworks for natural resource management are in dire need of targeted review and capacity building. These needs should be addressed with a multi-pronged approach: building capacity for the National Commission on Environment and Forestry (NaCEF); reviewing, updating, and enforcing the legislative framework for natural resource management; creating partnerships and raising awareness of natural resource management; and providing adequate financial resources for biodiversity conservation. The GOSL and its international partners and investors should mainstream natural resources management into its development goals.

THREATS TO BIODIVERSITY AND TROPICAL FOREST CONSERVATION

The principal threats to biodiversity loss in Sierra Leone can be attributed broadly to unsustainable land use practices, the influence of the mining industry, and lack of appropriate fisheries management, although additional specific and over-arching issues such as poverty, lack of human capacity, and inadequate investment laws also play a role.

Land use

The effects of poor farming practices such as shifting cultivation, recurrent bushfires, and overgrazing, along with increasing population and shortening of fallow periods, have all been identified as contributing factors to land degradation. Urban development and artisanal and industrial mining have also affected land resources, resulting in deforestation and an acute threat to biodiversity.



Fuelwood bundles are sold on the road to Bo, adding to regional deforestation. PHOTO: J. RENEE MORIN

Mineral management

Sierra Leone has a variety of valuable mineral deposits, including diamonds, iron ore, rutile, and gold. Because of the lack of any effective reclamation programs for mined areas, artisanal mining has led to significant decreased habitat capability in highly mined areas. All mineral resource extraction will have direct adverse impacts to the surrounding environment, including its biodiversity. Unless GOSL enacts a functional land rehabilitation program, educating artisanal miners on sustainable best practices, and addressing the increasing large scale mining interests, deforestation will continue.

Fisheries management

The vast majority of fisheries in Sierra Leone are artisanal, with less than 20 percent accounted for by legal industrial vessel fishing. The threat from artisanal fishing rests in the fact that the techniques employed are frequently unsustainable due to the use of poisons, explosives, netting with excessively small mesh sizes, and inappropriate gear use (such as bottom trawls in sea grass beds).

Other threats

Additional threats to biodiversity include poverty, urban development, civil conflict, and the bushmeat and pet trades. Poverty and the effects of civil conflict have been pointed to as root causes to deforestation and threatened biodiversity. Urban development and bushmeat extraction are more localized threats but are just as important to address when considering future programming.

USAID/SIERRA LEONE STRATEGY STATEMENT OF 2006

According to USAID/Sierra Leone's 2006 Strategy Statement, the primary U.S. interest in Sierra Leone is the consolidation of peace, stability, and security. As part of the approximately USD \$16 million FY 2008 budget, USD \$1 million has been requested for the environment budget line item under economic growth. The indicators associated with this category are found under Program Element 8.1: Natural Resources and Biodiversity. It is noteworthy that USAID/Sierra Leone is not a full mission and is "sistered" to the USAID/Guinea office, which has full Mission status and influences programming and management of that program. Three major projects are currently operating in Sierra Leone and are briefly described below.

- **LINKS (Promoting Linkages for Livelihood Security and Economic Development) and LEAD (Livelihood Expansion and Asset Development):** The LINKS and LEAD programs address the reestablishment of livelihoods of the poor in order to generate income. These projects intersect with environmental concerns in its promotion of agricultural activities, land usages, and established relationships with youth and women.
- **IDMP: Integrated Diamond Management Project:** IDMP aims to improve governance of the Sierra Leone diamond sector by ensuring that government and communities both derive increased benefits through addressing corruption and promoting equitable and transparent resource management. IDMP is particularly well positioned to promote land reclamation and related impact mitigation activities through its established community networks.

- **Democracy and Governance:** USAID's Democracy and Governance program is focused heavily on good governance, civic training, and advocacy skills for local communities. The community training and outreach format of this program could provide synergies with biodiversity and environmental education by use of media outlets and community relationships.

RECOMMENDATIONS

The recommendations presented in this report have been categorized as either short-term or medium- to long-term actions, at the request of the mission. A full discussion of recommendations is presented within the body of this report. A summary of recommendations is presented below.

PRIORITIES FOR THE SHORT TERM

USAID has the opportunity to enact the following recommendations that are directly related to its three ongoing activities:

- **LINKS:** Through the network of community interactions, LINKS can improve education programs by including best practices for agro-forestry, community forest management, protected area co-management, aquaculture, and apiculture. If any communities are proximate to the 48 designated reserves, protected area care and management should be incorporated into agriculture-based extension programs.
- **IDMP:** As part of the diamond mining initiative, USAID should promote a greater emphasis on land reclamation activities. USAID is primed to promote demonstration reclamation while the current education and training program could incorporate modules on needs/benefits for environmental consideration. In general, IDMP's objectives and focus should be reviewed.
- **Democracy and Governance:** This project is primed to use its established resource centers, developed through local governance interactions, to distribute materials related to biodiversity conservation, forest management, protected area management, and other natural resource management best practices. The potential to serve as a clearinghouse for conservation opportunities should be explored, especially given the lack of information centers in Sierra Leone. The U.S. Forest Service has assisted NACEF in the development of a website. These types of activities should continue to highlight the importance of conservation opportunities.
- **USAID/Sierra Leone** was issued \$450,000 of Biodiversity Earmark funds in FY2005. If these funds are still available, they could be used to support a number of ongoing conservation efforts, including some transboundary efforts.
- **Give support to the transboundary conservation program with the Gola forest on the Liberian border.** The Gola trust fund and management program has been established and has achieved successes to date, but it would benefit from additional funds or from programs supporting the current project.

- The Outamba Kilimi National Park on the Guinea border could also benefit from support for the transboundary conservation program. The park is currently understaffed and unable to sufficiently protect its boundaries. Additional support or training programs that deal with surrounding communities could greatly help this project.

MEDIUM-TERM AND LONGER-TERM INTERVENTIONS

Interventions suggested for the next two to five years are not as clearly defined as the short-term activities. Due to the uncertainty of the USAID/Sierra Leone program and the importance of addressing these issues for Sierra Leone's future, these topics could be broadcast to the wider donor community for consideration in their programs.

- Provide support to the GOSL or NGOs to assist in mainstreaming implementation of recommendations of the National Biodiversity Strategic Action Plan (2003). Specifically, provide support to the objectives that are directly related to the World Bank/GEF proposal² to manage eight protected areas within Sierra Leone. Related efforts could be to develop or expand successful community based conservation efforts.
- As transboundary issues continue to be important in the West African context, USAID could provide support for Upper Guinean Rainforest Conservation Network with the goal of sustainable management of key protected areas for Liberia, Sierra Leone, Guinea, and Côte D'Ivoire.
- Ensure that the new PRSP incorporates issues associated with natural resource management, specifically biodiversity and tropical forest conservation.
- This assessment indicates that the USAID program has been responsive to the immediate post-conflict needs of Sierra Leone and is appropriately evaluating and transitioning its program emphasis to integrate more sustainable land use activities. The IDMP activities associated with mining-related land reclamation are excellent examples of how program activities have expanded to incorporate additional objectives. Numerous opportunities exist for similar expansion of USAID objectives and activities that can serve to benefit the conservation of Sierra Leone's natural resources.

² World Bank/Global Environment Facility (GEF), June 2007. GEF Project Brief on a Proposed Grant from the Global Environment Facility Trust Fund in the Amount of USD 5.0 Million to the Government of Sierra Leone for a Sierra Leone Protected Area Management Project, draft final version June 20, 2007.

INTRODUCTION

USAID/Sierra Leone has recently submitted its FY07 Operational Plan and is developing a country strategy for U.S. bilateral development assistance to Sierra Leone. This Biodiversity and Tropical Forest Assessment report has been prepared to provide information and analysis as requested by USAID/Sierra Leone, required by the U.S. Congress, and stipulated in the U.S. Foreign Assistance Act (FAA) of 1961. Sections 117, 118 and 119 of the FAA require USAID Missions to examine issues of environmental impacts and tropical forest and biodiversity conservation when preparing strategies for development assistance. Specifically, this assessment is designed to take into consideration the FAA provisions related to:

Section 117: Consideration of the impact of proposed activities on the environment and how to implement programs with an aim toward maintaining and restoring natural resources upon which economic growth depends;

Section 118: Analysis of the actions necessary to achieve conservation and sustainable management of tropical forests and the extent to which the actions proposed by USAID meet these needs; and

Section 119: Analysis of the actions necessary to protect endangered species and to conserve biological diversity and the extent to which the actions proposed by USAID meet these needs.

In 2005, a Biodiversity and Tropical Forest Assessment report was prepared for the mission. The scope of that report was relative to the size of the programs in place in Sierra Leone at the time, and the assessment was conducted without a field trip. Concurrently, in February 2005 a Programmatic Environmental Assessment was prepared to address small-scale mining impacts in Sierra Leone. Because of USAID's involvement with programs related to diamond mining, it was deemed important to address mining concerns in the updated 118/119 assessment.

These reports, along with other literature addressing biodiversity and other environmental concerns, have been used as a basis for updating this 118/119 assessment. The updated report seeks to provide a more comprehensive assessment to inform the USAID/Sierra Leone Mission's strategic planning, program development, and implementation.

This assessment includes an overview of the status of biodiversity and tropical forest conservation, an overview of the legislative and donor community framework particular to Sierra Leone, and an analysis of major threats to biodiversity conservation and tropical forests.

The report also examines how the proposed activities in the new strategy for USAID assistance could contribute to conservation needs and includes recommendations for actions related to the sole strategic objective (SO), "enhance democratic governance," as well as near-term and long-term suggestions for additional programming. These additional suggestions could also be presented for consideration by other donors, depending on the funding levels and capacity of USAID/Sierra Leone over the coming years. These recommendations are aimed at supporting environmental sustainability and conservation objectives in a manner consistent with the overall strategy of USAID and in ways that help to address the needs identified in this assessment.

The report findings and conclusions are based on a series of interviews with key stakeholders, specialists, and program representatives in Sierra Leone and in Washington, D.C.; and two weeks of field work in Sierra Leone, including a site visit to areas of Kono/Koidu, the Gola Forest Reserve, Tiwai Wildlife Sanctuary, the western peninsula, and adjacent landscapes in the southwest and western regions of Sierra Leone. Annex B provides a complete scope of work for this assessment and Annex C provides a list of documents reviewed and referenced for this report. Annex A presents a schedule of interviews and field work, and lists contact information for key contacts.

This report was prepared in February and March 2007 by a four-person team combining experience in tropical forestry, biodiversity conservation, natural resource management, environmental policy, and mineral development. Mr. Chris Squire from Sierra Leone was recently appointed the commissioner of Sierra Leone's National Commission on Environment and Forests and is a professor at Fourah Bay University. Renee Morin acted as the team leader on the assessment and is an environmental specialist and chemist with nearly 10 years of experience conducting environmental impact assessments, with a focus on extractive industries. Joe Krueger is an environmental law specialist with the U.S. Forest Service. He has a forest management degree and over 15 years of experience in environmental impact assessment and land management planning. John McKay is a licensed geologist working for the U.S. Forest Service. John has over 25 years of experience working on mineral resource evaluation and development.

OVERVIEW OF BIODIVERSITY AND TROPICAL FOREST CONSERVATION STATUS IN SIERRA LEONE

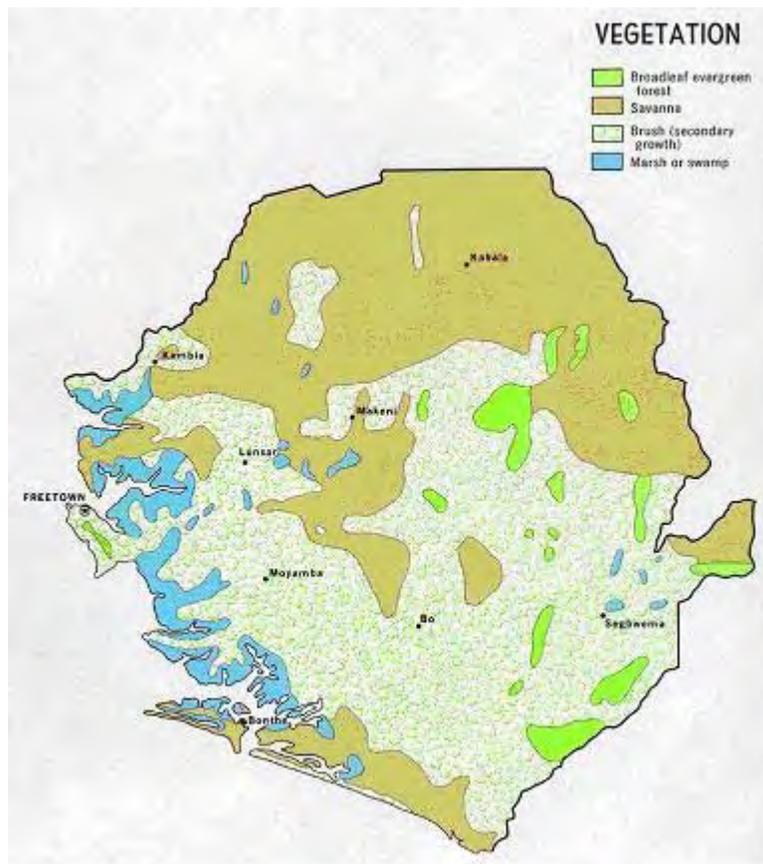
Sierra Leone represents one of the most unique and important ecosystems in the world. Located within the Upper Guinea rainforest region, Sierra Leone has a variety of distinct ecosystems that provide critical habitat for some of the world's rarest species. The diversity of ecosystems within Sierra Leone are characterized by areas of ocean, freshwater, brackish water, coastal beaches (rocky, sandy and muddy), wet lands (mangrove swamps), inland valley swamps, boli-lands, savannah woodlands, and tropical rain forests.³ The species that rely upon these ecosystems are constantly at risk of extirpation within Sierra Leone, due to the effects of land use activities — primarily shifting agriculture, hunting, mining, unregulated timber harvest, and fire.

By various accounts, an estimated 70 percent of the country was forested at one time. The mature forest cover that exists today is estimated to be just under five percent of the country's land area, with logging and slash-and-burn agriculture as the primary disturbance agents.⁴ The tropical forest cover is characterized by seven different vegetation types: moist rain forest, semi-deciduous, montane, mangrove, savannah, farm bush, and swamp forests. Farm bush arises from slash-and-burn agriculture and is becoming the dominant vegetation type in Sierra Leone.

The savannah is limited to the northern parts of the country and is increasingly being subjected to frequent fires, both man-made and natural. Most of the moist and semi-deciduous forests are located within protected areas, often on mountaintops and slopes.

While significantly outdated, Figure 1 shows the general types of vegetative cover within Sierra Leone and the lack of mature growth forests. Status and Management of Forests and

Figure 1: Vegetative Cover in Sierra Leone, 1969



Source: http://images.nationmaster.com/images/motw/africa/sierra_leone_veg_1969.jpg

³ Sierra Leone Biodiversity Strategy and Action Plan, 2003

⁴ *ibid.*

Protected Areas

The relatively small amount of forest cover remaining in Sierra Leone is an alarming, given that Sierra Leone historically had approximately 4.3 million acres of closed high forest of moist evergreen and semi-deciduous forest types. Today the country has lost nearly 70 percent of its forest cover, with less than five percent of the original forest remaining in isolated forest reserves on tops of mountains and hillsides. These reserves are indicated in Table 1 below.

The dependence on fuelwood for subsistence needs, as well as shifting agricultural practices (slash and burn), place tremendous pressure on forest resources both inside and outside of the forest reserves. The status of the forest resources should be considered threatened and the ability to manage the forest resources, especially outside of protected areas, should be considered limited at best.

Table 1: Designated Reserves and Corresponding Areas in Sierra Leone

RESERVE	AREA (HA)	RESERVE	AREA (HA)
Gola	77,044	Nimini	15,557
Tonkoli	47,656	Freetown Peninsula (Western Area Peninsula Forest)	14,089
Loma	33,200	Sanka Biriwa	11,885
Kambui	21,213	Kangari Hills	8,573
Dodo Hills	21,185	Kuru Hills	7,001
Tama	17,094	Kasewe	2,333

Sierra Leone currently has 48 forest reserves and conservation areas. (See Figure 2, Table 2, and Annex D for a complete listing.) Most of the reserves and areas are inadequately protected and managed. The area within Sierra Leone dedicated as forest reserves is estimated at 284,591 ha, while areas additionally proposed as forest reserves cover 36,360 ha. Protected or community forests situated on chiefdom land but managed by the Forestry Division are estimated at 11,800 ha. The information available from the BSAP also indicates an additional 300,000 hectares within a wetland and marine ecosystem protected area. These are likely comprised mainly of the mangrove ecotypes. Therefore, the total land area designated for some form of natural resource management or protection represents approximately eight percent of the land area. Only two of the areas, Outamba Kilimi National Park (OKNP) and Tiwai Wildlife Sanctuary (TWS), have been elevated to the status of national park and wildlife sanctuary, and both fulfill the IUCN classification system. Several protected areas (e.g., the Gola forests) have been proposed as national parks or game reserves.

All of the major ecosystem types are represented within the protected area system of Sierra Leone. Currently, Sierra Leone has 11 protected areas with moist forest formations (closed moist and semi-deciduous) within their boundaries. Three of these protected areas have entirely moist evergreen forest and they include two strict nature reserves (Gola North and Gola East) and a proposed national park (Western Peninsula Area forest reserve). Kangari Hills in central Sierra Leone is made up of semi-deciduous forest.

Other protected areas with some moist forests within their boundaries include Lake Sonfon, Loma Mountains, Dodo Forests, Yawri Bay, and Tingi Hills.⁵ Protected areas with both moist and semi-deciduous forests have an estimated land area of just over 33,900 ha.⁶ The wetland ecosystem occupies the largest land area in Sierra Leone, with numerous “proposed” protected areas. The marine ecosystem has a limited protected area within 3-4 miles offshore, known as Inshore Exclusion Zone (IEZ), where industrial fishing vessels are prohibited from fishing. These areas are protected for the artisan fleets.

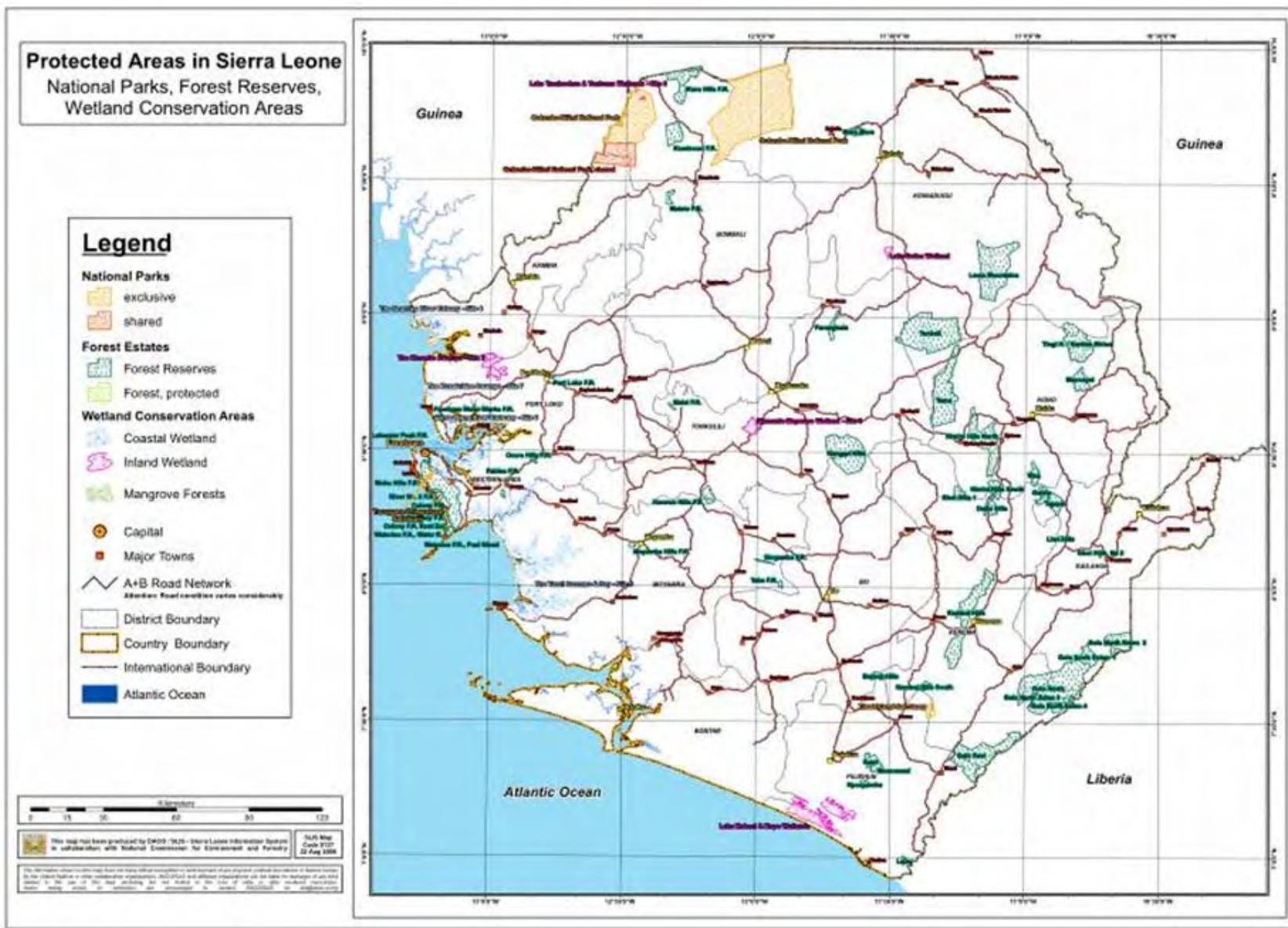
Table 2. Summary of Established Reserves by Ecosystem

ECOSYSTEM TYPE	NUMBER OF RESERVES	TOTAL LAND AREA	CATEGORIES REPRESENTED
Montane	2	43,720	National Park, Game Reserve
Rainforest	27	124,789	Forest Reserve, National Park, Game Reserve, Game Sanctuary
Savanna	3	113,500	National Park, Game Reserve, Game Sanctuary
Wetland	13	350,677	Strict Nature Reserve, Game Sanctuary, Game reserve, National Park, Important Bird Area
Marine	1	300,000ha	Inshore Exclusion Zone (IEZ)

⁵ Allan, 1990; Harcourt et al., 1992

⁶ Harcourt et al.,1992

Figure 2. Map of Protected Areas in Sierra Leone



Approximately 173,095 ha of lands are specifically reserved for wildlife management and protection. The following areas have been demarcated as Wildlife Protected Areas as defined by the Wildlife Conservation Act of 1972:

Outamba Kilimi National Park

In 1995, this park was declared as the country's first national park. It covers an area of 98,420 ha and consists mainly of savanna and closed forests. Its threatened species include elephants, chimpanzees, and the bongo. The area is expected to contain some of the highest concentrations of chimpanzees within Sierra Leone.

Tiwai Islands

This area is mainly a game sanctuary (12,000 ha) in a closed high forest zone. Rare animals include Pygmy hippos and banded duikers. The Tiwai Island Game Reserve was gazetted as a result of collaboration between two U.S. universities (University of Miami and Hunter College) and Njala University College of Sierra Leone.⁷

The game sanctuary is managed by a management committee, represented by individuals from the two chiefdoms in which Tiwai Islands are located.



Mamunta Mayoso

This is a proposed game sanctuary (2,000 ha) of wetland swamp vegetation. The sanctuary has a rich variety of birdlife. A visit to this area indicated that the area continues to receive pressure from agricultural exploitation as well as hunting and fishing pressure including encroachment of the buffer zone.



Western Area Peninsula Forest

This is a protected forest and a non-hunting reserve and consists mainly of 17,688 ha of closed forest. Among the rare animals found are Jentinks duikers and chimpanzees. The management of this area appears to be losing ground to incidental development within its declared boundary as well as increasing agricultural exploitation, charcoal

Top: A boat tour around Tiwai Island reveals a sandy beach. PHOTO: J. RENEE MORIN

Bottom: The buffer zone around the Mamunta Mayoso wetlands has recently been subject to a brush fire. PHOTO: J. RENEE MORIN

⁷ Bakarr et al., 1999

production, and fuelwood and rock collecting. Visible evidences (reduction of forest cover) can be seen from numerous extraction tracks leading up to the watershed. Maintenance of sufficient forest cover (greater than 60 percent) is only evident within the inner core of the reserve.

Loma Mountains

This is a 32,816 ha non-hunting forest reserve of montane vegetation consisting of rainforest and grassland. Leopards are among the rare animals found in the Loma Mountains.

Sankan Briwa

This montane forest reserve covers an area of 11,997 ha and consists of forest vegetation and grasslands.

Summary

The successful management of the protected area network is affected by numerous interrelated issues. First and foremost is the extreme poverty, which results in significant direct, indirect, and cumulative effects on the resources that the protected areas are designed to preserve. The subsistence needs of local communities for resources within the protected areas include firewood, bushmeat, timber for building, and land for agriculture production. A considerable challenge is the GOSL's ability to develop management plans for these areas that balance the management of the resource values of protected areas while considering the needs of local communities. The limited funding available to the GOSL to complete management plans and enforce their application is a significant obstacle that is being offset only partially by the donor community's involvement.

The management of Tiwai Island and the Gola Forest provide excellent examples of the opportunities for the GOSL and the donor community to join together to pattern the management of other protected areas. In these areas, there was evidence of staff working specifically on issues related to the conservation of the protected areas. The donor community has supported the start-up and ongoing management of these areas. One of the most promising aspects of these two examples is the plan to self-manage without significant donor assistance in the future. Tiwai Island appears to be trying to manage itself based upon the revenue generated by tourism, and Gola is establishing a trust fund that will support ongoing management activities.

STATUS AND PROTECTION OF ENDANGERED SPECIES

The current status and protection of endangered species should be considered tenuous at best, as no reliable population studies have been conducted since the end of the civil war. The classification system that has been used for defining the status of the various species is unclear. The National Biodiversity Report references endangered species without any clear indication of the basis for their determination as endangered. For the purposes of this assessment, determination of endangered species status is based on the National Biodiversity Report. The IUCN status of species has also been included.

Notwithstanding the use of these classifications for identifying which species are at risk, no reliable post-war estimates of population size and distribution of any endangered species exist. Protection of endangered species still appears only symbolic, with only limited circumstances in

which management of the habitat appears to be restricting the hunting of endangered species. Fines and punishment associated with protecting endangered species are neither sufficient nor enforced throughout the country. Most of the wildlife populations are significantly depleted outside of protected areas as a result of over-hunting and habitat destruction.

Sierra Leone has 15 species of primates, 11 of which are forest species and six of which are threatened, according to the Biodiversity Action Plan. These include the western chimpanzee (*Pan troglodytes*), the black and white colobus monkey (*Colobus polykomus*), red colobus monkey (*Colobus badius polykomos*), diana monkey (*Cercopithecus diana*), and olive colobus monkey.

Sierra Leone has 18 species of antelopes, nine of which are threatened. These include the jentinks (*Cephalophus jentinki*) and zebra duikers (*Cephalophus zebra*). Other threatened species of mammals include one species of forest elephant (*Loxodonta africana cyclotis*), West African manatee (*Trichechus senegalensis*), pygmy hippopotamus (*Hexaprotodon liberiensis*), leopard (*Panthera pardus*), an endemic frog (*Bufo cristiglands*) found in the Tingi Hills, and an endemic toad (*Cardioglossus aureolli*) found in the Western Area Peninsula Forest.

Relatively few endemic invertebrates are known to exist. They include two dragonfly species, *Argiagrion leoninum* and *Allohizucha campioni*, and the rare giant swallow-tail butterfly, *Papilio antimachus*, which reaches its western limit in Sierra Leone.

Annex E presents the forested and wetland habitats and their associated primary species. Table 3 includes all mammals that occur in Sierra Leone that are rated as endangered or vulnerable in the 2004 IUCN Red List of Threatened Animals.

Table 3. Vulnerable and Endangered Species in Sierra Leone: IUCN Red List 2004

VULNERABLE	ENDANGERED
African Elephant (<i>Loxodonta africana</i>)	Chimpanzee (<i>Pan troglodytes</i>)
African Golden Cat (<i>Profelis aurata</i>)	Diana Monkey (<i>Cercopithecus diana</i>)
Buettikofer's Epauletted Fruit Bat (<i>Epomops buettikoferi</i>)	Red Colobus (<i>Procolobus badius</i>)
Jentink's Duiker (<i>Cephalophus jentinki</i>)	Wild Dog (<i>Lycaon pictus</i>)
Lion (<i>Panthera leo</i>)	
Pygmy Hippopotamus (<i>Hexaprotodon liberiensis</i>)	
Spotted-necked Otter (<i>Lutra maculicollis</i>)	
West African Manatee (<i>Trichechus senegalensis</i>)	
Zebra Duiker (<i>Cephalophus zebra</i>)	

CONSERVATION OUTSIDE OF PROTECTED AREAS

The large number of people in Sierra Leone combined with their extremely limited economic situation is resulting land degradation and loss of forest cover. In rural areas, development of settlements in marginal areas by the farming community has led to high levels of deforestation

and soil degradation. In urban areas, such as Freetown and Kenema, the influx of rural-urban migration is increasing the problems of overcrowding, poor living conditions and sanitation, and inadequate water supply and housing.

Compounding land-use issues is the lack of private land ownership or land rights at the community level. Historically in Sierra Leone, the security of ownership or long-term land rights and control of resource access leads to a willingness to apply sustainable resource utilization approaches⁸. While some of the population continues to relocate to urban areas, a growing number of Sierra Leoneans are returning to their villages as peace has been achieved up-country. However, many of these lands have not been officially gazetted to the impacted communities and thus responsibility for the lands is not always clear. While conflict may result, a secondary issue is the lack of coordinated land use management, which can lead to negative impacts on the surrounding forests and biodiversity.

Conservation efforts appear to be limited in scope to the overall needs. A few notable examples include the Tacugama Chimpanzee Sanctuary as well as the efforts of the Conservation Society of Sierra Leone and Environmental Foundation of Africa. The work of these organizations in increasing the visibility and strength of conservation activities have been and will continue to be critical to achieving awareness of the conservation needs of Sierra Leone.

The private sector may have the ability to effectively manage their immediate and adjacent environmental issues (as witnessed at the Koidu Holdings Diamond Mine Operation) but the effects from their conservation efforts are limited in scope and scale.

⁸ Personal communication with Chris Squire. February 2007.

LEGISLATIVE AND INSTITUTIONAL FRAMEWORK AFFECTING BIODIVERSITY AND TROPICAL FORESTS

When Sierra Leone gained independence in 1961, there were high hopes for rapid socio-economic growth and development driven by sustained exploitation of the country's natural resources. However, less than a decade later, the country began to suffer from dramatic economic decline, social inequalities, and political instability that broke down completely in 1991 with the outbreak of a brutal armed conflict that lasted until early 2002. Annual economic growth declined from an average 4 percent and 3.5 percent in the 1960s and 1970s, respectively, to an average of 1.5 percent in the 1980s.

In the late 1980s, the GOSL, in consultation with its development partners, introduced a series of macroeconomic and structural reforms aimed at stabilizing the economy and restoring growth. Before any significant and sustained turnaround could be made, the civil war ensued and derailed the social and economic reconstruction program. This resulted in further economic deterioration to an average growth rate of negative 4.5 percent per annum between 1990 and 2000.

In the era of civil conflict and the post-conflict transition, much of Sierra Leone's economic and physical infrastructure were destroyed, and resource "mining" intensified, particularly in rebel-held strongholds. This was reflected in abysmal social indicators: under-five child mortality of 28.4 percent; life expectancy of 37 years; adult literacy rate of 36 percent. The gross domestic product (GDP) per capita in Sierra Leone was USD \$520. Seventy percent of the population was living below the national poverty line of USD \$0.75 per day; there was widespread lack of access to food and shelter; and coping mechanisms seemed non-existent. The decade-long conflict exacerbated Sierra Leone's poverty situation and caused the population to exert enormous pressure on the land and its resources for subsistence, livelihood support, and income — the results of which continue to be observed today.

Figures contained in the SL-PRSP suggest that the economy has transitioned well (4.3 percent GDP growth in 2002, 9.3 percent in 2003, and 7.4 percent in 2004) after completion of the government's disarmament, demobilization, and reintegration program for ex-combatants. In the immediate post-war period (2000-03), agriculture, forestry and fisheries sectors grew at an average 4.6 percent per annum, and this was attributed largely to the high demand for basic food and timber for the housing sector.

Sierra Leone's post-conflict economic performance has been largely due to recovery in agriculture and mining. Evidently, this overdependence of the economy on agriculture, forestry, mining, fisheries, and production of bushmeat has led to over-exploitation of natural resources with disastrous consequences for the environment. This situation is compounded by a weak regulatory/legislative and institutional framework for natural resource and environmental management. Against this background, Sierra Leone and its partners need to focus on sustainable management of its biological resources and the environment.

LAWS SUPPORTING THE CONSERVATION AND IMPROVED MANAGEMENT OF BIOLOGICAL RESOURCES AND ENDANGERED SPECIES, INCLUDING INTERNATIONAL TREATIES

The decline of forests in Sierra Leone has been blamed largely on slash-and-burn agriculture. However, in many areas, deforestation followed in the wake of commercial logging, which dates back to the British colonial period and became a major industry when slavery was outlawed. By 1840, logging activities had shifted to the interior of the country, as the supply of valuable timber along the coast became exhausted. At that time, forest management and legislation was nonexistent. Subsistence farmers moved directly into the recently logged areas to burn remaining vegetation and clear the land for agricultural activities, and the forest was never allowed to regenerate naturally.

In the colonial and immediate post-colonial period, efforts went into preserving some of the ecosystem types in the country through the declaration of a number of Protected Areas (PAs). Many pieces of legislation and policy instruments have been enacted for environmental management in Sierra Leone. For example, legislation has been promulgated for forestry, agrobiodiversity, marine biodiversity, wildlife management, fisheries management, extractive industry and minerals extraction. General environmental management is covered by Sierra Leone's National Environmental Policy (NEP) of 1994 and the National Environmental Protection Act (NEPA) of 2000. The new Forestry Act and the original Wildlife Conservation Act were enacted in 1988 and 1972, respectively. In fulfilling Sierra Leone's obligation under the Convention on Biological Diversity, the Government of Sierra Leone prepared the National Biodiversity Strategy and Action Plan (BSAP). An overview of some of these regulatory frameworks is presented below.

The National Environmental Policy

The NEP was approved by cabinet in 1990 and was revised in 1994.⁹ It aims at achieving sustainable development in Sierra Leone through sound environmental and natural resources management. The primary policy objectives are:

- Conserve and use the environment and natural resources for the benefit of present and future generations
- Preserve biological diversity and uphold the principle of optimum sustainable yield in the use of living natural resources and ecosystems
- Raise public awareness and promote understanding of the essential linkages between the environment and development and to encourage individual and community participation in environmental improvement efforts

Further, the NEP contains, *inter alia*, sector policies on land tenure, land use, and soil conservation; forests and wildlife; biological diversity and cultural heritage; mining and mineral resources; coastal and marine resources; settlements, recreational space, and greenbelts; and public participation. The policy goal for the land tenure, land use, and soil conservation is to

⁹ GOSL, 1994

“use available land in such a way that its quality is conserved so as to enhance its potential for continuous productivity and to prevent degradation.”

To achieve this goal, GOSL is attempting “to make as priority Environmental Impact Assessment (EIA) of proposed activities which may significantly affect the environment and the use of resources.”¹⁰ The NEP also has a specific goal and policy for water resource management, which ensures adequate quantity and acceptable water quality to meet domestic, industrial, transportation, agricultural, and fisheries needs. Although Sierra Leone has laws prohibiting pollution of water bodies, the laws are not adequately enforced.

The National Environment Protection Act, 2000

The National Environment Protection Act (NEPA) of 2000 established the Environment Protection Department (EPD) and authorized the Director of EPD and Minister of the Environment to administer and monitor the implementation of the act. The act makes provision for the development of an EIA for projects in Sierra Leone on agriculture, mining, construction, waste disposal, and exploitation of water resources. In compliance with NEPA, the EIA document is to be submitted by the developer and contain an assessment of potential impacts to the environment and surrounding population; indicate their public consultative process; proposed mitigation measures and monitoring plan. In issuing a license for a project based on an EIA, the minister also has the authority to establish regulations for national environmental standards pertaining to the use of natural resources, water quality, effluent limitation, air quality, wastes, atmospheric and ozone protection, noise control, pesticide residues, and odors. Internationally banned chemicals are prohibited in Sierra Leone, as is the discharge of any hazardous substances into the air, land, or water.

The Forestry Act, June 1988

The Forestry Act of 1988 contains special protection provisions under which the minister is empowered to declare any area to be a “protected area for the purpose of conservation of soil, water, flora, and fauna.” The legislation stipulates that ‘no person may cut, burn, uproot, or destroy trees that are in protected areas or trees that have been declared as being protected.’ It also states that the chief conservator/director of forest may issue a license or concession to fell and extract a protected tree.

The Wildlife Conservation Act, 1972

The Wildlife Conservation Act of 1972 was enacted to help regulate the utilization and protection of wildlife resources. However, the bill is characterized by inadequate capacity for implementation and enforcement and insufficient and unsustainable sources of funding. The bill is also outdated and merits review and update to reflect current trends in wildlife protection.

The Mines and Minerals Act, 1994

Diamond mining has been ongoing in Sierra Leone for about 70 years. The consequent environmental degradation in Sierra Leone’s estimated two million hectares of diamondiferous lands in the southeastern regions of the country presents serious challenges to the government.

¹⁰ GOSL, 1994

Environmental problems continue to be exacerbated due to intensified of mining diamond, gold, rutile, bauxite, and other minerals in the country.

To mitigate the impact of mining on the environment, the government is exercising its “duty of care” by prioritizing as objective 6 in its Core Mineral Policy a willingness to address “the adverse impacts on Health, Communities and the Environment as a result of mining operations.” However, issues related to the adequacy of the provisions of the 2000 NEPA — including logistics, personnel, implementation and monitoring capacity, and the fact that mining operations continue to be widespread — implies government’s restricted ability to implement full environmental protection activities at the moment. In addition, mining in the country predates the provisions for environmental management inherent in NEPA, and vast areas of mined out lands have therefore not been reclaimed. It is also clear that the financial provisions made for post mining reclamation activities in the licensing process are inadequate.

The Mines and Minerals Act of 1994 addresses mining leases and licenses requirement for open-pit and industrial mining. When a proponent/miner applies for a mining lease, details on the type, duration, cost, marketing, and methods of mining are required to be provided and forwarded to the director in the Ministry of Mines and Mineral Resources. It is noteworthy that NEPA requires an EIA for prospecting, exploration, and mining, whereas the Mines and Minerals Act requires an EIA only for mining.

National Land Policy and Land Commission Act, 2004

A comprehensive land policy has been formulated, and the Lands Commission Act is being developed by the Ministry of Lands and Country Planning for approval by the cabinet. The land policy aims at ensuring “the judicious use of the nation’s land and its natural resources by all sections of the Sierra Leone Society.” The policy also provides the framework to “ensure equal opportunity of access to land and security of tenure in order to maintain a stable environment for the country’s sustainable, social and economic development.” The Land Commission’s functions include the management of state lands, which encompasses the execution of a comprehensive program for the registration of title to land throughout Sierra Leone.

International treaties and conventions

Sierra Leone has also endorsed and signed several international Conventions and Protocols, including:

- Convention on Biodiversity (CBD)
- United Nations Framework Convention on Climate Change (UNFCCC)
- United Nations Convention to Combat Desertification (CCD)
- Convention on International Trade in Endangered species of Wild Fauna and Flora (CITES)
- Convention on Wetlands of International Importance (Ramsar)
- Convention on Bio-safety, United Nations Convention on the Law of the Sea (UNCLOS)
- Bassel Convention, Vienna Convention, and Montreal Protocol
- Stockholm Convention on Persistent Organic Pollutants

These conventions and protocols are at different stages of implementation, but in general, implementation is slow. Many have not been ratified or harmonized with the laws, policies, and programs of Sierra Leone. As a result, Sierra Leone trails far behind in the implementation of the provisions of these conventions. A summary of International/Regional treaties and their implementation is provided in Annex F.

Regional cooperation

Sierra Leone is member of the Mano River Union (with Liberia and Guinea), the Economic Community of West African States (ECOWAS), and the African Union (AU).

Summary

Although most of these frameworks are relatively comprehensive, the prescriptions, guidelines, management practices, and particularly the governance and accountability structures that permeate the state management structures are weak. They lack strength because they are out of tune with current best practices and approaches to resource management and conservation. This seemingly impressive array of environmental laws and legislations has not fully provided a platform for sustainable use of natural resources and proper management of the environment. This can be attributed to the reasons below, which are elaborated upon in Annex G.

- Systemic weakness in conservation legislations and inadequate capacity for their implementation and enforcement for the improved management of biological resources and endangered species, including international treaties
- Lack of effective partnerships for conservation to create the desired impact, and insufficient and unsustainable sources of funding for protected area management
- Insufficient public awareness about sustainable management and low perceptions of the value of management and conservation of natural resources and biodiversity
- Lack of effective data collection, information management system, employment, and livelihood improvement opportunities
- Potential conflicts of interest within sectors by not linking environmental and natural resources management responsibility with other development interests
- The relative absence of an autonomous Environmental Protection Agency vested with both advisory and executive authority at all levels of government to design, monitor, and implement environmental policies
- Lack of a mechanism that ensures environmental and natural resources management issues in the sectoral ministries and line agencies in order to provide information to carry out effective monitoring of environmental policies to be implemented

INSTITUTIONS INCLUDING GOVERNMENT, INTERNATIONAL DONORS, AND NGOS

In the past, the public sector organizations assumed full, unchallenged responsibility for the management of wildlife resources and biodiversity conservation within protected area systems in

Sierra Leone. Most other stakeholders were alienated, severing partnerships and jeopardizing full-scale and active public participation by adopting command-and-control approaches. The areas outside reserves became a free-for-all — open access heritage was overused and often abused. The on-reserve, policing-type management practice and the open access management style have proven to be counterproductive. A shift in paradigm to shared management responsibility with other partners, including the communities, is gradually emerging. It is believed that institutionalized collaboration and partnership arrangements, combined with oversight coordination, could be the key to improving management effectiveness by pooling scarce resources and assigning management responsibilities and roles based on capabilities.

An overview of recent donor contributions can be found in Annex 9. This information was collected by the European Committee as part of the Sierra Leone Country Environmental Profile from 2006.

The National Commission on Environment and Forestry

Until 2005, the key public institutions responsible for forestry, wildlife, biodiversity conservation, and environmental protection and management were the forestry and environment departments. These departments operated as part of various ministries, more recently including the Ministry of Agriculture, Forestry and Food Security (MAFFS) and the Ministry of Lands, Country Planning and Environment (MLCPE).

However, in 2005, the Government of Sierra Leone established the National Commission on Environment and Forestry. This commission is responsible for the natural and environmental resource management responsibilities previously overseen by the departments of environment and forestry. NaCEF is an executive and policy advisory agency, and its mandate includes advising policy and involvement in project implementation, environmental monitoring, and priority setting. A NaCEF act currently in the parliamentary approval process is intended to maintain and repeal certain sections of previous acts under the Forestry and Environment departments, and give NaCEF more direct authority over its responsibilities.

NaCEF's portfolio of responsibilities includes ensuring that EIAs are undertaken and monitored for the conservation of natural resources and biodiversity, environmental protection of projects and activities, and utilization of natural resources. Other responsibilities include priority setting within the fields of its mandate, the development and submission of intervention proposals, and the initiation and conduct of pilot initiatives in forestry and environment. NaCEF currently has serious overlaps in legislation with different ministries, which usually has negative consequences on both environment and forestry efforts. The key ministries and partners whose activities impact on environment are listed in Annex H.

The interfaces with other Ministries and NaCEF are reflected in Figure 3. In addition, the institutional role of NaCEF is laid out as follows:

NaCEF's Institutional Role

- Advisory
 - Policies
 - Legislation
 - Implementation
 - Inputs to new legislation
- Environmental Impact Assessment and Protection
- Forestry and Conservation
- Other
 - Priority setting
 - Proposals for intervention
 - Pilot initiatives

Figure 3. NaCEF: Interagency Linkages



The commission currently suffers from low budgetary allocations from the Government of Sierra Leone's central fund. The commission is understaffed and has no allocations for development purposes. Lack of resources (human, technical, and financial) is incapacitating older and newly created public sector agencies, making them incapable of delivering quality services in the management of the country's natural endowments. Therefore, capacity deficiency is recognized as one of the key barriers for effective protected area and environmental management, wildlife protection, and biodiversity conservation in Sierra Leone.

Donor community

Donor coordination in Sierra Leone is being led by the government through bi-monthly meetings of the Sierra Leone Development Partnership Committee (DEPAC), chaired by the vice president and including the government's development partners. Regular dialogue takes place outside of the formal structures with the main donors (International Monetary Fund, World Bank, African Development Bank, Islamic Development Bank, USAID, etc) and specifically with member states present, particularly the United Kingdom, Ireland, and Germany.

The EC and DFID recently went began development of a Joint Country Strategy Paper (JCSP), which will lead to a more harmonized, aligned, and effective delivery of development aid to Sierra Leone. The integration and mainstreaming of environment is addressed as a cross-cutting issue of the JCSP.

Currently, no major donors are actively supporting the environment in Sierra Leone. However, international organizations such as the World Bank and the UN, particularly UNDP and UNEP, have expressed their general interest in becoming active in the environmental sector in the coming years. Previously, the UNDP has sponsored a number of projects on forestry and biodiversity conservation. UNDP is also currently providing some support to NaCEF for capacity building. The World Bank is working with NaCEF on a national project for the protection of wildlife and biodiversity. The EU is finalizing a proposal for providing a harmonized legislative framework for NaCEF, as well as providing sponsorship for some level of capacity building.

Research and Academia

Research and academia in Sierra Leone seem to have an acceptable level of human and technical resources to assist in the development and implementation of effective programs for sustainable natural resource management. The two main universities — The University of Sierra Leone and Njala University — offer curricula in agriculture, forestry, wildlife and fisheries management, and environmental studies; conduct research in various disciplines of natural resource management; and offer considerable expertise in contemporary best practices in biodiversity conservation and protected area management. However, a lack of financial resources has always limited how engaged they can be.

International and Local NGOs

In recent times, international and local NGOs have committed resources to natural resources management in Sierra Leone, and have been actively involved in decision-making, policy formulation, and implementation of programs for wildlife protection and biodiversity

conservation. Generally, capacity among local NGOs is low compared to their international counterparts, most of which work through local organizations.

Prominent local and international NGOs in the environment and natural resource sector include the Environmental Foundation for Africa, Friends of the Earth Sierra Leone, Conservation International, BirdLife International, the Conservation Society of Sierra Leone (a BirdLife International partner), and the Royal Society for the Protection of Birds (a BirdLife International partner in the United Kingdom). These and other prominent groups are briefly described below, but no reliable information is available on the existence and capacity of community-based organizations in rural Sierra Leone.

ORGANIZATION	ACTIVITY AREAS
The Conservation Society of Sierra Leone (CSSL)	CSSL promotes the conservation and sustainable use of Sierra Leone's natural resources through research, education, advocacy and support to site management groups. CSSL also undertakes campaigns for the protection of wildlife, parks and sanctuaries.
Environmental Foundation for Africa (EFA)	The mission of EFA in Sierra Leone is to restore and protect the environment and its natural resources. It has acquired experience in terms of operation in conflict zones, humanitarian and refugee operations, post-conflict reconstruction and rehabilitation.
Commonwealth Human Ecology Council (CHEC-SIL)	CHEC promotes conservation of the ecology through education, and it disseminates environmental information through the mass media. It also supports GOSL in promoting, through education, policy implementation and project execution.
Green Scenery and Friends of the Earth	This NGO is actively involved in tree planting and awareness raising campaigns on the protection and management of the environment and natural resources.
Organization for Research and Extension of Intermediate Technology (OREINT)	ORIENT promotes self-sustaining rural development through the promotion of agriculture and appropriate technology to enhance and improve the socio-economic status of the people in rural areas

Civil society in environmental management

The environment and natural resource base in Sierra Leone has deteriorated substantially. While many of the above-mentioned NGOs have significant interactions with civil society, there is still a lack of awareness among large sections of the population on the environmental issues facing the country and the role that citizens should play in the protection and improvement of the environment. The introduction of environmental education in the educational system in the country and raising public awareness have also been limited, but will be the key to improving the current situation.

PRIORITIES REQUIRING IMMEDIATE ATTENTION

Natural resource management and environmental protection in Sierra Leone have been subordinate to peace and security, economic development, and stabilization efforts in Sierra Leone in the pre- and post-conflict eras. The country's civil war exacerbated the problem through destruction of basic infrastructure and community coping mechanisms. The scale of this destruction could be why government and its international partners have been embarking on projects aimed at rebuilding without due consideration for sustainable natural resource management. Even the recently concluded country PRSP considers sustainable environmental and biodiversity management only as a cross-cutting issue. Specific provisions have not been made for natural resource and biodiversity conservation. The country is therefore running the risk of accomplishing rebuilding goals but ending up with a major natural resource management crisis. Conscious effort should be made to reverse these trends.

The institutional framework for natural resource management in the country is in dire need of targeted review and capacity building. The legislative framework is a close second in terms of its need for attention. These issues must be addressed on a sustainable basis through a multi-pronged approach: building capacity for NaCEF; reviewing, updating, and enforcing the legislative framework for natural resource management; creating partnerships and raise awareness of natural resource management; and providing adequate financial resources for biodiversity conservation.

With 48 protected areas in Sierra Leone, the current level of government resources allocated to NaCEF for management is inadequate. Currently, allocations cover only low personnel salaries and some office costs, and do not make any provisions for the management of the protected areas or undertaking new initiatives. In an effort to evolve a strategy to save some of the ecosystem types in the country, the GOSL has identified eight representative areas for sustainable management as conservation concessions. Efforts are also underway to establish a trust fund to meet future development and management costs, part of the continued application of the recommendations in the [National Biodiversity Strategy and Action Plan](#). This effort has received support from the Global Environment Fund of the United Nations. The Government of Sierra Leone and its international partners should back the endeavor, given its global benefits.

Despite international involvement on environmental protection projects, mining projects in Sierra Leone can be categorized generally as investment and development priorities without any consistent consideration for internationally accepted standards for environmental protection. The Government of Sierra Leone and its international partners and investors should mainstream environmental management into their development goals. While some of the larger corporations conducting mining operations in Sierra Leone may be adhering to international standards, it does not appear that regulatory oversight is being conducted to ensure that international standards are being applied.

For example, Koidu Holdings was working with local communities to provide potable water from a dewatering area. The role of the Sierra Leonean government in ensuring the safety of this practice was not determined, but the practices that Koidu Holdings was undertaking on its own accord ensured that any water quality concerns were being addressed.

THREATS TO BIODIVERSITY AND CAUSES OF BIODIVERSITY LOSS

The principal threats to biodiversity loss in Sierra Leone can be attributed broadly to unsustainable land use practices, the influence of the mining industry, and lack of appropriate fisheries management. However, these direct causes strongly linked to the civil conflict, poverty, and the absence of adequate employment and alternative livelihoods in Sierra Leone. An examination of the causes that threaten species, ecosystems, and ecoregions is presented below. However, very few long-term studies or monitoring programs are tracking trends in threats to biodiversity. Monitoring programs could be conducted efficiently if integrated as part of long-term study programs of universities and research organizations.

LAND USE

When traveling the major upcountry roads in Sierra Leone, one can witness the tangible and pervasive evidence of agricultural practices that are resulting in the reduction of forest cover. Visual observation is directly supported by the current figures regarding human population (nearly 6 million) and loss of forest cover (less than 5 percent of original cover remaining). These losses must be researched further in order to develop effective remediation programs.

Sierra Leone has a total land area of approximately 7.2 million hectares, about 5.4 million of which is cultivable. (About 4.3 million hectares are low fertile arable upland and 1.1 million hectares of more fertile arable swamps.)¹¹ With nearly 80 percent of the labor force depending upon this land for their agricultural subsistence activities (largely slash-and-burn, with rice cultivation making up the bulk of the subsistence activity), the overall health of these lands will depend upon how well farmers are able to maintain the soil, water, and living resources. The combined effects of poor farming practices — shifting cultivation, recurrent bushfires and overgrazing, increasing population, ensuing shortening of fallow periods of land — have all been identified as contributing factors to soil erosion resulting in land degradation.

At present, forest resources are subjected to increasing deforestation due to the rapidly growing population and consequent demand for more agricultural land, urban requirement for timber and fuelwood, mining for minerals, and recurrent bush fires. With population pressure and commercialization today, the rate of exploitation has far outstripped the rate of regeneration by natural means. The result is deforestation and an acute threat to biodiversity.

This problem is especially acute if the protection and maintenance of biodiversity in Sierra Leone is predicated on its ability to manage its protected areas. Currently, there are only limited circumstances (Gola, Tiwai, and perhaps Outamba Kilimi National Park) in which ecosystem functions appear to be protected and maintained. The lack of any agreed-upon management scenarios for the vast majority of the protected areas is leading to encroachment, resource degradation, and loss of function of ecosystem services from these areas.

According to a study completed in 2004,¹² logging, firewood collection, and mining ranked as the top three activities contributing to unsustainable land uses. The report indicated that poverty, corruption, and low public awareness were the top three indirect reasons for these practices.

¹¹ Lands and Water Division, 1999

¹² Koroma A. P., 2004. "Causes of Forest Loss and Degradation and Issues of Unsustainable Forestry in Sierra Leone."

MINERALS MANAGEMENT

Sierra Leone has a variety of valuable mineral deposits that can be found in almost all of its ecosystems. Diamonds, iron ore, rutile, bauxite, gold, granite, and platinum are some of the minerals under active exploration or production by either artisanal or industrial scale mining.¹³

The status of diamond production indicates that among the 19 diamond-producing countries, Sierra Leone ranked 14th (less than 0.3 percent of total global production) in the extraction of jewelry quality stones and 8th (just over 0.4 percent of the total global level) in the production of industrial diamonds in 2003. At 512,000 carats, Sierra Leone ranked 12th (about 0.3 percent) in overall world production in 2003.¹⁴ Although Sierra Leone's production in total carats in 2004 increased overall by about 36 percent to 696,000 carats, this was not enough to significantly alter the country's relative rankings for production. This is also in contrast to the peak diamond production of the country in the 1960s — about 2 million carats per year.

The vast majority of diamond production (nearly 90 percent by weight)¹⁵ is from artisanal extraction methods. Of the 2300 active artisanal mineral leases, nearly half were issued in the Kono District. The number of unlicensed artisanal operations is estimated to be much higher than the 2300 active licensed operation,¹⁶ but a precise number for the extent of illegal operations is unavailable.

Small-scale artisanal operations typically involve the digging of pits within alluvial river channels and excavating for black sands that are associated with diamond-bearing gravels. Up to 100 individuals work on a one-acre site. The diggers use shovels to extract the target gravel, which is most often carried off in pans or sacks to an area where the gravels are washed using a sieve. The actual number of diggers associated with artisanal mining operations is not known, but is estimated to range from 60,000 to 200,000.¹⁷

Several references in numerous documents¹⁸ indicate a potential decline in artisanal diamond activity. The current situation appears that most areas available for artisanal operations will continue to be reworked by speculators. The widespread nature of this “re-working” of already mined out areas will continue to contribute to a particular areas ability to contribute to the conservation of biodiversity. This re-working combined with the lack of any reclamation or rehabilitation of mined areas continues to have effects on biodiversity conservation in Sierra Leone.

Several large companies are involved currently in diamond prospecting and exploration activities in Sierra Leone, but only one company is extracting minerals under its lease arrangement. Koidu Holdings has two well-defined kimberlite pipes and several dykes being developed. The site visit to Koidu Holdings operations in Kono indicated that their operations will likely continue for the next 20 to 30 years, if current assumptions hold true. Review of the Koidu Holdings operations

¹³ “Support to Small-Scale Artisanal Mining Activities in Sierra Leone,” February 2005 (Programmatic Environmental Assessment for USAID)

¹⁴ Ibid.

¹⁵ Government of Sierra Leone Gold and Diamond Office, 2004

¹⁶ Personal communication, IDMP Project Coordinator Ansumana Turay, 2007

¹⁷ “Support to Small-Scale Artisanal Mining Activities in Sierra Leone,” February 2005

¹⁸ Ibid.

did indicate that they are being undertaken with substantial consideration of the local communities' concerns. However, the performance of the larger companies to manage their environmental effects and complete site reclamation is still unproven.

Expansion of rutile (the mineral used to produce titanium metal), bauxite, and platinum mining industries are likely, given that Sierra Leone has one of the world's largest rutile resources and that titanium usage is on increasing globally for industrial and military applications. Until 1995, Sierra Leone produced one-fourth of the world's supply of titanium.

Platinum is mined commercially only in Africa and the United States. The main uses of platinum are catalytic converters in vehicles and jewelry. This resource is known to occur in Sierra Leone and may yet attract commercial interests. The other mineral resources that may also attract commercial interest are chromite, molybdenite, and iron ore. These minerals are in high demand on a global scale, especially from China and India. Interest in these resources is already being expressed in the increase and size of mineral exploration licenses being authorized.¹⁹

As relative stability of governance returns and continues in Sierra Leone and prices for metals and minerals increase, the mining industry will inevitably expand and play an important role in Sierra Leone's economy.

Effects of mineral extraction and management on biodiversity

LOSS OF BIODIVERSITY AND TROPICAL FORESTS

As Figure 4 indicates, there is a high degree of geographic overlap between mineral exploration permits and the protected area network. Not only does mineralization occur in these areas, but the apparent rights to these minerals have been sold. If exploitation occurs within these areas, the potential to significantly affect biodiversity and forest cover should be considered very high. In the forested areas of the south and east of the country, small-scale artisanal mining of diamonds (and gold, to a lesser extent) is likely occurring and affecting water quality, forest cover, and the exploitation of wildlife from an increased demand for bushmeat to sustain workers.

The majority of the artisanal activity, which accounts for most of the mining activity in Sierra Leone, may have individually insignificant effects on biodiversity and tropical forests but cumulatively significant effects. In addition to diamond and gold alluvial mining activities, there is visible evidence of extensive "rock mining" for gravel starting on the outskirts of Freetown and reaching most areas of the upcountry. The environmental impact of artisanal operations such as these are typically limited in scale but



Artisanal mining near Kono transforms a once-green landscape. J. Renee Morin

¹⁹ Overlaps between Industrial Mining Rights and Protected Areas, SLIS Map code 0149, 07 Feb, 2007

Figure 4. Mining Rights and Protected Areas in Sierra Leone



greatly increase the total area affected, if a high-quality gemstone or rich rock deposit is found. In combination with the lack of any effective reclamation programs for mined areas, artisanal mining has led to significant areas with decreased habitat capability. The effects to the environment and biodiversity from mining activity can include:

- Siltation of dams and rivers
- Indiscriminate deforestation
- Additional degraded lands from settlement patterns of miners

- Ground and surface water pollution, including acidic mine drainage and heavy metal pollution from copper, lead, arsenic, mercury, or cyanide, if the excavation is in highly mineralized zones (typically not the case for diamonds).
- Dust pollution
- Water table depression as a result of pumping water through shafts, and in some cases through boreholes
- Oil pollution from leaks from vehicles and machinery
- Habitat fragmentation, decreased habitat effectiveness, and increased mortality of wildlife

Biodiversity is impacted by the change in habitat, water quality, and land use after extraction. All mineral resource extraction will have direct adverse impacts to the surrounding environment, including its biodiversity. In almost all cases, the impacts can only be mitigated and never eliminated. Artisanal, alluvial diamond mining activity has led to considerable habitat loss and increased erosion and has directly impacted in excess of 120,000 ha in the eastern and southern regions. The occurrence potential for diamonds is estimated to cover an area of almost two million hectares.²⁰ The current artisanal mining practices will likely lead to continued environmental impacts, unless improved methods and management activities are introduced.

Indirect impacts from mineral extraction include both positive and negative changes to the local communities' economic base and increased pressures to social structure. Industrial mining operations for diamonds, bauxite, and rutile can include the clearance, excavation, and flooding of farmlands. Surrounding communities are generally either displaced or relocated, which can disrupt their livelihoods and impact their cultural heritage. Changes in livelihoods can also have indirect effects on biodiversity, when new areas must be cleared for agriculture or fuelwood extraction.



A family near Freetown breaks up hand-mined rocks into gravel for sale. PHOTO: J. RENEE MORIN

GOVERNMENT ABILITY TO MANAGE MINERAL RESOURCES

The Government of Sierra Leone is in an extremely difficult position of trying to manage mineral resource extraction for small-scale and large-scale activities, on which livelihoods depend. Numerous documents²¹ have analyzed the GOSL's ability to manage its mineral

²⁰ Geological Survey Division, Sierra Leone, November 2006

²¹ Sierra Leone Mining and Environment (Leone Case) Case No. 195, at <http://www.american.edu/ted/leon.htm>. "Programmatic Environmental Assessment, for USAID Support to Small-Scale Artisanal Mining Activities in Sierra Leone," February 2005.

resources with respect to the current economic condition. These documents indicate negative findings, and the interviews conducted for this assessment seem to confirm that this is still the case. The Programmatic EA does list numerous recommendations for the GOSL that, if implemented, would begin to address some of the issues related to better conservation of biodiversity and tropical forests.

LACK OF FUNDING TO RECLAIM IMPACTS TO LAND FROM PAST AND CURRENT MINERAL ACTIVITIES

Legal mineral resource extraction, whether large-scale companies or a single operation (artisanal miner), requires the payment a license fee. The fee collected has allocations for mine site reclamation. In all cases, the amount is far below the actual cost of reclamation and the fees are not being applied to reclamation on the ground. Currently, the only potential funds for mine land reclamation come to communities through Diamond Assistance Community Development Fund payments.²² Because much of the artisanal mining activities are not recorded or legally licensed, raising funds for sustainable reclamation practices is not currently achievable. The DACDF payments are limited to diamond production and are not connected to any other forms of mining. Therefore, any other type of mining, such as gold or platinum, by local artisanal miners does not generate these payments to the communities.

FISHERIES MANAGEMENT

As with many industries in Sierra Leone, fisheries were greatly affected by the civil war. Peak catches occurred before 1990 and were severely diminished during the war, with a slight rebound recorded in 2003.²³ Even with the decrease in recorded catches, fisheries remain the most important economic activity along the coastline of Sierra Leone. The vast majority of fisheries remain artisanal, with less than 20 percent of estimates being accounted for by legal industrial vessel fishing.

According to discussions with the Ministry of Fisheries and Marine Resources, much of the offshore, coastal, and upland surface water resources are underexploited. This perception may be skewed by the inability to account for expanding illegal fishing operations both offshore and inshore and their unrecorded catches. On a recent upcountry trip, a representative from the ministry noted that Senegalese fishermen were firmly established in several upcountry river systems. This type of fishing is not regulated, and because the records that do exist are inaccurate, it is difficult to assume that fish stocks are stable and not on a decline, especially for preferred species.

Artisanal fishing also frequently employs unsustainable practices, involving the use of beach seine netting. The mesh sizes are small (usually less than 25 mm diagonal stretch length) and are illegal in Sierra Leone. They are extremely detrimental to marine resources, as they take even the smallest fishes and shrimps that could have lived to adulthood and formed the next breeding population. Other practices such as poison, explosives, fishing in breeding grounds, out of season fishing and inappropriate gear use (such as bottom trawls in seagrass beds) have also been observed in Sierra Leone.

²² IDMP, Quarterly Report, 1 January through 31 March 2006

²³ 230,000 tons per year (in the period of 1985 to 1990) — a drop of total catch during the war to about 60,000 tons per year, and a slight increase thereafter to a total of 82.623 tons in 2003. European Union, Country Environmental Profile (CEP) Sierra Leone, September 2006.

The lack of data and accurate information to determine the extent of the fisheries resources is a major problem. In addition, the management of fisheries through monitoring, control, and surveillance of industrial and artisanal fishing activities is currently ineffective. These factors combine to not only threaten marine biodiversity but the ability of Sierra Leone to benefit from its marine resources. Most of the fleet management functions, logistics, and marketing are executed offshore by foreign partners, and records are frequently not available to the relevant authorities.

OTHER THREATS

Poverty

Poverty is one of the biggest indirect threats to biological diversity in Sierra Leone. The majority of the population depends entirely on natural resources for their livelihoods, and the majority of the population lives below the poverty line. These poor, especially in rural areas, depend on biodiversity for food, fuel, shelter, and medicines. Such high demands, coupled with unsustainable practices of exploitation and utilization, has placed undue pressure on the natural resource base and had a considerably negative impact on biological diversity.

Urban development

The capital of Sierra Leone, Freetown, has been growing steadily since the end of the civil war. However, its geography allows little opportunity for this increasing population to inhabit the area. The Western Area Peninsula is directly adjacent to Freetown and contains a water reservoir, forests, and animal species, including the chimpanzee (*Pan troglodytes verus*). The perimeter of the reserve is being encroached upon at an alarming rate, as the population overflow of Freetown is constantly in search of virgin land. This constant pressure from development not only is depleting forest resources but has secondary impacts on indigenous species and water quality.

Civil conflict

The war was equally damaging to the environment, as the breakdown in law and order led to unprecedented exploitation of both land and marine resources. Illegal logging activities in all protected areas went unchecked and brought the attendant problem of creating easy access to remote parts of the forest for hunters. Trade in wild animal pets involving chimpanzees rose, although chimp trafficking has a long history in Sierra Leone, as did the demand for bush meat in most urban centers. A large number of displaced and unemployed refugees in the post-conflict period were forced to exploit forest resources at unsustainable levels. Marine resources were also



New construction near the Western Area Peninsula Reserve exacerbates deforestation and erosion.

PHOTO: J. RENEE MORIN

exploited by foreign fishing vessels, as resources needed for patrolling the vast ocean expanse were lacking. In the Outamba Kilimi National Park, a large herd of buffalos, primates, and hippos were reported slaughtered, while in the Gola rainforest, illegal logging activities are reported to be continuing today, but at what officials say is a slower rate.

Bush meat and pet trade

Bush meat is an important protein source and forms an integral part of the diet of rural and urban populations. All manner of wildlife is hunted for the increasing bush meat trade, and in all the big towns and cities, demand for the meat of wild animals is increasing, which

generates a considerable amount of income. Even threatened and endangered wildlife have not been spared from the trade, and throughout many of the protected areas, hunting pressures are on the rise.

Perhaps more devastating to the wildlife population of this country is the taking of wild animals for trading as pets. Chimpanzees are endangered in West Africa, and comprise the majority of wild animals captured for the pet trade. Even though Sierra Leone has outlawed the capture of chimpanzees as pets, the laws are not strictly enforced and continue to deplete the wild population. The Tacugama Chimpanzee Sanctuary was specifically founded to rescue, rehabilitate, and eventually reintroduce chimps into the wild. The sanctuary has over 80 rescued chimpanzees at its site today.

National-level threats

The assessment team identified the following macro-scale threats to biological diversity conservation:

- Poor economic performance limits access to acceptable livelihoods
- Limited public awareness of and education in the role of environmental health and conservation
- Incomplete legislative framework and inadequate regulatory capacity
- Institutional structure and capacity precludes effective environmental management



The chimpanzee toddler “Jimmy” at Tacugama Chimpanzee Sanctuary prepares to be integrated with a larger community. Chimpanzee habitat around the capital of Freetown is being encroached upon at an alarming rate, and chimps are under threat of being killed as bush meat or captured illegally for the pet trade.

PHOTO: COURTESY OF WWW.HELPACHIMP.COM

ANALYSIS AND ASSESSMENT OF USAID/SIERRA LEONE STRATEGY

Sierra Leone suffered from decades of poor governance that eventually led to an intense and violent civil war in the 1990s. This civil conflict only recently concluded in 2002. United Nations peacekeeping forces were a visible presence in Sierra Leone until 2005. Multiple international donors (UN, USAID, and DFID, which has the largest presence) currently operate programs in Sierra Leone.

While the current peace and stability are tenuous, Sierra Leone is on the road to recovery. Interviews with representatives of the international community indicated that Sierra Leone is in a period of transition from strict peacekeeping and stability efforts to more general development goals focused primarily on governance and infrastructure.

USAID/Sierra Leone is essentially part of the USAID/Guinea mission. Sierra Leone at this point is the only country left in the West Africa region that is “twinned” with another bi-lateral country. Due to this relationship, USAID Guinea has some influence as to how USAID/Sierra Leone activities are programmed and managed. As such, future programming will need to continue to be coordinated with USAID/Guinea. This synergy could be utilized to promote any transboundary initiatives. It is also important to note that USAID/Sierra Leone is physically located within the US Embassy, which has led to past collaboration between the USAID and the Embassy (such as use of Department of Defense funds, for example).

According to USAID/Sierra Leone’s 2006 Strategy Statement, the primary U.S. interest in Sierra Leone is the consolidation of peace, stability, and security in the country, and in its neighboring countries, specifically the two other members of the Mano River Union (Liberia and Guinea). In keeping with the State-USAID Joint Strategic Plan, continued investment in Sierra Leone through development assistance will also demonstrate the international community’s commitment to address the challenge of failed states in Africa.

The government of Sierra Leone also recognizes the need for foreign investment as a means to improve the country’s economy and generate growth and employment. Near-term efforts are focused on revitalizing mining (gold, diamond, platinum, rutile, bauxite), agriculture, fisheries, and tourism. In keeping with this focus, USAID’s programs have targeted good governance in the diamond and gold mining and agriculture sectors over the past five years. Those industries have close ties to environmental impacts (and thus biodiversity conservation), which mandates that any programs focused on extractive industries or land use incorporate objectives that will minimize impacts and thus conserve biodiversity and tropical forests. To date, very little emphasis has been placed on natural resource management programming from the international community, which leaves an opportunity for USAID promote biodiversity conservation and related NRM activities.

STRATEGIC OBJECTIVE AND ELEMENTS

While the United States government acknowledges the need for continued investment, the recently released FY 2008 Congressional Budget Justification for Sierra Leone shows a marked decrease (almost 50 percent) in requested funds for 2008 in comparison with the 2006 and continuing resolution 2007 budgets. Historically, however, USAID’s financial contribution to Sierra Leone has always been heavily outweighed by the rest of the donor community. USAID/

Sierra Leone is also heavily tied to USAID/Guinea and does not operate as full mission. USAID/Guinea plays a role in the programming and management of the Sierra Leone office. Their office is currently housed within the U.S. Embassy and thus collaboration between USAID and State Department programs has been encouraged through their close proximity. However, in light of USAID/Sierra Leone's limited resources, the program will focus on one Strategic Objective, "enhance democratic governance," for FY 2006 – 2008, building on the previous SO "Strengthening Good Governance" as described below.

As part of the approximately USD \$16 million FY 2008 budget, USD \$1 million has been requested for the environment budget line item under Economic Growth. The indicators associated with this category are found under Program Element 8.1: Natural Resources and Biodiversity. This area is defined as: "conserve biodiversity and manage natural resources in ways that maintain their long-term viability and preserve their potential to meet the needs of present and future generations. Activities include combating illegal and corrupt exploitation of natural resources and the control of invasive species. Programs in this element should be integrated with the Agriculture Area under Economic Growth and Conflict Mitigation and Reconciliation Area under the Peace and Security Objective, when applicable and appropriate."

Specific activities planned for the FY2008 budget were not available at the time of this assessment. However, the recommendations section to follow suggests areas and broadly defined programs in which these funds, if allocated, could be used to satisfy both the biodiversity code and the 8.1 element indicators as the USAID/Sierra Leone program moves forward.

The "Enhance Democratic Governance" SO seeks to broaden community-based political participation in national dialogue through multiple mutually reinforcing activities. The program is working to enhance the effectiveness and responsiveness of nascent local government councils and civil society organizations through capacity building, training in advocacy skills, and civil rights and responsibilities education for citizens. Training programs are not only directed to the general public but also to specific municipal office holders and paramount chiefs.

Currently, three major projects in Sierra Leone are operating: Democracy and Governance (ending late 2007), Integrated Diamond Management Program (ending mid-2007), and LINKS (ending December 2007). The Food for Peace (FFP) Title II Development Relief Program (DRP) was completed in February 2007. A follow-on to LINKS and DRP, titled LEAD, is scheduled to begin later in FY 2007. A brief description of the active projects and their potential intersection with environmental concerns is presented below.

**LINKS: Promoting Linkages for Livelihood Security and Economic Development and
LEAD: Livelihood Expansion and Asset Development**

The LINKS program, comprised of a consortium of six partners, addresses the reestablishment of livelihoods of the poor in order to generate income to support their households. LINKS is built on the foundation created by the FFP DRP to improve health status and focuses on agriculture-based activities. LINKS operates primarily in the northeastern area of Sierra Leone in multiple chiefdoms and places emphasis on the large contingent of marginalized youths. LINKS has also promoted the expansion of rural economic activities and the establishment of linkages from the rural communities to the mezzo- and national-level markets.

Through these linkages, previously isolated farm communities are integrated into society and participate in good governance practices introduced to community-based organizations such as farm associations, cooperatives, and field schools. Specific activities pursued through LINKS include microcredit lending to entrepreneurs, particularly women and youth; business skills development; and agro-processing enhancement. The initial focus has been on the sale of staple crops of rice, cassava and vegetables, but has expanded to include other commercially viable products such as oil palm, cocoa yam, cashews, and ginger.

The proposed follow-on project, LEAD, aims to refine objectives to target the most food-insecure households in Sierra Leone. In addition, LEAD incorporates changes necessitated by the evolving war-to-peace situation and two years of LINKS and DRP lessons learned.

These related projects intersect with environmental concerns in their promotion of agricultural activities and land usages and their established relationships with youth and women. All of these factors have been considered when formulating the recommendations specific to this project.

IDMP: Integrated Diamond Management Project

IDMP aims to improve governance of the Sierra Leone diamond sector by ensuring that both government and communities derive increased benefits through addressing corruption and promoting equitable and transparent management of the resource. Many of these activities take place at the local level in the form of trainings (such as the SMARTER program) in and around Kono (Northern District). There is also a national component, in which IDMP works with the relevant ministries and senior government officials to promote management of the industry in a manner that encourages investment and reduces the opportunity for criminal exploitation.

Spanning the local and national arenas, IDMP has formed the Diamond Area Community Development Fund that devolves funds from diamond export taxes toward community development within diamond producing chiefdoms. This tax can be used at the discretion of the receiving chiefdom and paramount chiefs but is not generally targeted for land reclamation efforts. Some preliminary land reclamation programs have been attempted and have achieved some success, although the efforts have been isolated to date.

Due to the direct impact of artisanal diamond mining activities to the surrounding landscape, IDMP is particularly well positioned to promote land reclamation and related impact mitigation activities through its pre-established community networks.

DEMOCRACY AND GOVERNANCE PROGRAM

USAID's Democracy and Governance program has been in place since 2004 and is heavily focused on good governance; civic training; and advocacy skills for local councils, community leaders, civil society organizations, and community participants. The objective of this program is to ensure responsive governance, transparency, and accountability at all levels of the GOSL. The program has worked with 82 local communities to help them develop community participatory plans on governance that reinforced the interaction of members with elected local government entities and accountability of elected officers. Outlets for trainings generally use a multi-media approach and include radio-broadcast information pieces.

The format of this program could provide synergies with biodiversity and environmental education by utilization of the media outlets and the community relationships.

COMMENTARY ON USAID COMPARATIVE ADVANTAGE

While the current USAID/Sierra Leone role in biodiversity conservation is limited, the potential exists for USAID/Sierra Leone to become a key partner with the GOSL in support of conservation of biodiversity and tropical forests in Sierra Leone. The USAID/Sierra Leone Mission and USG are capable of facilitating the involvement of large, international NGOs with an interest in biodiversity conservation and sustainable development. Organizations like Conservation International, World Wildlife Fund, and The World Conservation Union (IUCN) are capable of bringing significant amounts of public and private sector funding as well as networks of capable professionals, scientists, and dedicated field researchers in support of environmental programs and biodiversity conservation. Based on its experience in forming, leading, and participation in multi-partner collaborations, USAID is positioned to effectively collaborate with and support the work of a number of NGOs and organizations, such as CARE, working in humanitarian relief, health care, education, and rural development and natural resource management.

USAID/Sierra Leone and USG can also use their positions in Sierra Leone to collaborate with and strengthen private sector operators, and to identify and support actions aimed at increasing the importance of conservation measures in sustainable development of Sierra Leone's natural resources. Through its program focus on local governance, USAID/Sierra Leone has the ability to encourage more accountability for conservation activities. With the active support and encouragement of a stronger and broader array of civil society organizations, local NGOs, producer organizations and private sector groups, the USG, with other development assistance and international organizations, can continue to provide a voice for development activities that consider the conservation and equitable distribution of Sierra Leone's natural resources.

Strengthening the capacity of local government councils, providing effective advocacy skills, informing citizens of their rights and responsibilities, and helping to build a better informed society through strengthening of professional media will assist in spreading the need for appropriate conservation measures. Training and mentoring programs for community activists, newly elected local leaders, and some paramount chiefs and members of parliament can encourage informed dialogue, transparency, accountability, responsibility, and leadership. Such efforts would enhance the level of active community participation required to build effective conservation programs. To date, the Mission has used this approach to address equity issues such as diamond valuations. The experience with these approaches can serve as a possible template for USAID to integrate natural resources conservation objectives into its local governance programs.

OPPORTUNITIES FOR SYNERGY AND LEVERAGING PROGRAM IMPACT

With its program emphasis on strengthening democratic governance, USAID/Sierra Leone has the opportunity to include an emphasis on the sustainability of natural resources as one of the foundations for effective democratic governance. Good governance and natural resource conservation are inextricably linked in Sierra Leone. The sources of some of the past political

instability can be linked directly to the manner in which the natural resources of Sierra Leone have been exploited. Therefore, it is now essential to ensure that an integrated message of natural resource conservation be emphasized as part of three main areas: broadening community-based political participation, promoting civic dialogue and informed participation in public affairs, and strengthening the efficiency of Government of Sierra Leone and local communities to manage the diamond mining sector.

As the USAID/Sierra Leone program evolves, it has an opportunity to continue to advance responsible governance at the local level while ensuring that issues of biodiversity and tropical forests are considered and addressed. USAID can continue to work with local communities (e.g. community-based resource management committees, local and district councils, and civil society) to ensure that best management practices are adopted and areas that have been damaged by reckless and irresponsible mining are restored. USAID can facilitate discussion with communities and local governments to identify and prioritize land usage needs. USAID can facilitate trainings with miners and farmers to train them in environmentally friendly means of advancing their livelihoods. The program could address issues such as deforestation, overcutting and overgrazing of sloping forest landscapes, degradation of watersheds, and the importance and benefits of protected areas.

The result of expanding the mission objective of incorporating conservation measures and training will be improvement in the areas of food security, income generation, poverty alleviation, and conservation of its natural resources. USAID's activities in highlighting the importance of protecting tropical-forest resources and biodiversity — especially for vulnerable species such as chimpanzees — will provide important opportunities at the local level to highlight the benefits of forest-related land use planning and management.

RECOMMENDATIONS

The assessment team has formulated a set of recommendations for program actions that USAID may wish to consider for improving its contribution to natural resources management and biodiversity conservation in Sierra Leone. The recommendations do not address all the actions needed to conserve biological diversity. However, the recommendations presented are broken down into actions specific to USAID in the short term (including potential uses for the previous biodiversity earmark) and medium-term to long-term activities that could be addressed by the broader donor community, depending on USAID's presence in Sierra Leone in the future.

The short-term recommendations are targeted as specific actions based on the pre-existing USAID programs. These are incremental additions to or changes in USAID's current and projected program areas, which seems to be the most practical approach to addressing biodiversity conservation given current and foreseeable funding constraints.

The biodiversity earmark fund recommendations are focused toward contributions to ongoing activities in Sierra Leone or on creating new projects. The mid- to long-term recommendations are more broadly based and should be distributed to as wide an audience as possible within the donor community, so in the case that USAID is unable to pursue these activities, other organizations may be able to contribute.

PRIORITIES IN THE SHORT TERM

USAID programming

This section describes specific actions that could be pursued by USAID under its three existing projects.

LINKS and LEAD

- Incorporate a broader perspective of sustainable land use practices into pre-existing education programs, especially through the Farmer Field School system. In order to emphasize sustainable land use practices, this program should integrate, to the extent possible, best practices for forest management (including agro-forestry, community forests, benefits of protected areas management, apiculture, and aquaculture) into the pre-existing education programs.
- Any plans for irrigation projects related to agricultural development need to consider the potential effects on wildlife and surrounding ecosystems (diversion of water sources, run-off, etc can directly impact biodiversity). In addition, LINKS/LEAD should seek to prioritize locating fisheries projects in close vicinity with protected areas to provide additional protein sources and thus in order to reduce pressures on wildlife and bushmeat.
- Review the 48 designated reserve areas (see Figure 4, page 29) and their respective boundaries and confirm that LINKS and LEAD activities (such as agricultural development) are not overlapping with these protected areas. Consider these boundaries in future agriculture based extension efforts and educate the program recipients of their existence and need to respect these resources.

IDMP

- As part of the diamond mining initiative, USAID should promote a greater emphasis on land reclamation programs with IDMP and its follow-on. Explore potential to go beyond education programming such as SMARTER and into more hands-on demonstration reclamation.
 - Utilize successes of the women’s land reclamation program, Ciniva, as a springboard
 - Integrate the Ministry of Youth and Sport’s Youth Employment Scheme (YES) program into reclamation activities
 - Continue to coordinate with Foundation for Environmental Security and Sustainability’s (FESS’s) reclamation program and contact the Conservation Society of Sierra Leone (CSSL) to discuss its upcoming project.
- Additionally, the current education and training program should continue and incorporate modules on needs/benefits for environmental conservation and increase public involvement with the GOSL decision-making process
- A foundation for donations from diamond companies may be established in the near future, with the help of USAID. To the degree that IDMP is involved with the development of the foundation, the project should influence the disbursement of funds toward land reclamation, education, and other environmentally friendly components.
- Investigate potential for public-private partnerships with local major mining companies, such as Koidu Holdings and Sierra Leone Diamond Company (SLDC). The availability of Global Development Alliance (GDA) monies should also be researched.
- The Diamond Community Development Fund (DCDF) will provide funds to the district councils affected by alluvial mining. These monies should be reserved to improve community services and not used to deal with land reclamation issues. The current regulatory structure that includes fees from mining licenses (which is separate from the DCDF) must be strengthened so that proper land reclamation can be systemized and carried out in an effective manner.
- Ensure that issues associated with irresponsible mining practices specifically inadequate reclamation activities, are addressed within the government through coordination in Freetown and at the local level. The IDMP’s Freetown presence on the political front could be leveraged to bring attention to these issues through the government context.



A reclaimed mining area at Tongo Fields shows the results of a local women’s group’s concerted efforts.

PHOTO: J. RENEE MORIN

- Provide support for a national cadastral survey that can be used to develop and monitor regulation of mineral operations in the context of IDMP. (This support could also occur outside of the IDMP program.)
- Support development of a bonding system to provide for the reclamation of impacted lands. Specific trials of bonding schemes could be supported by IDMP with incentives to become a bonded operator via subsidies could be pursued. For example, funding from broader foundations could be used to facilitate cost-share bonding mechanisms. Additional information regarding bonding procedures should be researched for its applicability to integration to programs.
- Looking forward: Review IDMP objectives and focus. By educating local miners to earn fair value for artisanal-mined diamonds, the industry of alluvial mining may become more attractive to those who currently mine and those who may begin to mine. These increases will continue to degrade lands in common mining areas, such as Tongo Fields, that currently do not have adequate reclamation programs in place. By ensuring that responsible mining practices are being taught, then the effects on biodiversity should be reduced.

Democracy and Governance

Given its involvement in local governance issues, this project could use its established resource centers to distribute materials related to biodiversity conservations, forest management, protected area management, and other natural resource management best practices. Potential exists to serve as a clearinghouse for conservation opportunities. For example, understanding the process that resulted in the establishment of trust fund benefits to surrounding communities of Gola Forest could facilitate similar arrangements in communities in project areas.

Biodiversity Earmark Funds (if available)

- Continue to provide funds for survey and population census for chimpanzees (as demonstrated by the previous support to Jane Goodall Institute for Sierra Leone and Guinea) for Western Reserve Area currently supported by the Tacaguma Chimpanzee Sanctuary. The information from this survey will help demonstrate the need for protecting this key watershed.
- Provide capacity building programs for NaCEF staff and support for instituting the legal framework for ensuring the development of NaCEF at the parliament level.
- Provide support for expansion of community based NRM projects such as eco-tourism or alternative livelihoods training adjacent to Tiwai Island.
- Support transboundary conservation program with the Gola forest on the Liberian border. The Gola trust fund and management program is well on its way and would benefit from additional funds or from programs supporting the project that is currently in place.
- Support transboundary conservation program with OKNP on the Guinea border. The staffing level is insufficient to protect the current boundaries. Additional support or training programs that deal with surrounding communities could greatly help this project and aid in the conservation of a large contiguous forest that is home to diverse wildlife, including chimps.

- The Western Peninsula Forest Reserve houses a critical watershed that feeds the city of Freetown via the Guma water reservoir. No significant initiative is currently underway to address the serious encroachment issues in this forest that will ultimately impact the limited water supply. DFID is studying the issue, but much more needs to be done. In addition to water resource issues, deforestation and gravel mining combined with urban expansion are threats to biodiversity within the reserve. USAID could join efforts that the NGO and donor programs are considering, or use funds to spearhead coordination of these groups and GOSL (including NaCEF) to directly address this critical issue.
- Investigate the potential to involve the UNDP's Youth Employment Scheme program into wildlife reservation protection, maintenance, and management activities as well as ecotourism initiatives. This program could be similar to the Civilian Conservation Corps survey and conservation programs in the United States that followed World War II.
- Support the NGO consortium Environmental Forum for Action in its efforts to provide a civil society voice to biodiversity conservation.
- Provide additional support via direct funding or programs to the eight priority conservation areas project (also a potential medium- or longer-term activity) recommended by the Global Environment Facility.
- Support the farmer field school with a specific sustainable land use practices module. This program should integrate, to the extent possible, best practices for forest management, including agro-forestry, community forests, benefits of protected areas management, apiculture, aquaculture, into their pre-existing education programs.

RECOMMENDED MEDIUM-TERM AND LONGER-TERM INTERVENTIONS

- Expand the environmental documentation requirements to more adequately address potential impacts from proposed mineral activities. Strengthen the technical and internal governmental review process with emphasis on public input.
- Protected areas should be withdrawn from mineral entry. Deal with mineral ownership/cadastral issues on the local and national level.
- Provide support to GOSL or NGOs to assist in mainstreaming implementation of recommendations of the National Biodiversity Strategic Action Plan (2003). Specifically, provide support to the following objectives, which are directly related to the World Bank/GEF proposal to prioritize eight protected areas within Sierra Leone.
 - Establish and ensure management of eight protected areas in representative ecosystems in Sierra Leone
 - Build local capacity for the effective management of the eight areas
 - Establish a sustainable funding mechanism for the long-term management of all 8 protected areas
- Provide support for Upper Guinean Rainforest Conservation Network, with the goal of sustainable management of key protected areas for Liberia, Sierra Leone, Guinea, and Côte D'Ivoire.

- Provide support to National Land Use Planning exercises, with emphasis on biodiversity conservation.
- Ensure that the new PRSP incorporates issues associated with natural resource management, specifically biodiversity and tropical forest conservation.
- Provide additional support to successful community-based conservation efforts. The management of Tiwai Island and the Gola Forest provide excellent examples for other communities to follow in the management of their local forest resources.

ANNEX A

ITINERARY: USAID/SIERRA LEONE 118/119 MISSION FEBRUARY 18 – MARCH 1, 2007

DATE	LOCATION	ACTIVITIES
Sunday February 18	Freetown	9:00 pm - Arrive at Freetown
Monday February 19	Freetown	9:30 am - Meet with NaCEF Staff Executive Commissioner, Chris Squires Director of Environment, Syril Jusu Asst. Director of Forestry, Adul-Abib F. Couteti Deputy Director of Forestry, Hassan Mohaned Asst. Director of Forestry, Sheikh A. Mansaray Senior Game Superintendent, Kalie I. Banguis Forest Officer, Alusine S. Fofana Environmental Officer, Samuel A. Lappin District Forest Officer, Kate Garnett 1:00 am - Meet with Ministry of Mineral Resources Director of Mines, Mr. Wurie 12:30 am - Meet with Ministry of Tourism & Culture, Mr. Kawa and Mr. Navo 3:00 pm - Meet with NaCSA Executive Director, Mr. Sylfannah 5:00 pm - Evening Working Session
Tuesday February 20	Freetown	11:00 am - Meet with Christine Sheckler, USAID/Sierra Leone Mission 4:00 pm - Meet with U.S. Ambassador, Thomas Hull 7:00 pm - Dinner with Carl Harris, MSI
Wednesday February 21	Mamunta Mayoso Reserve Kono	10:00 am - Depart Freetown 1:00 pm - Arrive at Mamunta-Mayoso Reserve, meet with Manager in Forestry Department, Mr. Kamara 3:00 pm - Depart for Kono 7:00 pm - Meet with Kiodu Holdings Mine Engineer, Jan Kettler
Thursday February 22	Kono Tongo Fields	10:00 am - Meet with USAID IDMP Project Staff, Kono Project Coordinator, Ansumana Barbar Turay 12:00 am - Visit Projects: Mine Reclamation to Farming Sites Kiodu Holdings Kimberlite Mine 1:30 pm - Depart for Tongo Fields. 3:00 pm - Meet with MSI Officers, Tongo Project Coordinator, Albert Mani Mary Febrail, Daniel B. Farmer 4:00 pm - Visit Projects: Mine Reclamation to Farming Sites 4:30 pm - Depart Tongo Fields 6:00 pm - Arrive in Kenema Meet with RSPB/Gola Forest Conservation staff Gilbert Koker
Friday February 23	Gola Forest/Tiwai Island	7:00 am - Working Session 9:00 am - Depart Kenema to visit Gola Forest East and West (accompanied by Gilbert Koker) 2:00 pm - Depart Gola for Tiwai Island

		4:00 pm -	Arrive at Tiwai, Meet Tiwai Manager, Mr. Magona
Saturday February 24	Tiwai Island Freetown	9:30 am - 11:00 am - 6:00 pm -	Visit sites by boat surrounding Tiwai Depart Tiwai Arrive in Freetown
Sunday February 25	Freetown	8:00 am - 1:00 pm -	Working Session Meet with Environmental Foundation for Africa (EFA), Tommy Garnett
Monday February 26	Freetown	9:30 am - 11:00 am - 12:00 pm - 1:00 pm - 3:00 pm - 4:00 pm -	Meet with Ministry of Agriculture & Food Security: Director General, Emmanuel K. Alieu Meet with UNDP Programme Specialist, Peace and Development, Ms. Lorna French Meet with FAO Assistant FAO Program Representative, A C Lahai Meet with World Bank Country Manager, Engilbert Gudmundsson Meet with DFID Infrastructure Adviser, Morag Baird Working Session
Tuesday February 27	Freetown	8:30 am - 10:00 am - 2:00 pm -	Meet with CARE/LINKS Chief of Party, John Perry Visit Tacugama Chimpanzee Sanctuary Project Director, Bala Amarasekaran Afternoon Working Session
Wednesday February 28	Freetown	8:00 am - 10:30 am - 11:30 am - 3:00 pm -	Morning Working Session Meet with Ministry of Fisheries and Marine Resources, Director of Fisheries, ABC Jones Meet with Conservation Society of Sierra Leone, Executive Director, Daniel Dauda Siaffa Afternoon Working Session, Preparation for Exit Brief
Thursday March 1	Freetown	8:00 am - 12:00 pm - 1:00 pm -	Morning Working Session Exit debriefing with USAID Staff to obtain additional information, discuss assessment findings and recommendations and finalize report outline and schedule Depart for Ferry

ANNEX B

SCOPE OF WORK TROPICAL FORESTRY AND BIODIVERSITY (FAA 118 AND 119) ANALYSIS FOR USAID/SIERRA LEONE

I. PURPOSE AND OBJECTIVE

USAID/Sierra Leone is currently in the process of developing Operational Plans for FY 2007 and FY 2008 as well as a new Mission Strategic Plan. The purpose of this task is to conduct an assessment of: (1) the current state of biodiversity and forest conservation in SL; (2) the actions necessary in Sierra Leone to conserve tropical forests and biological diversity, and (3) the extent to which the actions proposed for support by the Agency meet or could meet the needs thus identified. This assessment is intended to serve as a planning tool to assist USAID/Sierra Leone in better integrating environment concerns into their proposed programs in the near term and over the next five years. The assessment is also necessary for the purposes of complying with sections 118 and 119 of the Foreign Assistance Act of 1961, as amended, as well as critical to inform the Strategic Framework for Foreign Assistance and country strategy guidelines under ADS 201.3.4.11 and ADS 204.5.

Current guidance is included in the REFERENCES FOR USAID FY2007 OPERATIONAL PLANS dated January 10, 2007. USAID/Sierra Leone will conduct an evaluation of the Diamond Program in late March 2006, which this evaluation is expected to complement.

II. BACKGROUND

Sierra Leone emerged from eleven years of violent civil war in January 2002. While its progress since then has been significant, the transition to peace and stability is fragile, and much work remains to be done. The scars of decades of poor governance and civil war manifest themselves both physically and psychologically.

Mismanagement of natural resources and political instability are also linked in Sierra Leone, as 'conflict' diamonds provided a significant source of funding for all sides in the civil war. Illicit mining remains a serious problem (30-50 percent of diamonds are reportedly still smuggled across the border²⁴) though progress is being made with the increasing value of legal diamond exports, at least in part due to the Kimberly Certification Process (KCP). Other natural resources, such as land, timber, offshore fisheries, and bauxite must also be properly managed in order to ensure a sustainable future for Sierra Leone.

USAID Portfolio

The primary U.S. interest in Sierra Leone is the consolidation of peace, stability and security in the country, and by extension, across West Africa. The fragility of the three states of the Mano River Union (Liberia, Guinea, and Sierra Leone), as well as Cote d'Ivoire, is a substantial concern for the future development of all members of the Economic Community of West African States (ECOWAS).

²⁴ EIU 2005

USAID/Sierra Leone is working to enhance the effectiveness and responsiveness of newly formed local government councils and civil-society organizations by promoting open debate, through general capacity building, training in advocacy skills, and education of citizens on their rights and responsibilities. Training and mentoring programs for Paramount Chiefs, Members of Parliament and newly-elected local leaders will enable and encourage informed dialogue. Mass media is one tool that is being used to implement the program.

The USAID/Sierra Leone LINKS Program, which has been operational over the last year. LINKS promotes unity and reconciliation, and encourages resettlement by rebuilding vital public infrastructure in devastated communities, stimulating economic activity and enabling socially marginalized youth, both young men and women, to become gainfully employed through new or expanded economic activities. In addition, LINKS is building on the foundation created by the Food for Peace (FFP) Development Relief Program to improve health status and establish agriculture-based livelihood activities. The initial focus will be on the sale of staple crops of rice, cassava and vegetables, given their importance to the livelihoods of the target groups. In the coming year the program will be expanded to include other commercially viable products such as oil palm, cocoa yam, cashews and ginger. It will be important to insure that this program development and expansion take into account the opportunities of and challenges to sustainable natural resources management.

The diamond sector, after agriculture, is the largest employer in Sierra Leone and revenues from the legitimate alluvial diamond trade have the potential to contribute substantially to the national budget, thereby increasing government resources to implement the PRSP. The integrated Diamond Management Program aims to improve governance of the Sierra Leone diamond sector by ensuring that both government and communities derive increased benefits through addressing corruption, and promoting equitable and transparent management of the resource. The U.S. continues to support the Kimberley Process, a voluntary agreement between industry and national governments to encourage legitimate and transparent trade in diamonds.

USAID/Sierra Leone will address biodiversity and tropical forests in a manner that supports its operational unit program (or something along those lines) strategic objective strategic objectives are no longer used through advances in responsible governance at the local level. USAID proposes to work with local communities (e.g. community-based resource management committees, local and District councils and civil society) to improve management of resources and benefit the environment. Communities will participate in discussions with local governments to identify and prioritize land-use needs, while town meetings and the media will help to disseminate information on the process. USAID's activities in protecting tropical forest resources and biodiversity, especially for vulnerable and internationally protected species such as chimpanzees and sea turtles, will also provide important opportunities at the local level to highlight the benefits of forest-related land-use planning and management.

III. STATEMENT OF WORK

Under the direction of a team leader, the assessment team shall evaluate biodiversity and tropical forest concerns in Sierra Leone. The focus of all activities taken under this assignment is three fold: 1) Assess the conservation status of biodiversity and forests in SL 1) to identify actions necessary to better conserve biodiversity and tropical forests, and 2) to describe how and to what

extent actions proposed in the country operational plans meet, or could meet, the biodiversity and tropical forest needs thus identified.

The assessment team shall perform the following activities:

A) Data Collection

1. Prior to departure, hold meetings with the Bureau Environmental Advisor and other Bureau for Africa technical staff, and any other Washington, DC-based organizations (such as conservation NGOs with active programs in Sierra Leone) to gather relevant information on regional programs and agency environmental regulations.
2. Meet with USAID/ Sierra Leone to get an understanding of the Mission's ongoing sectoral assessments, program goals and objectives under its proposed strategy. The Mission also may provide the team with advice and protocol on approaching USAID partners and host country organizations with respect to this assignment. The team will discuss organizations to be contacted and any planned site visits with the Mission and coordinate as required.
3. Obtain, review and analyze existing documentation on biodiversity conservation (and tropical forest conservation) in Sierra Leone, such as that prepared by government agencies, bilateral donors, and national and international NGOs. Examples of such documentation may include the National Biodiversity Conservation Strategies and Action Plan (NBSAP), National Environmental Action Plan (NEAP); Global Environment Fund (GEF) project reports; reports by FAO, UNESCO, UNEP, or UNDP; reports by conservation NGOs, etc. Available online materials will be gathered prior to the country visit.
4. Meet with relevant ministries and agencies, donor organizations, international NGOs, and other organizations which are involved in forest and biodiversity conservation, cross-cutting issues, or which are implementing noteworthy projects, and gather relevant information.
5. Conduct one to three priority site visits, if necessary, to supplement the understanding gained from interviews, literature, and other second-hand sources. The preliminary itinerary includes a site visit to coastal ecosystems as well as a 1-2 day visit to view the area in which diamond mining is occurring. Short side trips to local governments, agricultural lands, and protected areas will be incorporated as feasible.

B) Analysis

Summarize the status of biodiversity (and tropical forests) in Sierra Leone. Summarize the social, economic, institutional, legal, and policy context for their use and conservation, including actions currently being taken by government, other donors, NGOs, and the private sector. Identify the key direct and indirect threats to biodiversity (and tropical forests). Identify the actions necessary to conserve and sustainably manage natural resources and biodiversity (and tropical forests) in Sierra Leone, based on analysis of country donor and NGO responses currently in place to meet these needs. Prepare a report on the status of biodiversity conservation efforts in Sierra Leone and implications for USAID or other donor programming which shall define the actions necessary for conservation.

C) Report

Prepare a report describing the analysis and conclusions. This report shall clearly meet the legal requirement of FAA Sec 118 and 119.

Title Page, including the date of completion of the analysis report

Table of Contents

A. Introduction, describing the purpose of the analysis and methods used in conducting it, including the timing of the analysis in relation to the timing of USAID strategy development.

B. An overview of the social, economic, legislative, and political context for sustainable natural resources management and the conservation of biodiversity and forests in Sierra Leone.

C. An overview of the status of tropical forests and terrestrial and marine biodiversity in Sierra Leone, including ecosystem diversity, species diversity, threatened & endangered species, genetic diversity, agricultural biodiversity, ecosystem services, and protected areas. Economic importance and potential values of biodiversity will also be included.

D. A summary of government, NGO, and donor programs and activities that contribute to conservation and sustainable natural resources management, including a brief assessment of their effectiveness, strengths, and weaknesses.

E. An assessment of the threats to tropical forests and biodiversity, including direct threats and indirect threats or root causes of the direct threats.

F. Programmatic actions necessary to conserve biodiversity and forests in Sierra Leone.

G. An assessment of how USAID SL's program currently addresses the key threats to biodiversity and forest conservation, including how activities can be modified to more effectively address these issues for future planning.

H. All references used and cited in the report, including web URLs.

I. Appendices will include: the SOW for the analysis, biographical sketches of analysis team members, a list of persons contacted and their institutional affiliation, and other background or supporting material as needed, including maps and photographs. Copies of key document, relevant maps and images, and copies of photographs obtained during the assessment should also be appended in a CD ROM with electronic versions of all written materials.

IV. Methodology

AFR/SD Biodiversity Analysis and Technical Support (BATS) will cover the technical assistance and associated expenses, plus the service of one local consultant for up to 10 work days. Mission to provide nomination for local consultant to chemonics. As previously discussed, usaid/freetown will provide vehicle and driver for essential work-related travel.

A four-person team with the following composition and expertise is desirable to conduct this analysis:

International Technical Assistance (3 persons)

Team Leader who is a senior Level Specialists with post-graduate qualifications in forestry or a closely related field. The Team Leader will have Knowledge of USAID Strategic Planning process related to Tropical Forestry and Biodiversity (FAA Sections 118 and 119). The team should include a Biodiversity specialist With Experience in tropical ecology and conservation. The team should include a social scientist with a NRM background. Experience in the coastal West Africa region and in Sierra Leone is desirable.

Local Technical Assistance (1 person)

Senior Level Natural Resource Management Specialists with demonstrated experience in Sierra Leone environmental law, the policy and legal frameworks governing environmental management in Sierra Leone and the analysis of relevant policies. Good contacts within Sierra Leone government agencies, NGOs, international donors, and private sector preferred.

V. Deliverables

The primary deliverable under this task order is an assessment of: (1) The status of biodiversity and forest conservation in SL; (2) the actions necessary in Sierra Leone to conserve tropical forests and biological diversity, and (3) the extent to which the actions proposed for support by the Agency meet the needs thus identified in the Assessment.

There shall be four deliverables under this activity:

1. Preliminary Work Plan and Schedule: The Contractor shall provide USAID with a work plan and schedule prior to traveling to Sierra Leone.
2. In-Country Mission Exit Briefings: The team shall meet with USAID/Sierra Leone to provide them with a brief of the report findings. The exit brief shall be accompanied by a short written summary of initial key findings and recommendations.
3. Draft Report: The Contractor shall submit a draft report to the Environment Office no later than March 12, 2007. The draft report shall follow the generic outline discussed above, as refined during the course of the contract in consultation with USAID.
4. Final Report: The final report is due no later than two weeks after receiving USAID/ Sierra Leone comments on the first draft report.

The Contractor will furnish electronic file versions of all submissions (first draft and final report) in English, and one photocopy ready version of the final report. Copies of key documents, including and maps and photographic material, will be appended on a CD ROM.

VI. Schedule and Logistics

Meetings in Washington, DC, will take place between February 1 and 16. The Mission will assist the team by providing key references and contacts as well as logistical support where necessary.

VII. Supporting documentation

[Tropical forestry and biodiversity \(FAA 118 and 119\) analyses: lessons learned and best practices from recent USAID experience.](#) (655 KB) Associates in Rural Development, Inc. (ARD); USAID. Bur. for Economic Growth, Agriculture and Trade. Ofc. of Environment and Natural Resources. Sep 2005. 74 p. PN-ADE-195

[Best practices for biodiversity and tropical forest assessments \(508 KB\)](#) Chemonics International Inc.; USAID. Bur. for Economic Growth, Agriculture and Trade. Ofc of Agriculture. Apr 2005. 28 p. PN-ADE-673

USAID Sierra Leone Strategy Statement 2005 with attachments, including 118/119 Biodiversity Report for Sierra Leone 2005.doc (116kb)

[First CBD Sierra Leone National Report – English](#)

[Sierra Leone National Biodiversity Strategy and Action Plan – English 2003](#)

[Programmatic Environmental Assessment for USAID Support to Small-Scale Artisanal Mining Activities in Sierra Leone February 2005](#)

Links Program Evaluation for USAID/Sierra Leone

Diamond Program Evaluation SOW

ANNEX C

REFERENCES

- Allan, T. 1990. Tropical Forestry Action Plans Inter-Agency Forestry Review. Sierra Leone UNDP, Rome.
- Bakkar, M.I., G.A. Fonseca, R.A. Mittermeier, A.B. Rylands, and K.W. Painemilla. 2001. "Hunting and Bushmeat Utilization in the African Rain Forest." *Advances in Applied Biodiversity*. Science 2:1–170.
- Clausen, Robert (WARP/REA) on the behalf of USAID. 2004. Trip notes from Sierra Leone April 19-23, 2004. Unpublished.
- Coakley, George J. 2004. The mineral industry of Sierra Leone. U.S. Geological Survey Minerals Yearbook—2004.
- European Union. 2006. Country Environmental Profile (CEP) Sierra Leone.
- Foreign Investment Advisory Service (World Bank). 2006. DRAFT REPORT: Competitiveness and Corporate Social Responsibility in Sierra Leone. Industry Solutions for Tourism and Mining
- Government of Sierra Leone, Geologic Survey Division. November 2006. Sierra Leone Mineral Potential Report.
- Government of Sierra Leone, National Commission on Environment and Forestry (NaCEF). 2005. Strategic Action Plan.
- Harcourt, et al. 1992 Sierra Leone. In: *The Conservation Atlas of Tropical Forests: Africa*, J.A. Sayer, C. Harcourt and N.M. Collins (eds) pp244 – 250. IUCN and Macmillan Publishers, U.K.
- International Monetary Fund, June 2005. Sierra Leone: Poverty Reduction Strategy Paper. IMF Country Report No. 05/191.
- Koroma A. P., 2004. Causes of Forest Loss and Degradation and Issues of unsustainable Forestry in Sierra Leone.
- National Biodiversity Strategy Action Plan. 2002 Biodiversity and of the Sustainability of the use of Biological Resources in Sierra Leone. Action Plan Report. MCHE. Freetown.
- Squire, Chris B. 2001. Sierra Leone's Biodiversity and the Civil War: A Case Study Prepared for the Biodiversity Support Program. Washington, D.C.: Biodiversity Support Program.
- Trade Environment Database. Sierra Leone Mining and Environment (Leone Case) Case Number 195. American University.

Turay, Ansumana, IDMP. February 2007. Personal communication with IDMP Project Coordinator.

USAID. 2003. Conflict Timber: Dimensions of the Problem in Asia and Africa. Volume III African Cases.

USAID/Sierra Leone. June 2005. FY05 Annual Report.

USAID. February 2005. Programmatic Environmental Assessment for USAID Support to Small-Scale Artisanal Mining Activities in Sierra Leone.

USAID. 2005. Biodiversity and Tropical Forest Assessment for Sierra Leone (118/119).

USAID, 2005. Best practices for biodiversity and tropical forest assessments. Bureau for Economic Growth, Agriculture and Trade. Office of Agriculture. PN-ADE-673.

USAID/Sierra Leone. 2006. FY 2006 Operational Plan (draft).

USAID, March 2006. Integrated Diamond Management Program, 6th Quarterly Activity Report: 1 January through 31 March 2006: Prepared by Paul Temple, Management Systems International for review by United States Agency for International Development.

USAID/Sierra Leone. 2006. Strategy Statement, May 2006.

World Bank/Global Environment Facility (GEF), June 2007. GEF Project Brief on a Proposed Grant from the Global Environment Facility Trust Fund in the Amount of USD 5.0 Million to the Government of Sierra Leone for a Sierra Leone Protected Area Management Project, draft final version June 20, 2007.

ANNEX D

PROTECTED AREAS IN SIERRA LEONE

PROTECTED AREA	AREA (HA)	CATEGORY	ECOSYSTEM TYPE	PROPOSED OR EXISTING STATUS
Loma Mountains Forest Reserve	33,201	National park	Montane	National Park
Tingi Hills Forest Reserve	10,519	Game reserve	Montane	Game Reserve
Gola Forest (North, East & West)	76,100	Forest reserve	Rainforest	Strict Nature Reserve
Kambui Hills	21,228	Forest reserve	Rainforest	
Kangari Hills	8,573	Game reserve	Rainforest	
Tiwai Island	1,200	Game Sanctuary	Rainforest	
Western Area Peninsula	17,688	National park	Rainforest	National Park
Nimini South Forest Reserve		Forest Reserve	Rainforest	
Dodo Hills Forest Reserve		Forest Reserve	Rainforest	
Bo Plains	2600	Game Sanctuary	Savanna	Game Sanctuary
Kuru Hills Forest Reserve		Game reserve	Savanna	
Outamba-Kilimi	110,900	National Park	Savanna	National Park
Bagru-Moteva Creek		Game reserve	Wetland	Game Reserve
Bonthe Mangrove Swamp	10,100	Strict nature reserve	Wetland	
Bumpe Mangrove Swamp	4900	Game Sanctuary	Wetland	Game Sanctuary
Kpaka (Pujehun)	2500	Game reserve	Wetland	National Park
Lake Mabesi	7500	National park	Wetland	National Park
Lake Mape	7500	National park	Wetland	National Park
Lake Sonfon	8,072	National park	Wetland	
Mamunta-Mayawso	1,000	Game Sanctuary	Wetland	Strict Nature Reserve
Sewa-Waanje	10,000	Game Reserve	Wetland	Game Reserve
Sulima Mangrove Swamp	2600	Strict nature reserve	Wetland	Strict Nature Reserve
Yawri Bay	33,605	Game reserve	Wetland	Game Reserve
Nimini North Forest Reserve		Forest Reserve	Rainforest	
Gboi Hills Forest Reserve #1		Forest Reserve	Rainforest	

Gboi Hills Forest Reserve #2		Forest Reserve	Rainforest	
Lalay Forest Reserve		Forest Reserve	Rainforest	
Gori Hills Forest Reserve		Forest Reserve	Rainforest	
Tonkolili Forest Reserve		Forest Reserve	Rainforest	
Tama Forest Reserve		Forest Reserve	Rainforest	
Farangbaia Forest Reserve		Forest Reserve	Rainforest	
Wara Wara Hills Forest Reserve		Forest Reserve	Rainforest	
Malal Hills Forest Reserve		Forest Reserve	Rainforest	
Kasewe Forest Reserve		Forest Reserve	Rainforest	
Bojene Hills Forest Reserve		Forest Reserve	Rainforest	
South Kambui Forest Reserve		Forest Reserve	Rainforest	
Moyamba Forest Reserve		Forest Reserve	Rainforest	
Waterloo Forest Reserve		Forest Reserve	Rainforest	
Singamba Forest Reserve		Forest Reserve	Rainforest	
Port Loko Forest Reserve		Forest Reserve	Rainforest	
Occra Hills Forest Reserve		Forest Reserve	Rainforest	
Mongheri Forest Reserve		Forest Reserve	Rainforest	
Tabe Forest Reserve		Forest Reserve	Rainforest	
Yelibuya Island	3900	Strict Nature Reserve	Wetland	Strict Nature Reserve
Sierra Leone River Estuary	259,000	Important Bird Area	Wetland	

ANNEX E

PRIMARY SPECIES OF FOUR ECOSYSTEMS IN SIERRA LEONE

FAUNA OF VARIOUS ECOSYSTEMS IN SIERRA LEONE	
Lowland rainforest ecosystem fauna	
Jentinks duiker (<i>Cephalophus jentinki</i>)	Royal antelope (<i>Neotragus pygmaeus</i>)
Zebra duiker (<i>Cephalophus zebra</i>)	Black duiker (<i>cephalophus niger</i>)
Pygmy hippopotamus (<i>Hexaprotodon liberiensis</i>)	Ogilbys duiker (<i>cephalophus ogilbyi brookei</i>)
Montane ecosystem fauna	
Maxwells duiker (<i>cephalophus maxwelli</i>)	Hippopotamus (<i>Hyemoschus aquaticus</i>)
Savanna ecosystem fauna	
Aardvark (<i>Orycteropus afer</i>)	Cape clawless otter (<i>Aonyx capensis</i>)
Western dassie (<i>Procavia capensis</i>)	Spotted neck otter (<i>Lutra maculicollis</i>)
Common hippopotamus (<i>hippopotamus amphibus amphibus</i>)	Ratel (<i>Mellivora capensis</i>)
Red river hog (<i>potamochoerus porcus</i>)	African civet (<i>Viverra civetta</i>)
Giant forest hog (<i>hylochoerus meinertzhageni ivoriensis</i>)	Palm civet (<i>Nandinia binotata</i>)
Warthog (<i>Phacochoerus aethiopicus</i>)	Genet (<i>Genetta spp</i>)
Water chevrotain (<i>Hyemoschus aquaticus</i>)	Dwarf mongoose (<i>Helogale parvula</i>)
Red flanked duiker (<i>Cephalophus rufilatus</i>)	Marsh mongoose (<i>Herpestes paludinosus</i>)
Blue duiker (<i>cephalophus monticola</i>)	Egyptian mongoose (<i>Herpestes ichneumon</i>)
Yellow backed duiker (<i>cephalophus sylvicultor</i>)	Cusimanse mongoose (<i>Crossarchus obscurus</i>)
Bushbuck (<i>tragelaphus scriptus</i>)	Serval (<i>Leptailurus serval</i>)
Waterbuck (<i>Kobus ellipsiprymnus defassa</i>)	African wild cat (<i>Felis sylvestris</i>)
Forest buffalo (<i>Syncerus caffer</i>)	Leopard (<i>Panthera pardus</i>)
African elephant (<i>Loxodonta cyclotis africana</i>)	
Wetland ecosystem fauna	
West african manatee (<i>Trichechus senegalensis</i>)	

Source: <http://www.tacugama.com/environment.html>

ANNEX F

SUMMARY OF INTERNATIONAL/REGIONAL TREATIES AND THEIR IMPLEMENTATIONS

CONVENTION/ TREATY	ADOPTION DATE	RATIFICATION DATE	OBJECTIVES	IMPLEMENTATION PROGRAMS/PROJECTS
1. Convention on Biological Diversity (CBD)	June 1994	December 12, 1994	<ol style="list-style-type: none"> Promote Conservation of Biological Diversity Sustainable use of its components Fair and equitable sharing arising out of the utilization of genetic resources 	<ol style="list-style-type: none"> Development of National Biodiversity Strategic Action Plan (NBSAP).
2. The Cartagena Protocol on Biosafety to the Convention on Biological Diversity	January 2000	2003	<ol style="list-style-type: none"> To contribute to ensuring an adequate of protection in the field of living modified Organisms resulting from modern biotechnology 	<ol style="list-style-type: none"> National Biosafety Framework Project launched in 2002 Establishment of Biosafety Clearing house
4. United Nations Convention to Combat Desertification	June 1994	September 25, 1995	<ol style="list-style-type: none"> To combat desertification and mitigates the effect of drought in countries experiencing serious droughts and or desertification 	<ol style="list-style-type: none"> Development of National Action program (NAP) Development of Medium Size Projects (MSP) to combat land degradation
5. The United Nations Framework Convention on Climate Change	May 1992	April 1996	<ol style="list-style-type: none"> To achieve stabilization of green house gas Concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climatic system 	<ol style="list-style-type: none"> Initial Communications to Fulfill the Country's Obligations to the UNFCCC
6. Kyoto Protocol	December 1997	(Advanced stage)	<ol style="list-style-type: none"> To strengthen the commitment of developed country Parties with a view to reduce their overall emissions 	<ol style="list-style-type: none"> National Capacity Self Assessment
7. The Vienna Convention on Protection of Ozone Layer and Montreal Protocol on Substances that Deplete the Ozone Layer	September 1987	April 1993	<ol style="list-style-type: none"> Protect human Health and the environment against adverse effects resulting from modifications of the ozone layer from anthropogenic emissions of substances proved scientifically to have high ozone depleting potential 	<ol style="list-style-type: none"> Phasing out of Ozone Depleting Substances (ODS) by 2010 Capacity building of Institutions dealing with ODS

8. The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal	Mar.1989	Apr. 1993	<ol style="list-style-type: none"> 1. To reduce trans- boundary movements of hazardous and other wastes to a minimum consistent to their environmentally sound management 2. To treat hazardous wastes and other wastes 3. To minimize the generation of hazardous wastes 	
9. Protocol on liability and compensation on damages resulting from trans-boundary movements of hazardous waste and their disposal	Dec 1999	Not yet	<ol style="list-style-type: none"> 1. To provide for a comprehensive regime for liability and for adequate and prompt compensation for damages resulting from the trans-boundary movements of hazardous wastes and their disposal including illegal traffic of those wastes 	
10. Bamako Convention on the ban of the import into Africa and the control of trans- boundary movements of hazardous wastes within Africa (Bamako convention)	Jan 1991	April 1993	<ol style="list-style-type: none"> 1. To protect by strict control the human health of African population against adverse effects which may result from hazardous waste by reducing their generation to a minimum in terms of quantity and or hazard potential 2. To adopt precautionary measures ensure proper disposal of hazardous waste and to prevent dumping of hazardous wastes in Africa. 	
11. Stockholm Convention on Persistent Organic Pollutants (POPs)		September 9, 2003	<ol style="list-style-type: none"> 1. To strengthen National Capacity and to enhance knowledge and understanding amongst decision makers, managers, industry and the public at large on POPs 2. To develop a National implementation Plan (NIP) to manage the elimination of POPs. 	<ol style="list-style-type: none"> 1. Enabling activities to facilitate early action on the implementation of the Stockholm Convention on Persistent Organic Pollutants (POPs) in Sierra Leone.
12. Abidjan Convention And Protocol on Management And Protection Of Coastal and Marine Environment In The Sub-Region		June 7, 2005	For the Cooperation in the Protection and Development of the Marine and Coastal Environment of west African region	Guinea Large Marine Ecosystem to Combat Living and Fisheries Marine Depletion

13. Ramsar Convention On Wetlands		June 7, 2005	<ol style="list-style-type: none"> 1. To manage wetland systems so that the human uses of these areas are undertaken in such a way as to retain their natural capital for future generation. 2. To encourage and support countries to develop and implement national policy and legislative frameworks, education and awareness raising programs, as well as inventory, research and training projects. 	
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ANNEX G

KEY CONSTRAINTS IN SUSTAINABLE NATURAL RESOURCE MANAGEMENT

Lack of Effective Partnerships for Conservation to Create the Desired Impact

In the past, the public sector organizations assumed full, unchallenged responsibility for the management of wildlife resources and biodiversity conservation within protected area systems in Sierra Leone and thereby alienated all other actors, severing partnerships and jeopardizing full-scale and active public participation by adopting command-and-control approaches. The off-reserve areas became a free-for-all, open access heritage that was overused and abused. The on-reserve, policing-type management practice and the open access management style have proven to be counterproductive. A shift in paradigm to shared management responsibility with other partners is emerging, albeit at a slow pace. There are barriers that need to be removed quickly and these are associated with public sector reluctance and the mistrust among the partners. Lack of effective collaboration may be influencing the levels at which the wealth of experience and knowledge residing with individual stakeholder groups can be harnessed for enhancing decision-making, planning, implementation, and monitoring of state policies, programs, and plans toward poverty alleviation, sustainable resource management, and biodiversity conservation. It is believed that institutionalized collaboration and partnership arrangements could be key to improving management effectiveness by pooling scarce resources and assigning management responsibilities and roles based on capabilities.

Insufficient and Unsustainable Sources of Funding for PA Protection

Current state budgets for both government and non-governmental institutions working in the field of wildlife protection and biodiversity conservation are insufficient and their reliability may be insecure. While the treasury allocates funds for staff emoluments and other recurrent expenditures, there are hardly any funds earmarked for development. It is unlikely that this situation will change in the near future as the state's sources of funds are not likely to increase significantly in the near future. However, the lack of additional funds is not because the government attaches less importance to the sector, but rather because it has to deal with a myriad of other challenges with resources that are scarce. Current financial flows into the sector have been of short-term duration and channeled through support to projects. Thus, to be able to sustain appreciable levels of financing in the sector, an ensemble of new and innovative ways of financing would have to be developed in support of priority actions at both the national and sub-regional levels. These could be in the form of environmental trust funds, debt-for-nature swaps, debt relief mechanisms, forestry-based carbon off-set projects, user fees, charges and taxes, private sector activities.

Insufficient public awareness about sustainable management and low perceptions of the value of management and conservation of natural resources and biodiversity

There is generally a low level of education/awareness and a lack of appreciation for the role of wildlife and biodiversity in human life in Sierra Leone. There is little understanding generally for the environment-poverty nexus, and a broad-based program of public education is needed to get people adequately informed about the potential benefits of wildlife protection and biodiversity conservation and hence motivate them to change their attitudes and adopt rational resource utilization and management practices within the key biodiversity sites.

A challenge to valuing biodiversity is making stakeholders aware of alternative uses of conserved areas that may have a higher consumptive or non-consumptive value than those they know. Advances in technology, ecotourism, and general changes in attitudes towards natural systems are significantly changing the way biodiversity systems are valued and appreciated. Spreading this awareness may require curriculum reviews and development at all levels of the country's formal and non-formal educational system (primary-tertiary). In addition, this will have to be supplemented with public education campaigns and outreach programs using multimedia and indigenous cultural education systems, and should target all actors.

Issues related to lack of employment and livelihood improvement opportunities

The 2003 UN Human Development Index report classified Sierra Leone as the poorest nation, mainly because of the high population of poor people, especially in the rural areas. The poor who survive on less than US\$0.75 a day depend heavily on the productivity of these ecological sites and the associated biological resources; their survival is intrinsically linked with these environments for food, shelter, health, and sanitation needs, and their income sources are largely derived from here. Population pressures, lack of access to improved technologies, declining soil fertility, and lack of employment and survival choices increasingly stress these systems and resources and perpetuate this vicious poverty-degradation cycle.

The Sierra Leone Household Survey of 2003/2004 has shown that, while indeed the Sierra Leonean economy is agriculture and natural resource-based and is providing employment for over 75 percent of the population, the incidence of poverty is highest in social groups in the agricultural sector, where the predominant farming technology is the destructive slash-and-burn shifting cultivation associated with short fallows periods. Sierra Leone's natural assets are under serious threat from human-induced activities, and the recent internal conflicts have contributed to the degradation of environmental and land resources of Sierra Leone. Coping mechanisms and measures for reversing resource degradation have been mostly ineffective. While the Government of Sierra Leone tackles the issue of environmental degradation by reviewing and reforming policy and institutional frameworks, it must simultaneously find ways to quickly provide choices for the people to participate in economic development, to expand opportunities for economic growth, to create jobs, to reduce their levels of poverty, and to improve their livelihoods.

Lack of effective data collection and information management system

Data and information on SL's ecological systems, wildlife resources, and biodiversity is scanty, unreliable, and obsolete, and their collection, storage, and dissemination seem to have been uncoordinated. When they are available, they are stored in formats that make retrieval and sharing exceedingly difficult. Other barriers may include a lack of institutional framework, weak governance, poor enforcement regimes and inadequate management capacity at all levels for managing data and information. There is a need for the development of an information management system that will provide the platform for gathering, storing and analyzing geo-referenced data and disseminating syntheses of information on Sierra Leone's ecological sites, resource protection and biodiversity conservation in various formats (Management reports, PA brochures, web site, etc.).

ANNEX H

KEY INSTITUTIONS

The following are some of the key institutions with environment-related functions in Sierra Leone:

- Ministry of Agriculture and Food Security (MAFS)
- Ministry of Lands and Country Planning (MLCP)
- Ministry of Works and Technical Maintenance (MWTM)
- Ministry of Transport and Communications (MTC)
- Ministry of Health and Sanitation (MOHS)
- Ministry of Social Welfare and Gender (MSW&G)
- Ministry of Youth and Sports (MYS)
- Ministry of Mineral Resources (MMR)
- Ministry of Information and Broadcasting (MIB)
- Ministry of Development and Economic Planning (MODEP)

Other Partners include:

- Private sector/NGOs/CBOs
- Ministry of Works and Technical Maintenance (MTM)
- Road Transport Authority (RTA)
- Sierra Leone Roads Authority (SLRA)
- Ministry of Labour & Social Security (MLSS)
- Ministry of Energy and Power (MEP)
- National Power Authority (NPA)
- Sierra Leone Maritime Administration (SLMA)
- Ministry of Transport and Communications (MTC)
- Civil Aviation Department (Civil Aviation Authority)

ANNEX I

DONOR MATRIX & SELECTED PROJECT/PROGRAMS IMPLEMENTED FOR ENVIRONMENT²⁵

DONORS/ AREAS	INFRA- STRUCTURE	USM\$	SOCIAL SECTORS	USM\$	GOOD GOVERNANCE	USM\$	BUDGET SUPPORT	US\$	ECONOMIC SECTORS, AGRICULTURE; OTHERS	USM\$
DfID: Poverty Reduc- tion Framework Agreement (10ys)	Community Reintegration Program; Infrastructure reconstruction program;		Support to NACSA; Support to PRSP; reproductive health; immunization;		Police Support Program; Law Development Pro-gram; Decentralization And Local Government; Security Sector Reform; Anti- Corruption Comm; Media development Project; Public Service Reform; Local elections		Program Aid (exact amount Depends on performance)	Appro x 15/ year Over 3 years	Diamond sector Program; Civil society support; Youth in Progress;	
US AID: Transition Strategy Phase II (3 districts)			Community reintegration Of children; Child survival program; HIV sensitis.		Transparency of Mining Sector				Food for peace, food for work, Community recovery; Civil society support; youth reintegration	

²⁵ European Union, 2006

World Bank: Transitional Support Strategy	Transport sector development	35	Health Sector Support and development Rehabilit. of basic educat. sector support HIV/AIDS program	20 20 15	Public sector management support; in 2004: Institut. Reform and Capacity Building (PFM) & decentralization)	3,5 25	ERRC II	30	National Social Action Project	35
ADB: CSP 2002-2004			Basic educat. improvement	10,5	Multi-sector capacity building;		Economic rehabilit. and recovery program;		Marine Fisheries and agricult. program reconstruct. of communities	
UNDP: Country Program (2004- 2007)					Rule of law decentralization; elections; public Sector reform; capacity building; citizen empowerment				National biodiversity action plan Security sector reform; PRSP-support national recovery and peace building	
Europe. Comm 9th EDF CSP.: NIP and programs under previous EDFs	Rehabilitation of priority infrastructure, feeder roads, social infrastr. TA to SLRA	€80	Health sector support program (8th EDF)	€ 28m over 5 years	Decentralization Accountability Local Elections NSA- support	€ 6m € 5m € 2m € 4m	Budget support	€50m	NAO-support TCF Rutile Mines LRRD	€3,2m € 1,8m € 25m €25m