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GUINEA ENVIRONMENTAL THREATS AND OPPORTUNITIES ASSESSMENT



October 2012

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USAID/GUINEA

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ACRONYMS AND ABBREVIATIONS

CCSP	Chimpanzee Conservation and Sensitization Program
CDCS	Country Development Cooperation Strategy
CERE	<i>Centre d'Etude et Recherche en Environnement</i> (Environmental Studies and Research Center)
CIFOR	Center for International Forestry Research
CR	Critically Endangered
CSO	Community Service Organization
DD	Data Deficient
DO	Development Objective
DRSP	<i>Document de Stratégie de Réduction de la Pauvreté</i> (Poverty Reduction Strategy Document)
EGSSAA	Environmental Guidelines for Small-Scale Activities in Africa
EIA	Environmental Impact Assessment
EN	Endangered
ETOA	Environmental Threats and Opportunities Assessment
EU	European Union
FAA	United States Government Foreign Assistance Act) of 1961, as amended
FCPF	Forest Carbon Partnership Facility
FE	<i>Faisons Ensemble</i> (Working Together)
FONGDD	<i>Forum des ONG pour le Développement Durable</i> (NGO Sustainable Development Forum)
FRAME	Natural Resources Management Network
FY	Fiscal Year
GEF	Global Environment Facility
GoG	Government of Guinea
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IBA	Important Bird Area
ICRAF	World Agroforestry Centre (International Center for Research in Agroforestry)
IR	Intermediate Result
ISP	Institutional Support Program
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
LAMIL	Landscape Management for Integrated Livelihoods
LR/nt	Lower Risk/near Threatened
NGO	Non-Governmental Organization
NRM	Natural Resources Management
OGUIDAP	<i>Office Guinéen de la Diversité Biologique et des Aires Protégées</i> (Guinean Office of Biological Diversity and Protected Areas)
PANA	<i>Programme d'Action National d'Adaptation</i> (National Adaptation Program for Action)
PACV	<i>Programme d'Appui aux Communautés Villagoises</i> (Program for Rural Community Support)
PEGG	Program in Environmental Governance in Guinea for Capacity Building and Biodiversity Conservation

PEGRN	<i>Projet Elargi de Gestion des Ressources Naturelles</i> (Expanded Program for Natural Resources Management)
PERSUAP	Pesticide Evaluation Report and Safer Use Action Plan
PGRN	<i>Projet de Gestion des Ressources Naturelles</i> (Program for Natural Resources Management)
PMI	President's Malaria Initiative
PNIASA	<i>Plan National d'Investissement Agricole et de Sécurité Alimentaire</i> (National Agricultural Development Plan)
REDD	Reducing Emissions from Deforestation and Forest Degradation
REGAP	Guinean Network of Protected Areas
S-IR	Sub-Intermediate Result
SoW	Statement of Work (or Scope of Work)
STEWARD	Sustainable and Thriving Environments for West African Regional Development
TBA	Transboundary Activity
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
URL	Uniform Resource Locator
USAID	United States Agency for International Development
USG	United States Government
USFS	United States Forest Service
V and A	Vulnerability and Adaptation
VU	Vulnerable
WB	World Bank
WCF	Wild Chimpanzee Foundation
WWF	World Wildlife Fund

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EXECUTIVE SUMMARY

Threats to Biodiversity and Tropical Forests

In the broadest sense, the threats to biodiversity and forests identified in the [Guinea Biodiversity and Tropical Forests 118/119 report of 2007](#) remain. This was confirmed with nearly everyone interviewed during the ETOA team's two weeks of field visits and meetings. Documents reviewed by the assessment team similarly point to increasing threats to the environment and natural resources in Guinea that touch nearly all sectors including health, governance, and agriculture.

Reliable data, data collection and data storage/sharing remains a substantial hurdle to ensuring proper science-based monitoring of the threats to biodiversity and tropical forests in Guinea. Additionally, the minimal amount of information gathering and sharing has resulted in challenges of sharing and scaling up of successes and lessons learned in the numerous efforts being promulgated by international, national, and local level actors in the environment and natural resource management field throughout the country. Building capacity to gather and share more reliable data, the Program in Environmental Governance in Guinea for Capacity Building and Biodiversity Conservation (PEGG) has developed forums on environmental issues to begin dialogue amongst stakeholders in the country so as to bridge this gap. Its use of the FRAME web platform provides a transparent, participatory, low-cost option for dialogue in the interim.

Other international donors are also working to address this shortcoming. The Government of Guinea (GoG) is working with the EU and the African Development Bank to formalize and enhance the collection and dissemination of environmental statistics, a basic necessity for decision-making on environmental issues. This will likely prove to be an important opportunity for the GoG to address the threat discussed here.

The mining sector is one of the major threats to biodiversity and tropical forests and the overarching natural environment in Guinea. Although no new concession permits have been granted since the installation of the new government in 2011, substantial increases in concession permits have been granted since the Guinea Biodiversity and Tropical Forests 118/119 report of 2007. Most of the territory of the Republic is covered by one type of mining concession or another. A 700 km rail line is planned that will further fragment substantial parts of the habitats that host important biological resources in the country. In addition to the threats from habitat destruction and fragmentation that will accompany strip-mining operations and from the construction of rights of way to move the product, numerous ports are also planned. This additional construction jeopardizes coastal and marine habitats. Mining threats loom large and will become ever more persistent as the global economy improves and Guinea's political situation becomes more stable. Only one new mining operation (near Forécariah) has come into production since the 2007 report.

Guinea's substantially intact mangroves are threatened by population growth (estimated at 2.8 to 3.1 percent depending on the source), water-borne pollution, unsustainable harvesting methods, land-use changes from agriculture and mining and climate changes all. These areas, which protect more than 300 km of the Guinean coast from erosion, also support and protect populations of coastal and marine biodiversity (fish, mollusks, reptiles, birds, and insects) and

are the basis for important livelihoods, especially for women, of the Guinean population living adjacent to these zones. Guinea's mangroves require much more attention than they are receiving now to prevent the need for costly restoration activities similar to those undertaken by Senegal and The Gambia.

Other Significant Environmental Threats

In addition to the lack of data and information sharing discussed above, Guinea still lacks the trained capacity at all levels to adequately manage and monitor its biological resources. The GoG and civil society in the country currently lack the capacity, skills and tools to effectively manage the threats to the environment, including its biological and forest resources.

Various laws, codes, and policies exist for almost every environmental resource but they are not being consistently applied. Most people who rely on these natural resources for their livelihood and employment do not know that such governance tools exist, or they are ignorant about their content. There is no clear direction about how to implement them. Monitoring tools to allow citizens to monitor policies and laws and keep them informed are not established or used. These essential governance devices need to be refined, updated, and integrated into local government practices and basic spatial planning. The same holds true for the numerous environmental conventions and treaties to which Guinea is a signatory. These remain simply as filed documents with little strategic or planned implementation action on the part of the national government—the body responsible for their adherence and enforcement.

Guinea's water resources are some of the richest in Africa and the country is known as the "water tower" of West Africa with the headwaters of the region's major rivers all flowing down from the country's highlands. The paradox of this richness is that most Guineans lack access to clean water for their daily needs. Women and children are directly and most severely affected, given their familial roles. Poor water management (often coupled with dysfunctional solid waste management) in both urban and rural areas is a root cause of water-borne diseases, poor hygiene, and vectors that contribute to malaria—Guinea's number one killer. The cholera crisis in Conakry during the 2012 rainy season is a direct example of the result of this poor management of water resources.

Pollution of the soil, groundwater, surface water, and coastal zones from chemicals is a substantial threat to Guinea's natural environment and the health of its citizens. Dangerous chemicals routinely used in gold mining (e.g., mercury and cyanide for gold recovery) remain uncontrolled in their use, storage, and disposal. Recent presidential directives to increase agricultural production advocate greater use of fertilizers and pesticides without forethought about controlling their use and means to mitigate their impact on the environment and human health. The bauxite industry's use of caustic soda for alumina production follows established standards and norms, but the potential for hazardous spills will increase as it aims for greater production. The same is true for the greater use of petroleum products and other chemicals that will increase substantially with increased mining activity. No guidelines are in place to mitigate spills of mining and agricultural chemicals or toxic waste material.

Solid waste management, especially the management of medical wastes, is in a horrific state. This represents one of the largest threats to human and environmental health in Guinea. The country's cities are especially at risk, but so are rural areas mainly due to the poor water

management and inadequate wastewater and sewerage infrastructure. Pollution linked to solid waste and medical waste goes directly into the country's surface water and eventually dumps into the waters along the country's coastlines. In Conakry, medical wastes are no longer incinerated at the city's hospitals due to poor combustion practices and atmospheric odors. Instead, they are dumped directly into the ocean thereby posing enormous risks to human and animal health.

Opportunities to Address the Threats Identified

All of the major mining interests operating in Guinea are touting the environmental impact assessments of their activities and the fact that they are using global norms and standards that usually exceed those required by Guinea's laws. This provides Guinea with the chance to be a regional beacon for environmental compliance and mitigation. It is also an opportunity to hold mining interests accountable for the social and environmental practices they undertake.

Faisons Ensemble (FE), PEGG, and others are helping establish basic governance actions at the grassroots level that help address threats to biodiversity, tropical forests, and environmental and human health. By working directly with communities implicated in natural resource management, these projects are able to provide more immediate results and benefits to local populations. These resulting actions can provide incentives and lessons that potentially reach other topics not currently addressed.

Recommendations for USAID

There are no environment-specific intermediate results included in the framework for USAID/Guinea's Country Development Cooperation Strategy (CDCS) as of the most recent draft viewed by the assessment team, although root causes and contributing factors of many of the challenges for Guinea's development are environment-related. Therefore, USAID should ensure that future programming include environment as a component inherent in a successful cross-cutting, interdisciplinary approach to improving living standards, health and hygiene, and food security for all Guineans. This report presents a number of ways that this might be examined and implemented within the context of each of the new Development Objective's Intermediate Results.

The Mission should continue to work with the USFS International Programs office to promulgate the gains being realized with the transboundary efforts of the Sustainable and Thriving Environments for West African Regional Development (STEWARD) program and with the environmental governance initiatives with the Program in Environmental Governance in Guinea for Capacity Building and Biodiversity Conservation (PEGG). Funding opportunities and leveraging of resources using the congressional biodiversity earmark should also continue to be researched and leveraged where possible.

Climate change monies have been available from a number of sources, including a U.S. government climate change earmark. Researching options of utilizing such funding would be beneficial to integrating climate change into current and planned USAID programming in country. Leveraging opportunities with the health sector are the most obvious avenues, but adaptation and mitigation trainings for government agencies may also be a way to contribute to

results under IR 1 and IR 4 under the new Development Objective which would provide benefits to health as well as biodiversity.

PEGG's work to establish better communication within the environment administration in Conakry and in the rural areas needs to be supported by the Mission. The forums established through PEGG represent an excellent venue to connect, collaborate and coordinate on efforts where funds from different sources can be leveraged to obtain better results in regards to environmental conservation. These could be tied with the Mission's rural radio spots and programs that promote communication efforts and raise awareness about governance and health-related issues and activities.

The model established through the *Faisons Ensemble* (FE) project as a means of creating a push effect for good governance, while using the interdisciplinary approach to development, has yielded successes in several sectors. The lessons already learned, as well as those in process, can provide the baseline for scaling up actions geographically and within other local governance activities. The FE focus on promoting traction at the most basic grassroots level can increase community level empowerment more directly at the source for some environmental threats and also capitalize on opportunities that will impact these communities.

Activities at national, provincial and local levels with government and CSO institutions that enhance the capacity to implement policies and strategies, their monitoring and the establishment of guidelines for their improvement once in use, are basic functions that need to be addressed in all sectors.

The mining sector's accountability for environmental matters is globally on display. This presents an excellent opportunity for USAID and other donors to work with not only the mining interests, but also a multitude of partners that include government agencies (in Conakry and with the regions, prefectures, and communes). The mining companies have substantial investments in their preparation of environmental impact statements. To carry them out effectively, to ensure their social responsibility, and to conduct due diligence with local communities, they will need help from civil society and government. As examples, USAID and others can work from the governance angle to facilitate understanding of the laws and policies companies need to adhere to, to develop mitigation and disaster response plans in case of hazardous materials spills and flooding linked to the mining operations (and agricultural chemicals), and work with local communities to establish guidelines and procedures to address conflicts. Mining interests should also share the results of their baseline studies from their environmental impact assessments and other sources so as to provide baseline data for the government agencies, which is currently lacking.



Figure 1. Guinea, and its geographic position on the continent of Africa.
 Source: USAID/Guinea. 2012a.

PART A

1.0 INTRODUCTION AND BACKGROUND

1.1 Purpose of the Assessment

The United States Foreign Assistance Act (FAA), which authorizes bilateral foreign assistance programs, requires that tropical forestry and biodiversity assessments be conducted in conjunction with the development of new foreign assistance strategies and programs. The purposes of this legal requirement are 1) to assure that U.S. foreign aid does not support activities that harm the tropical forests and biodiversity of host countries; and 2) to inform USAID strategic planning and find ways to support host countries to sustainably use and conserve their tropical forests and biodiversity. Regarding tropical forests and biodiversity, FAA Sections 118 and 119 (*Annex A*) state:

“Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of the actions necessary in that country to conserve tropical forests and biological diversity, and the extent to which the actions proposed for support by the Agency meet the needs thus identified.”

The intent of the U.S. Congress in passing these amendments was not to support the conservation of biological diversity and tropical forests for their own sake, but rather to support their conservation because of the belief that they are the foundation for the long-term, sustainable social and economic well-being of any country.

USAID/Guinea conducted its last FAA 118/119 Assessment in 2007. Since the previous assessment, the political and the economic situation in Guinea has changed significantly. The USAID Mission in Guinea is once again on the threshold of its next five-year planning period. It has requested not only an update of the previous assessment to fulfill the legal requirements of the FAA, but also to help put in context its new 2014-2018 CDCS as it relates to biodiversity, tropical conservation and the broader context of environment.

The Statement of Work (SoW) for this assessment (*Annex B*) called for the updates to the previous assessment’s focus on threats to Guinea’s biodiversity and tropical forests. It also requested a broader analysis of environmental problems and issues accompanied by potential solutions and activities that USAID consider within the framework of its Development Objective (DO) elaborated in the draft CDCS. While noting that some degree of focus on environmental background information is necessary and useful, the SoW specifically stated that the assessment team should “... pay particular attention to a careful determination and analysis of USAID’s own program strategy.” Furthermore, the “... importance of providing constructive, program-specific recommendations cannot be overstated.” In addition, the SoW asked for an analysis of threats posed by climate change with a particular focus on when and how USAID’s DO teams can productively integrate understanding of climate change impacts into their programs.

1.2 Methodology

This assessment was conducted from late June through August 2012 by a four-person team made up of two international consultants (Steve Dennison, an independent natural resources and biodiversity specialist; Adam Welti, of the U.S. Forest Service International Programs Office) and two local consultants (Mamadou Saliou Diallo of Guinée Ecologie and Abdoulaye Diallo, an independent natural resources and mining specialist). The team worked with USAID/Guinea's Mr. Ibrahima Camara, rural development specialist, on the preparation and workplan for the assessment and in seeking out key informants for the interviews. Ms. Regina Dennis, the Mission's Program Officer, also accompanied the team on one of its field visits.

The assessment team reviewed background literature and project documents. It conducted face-to-face interviews with government technical specialists and leaders, non-governmental organizations, civil society actors, farmers, environment researchers and academicians, donor organizations, project and USAID sector specialists in governance and health, and private sector representatives. During the course of the two-week in-country visit, two trips were also made to the field to view project-related activities and conduct interviews in the Kindia/Sougueta and Dubreka areas. *Annex C* provides a list of persons met and interviewed in the course of the assessment, accompanied by their contact information.

On completion of the field visits the team completed the document review and follow-up interviews, provided an oral debriefing and written summary to USAID/Guinea, and drafted the report.

1.3 Report Structure

Following this introduction (Part A), the report is divided into two additional sections. Part B is a review and update of the 2007 report (USAID 2007) that discusses the biodiversity and forest resources of Guinea. It includes the identification of threats, highlights current and planned actions related to conservation, analyzes new legislation and policies related to the environment and biodiversity, and examines actions necessary to conserve this diversity and Guinea's tropical forests. Part C focuses on USAID/Guinea's current programs and its draft Country Development Cooperation Strategy for 2014-2018 with particular emphasis on linkages to environment/tropical forests and biodiversity. Actions necessary to address threats to biodiversity are summarized in this section. An analysis of anticipated impacts to Guinea's environment from climate change and their relationship to the Mission's Development Objective are also discussed in Part C. A reference section and annexes to the report providing additional background, details about Guinea's protected areas, maps, and contact information for persons met/interviewed are also provided for the reader.

PART B

2.0 GUINEA'S BIODIVERSITY AND FOREST RESOURCES

Part B, containing Sections 2, 3, and 4 of this report provides discussions that update the FAA 118/119 report completed in 2007 (USAID 2007). This follows the guidance provided in the Statement of Work (see *Annex B*) recommending that more effort be placed in providing inputs to USAID/Guinea's new Country Development Cooperation Strategy over researching and interviews that would provide finer details about the country's biodiversity. That being stated, the requirements of the FAA are clear and this report fulfills them for the Mission's next planning cycle.

The 2012 assessment team did confirm over and over again during the course of its work in Guinea that the threats to biodiversity and tropical forests identified in the 2007 assessment remain. This section revisits some of the key elements, updates and makes revisions to some of those 5-year old findings, and highlights some important changes. To gain a more comprehensive background the reader is encouraged to also review the 2007 report. (The Resources Consulted section of this 2012 assessment report provides a reference citation and the link for this purpose.)

2.1 General Status of Biodiversity, Tropical Forests and Natural Resources in Guinea

Water, habitat fragmentation, remnant forests, bush meat, mangroves, and mining are key words that are likely to appear in discussions about Guinea's biodiversity and natural resources. The country is extremely endowed with some important mineral resources and companies are poised to begin exploiting them on a grand scale. When this happens and how it happens will have impacts that will substantially alter Guinea's natural, social, political, and economic environments thereafter.

Habitat fragmentation is already a very serious threat to biodiversity in the country and it will become more of a threat as more rights-of-way are constructed for roads and rail lines. Pressures from a burgeoning and restive population that has already generously taken in refugees from surrounding nations will likely grow as the economy expands. Productive agricultural land will diminish and what little forests that remain will be in greater danger from land clearing (for agriculture as well as from the extractive industries). Although there is currently a cutting ban on timber, exploitation continues mainly due to lucrative cross-border markets in Cote d'Ivoire, Sierra Leone and Liberia on transport routes far removed from Conakry's oversight. Most of the remaining contiguous forest resources are in the boundary areas of the nation's easternmost borders. Pressures are equally great on both sides of this border for resource use both by indigenous populations and migrants who have sought relief and security from recent conflicts. Rare and endangered biological resources are under continuous threat.

On Guinea's coasts there is another, extremely undervalued resource—the mangroves that stretch almost 300 kilometers from Guinea Bissau to Sierra Leone. This is a landscape that continues to provide an un-quantified amount of ecosystems services and means of livelihood at the doorstep of Guinea's most populous region. It is seriously threatened by the urban sprawl of the cities in the region as well as the commercial activity and port construction that is preceding

the start-up interests of the mining sector. Worse, is the lack of management and planning (for the resource and the livelihoods that depend on it) from any adequate or coordinated governance structure. And finally, the mangroves face a serious threat from extreme storms and rising sea levels that will come with climate change.

Overarching (or cross-cutting) all of these is Guinea's most ubiquitous renewable natural resource: water. For most of the country, there are substantial quantities of freshwater and it is the source of all the major rivers that flow in West Africa. Guinea is the region's water tower. Rainfall amounts are high during the rainy season and in most places there are adequate underground supplies as well as surface water. But despite all this, the majority of the nation's population lacks access to clean water for its daily needs and it is women and children who suffer the most from this deficit. Lack of protection of water sources and watersheds due to poor land stewardship (from land clearing and agricultural practices) is largely at fault. In towns and urban areas, streams and watercourses become disposal sites for human and solid wastes, putting the populations at greater risk from water-borne diseases (such as the cholera crisis in Conakry in August 2012) and polluting the environment at large. With the rainy season, much of this waste is flushed to the ocean contaminating the shoreline, jeopardizing marine and coastal flora and fauna and adding greater strain on the livelihoods of many of Guinea's citizens. Mining, once it begins in earnest, will increase the threats linked to pollution of water resources – first to those on which local populations depend and also to the neighboring countries downstream.

Guinea's biodiversity, tropical forest resources, and the natural environment writ large are threatened on many fronts and are under extreme pressure in many areas. Some inroads are being made but establishing any priorities that target one critical issue over another will remain difficult. USAID's approaches, and those of other donors, that use governance as a strategic objective, have the most chance for success, but the challenges are great and will require significant collaboration, communication, and more widespread awareness-raising.

2.2 Major Ecosystem Types

As described in the Guinea Biodiversity and Tropical Forests 118/119 Assessment of 2007, the six major ecosystem types in Guinea include areas of forest, grassland/savannas, cropland, urban areas, barren vegetation, and wetlands. Guinea serves as the principal watershed for much of West Africa—home of the origin of some 22 rivers including the Niger and Gambia. The landscape is part of the larger Upper Guinea forest system that comprises the countries of Guinea, Liberia, Sierra Leone, Cote d'Ivoire, Ghana, and Togo. These forests are identified as a biodiversity hotspot by Conservation International (Conservation International 2000) based on the high number of endemic plant and animal species. Guinea remains an incredibly important country for conservation efforts as a result of this rich biodiversity and the role the country plays serving as a major watershed for the region.

Being within the Upper Guinea forest system, historically the region was estimated to have contained 1,265,000 km² of tropical rainforest. Current estimates point towards a current closed canopy cover of approximately 141,000 km², representing about 15 percent of its original state (Conservation International 2000). In Guinea, the original closed canopy cover was estimated at 185,800km² including that of lowland, montane, swamp, and mangrove forest areas. While current data is limited, estimates are of 7,655 km² of forest remaining or about 4.1 percent of the

original closed canopy cover (Sayer et al. 1992). Most of the current forest cover that remains is secondary forest as a result of anthropogenic changes to the landscape.

Guinea has 156 classified forests covering approximately 1,186,611 hectares (Kopp and Thiam 2005). Mangroves and swamps dominate the coastal region with savanna and grasslands stretching throughout the northern regions. The southeastern region of Guinea is home to savanna woodlands that are also home to Guinea's highest point—Mount Nimba—at 1,752 meters. Species such as *Guarea cedrata* and *Lovoa trichiliodes* are common here (USAID 2007). Montane evergreen forests occur in the Fouta Djallon while semi-deciduous forests occur in riparian areas. Mangroves and swamp forests occur along the coast with savanna woodlands dominating Guinea's forest areas. The regenerated lands are dominated by *Lophira lanceolata* and *Daniellia olivera* (Kopp and Thiam 2005).

Guinea's coastal system includes 305 km² of intertidal flats, 2,230 km² of mangroves, 755 km² of fresh- or brackish-water coastal marshes, and 605 km² of inundated rice fields. The primary biotopes in the coastal regions of Guinea include mangroves, sandbanks, mudflats, shallow estuarine waters, and sub-humid Guinean forests (USAID 2007). The once extensive coastal mangrove system in West Africa still retains significant portions of forest in Guinea though it faces great environmental threats. Current estimates are of 200,000 hectares of mangroves in the country comprising six species of mangroves (USAID 2007). These mangroves provide vital habitat including breeding grounds for the West African manatee, pygmy hippopotamus, and myriad fish and invertebrate species (WWF 2007). Guinea has six classified Ramsar sites (see *Annexes D, F*) though these areas lack any means of formal protection (USAID 2007).

Due to a dearth of country-specific inventory data, information on species diversity in Guinea is largely estimated based on surveys in the West Africa sub-region. Research collected by Conservation International estimates that out of the 1,100 mammal species found on the entire African continent, 320 live in the Guinean forests (including that of the Upper Guinea system and the Nigeria-Cameroon system) with more than 60 of these species endemic to the region. The pygmy hippopotamus and Liberian mongoose are some of the seven endemic genera in the Upper Guinea region. In addition, rare species of duiker and an estimated 5,000 elephants also live in the sub-region (Conservation International 2000).

While country-specific inventory information is largely lacking or out-dated, some more specific studies have been completed on primate species, specifically on chimpanzees, through organizations such as the Wild Chimpanzee Foundation (WCF).

2.3 Natural Areas of Critical Importance to Biodiversity Conservation

Guinea's natural areas play important and vital roles to the livelihoods of nearly all Guineans. Whether through the basic functions of improving air quality or serving as natural and integral components of a properly functioning water system, or more specific goods such as medicinal plants and fuel wood for cooking, Guineans remain largely dependent on natural areas and the goods and services they provide.

Not only do the forests and grasslands play an important role for Guineans, being that the landscape in Guinea serves as the headwaters for numerous regional waterways, the environmental services provided by these lands is valuable throughout West Africa.

Conservation of forests will serve long term interests in stabilizing soil, serving as natural filters for rain water, and reducing run off, thereby allowing for natural replenishment of underground aquifers. As forests are removed, soil can quickly become unproductive without significant inputs. Additionally, the monsoon-like rains present during the rainy season can quickly erode exposed soil thereby removing the precious topsoil needed to grow crops.

Increased levels of erosion will have further down-stream impacts. As the country currently has a hydropower electrical system in place, and is looking to expand this system for both public use and potential private use by mining interests, preventing erosion and thereby sedimentation in hydropower dams is necessary for the longevity of the hydropower infrastructure.

The forests and grasslands of Guinea and the biodiversity found throughout are important sources of food and non-food products. Whether animals serve as a source of meat or timber is used as a source of fuel wood, these landscapes are vital to the livelihoods of many. Charcoal production is a common phenomenon with many tree species being harvested to create charcoal or other forms of fuel wood to use in cook stoves. Medicinal plants play a significant role throughout the country to treat a wide variety of ailments. Traditional knowledge of these medicinal plant species and the associated treatment are strong.

The mangrove forests that populate the coastal regions of Guinea are major habitats for manatees, bird species, and other marine life. In addition, these serve as vital breeding grounds for many fish species—which feeds into the large fishing industry. The mangrove forests also serve as major sinks for carbon dioxide. The loss of these carbon dioxide sinks would serve to increase the rate of climate change and would decrease the buffer the forests currently provide to the coastal regions from fluxes in water levels that may well be exacerbated by a changing climate.



Artisanal fishing boats in the Sangaréya Bay mangrove zone
(Credit: Mamadou Saliou Diallo)

In addition to timber and food, Guinea's forest ecosystems provide non-timber forest products such as rattan that is used to make furniture and other household goods. Myriad plant species serve as spices and seasonings for cooking. In addition, the pharmacopeia of many of these species is widespread as sources of traditional medicines and of growing interest and research for newer drugs and other uses. The landscapes of Guinea provide means of recreation and some minimal eco-tourism infrastructure. The degradation of such landscapes would diminish the ability to use such lands for recreation and would likely decrease land value.

Land tenure remains an unaddressed challenge to sustainable development in Guinea. Research by Kopp and Thiam (2005) notes that for most local households, secure land rights exist and these families farm their lands year after year. Most see ownership as being gained through clearing forest or degraded lands and farming this land. In addition, land can be acquired through inheritance, borrowing, gifting, or purchasing. Nonetheless, where laws conflict with current

practices, landowners are mainly unaware of them due to insufficient information and lack of access to current codes.

More specifically, there exist numerous habitats of critical importance to a number of flora and fauna that are in danger of disappearing in Guinea. Some of those species are found on the lists on the next page. These describe the plant and animal species that are, following IUCN criteria, critically endangered (CR) or Endangered (EN) or Vulnerable (VU) species in the country. They are found in specific sites/habitats throughout the country and these have been confirmed as either Important Bird Areas (IBA-Birdlife International criteria) or Key Biodiversity Areas (KBA-Conservation International criteria). The list of these KBAs and IBAs along with a description of the sites can be found in *Annex E*. There are more sites matching the KBA criteria that are registered under the National Protected Area Network covering 47 sites. Among those, only Badiar and Mafou/Kouya are national parks. The mangrove area, on the coast is also a KBA. Species threatened with extinction are not yet scientifically documented for Guinea.

2.4 Status and Management of Protected Areas in Guinea

Several studies reveal that Guinea holds a unique bio-ecological diversity in western Africa including, in particular, its relic wet, dense forests that constitute the northwestern extremity of the large Guinéo-Congolese rain forest. The forests of Ziama and Diécké in southeast Guinea are ranked 4th and 7th out of 12 major sites for the preservation of biodiversity in western Africa. One can observe in Guinea almost the entire range of biomes for the subtropics with 3,077 botanical species and 3,273 animal species (République de Guinée 2012b). Many of the sites rich in biodiversity have had protected status of one sort or another since colonial times.

The protection of natural resources in Guinea is focused on 162 classified forests (1,182,133 ha), representing about 4.8 percent of the national territory. Current protected areas with management statutes include two Biosphere Reserves (Mounts Nimba of 145,200 ha and Massif of Ziama of 112,300 ha), the Reserve of the Biodiversity of Kankan (approximately 530,000 ha), the national parks (Badiar 38,200 ha, High Niger 55,400 ha, Mafou 52,400 ha.), the Wildlife Reserve of Kankan (538,000 ha) (République de Guinée 2006); and 16 RAMSAR sites.

In addition, there are the transboundary protected areas of Bafing-Falémé and Kogon-Corubal-Rio Nunez, peripheral zones of the protected areas, the community forests, the sacred forests, and the forest plantations that are placed under special status of protection and sustainable management. *Annex F* contains a full listing of the 47 sites in the National Protected Area Network.

The Guinean Network of Protected Areas (REGAP) covers 47 representative sites of the diverse groups of ecosystems of the country: coastal, marine and islands, continental fresh water, and terrestrial (including mountain) ecosystems. Despite this range of ecosystems in the protected area network Brugiere and Kormos (2009) state that this is not enough. Their analysis indicates that by minimally adding the Ziama and Diécké forests as formal protected areas would help conserve one of the most threatened ecoregions in Africa, and help protect 11 of the 14 globally threatened large and medium-sized mammals occurring in Guinea.

Endangered Fauna

(CR) Critically endangered mammalia

Hipposideros lamottei (Site: Mount Nimba)

(CR) Critically endangered crustacea

Afrithelphusa monodosus (Site: Delta de Kapatchez)

(CR) Critically endangered amphibia

Nimbaphrynooides occidentalis (Site: Mount Nimba)

(EN) Endangered mammalia

Lycaon pictus (Site: Badiar) - *Cercopithecus diana* (Sites: Diecké, Kounounkan, and more)- *Pan troglodytes* (Sites: Chutes de la Sala, Diecké, Balayan Souroumba, Nimba and more) - *Procolobus badius* (Site: Diecké) - *Micropotamogale lamottei* (Site: Mount Nimba), *Hipposideros marisae* (Site: Ziama), *Rhinolophus ziama* (Site: Ziama)

(EN) Endangered amphibia

Amnirana occidentalis (Site: Diecké, Ziama) - *Arthroleptis crusculum* (Site: Mount Nimba)- *Phrynobatrachus annulatus* (Site: Mount Nimba)

(EN) Endangered aves

Malimbus ballmanni (Site: Diecké)

Scotopelia ussheri (Site: Ziama)

(EN) Endangered magnoliopsida

Pericopsis elata (Site: Pic de Fon, Mt Béro) - *Neolemonniera clitandrifolia* (Site: Pic de Fon)

Source: www.birdlife.org

Adequate protection, which includes both administrative and technical management, is a serious challenge in Guinea. Team interviews with the head office of the Guinean Office of Biological Diversity and Protected Areas (OGUIDAP) indicated that the REGAP list (see *Annex F*) contains only the sites which are under national classification, have a staff member designated by the State to monitor them, and which have a validated plan of management in existence or has a validation in process.

The Guinean protected areas network is globally representative of ecosystem diversity. (The International Union for the Conservation of Nature [IUCN] map on the following page, one of the best available even though incomplete, depicts the majority of the protected area network.) It

Vulnerable Fauna and Flora

Mammals

Loxodonta africana - *Rhinolophus guineensis* - *Cephalophus zebra* - *Hexaprotodon liberiensis* - *Rhinolophus hillorum* - *Panthera leo* - *Mops trevori* - *Loxodonta africana* - *Hipposideros lamottei* - *Crocidura nimbae* - *Hexaprotodon liberiensis*

Amphibia

Conraua alleni

Aves

Criniger olivaceus - *Melaenornis annamarulae* - *Bleda eximia* - *Picathartes gymnocephalus* - *Falco naumanni* - *Scotopelia ussheri* - *Agelastes meleagrides* - *Campephaga lobata* - *Melaenornis annamarulae*.

Magnoliopsida

Afzelia africana - *Khaya senegalensis* - *Albizia ferruginea* - *Cryptosepalum tetraphyllum* - *Garcinia kola* - *Khaya grandifoliola* - *Nauclea diderrichii* - *Terminalia ivorensis* - *Albizia ferruginea* - *Amanoa bracteosa* - *Anopyxis klaineana* - *Antrocaryon micraster* - *Cryptosepalum tetraphyllum* - *Entandrophragma angolense* - *Entandrophragma candollei* - *Entandrophragma cylindricum* - *Entandrophragma utile* - *Garcinia afzelii* - *Garcinia kola* - *Guarea cedrata* - *Guibourtia ehie* - *Khaya anthotheca* - *Lophira alata* - *Lovoa trichilioides* - *Neostenanthera hamata* - *Nesogordonia papaverifera* - *Pterygota macrocarpa* - *Turraeanthus africanus* - *Vitellaria paradoxa* - *Amanoa bracteosa* - *Anopyxis klaineana* - *Antrocaryon micraster* - *Copaifera salikounda* - *Cordia platythyrsa* - *Cryptosepalum tetraphyllum* - *Drypetes afzelii* - *Entandrophragma angolense* - *Entandrophragma candollei* - *Garcinia epunctata* - *Guarea cedrata* - *Lovoa trichilioides* - *Nesogordonia papaverifera* - *Fleurydora felicitis* - *Brachystephanus nimbae* - *Cola reticulata* - *Hallea stipulosa* - *Pavetta lasioclada* - *Antrocaryon micraster* - *Cordia platythyrsa* - *Cryptosepalum tetraphyllum* - *Drypetes afzelii* - *Drypetes singroboensis* - *Entandrophragma candollei* - *Guarea cedrata* - *Milicia regia*.

Reptiles

Osteolaemus tetraspis

includes mountains, coasts and continental fresh waters. The proportion of protected areas in the marine and coastal zone may increase (IUCN 2008). While the protected area network is adequate in terms of surface area and location of parks, while covering areas of international importance, the fact that areas are in the network does not ensure protection on a practical scale. The team’s interviews with the Biodiversity and Protected Area Office (OGUIDAP) underscored the fact that staffing is woefully inadequate. Both the technical and administrative staffs lack the capacity and training needed to ensure sufficient and effective management of the network. The legal status of most of the protected areas has not been updated since independence and continues to be the source of much misunderstanding and conflicts (IUCN 2008).

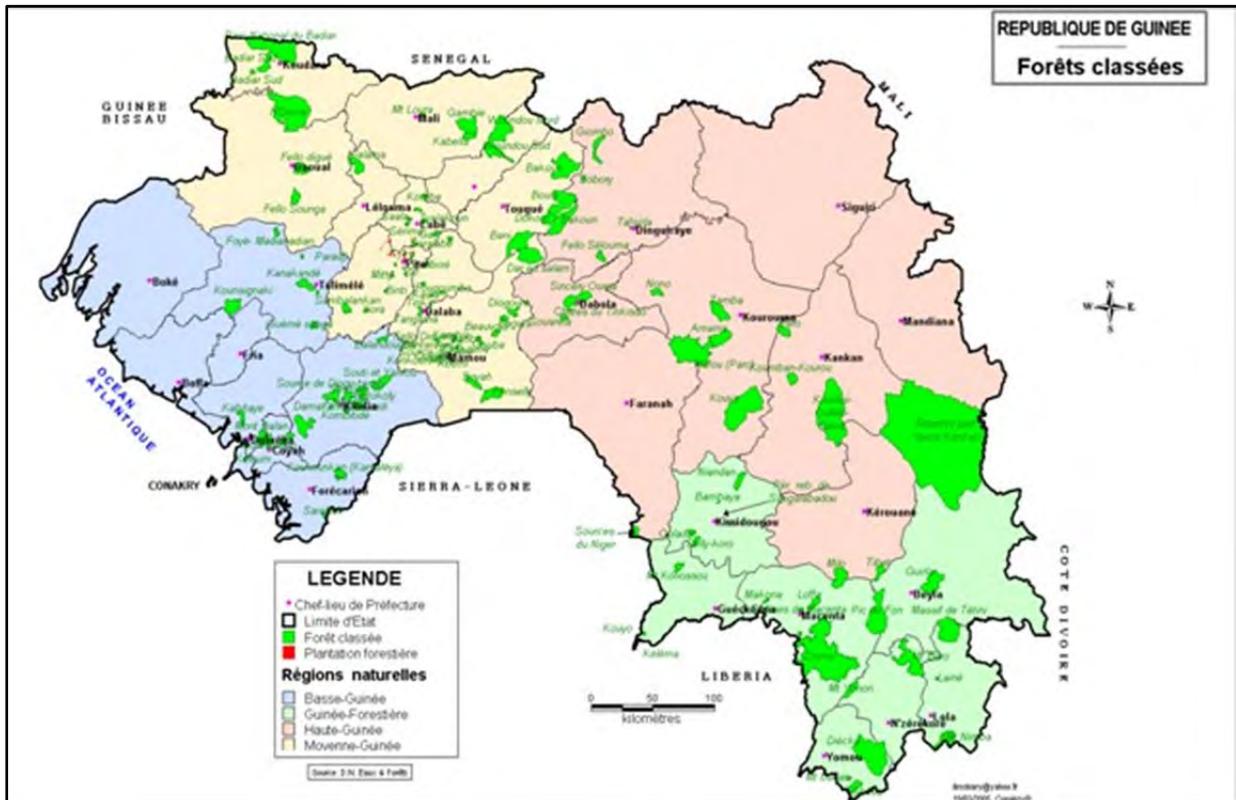


Figure 2. A portion of Guinea’s protected area network.
Source: IUCN, 2008.

Guinean protected areas are subject to strong pressures including poaching, forestry development, agricultural encroachments, pastoralism, bush fires, illegal/over fishing, mining activities, and harvesting of ligneous or non-ligneous forest products. Additionally, law enforcement is weak throughout the country; bribes and corruption are omnipresent (African Development Bank 2011, IUCN 2008). Parks suffer gravely from this lack of enforcement, civil unrest and the chronic political instability. The team, through interviews with OGUIDAP, identified that their biggest challenge comes from the limited capacity of staff assigned to monitor, manage, and enforce the policies and regulations governing their use and conservation. Too often there are no staff for a protected area except on paper or those who are assigned either reside in the capital Conakry or cover multiple areas thereby greatly hindering their effectiveness. Training, especially practical hands-on training for everyday management and monitoring of the protected areas, is weak or nonexistent. Reporting requirements linked to

management are apt to be overlooked and up-to-date management plans and adaptive management techniques are not practiced. Payment for services and other incentives is also often haphazard, irregular, and usually inadequate.

2.5 Primary Threats to Biodiversity and Tropical Forests

The threats to biodiversity in Guinea are vast and not uncommon to many developing countries in Sub-Saharan Africa. With a landscape rich in minerals, the main threat identified and acknowledged by Guineans, throughout the assessment process, is mining. (Figure 3 shows just how extensive this potential threat is given the coverage of mining concessions in the country.) In addition to the current and perceived impacts from these extractive industry operations, hunting and sale of bush meat, collection of timber for fuel wood and building, human population growth, slash and burn agriculture, and lack of replanting of harvested trees are all major threats to biodiversity. Unfortunately, these threats combined with a more indirect threat of weak environmental governance means that the threats and consequences of unsustainable resource use are likely to increase without immediate and sustained planning and action.

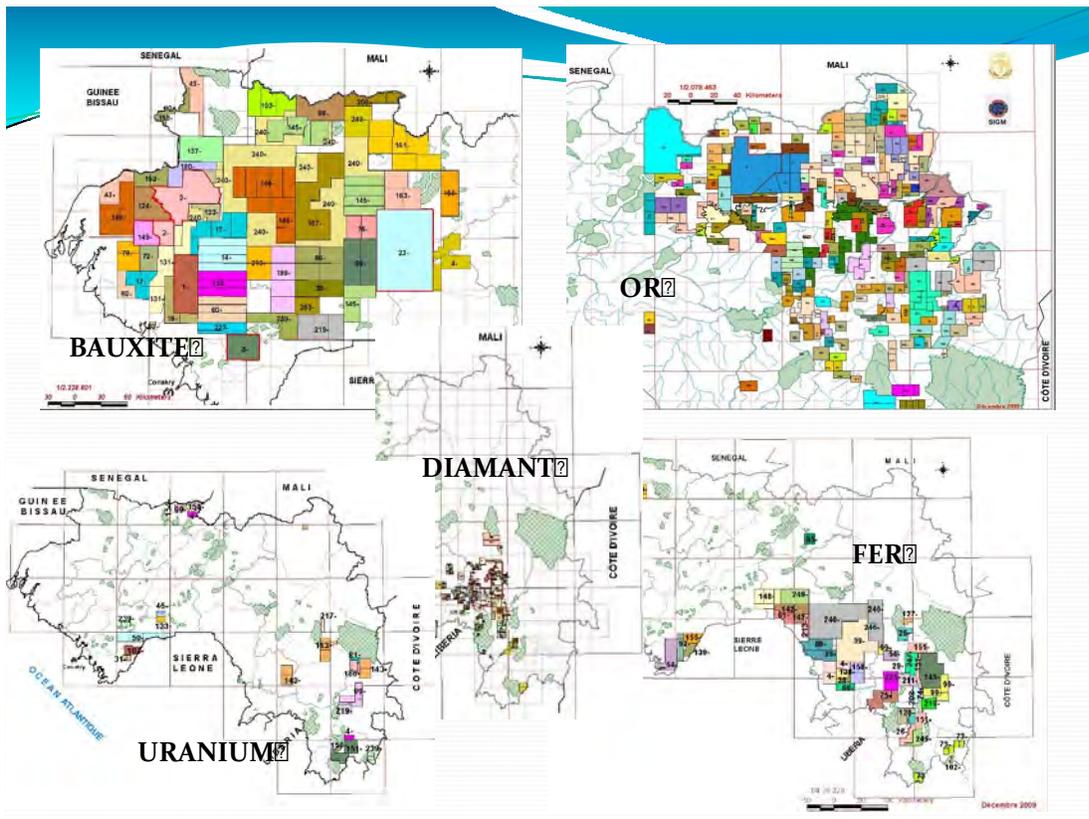


Figure 3. Bauxite, gold, uranium, diamond and iron mining concession coverage.

Source: Centre de Promotion et Développement Miniers.

With the vast amounts of mineral deposits identified throughout Guinea, mining operations pose significant threats to Guinean biodiversity. These mining operations are, and will continue to be, largely surface mining operations that will have significant impacts on landscapes and the environment in which they operate. Current mining operations are focused on bauxite, gold, and

iron ore mining. Given that many of these deposits are also found in or next to some of the richest biodiversity locales in the country, threats to the stability of ecosystems are great.

As Guinean development is heavily oriented towards mining, increased activity in mining and quarrying will heighten the pressure on natural resources and further threaten the foundation of the country's economic future. While large-scale mining (gold, bauxite and iron ore) operations are preceded by comprehensive environmental assessment and supported by environmental impact mitigation plans, quarrying of sand and stones for construction and, to a large extent, artisanal gold and/or diamond mining in 3 out of 4 regions of Guinea will continue threatening biodiversity. These pressures exerted by mining operations on flora and fauna including the absence of environmental health and safety procedures, the use of chemical products in gold production such as mercury which can lead to pollution, and environmental degradation may thus result in biodiversity losses.

Small scale, artisanal mining continues to a large extent, throughout the country. The ETOA assessment team viewed some of these impacts in the region of Kindia. This shifting, artisanal mining has left several large tracts of open water bodies in what were former agricultural research plots for the Center for Agricultural Research. These mining operations are dug by hand with basic tools and can stretch for kilometers. These landscapes, like those observed by the team, are altered significantly and no reclamation is currently practiced to return the sites to their previous functionality.

In addition to mining threats, logging and the export of wood products continues as a primary threat to biodiversity and forest ecosystems. The team's interviews and document reviews (Allison 2011, Bah et.al. 2009, JGI 2012, Loua 2011, Richard et.al. 2006, USAID 2008b) indicates that this threat, cited in the 2007 assessment, remains but is less than the threats that come from habitat destruction and land use change due to (potential) mining activities, wild fires (*feu de brousse*) from hunting activities, and land conversion to farming. In addition, cross-border trade with timber and wood product entrepreneurs in Cote d'Ivoire, Liberia and Sierra Leone continues clandestinely (and sometimes overtly with complicit government staff) despite the export ban proclaimed by presidential decree in 2010. Thus, it is the strong demand for these products across Guinea's borders and the lack of enforcement of existing laws that is the root cause of these threats.

Whether for production of charcoal, which remains the major source of fuel for cooking throughout the country, or for construction, the removal of trees in Guinea's rainforest and savannah continues to have an impact on reducing forest cover. Mangroves along the coast are also facing pressure from timber harvest, largely used for construction, and are being quickly diminished. Charcoal, the main source of cooking fuel in towns and urban areas, is currently harvested largely from forests instead of plantations. The latter has the potential to serve as a more sustainable means of providing fuel wood



Charcoal for sale along roadside in region of Kindia
(Credit: Steve Dennison)

if the practice were to be promoted and implemented on a wider and more strategic scale.

Logging and mining operations introduce further stress on forest resources through hunting for consumption and sale of bush meat. Bush meat not only serves as a source of revenue for some, it is an important source of protein for many, in rural and urban areas alike. The bush meat trade, with major markets in N'Zerekore and Kissidougou, is a major threat to biodiversity throughout the country.

Interviews conducted as a part of this assessment highlight that hunting is having an impact on presence of animal species but data for these observations is lacking. Unfortunately, due to a lack of systematic inventories of natural resources and biodiversity in the country, the ability for stakeholders and the government to monitor the environment is limited. It was highlighted in the Biodiversity and Tropical Forests 118/119 Assessment in 2007 that a significant need was an inventory of biological and natural resources. This remains true today, with relatively no progress on this front except for inventories for specific species, namely chimpanzees.

Slash and burn agriculture along with deforestation caused by mining and other influences, along with poor enforcement of wildlife laws, has led to a significant impact on chimpanzees in Guinea. The extent of poverty in the country is also one of the major drivers that threaten chimpanzee populations. As the Jane Goodall Institute has noted, rural families in Guinea often have few options with which to support themselves and they may turn to hunting chimpanzees to provide a source of protein, or to sell in the lucrative bush meat markets found in most major Guinean cities (Jane Goodall Institute 2012). Additionally, chimpanzees face population pressures as a result of being sold in Conakry and other cities as pets.

Human population growth both in terms of clearing land for housing as well as agricultural production, is posing significant pressures on ecosystems. Slash and burn agriculture is a widespread practice which clears significant amounts of forest cover in order to plant seasonal crops. Unfortunately, soils are prone to only providing a few growing seasons worth of agricultural output due to a lack of inputs and loss of the vital water and nutrient cycling the forests typically provide. This loss of productivity results in continually shifting agriculture and compounded pressures on forests. As human populations continue to increase, with an estimated population growth rate at 2.6 percent (CIA 2012), the need for further land for housing will also pose continued pressures on fragile lands. These impacts are being felt country-wide, but with increasing significance in the more densely populated coastal zone.

The limited capacity of the Guinean government to plan for and carry out its basic functions is a major indirect threat to biodiversity. High levels of corruption result in continued exploitation of resources that are illegal according to Guinean law. A lack of inter-agency coordination has limited the government's ability to coordinate and plan for issues of a cross-cutting nature such as mining operations and health initiatives. The instability in recent years has left many investors, private and public, skeptical of investing in the country. For biodiversity conservation efforts, this has meant limited funding to work with the government and NGO actors in order to build capacity and work with communities to conserve the most threatened biological resources in country. Nonetheless, there is a history of conservation efforts and many continue today. These are discussed briefly in the next section.

3.0 OVERVIEW OF CURRENT/PLANNED ACTIONS RELATED TO BIODIVERSITY AND TROPICAL FOREST CONSERVATION

USAID support for Guinean environmental programs dates back to the 1990s. Past natural resource management (NRM) and biodiversity conservation efforts and investments established a legacy and contributed to the infrastructure of community-based NRM throughout Guinea. These included the Program for Natural Resources Management (PGRN), the Expanded Program for Natural Resource Management (PEGRN), the Chimpanzee Conservation and Sensitization Program (CCSP), Landscape Management for Integrated Livelihoods (LAMIL), Landscape Management for Integrated Livelihoods – Transboundary Activity (LAMIL-TBA), and the Institutional Support Program for Guinea’s Water and Forests Department (ISP). Several of the communities trained and supported by PGRN, PEGRN, CCSP, LAMIL, LAMIL-TBA, and ISP continue to manage their forest resources sustainably, despite the absence of outside funding sources to fully implement their management plans.

Many of the large forest tracts in Guinea do not end at the national borders. As highlighted in the Biodiversity and Tropical Forests 118/119 Assessment in 2007, there is a need for transboundary collaboration as it relates to biodiversity protection and conservation. USAID/West Africa’s STEWARD program, implemented by the U.S. Forest Service, has been developed partially in response to the gaps identified in the 2007 assessment. The project staff and partners have been working in the priority zones between Cote d’Ivoire, Guinea, Liberia, and Sierra Leone to facilitate peace building while conserving biodiversity, improving livelihoods, and creating more sustainable landscapes. Extensive sustainable livelihoods, community forestry, and NRM-related policy work with communities is being done in each of these countries. It has been particularly successful within Guinea where the focus has been on the regions of Kindia, Mamou, and Lola.

Faisons Ensemble is working throughout Guinea on various cross-cutting issues tied to the overarching goal of improving governance. Working largely at the grassroots level, Faisons Ensemble has been working in the agricultural and natural resource management realm by working closely with forest management committees to tie in good governance practices. Some projects have included small animal husbandry and development of guides for agricultural extension agents. Future projects in the agriculture and natural resource management realm will be limited as Faisons Ensemble focuses further in areas of health and malaria prevention.

The Program in Environmental Governance in Guinea for Capacity Building and Biodiversity Conservation (PEGG), is a USAID-funded project implemented by the U.S. Forest Service. PEGG aims to produce a long-term net positive gain for biodiversity conservation, natural resource management, and the population’s quality of life. The project will accomplish this by improving environmental policy administration and implementation across relevant Government of Guinea Ministries.

Guinée 44, a French-Guinean NGO, working throughout the country, has focused their efforts in the natural resource management field on improved cook stoves and water monitoring. Supporting local NGOs, Guinée 44 has been successful in engaging youth groups that have developed strong, grassroots level programs to work on reforestation efforts. These projects have created small nurseries that have provided much needed employment for youth and a means

of providing important tree species to repopulate degraded landscapes. In addition, the youth-led, *Les Amis de l'Environnement* and *Agivola* partner groups have worked with communities to establish and manage community forests. Such initiatives are beacons of hope for local level initiatives that can serve as sustainable means of long-term development.

The Program for Rural Community Support (*Programme d'Appui au Communauté Villagoise* (PACV)), supported through funding from the World Bank's Global Environment Facility (GEF) is supporting development of local plans of action for community development. One of these initiatives is development of marine protected areas through institutional support to the Ministry of Environment. It is trying to play a coordination role between the national government and regional administrations. The team learned from PACV that it is especially frustrated and challenged by land security/tenure issues – a problem highlighted in the 2007 assessment report and also reiterated in numerous discussions with other private, government, and NGO groups in and out of the capital during the ETOA team's assessment.

The UNDP has been active with a GEF project in the Mount Nimba area since 2005 working with the local population to conserve the protected area complex's biodiversity. The focal area of the work has been protecting the habitats of endangered species identified on the IUCN Red List. The UNDP has also recently received funding to update the National Biodiversity Action Plan. It is preparing a tender that aims to begin work in calendar year 2013.

The Environmental Studies and Research Center (*Centre d'Etude et Recherche en Environnement* (CERE)) is a Guinean institution that has received considerable support from international sources (mainly Canadian, but also past USAID funding) for work in a number of areas that provide inputs to biodiversity and tropical forestry conservation (e.g., medicinal plant research, mangrove inventories, species-specific work, watershed conservation, etc.). It has linkages with other science-based institutions such as CIFOR and ICRAF. They offer a repository of knowledge and also would be a source for skilled labor for targeted studies that require a solid scientific grounding. They also have the capacity to provide inputs and expertise related to climate change adaptation activities.

Other NGOs are helping to raise environmental awareness throughout the country and are making very positive gains with CSOs (including providing training for local NGOs) and with government institutions. One example is *Agretage*, an association that continues to work in the mangroves promoting sustainable livelihood alternatives to mangrove overexploitation. The assessment team met (and reports elsewhere in this document) with the Guinean NGO ADAM which is active and successful in the Dubreka area working with women and youth to promote better management of mangroves and agricultural practices, especially improved technologies for salt production.

Guinée Ecologie is one of the most visible NGOs in the country and works on a broad variety of activities across the country out of its office in Conakry. Biodiversity conservation, climate change adaptation, management of water resources, and ecosystem/habitat protection are a few of its areas of foci. It conducts its work through conducting conservation education and awareness raising activities, training and performing training of trainer workshops, carrying out lobbying campaigns, and conducting environmental impact studies. It works with international donors, national and local governments, other NGOs, and the private sector.

There are numerous other national and international NGOs working in the natural resources/environment and biodiversity sector. Most have specific mandates and focus on one or two themes and in particular locales (e.g., Jane Goodall Institute and the Wild Chimpanzee Foundation working with chimpanzees).

4.0 UPDATE OF NEW/CURRENT LEGISLATION AND POLICIES RELATED TO THE ENVIRONMENT AND BIODIVERSITY

Guinea became an independent state in October 1958. The Constitution of the First Republic did not mention the environment. It was only with the Second Republic, in 1984, that the new constitution called *Loi Fondamentale* (Fundamental Law) gave consideration to the environment in its article 19 al. 3 in the following terms: " He (the People) is entitled to the conservation of its heritages, its culture and its environment". And it is only in 1987, that the first legal text on this subject was promulgated by Presidential *Ordonnance* N° 045 / PRG / 87 of May 28th, 1987 carrying Code of the Environment.

This right for the protection of the Guinean environment has evolved slowly and is found in several legislative and statutory texts (laws, decrees and orders):

- land tenure (O / 92 / 019 / PRG / SGG / 92 of 30 March 1992),
- pesticides (Law L L/92/028/CTRN 92 L/92/028/CTRN 028 of August 06th, 1992),
- water (Law L L/94/005/CTRN 94 L/94/005/CTRN 005 of February 14th, 1994),
- breeding and animal products (Law / 95 / 046 / CTRN of August 29th, 1995),
- pastoralism (Law / 95 / 51 / CTRN of August 29th, 1995),
- sea fishing (Law L L/95/13/CTRN 95 L/95/13/CTRN 13 of May 15th, 1995),
- continental fishing (Law L L/96/007/An 96 L/96/007/An 007 of July 22nd, 1996),
- pollution (Law L96 / C10 of 22/07/1996),
- public health (Law N ° / 020 / AN / 1997 of June 19th, 1997),
- animal wildlife and hunting (Law L L/97/038/AN 97 L/97/038/AN 038 of December 9th, 1997),
- forest (Law/99/013/AN 99 Law/99/013/AN 013 of June 22nd, 1999), and
- mining (Law L2011 / 006 of September 9th, 2012).

Though significant, this legal arsenal is full of gaps regarding their application. It is precisely their application that is the essence of where the regulatory benefits should lie for all concerned parties. Complicating the issue further is the fact that all the texts are in French, thus making them inaccessible for the majority of Guinea's rural population (with its much higher illiteracy rate) where these laws have the most direct applicability.

The assessment team also noticed that only the new mining code of 2012 (which replaces that of 1995), took place after the USAID 2007 Guinea Biodiversity and Tropical Forests 118/119 Assessment. This highlights the fact that there has been very little evolution of the (environment-focused) legal framework during the last five years. With such a slow pace, the already desperate situation regarding environment and management of natural resources becomes even more worrisome.

Several statutory texts (decrees or orders) related to the application of the various laws have been made and apply to diverse subjects within the environment sector. Examples of some of these include: the conservation of marine environments against all forms of pollution, the creation of a national water committee, regulations governing the conduct and licensing of professional foresters, the regulations on the wood industry, an export ban on logs, a definition of the legal requirements for the construction of buildings in protected areas, laws related to professional bird-trappers, the modalities (methods) of application for the forest code, and regulations on the oversight of environmental impact studies. As with most of the policy-related activities, these remain simply texts with no mechanism or follow-through linked to their implementation, enforcement, monitoring and improvement based on experiences gained with their application.

Major recorded acts taken since 2007, are the Decree D D/2011/N°295/PRG/SGG of December 6, 2011, which restructures the administration of biological diversity, protected areas, and water and forests and the Decree D D/2011/N°008/PRG/SGG of January 18, 2012, confirming the particular status of the conservators of nature as a paramilitary body (which accords it certain enforcement rights). Another presidential decree resulted in the reorganization of some of the government's environment institutions. Now, under the Ministry of Energy and Environment is the Delegate Ministry in charge of Environment, Water and Forests. This Ministry's mission is specifically to design, implement, coordinate, and monitor the government's environment and sustainable development policy. There are also national (decentralized) directorates of environment, water and forests, sanitation, and living conditions.

The most recent five-year Guinean development plan (2011-2015) is based on a comprehensive, integrated approach, which makes the environment a central concern of socio-economic development as a sustainable development objective (African Development Bank 2011). This involves, within a framework of collective and shared responsibilities, all socio-economic actors: administration, local government, private sector, and civil society, financial, scientific, and academic institutions.

Related to the threats posed from the lack of planning and coordination capacity of the GoG mentioned in Section 2.5 are the activities and policies promulgated in the country's development planning strategies. The Reduction of Poverty Strategy Document (DRSP) 2011-2012 (Republic of Guinea 2011), directly addresses the need to integrate principles of sustainable development to reverse the loss of environmental resources and to reduce the rate of the loss of biodiversity. It further highlights critical needs facing effective management of (fresh) water resources and states that the populations of Conakry be implicated in water and solid waste sanitation. Marine and coastal conservation, the protection of transboundary ecosystems, soil fertility, safeguarding animal (including livestock) and plant genetic resources, and adapting to climate change are all part of the document. A threat remains in that the strategy does not assign

definitive responsibilities for planning, implementing and monitoring all the issues it attempts to address, nor does it effectively state how these policies can be carried out.

The National Agricultural Development Program (PNIASA) is primarily intended to exploit the pockets of productivity to increased agricultural production and the achievement of the objectives of food security and poverty reduction (République de Guinée 2012). To its credit the Strategy recognizes that it is a sectoral program that:

“... uses natural resources to create agro-sylvo-pastoral production, will generate impacts on the environment, hence the need to define mitigation measures and on the other hand will have to correct degenerative common agricultural practices of natural resources such as extensive agriculture, uncontrolled transhumance, the plundering of fish resources, the destructive practices of forest resources and soil (bush fire, deforestation, degradation of the environment in the gold-bearing zones).”

It also highlights the need for conducting EIAs for most practices that will be undertaken and suggests a rating system for evaluating the impacts. Similar to the other strategies and policies promulgated by the GoG (e.g., the DRSP noted above), it does not provide guidelines or assign responsibilities for actions needed to get to the starting point, nor are the needed steps outlined for implementing the strategy presented. This is the indirect threat that comes with the lack of capacity in the GoG that needs to be addressed. Training, practical hands-on approaches, how-to manuals that provide guidelines for implementing policies, and other documentation and workshops are governance actions needed at the national, provincial and local levels to help implement and improve these strategies.

This conundrum was highlighted in the assessment team’s discussion with the National Director of Agriculture. With resigned dismay he noted that the President has been strongly promoting the agriculture sector and its use of chemicals (fertilizers and pesticides) with little or no attention being paid to the safe use of these inputs, training to government staff and extension workers, and a complete oversight regarding the training of farmers, storage issues, material handling and distribution, spill or over-application clean-up, and public health issues. Even where there are modest regulations regarding their use, there is currently no oversight or agency tasked with addressing cases of misuse or abuse. At present, it is unlikely that there is any way to practically enforce the wise and effective use of these chemicals, let alone think about which ones should be banned all together due to their potentially detrimental effects.

Guinea is not without well-meaning laws and policies governing its environment and with the intention of conserving and protecting its biodiversity and tropical forests as habitats, sources of livelihoods, and as resources for future generations of Guineans to use wisely. The major issues with these laws, in summary, are that their existence is not known by its citizenry, and by simple consequence, not understood. Secondly, is the fact that there are often no known guidelines or steps for carrying them out: knowing who is responsible, what to do when there is conflict among the codes and policies, and what citizens can do for recourse when the laws are violated. These are the areas where assistance from the democracy and governance section of USAID/Guinea and other donors is most urgent and can be of considerable value.

PART C

5.0 AN ASSESSMENT OF USAID/GUINEA'S CURRENT PROGRAMS AND PROPOSED COUNTRY STRATEGY IN MEETING THE NEEDS FOR BIODIVERSITY AND TROPICAL FORESTRY CONSERVATION

5.1 Current Programs

USAID/Guinea's current programming is focused predominantly on two sectors: health and governance with some activity in the economic growth arena. Budget-wise, health activities supported by the U.S. Government (USG) far outstrip other initiatives (\$18 million in FY 2011 sourced primarily from global health accounts and earmarked funds). Malaria funding introduced in late 2011, largely through the President's Malaria Initiative (PMI), constitutes 57 percent of the health budget followed by funds for family planning and reproductive health, maternal and child health, and HIV/AIDS. The Mission expects the funding levels to be relatively stable through the next several years (USAID/Guinea 2012).

USAID and the USG's health-related activities support Guinea's national health policy through its Development Objective's emphasis on improved governance principles such as community participation, accountability, and transparency to improve access, quality, and demand for health services. This also fully complements the Mission's second area of emphasis—governance.

The governance emphasis includes strengthening of democratic processes and institutions, fighting corruption, and helping government services (both local and national) become more efficient and accountable, and building the capacity of civil society and media. USAID has helped voter education efforts, worked to strengthen the management capacity of the National Independent Election Commission, and worked with other donors to facilitate the registration of more than 4 million voters.

USAID's governance efforts stem from the 2005 assessment that recognized Guinea as a fragile state and the ensuing response was to focus its entire program portfolio on improving governance. Since 2006, and through the current strategy period (2009-2013), there has been one single Strategic Objective: *Advance Democratic Governance*. Most of its efforts have focused primarily on the community in providing training to local officials and civil society on the decentralization law, participatory budgeting, specific localized technical training and the like. Its program has been largely conducted through a Cooperative Agreement with a program called *Faisons Ensemble*. Based on the mid-term evaluation (USAID 2011), the results have been largely positive in improving governance practices and engaging citizens in making their local governments more accountable and effective. The successes in the health sector were especially noted.

Faisons Ensemble has also been able to work at the community level in several of the regions, most notably the *Guinée Forestière* region in the east, to assist with forest conservation and agricultural improvement efforts (Charlick et.al. 2011, Anonymous 2011). In addition to complementing work in the health sector, the project has also worked closely with the U.S. Forest Service's regional program, STEWARD, and the PEGG project, mentioned in previous

sections of this report. PEGG, in particular, has a very strong environmental governance focus and clearly compliments the Mission's overarching governance goal. Both *Faisons Ensemble*, in its current form, and the PEGG initiatives are scheduled to end with FY 2013.

There are no environment-specific intermediate results within USAID/Guinea's current strategic objective. As noted above, there have been activities closely linked to conservation of natural resources but always directly tied to governance results. The results from these activities have been positive and the lessons learned from these actions point strongly to continuing to support such initiatives. Some in government have recognized these results. As an example, the assessment team learned of a government official who recently confirmed the value of some of these environmental governance training initiatives and requested *Faisons Ensemble*, in writing, for additional training and his willingness to share costs for his technical staff to attend.

5.2 USAID/Guinea's New Development Objective

At the time of the assessment team's visit, the vision, strategy, and framework for USAID/Guinea's next planning cycle had progressed through at least two phases. The discussion and analyses presented in this section is drawn from discussions with sector personnel at the Mission, management staff on projects currently funded by USAID and USG funds, and the most recent Draft Phase 2: Results Framework Paper of the CDCS. Although this latter document is a draft and is subject to change, it did provide the team with a good picture of where the Mission expects to move and be active in its next planning cycle FY 2014 through FY 2018.

The most encouraging element of the new CDCS is that it is strongly grounded in the successes of the previous cycle. The lessons and experiences that can be drawn from the successes (and failures) of the *Faisons Ensemble* program are clearly present. And the Mission intends to build on these through a new, single Development Objective that is *An Expanded System of Democratic Governance (that) Enables the Effective and Equitable Delivery of Public Services and the Stimulation of Economic Growth*. Appropriately, USAID/Guinea ties this new DO to the previous one calling it Democratic Governance PLUS. The PLUS emphasis intends to give more focus on improving national level policies and strengthening key institutions while ensuring that the successes from the local level continue to be bolstered and exemplified where possible. Local level activities will not cease, but there will be a new focus at the national level, engendered largely by the fact that the last elections have encouraged greater, and more transparent, international cooperation.

Democratic Governance PLUS has four Intermediate Results (IRs), each supported by a varying number of Sub-Intermediate Results (S-IRs). And running between the DO and the IRs is a supra-Intermediate Result, a cross-cutting metric that focuses on women and youth and their active participation in decision-making and implementation, especially at the local level. In the eyes of the team, this is an important element of the new DO because it also heightens the focus on empowering these groups that are critical components in livelihood, health, and resource use issues that have direct impacts on the environment, including biodiversity and forest conservation.

The Mission is also straightforward about the lack of any natural resources-related component in the new DO, but in the Framework Narrative it does keep the door open:

One area that does not show up explicitly in our results framework is natural resource management. USAID/Guinea has been and continues to be involved in policy matters through several on-going projects as well as Faison Ensemble which works with CSOs on resource management. We feel that it will be important to remain engaged in this area because of the importance of natural resources for economic or livelihood reasons and because forests, grazing lands and other “public commons” offer local governments an important source of potential revenue.

The assessment team sees this as an essential element that must be continually revisited, prodded, and creatively supported at every opportunity as the approval process for USAID/Guinea’s CDCS moves forward. And again, even after implementation is started.

It is recognized that budget priorities currently lie elsewhere and it is unlikely that substantial sums of additional monies will become available. Therefore, creativity will be required for activities that focus on biodiversity and tropical forest conservation in order to demonstrate the connections and impacts as they relate to the overarching DO. The assessment team believes that this can be done.

The USG-funded activities of STEWARD and PEGG described in Part B are one means by which this connection between governance and biodiversity conservation is demonstrated. They provide small, but well-targeted, useful measures to conserve biodiversity and enhance its management. The Mission and Africa Bureau need to work together to maintain and hopefully expand the advantages of these programs in Guinea. They effectively complement the governance actions promulgated in the current DO and can do equally well under the Democratic Governance PLUS strategy.

Another component is the hint in the Framework Narrative that activities similar to those implemented and monitored with the *Faisons Ensemble* initiative are foreseen in the next planning cycle. These have direct impacts on enhancing the capacity of the local (and now national) cadre of government officials and technicians. Media support and trainings through practical step-by-step workshops on explaining/educating/implementing current laws and policies related to environmental governance are clear areas where USAID assistance would be valuable. The PEGG’s success in these areas could be reinforced and greater inroads created to foster communication and transparency simply by informing, guiding, and demonstrating successes to government staff. These would contribute to mitigating the threat from a weak institutional system/government that lacks the capacity to monitor, protect, and coordinate effective conservation measures.

In addition, the assessment team sees other opportunities for education, training, behavior change, awareness, capacity building, and decision-making related to the environment writ large, but also with specific benefits to conservation and biodiversity. Within each of the four IRs under the new Development Objective, there exist opportunities for integrating environmental activities, awareness, training, and behavior change as a complement to the results being sought. Some examples for each of the IRs are discussed below.

5.2.1 Intermediate Result 1: An Enabling National Policy and Institutional Environment Strengthened

The CDCS Framework paper states that Sub-IR 1.1 focuses on improving the quality of policies of a sectoral nature (health, natural resource management, economic growth) and those that have a systemic purpose, i.e., addressing the overall political and governance framework that defines the Guinean polity. Under *Faisons Ensemble* and PEGG, some of this work has been targeted at local prefectures and communes and in Conakry with some of the line ministries. The case for incorporating environmental laws and policies that deal with the delivery of public services, or which relate to technical issues of access, standards and norms for monitoring, and quality of goods produced can be made and will fit within the S-IR.

Under Sub-IR 1.2 the Mission is striving to ensure that issues supported by civil society organizations from both rural and urban areas are well represented and given the voice that grassroots participation deserve. The participation of natural resource user organizations has been one of the reasons for *Faison Ensemble* success. The assessment team in two brief field visits encountered several non-governmental organizations (NGOs) that were successfully tackling problems rooted in environmental practices and affected livelihoods, health (particularly those of women and children), and local decision making about resources. These are CSOs that can provide cutting-edge experiences that can contribute to improving national policies. And in turn, the benefits will not just be to an improved and strengthened policy and institutional environment, but also by their very extension they would be addressing threats to Guinea's natural environment. By being cognizant of the inclusion of CSOs, USAID will be better able to assist the effort to address environmental threats. A more targeted effort, such as including in their indicator list, a number of recognized environmental CSOs as participants in the policy making process would be an even bolder move on the part of the Mission.

Under Sub-IR 1.3, a similar argument could be made for stipulating specific sectoral government institutions (in this case having at least one of the environment-related institutions targeted) in the indicator list for improving institutional capacity. Also under this S-IR, the aim is to specifically strengthen the planning and oversight capacity of units within Ministries responsible for public service delivery. In this case, one specific example might be developing and assisting with the implementation of a step-by-step (planning) guide to ensure that the necessary elements of an environmental impact assessment are present, monitored in a thoroughly transparent manner, and are understood by the government agency involved, that there is a procedure for public participation, and that the planning process also includes a process for resolving conflicts. It is likely that such a procedure already exists, but the service delivery institutions are not fully aware of or have limited knowledge as to how to carry out the policy or ensure that the law is followed. Again, the opportunities exist within the current framework for engaging activities that have direct and indirect impacts on conservation and environmental protection and more sustainable use of natural resources.

Within the Ministry of Environment, there is a service specifically in charge of conducting environmental studies and evaluations. Unfortunately, the office is inadequately staffed and requires substantial capacity building through practical, hands-on training, documentation, and equipment in order to meet its objectives. The same applies to the directorate in charge of biodiversity and protected areas (OGUIDAP).

Within this Sub-IR (and or under Sub-IR 1.1 above), there is also an opportunity to address the threats linked to gaps in implementing the National Agricultural Development Plan. Assistance that specifically targets the implementation of national standards for handling agricultural chemicals (fertilizers and pesticides) is needed. Policies and regulations exist, but help is required to implement, monitor and improve their use and enforcement, usually in a basic, practical manner. This needs to be done at both the national and local levels. Complementing this effort is also an opportunity to encourage the GoG to undertake Pesticide Evaluation Report and Safer Use Action Plan (PERSUAP) training as recommended by USAID Environmental Procedures. A training package and trainers trained by USAID are available should the GoG be interested.

From a governance perspective, there is an opportunity for USAID to improve transparency about the rules and regulations of use as well as the consequences of misuse/abuse. Getting this message decentralized to the local communities and local authorities is the first line of enforcement at the ground level. There are also policies at the national level that USAID can promote from outright banning of certain chemicals to ensuring transparency about handling the chemicals, awareness building at the national, regional and local levels on the regulations and how responsible citizens need to be aware and also self-regulate and report abuses.

From a health perspective, there are opportunities under this Sub-IR to establish links between water supplies and the careful, monitored and informed use of these inputs to prevent a public health disaster. Local application, storage, disposal, and contingency planning for both small and large agricultural chemical (and other hazardous waste) spills are paramount concerns for those monitoring public and potable water supplies.

The team sees these opportunities just discussed as also having applicability under the DO's Intermediate Result 4.

5.2.2 Intermediate Result 2: Improved Health System Performance

This IR, as the title states, focuses specifically on health. The CDCS intends to promote actions that complement and support the Guinea National Health Sector Development Plan mainly through activities that facilitate the decentralized network of community health providers. These will emphasize the coordination/supply of health services and the demand for those health services. Women and girls within the national population will be specifically targeted in these efforts.

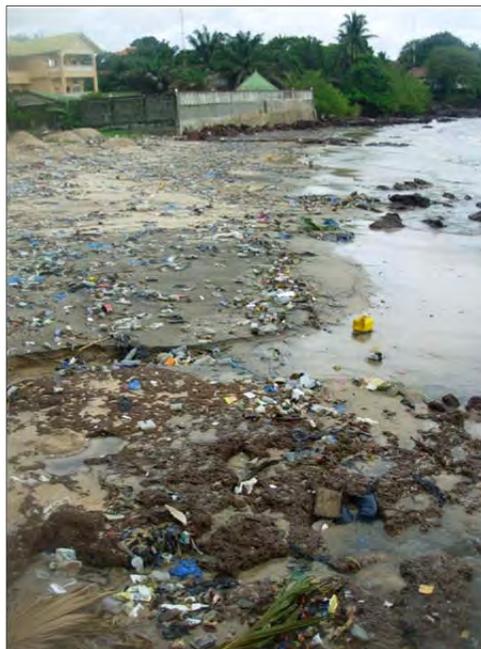
Within this IR, the assessment team sees the most direct link with biodiversity, conservation of natural resources, and environmental protection falling mainly under Sub-IR 2.2, Informed Citizens Promote Healthy Behaviors. The Framework Paper points out that the more that citizens are aware of services related to health care the more likely they are to both demand them, but also participate in their provision and oversight. In this regard, this is not just a behavior activity, but also one that promotes better governance.

The natural resource most tightly aligned to health (and women and children in particular) is the provision and use of fresh water, and ultimately the disposal of used water. The impacts on human health linked to the lack of access to improved water and sanitation facilities range from water-borne diarrheal diseases such as typhoid, giardia and cholera to water-washed diseases

such as roundworm, trachoma and scabies (Bonnardeaux 2012). Stagnant water can become a fertile breeding ground for the mosquitoes that carry malaria—Guinea’s number one killer. And the improper use of freshwater (and sea water) as a natural sewer can easily become a vector for other diseases and maladies.

Guinea receives some of the highest amounts of rainfall on earth. It is the source of almost all of West Africa’s rivers that drain through six neighboring countries. And yet, ironically, most Guineans lack access to clean water for their daily needs. Again, it is women and children that are directly and most severely affected, given their familial roles.

Water, Guinea’s most abundant renewable resource, is a key link to the health sector. Sensitization and training related to water use and disposal, and water’s connection to diseases, must be linked to its conservation and wise use, especially those programs targeting women. In Conakry, every watercourse is a dumpsite and the principal avenues of choice for the disposal of solid wastes. Once it rains, with the deluges common on the Conakry peninsula (as well as the other large urban centers along the coast), this waste gets flushed into the ocean where it clogs the estuaries and pollutes the local fishing waters. These behaviors impact the health of all of Guinea’s population and many of the livelihoods dependent on coastal and marine resources.



Pollution along the coast in Conakry
(Credit: Steve Dennison)

S-IR 2.2 is about promoting healthy behaviors. Those practices linked to water use are extremely important and need to be a prominent part of USAID’s activities under this S-IR. This is also an important area where other leveraging of both donor and private sector funds should be easiest to achieve. Coordination and planning is one role that USAID can help promote (perhaps linked with S-IR 1.3). Any activities linked to water, clean water use and protection of clean water sources will help provide substantial benefits for biodiversity and begin to mitigate the effects of erosion, pollution and water-borne diseases. The positive impacts of these actions will benefit not only the population and environment of Guinea, but also countries downstream.

There are other health-related behaviors with more indirect links to conservation and biodiversity. Wood burning for cooking is one of the most obvious, along with the consumption of charcoal, especially for Guinea’s urban populations. The presence of smoke and low-oxygen air within the closed confines of a cooking space affects women most severely. The polluted air directly affects human health. Improved technologies and behavior changes, sometimes in tandem, can help alleviate some of these dangers. Improved cook stoves are one alternative to the three-stone fireplace in rural areas where wood consumption for cooking is highest. Improved stoves and other energy alternatives are also available to mitigate charcoal use. One direct behavior change happened upon by *Guinée Ecologie* reduces the time needed to cook the Guinean family’s favorite staple, rice, by a factor of three. This, in turn, reduces the use/demand for wood or charcoal and ultimately the impact on the forest resource. Each of these examples

are worthy of media spots on local radio such as those promoted by *Faisons Ensemble*, or in other awareness campaigns. Once again, these are not direct ties to the environment or threats to the environment but they represent a conscious effort that can be used in the planning and implementation of the new DO by the Mission and those contracted to implement its programs and activities.

5.2.3 Intermediate Result 3: Sustainable Economic Opportunities Expanded

This is the economic growth IR and represents USAID/Guinea's historical ties in the country to agriculture, natural resource management, and jobs creation. The Framework Paper underscores the Mission's commitment to this IR despite limited funding and belief that it has a comparative advantage in some key sectors. The assessment team also believes that the activities under this IR, especially when links can be made to IR 1, will have the most positive impact on forest and biodiversity conservation and overall relief to the root causal threats to Guinea's environment.

The Sub IRs focused on improving farmer-centered systems (S-IR 3.1), strengthening micro-, small and medium enterprises (S-IR 3.3) and new technologies disseminated (S-IR 3.4), present the best opportunities for the Mission to link results to mitigating environmental threats. The assessment viewed several situations where rural groups dependent on agriculture were managing activities that improved environmental conditions and contributed to livelihoods.

In the Dubreka area, livelihoods are extremely dependent on coastal resources, water, and the mangroves that comprise the ecosystem of the Sangaréya Bay. Commerce and food chains rely heavily on the labor provided by women and youth and the health of the ecosystem for its substantial artisanal fishery, rice production in the low-lying plain, fuel wood and piling (used for construction in the expanding urban areas adjacent to Dubreka) from the mangroves, salt production, and oyster farming and other marine products. There are several improved methodologies that decrease pressure on the mangroves and water resources being promoted by local entrepreneurs and NGOs in the area. These are activities with direct linkages to biodiversity and ones that USAID and other donors can emulate and/or provide additional assistance with to augment strategic planning and coordination.

In other regions, the assessment team viewed or learned of other opportunities for small, land, and natural resource-based enterprises that contribute to mitigating pressure on biological resources, contribute to local livelihoods, utilize improved technologies, and promote greater awareness about Guinea's natural heritage. These currently exist in rural Guinea and USAID, under its new IR 3, can tap these for their experiences and lessons whether they fall into their geographic area of influence or not. Some examples include:

- Youth and women's groups, with NGO assistance, are promoting improved cookstoves, training, and awareness for women on reduced use of wood and better cooking techniques to improve health;
- Others are looking to improve land management through tree nursery production and selling cashew, teak seedlings and other tree crops that have value in the food chain, as construction material and also as alternative sources of fuel (about 30 organizations around Kindia alone produce plants for sale and distribution to the local population);
- A woman entrepreneur is developing an ecotourism site and she is desperately seeking advice on indigenous species to plant for shade, erosion control and insect control as well

as the ubiquitous financing and proper marketing needs that won't compromise environmental services provided by the site;

- A CSO in a large town is helping to inform and train citizens, especially women about improved water quality, its link to better health and the management of the water source and the watershed; and
- A small enterprise effort promoted by *Faisons Ensemble* that raises bush rats as an alternative to hunting them as bush meat. (The important conservation link here is the fact that hunters will often start fires to herd and chase the bush rats from their habitat—a destructive practice especially when the fires get out of control destroying the natural forest and/or protected area habitats.)

These represent examples where indirect actions, behavior changes, and awareness contribute to mitigating threats to Guinea's biodiversity and forest resources. Each of these fall within the purview of IR 3 for expanding economic opportunities. With a mindful eye to searching for and promoting these and similar activities the new DO can have a broader impact on reducing the impact of some of the threats to the nation's natural resources.

The Framework Paper notes that the mining sector will be approached through the Global Development Alliance initiative under the new DO, specifically to assist with promoting the development of local enterprises, employment, and training. These are seen as win-win activities for the mining sector that can benefit from these local businesses and to the local economies that can expand from this activity. The assessment team learned about environmental mitigation activities from two of these companies. It is obvious that the visibility of their performance in all areas to do minimal harm to Guinea's natural heritage once production begins in earnest is of global interest given the proposed scale of such exploitation and the threats to biodiversity. The economic stimulus that the mining sector may bring is an opportunity for Guinea to be a model for the region and dampen the threat from Dutch disease (Ebrahim-zadeh 2003) that can accompany these extractive industries. Promoting environmentally sound ("green") activities and actions by both the mining companies and small entrepreneurs needs to be part of USAID's package under this IR. The mining companies state that the global norms and standards of their practices exceed those of the national government. It behooves USAID to ensure that their entrepreneurial promotion activities and the governance actions complement these standards.

5.2.4 Intermediate Result 4: Effective Partnerships Established between Legitimate Actors in the Making and Implementation of Development Decisions at the Local Level and Beyond

The emphasis in this IR is on strengthening local partners (S-IR 4.1), promoting more transparent and accountable use of public resources (S-IR 4.2), providing increased access to better information (S-IR 4.3), and ensuring that the benefits from improved partnerships (including principles from USAID FORWARD) are capitalized to the extent possible (S-IR 4.4).

As noted in Section 5.1, current actions supported by the Mission have been supporting local government institutions in strengthening their capacities. Under the new DO, this is expected to continue and environment-related agencies should continue to benefit from this assistance. Hopefully other USG assistance such as that provided by the U.S. Forest Service International Programs, can continue to provide help through the STEWARD program for those critical

biodiversity hotspots in the transboundary areas shared with Sierra Leone, Liberia, and Côte d'Ivoire. The PEGG program's efforts to strengthen national and regional government institutions, most notably *Eaux et Forêts*, is both successful and being conducted with a high profile even after only six months of activity. The capacity building that it is attempting just in the area of improved communications is noteworthy and having impact. Raising awareness in the regions about the environmental policies and laws currently in place promotes empowerment for local authorities and raises the awareness of local populations about conserving their environmental heritage, engendering greater sustainable use, and enforcing the rules to discourage those who abuse them and increase the threats to biodiversity. The Mission would do well to lobby for additional funding to continue these actions, and/or examine ways to integrate them within Sub IR 4.

The radio spots and messages under *Faisons Ensemble* can continue to be promoted under S-IR 4.3 within the new DO facilitating message like those noted in the previous section about health and the environment, environmental governance, and related actions. PEGG's twice-weekly

forums with open invitations to government institutions, NGOs, donors, and the private sector, provide an excellent opportunity for improving communication and for providing a direct avenue for information exchange about environment issues, experiences, lessons being learned, and data about specific products. The radio spots could enhance this and the Mission is encouraged to take this type of forum "on the road" to the prefectures and communes where it will reach a whole different audience and promote wider participation in environmental conservation and awareness.

USAID, under this IR can also build upon the successes of co-managed forests such as those developed under previous USAID programs such as PEGRN and *Faisons Ensemble*. This form of management aims to bridge the communication and coordination gap between government and communities and strengthen the oversight of forests and natural resources. Success in a number of the existing co-managed forests should be leveraged as examples throughout Guinea.

In another area, working with mining interests to finance and mitigate damages and threats caused by the mining activities and the fragmentation of habitats from rights-of-way (constructed to transport raw materials) is the idea of a biodiversity offset. This would most likely be in the form of a public-private partnership with a secretariat made up of various representatives to manage mining offset funds. Under this IR (and perhaps IR 1), USAID could provide strategic guidance to such initiatives in order to ensure transparency and proper financial management of the accounts. Given the role mining is projected to play in the country's development, ensuring that the offset funds are properly managed so as to provide a means of alternative livelihoods to rural communities effected by mining operations, USAID would have the opportunity to make long lasting impacts for funds that can provide revenue for sustainable livelihoods development for decades to come. Rio Tinto, one of the mining interests in Guinea, worked successfully with



Bush meat for sale along road side
(Credit: Mamadou Saliou Diallo)

USAID and other donors under similar circumstances in Madagascar to create, implement and manage an offset fund as well as other social responsibility funds.

5.3 A Summary of Actions Necessary for Mitigating Threats to Biodiversity and Tropical Forest Conservation for USAID/Guinea and Other Actors

This section provides a brief summary of actions necessary to reduce threat to Guinea's natural environment and biological resources. It includes many of those actions suggested in Section 5.2 linked to USAID/Guinea's new DO. Other actions critical to reducing the threats are also summarized for consideration by those championing Guinea's natural heritage.

- USAID/Guinea has no specific intermediate results dedicated to resolving environmental issues or reducing threats to Guinea's biodiversity in its current programming, nor is any included in the framework of the next planning cycle (2014 to 2018). It is critical, therefore, that other USG funds continue to be found and used to provide some assistance to mitigate the threats in Guinea's transboundary hotspots (the STEWARD program) and to assist with the environmental governance, coordination, and awareness activities with local and national environmental services (PEGG).
- The work of *Faisons Ensemble* with forest product associations, commune hunters, and local government units in raising awareness about environmental laws and policies has been successful. USAID and other donors need to continue to build on these experiences drawing on lessons learned and targeting other areas for workshops, trainings, and media and awareness campaigns.
- The model established through the *Faisons Ensemble* (FE) project as a means of creating a push effect for good governance while using the interdisciplinary approach to development has yielded successes in several sectors. The lessons already captured, as well as those in process, can provide the baseline for scaling up actions geographically and within other local-level governance activities. The FE focus on promoting action at the most basic grassroots level can increase community level empowerment more directly at the source of environmental threats and also capitalize on opportunities that will impact these communities.
- Building capacity within the legal system in Guinea is also an important component of effective governance that USAID can continue to support. The PEGG program has begun work in this sector, through a partnership with the Environmental Law Institute, to build capacity and awareness within the judicial sector so as to ensure greater governance at the judicial level. This capacity building should be continued as on-going training and monitoring will be key to success over the long-term.
- There exists a critical need for an inventory of existing natural resources. Guinea lacks any recent information related to the state of natural resources due to the lack of any extensive inventory. There is piecemeal research and data collection related to specific species and activities (e.g., baselines or mining activity EIAs), but an overall coordinated effort to document flora and fauna is required as a metric for future reference and as a comparative standard. A national government body or an academic institution is needed

to implement the effort. An independent forum is required to help establish priorities, guidelines, standards, logical deadlines, identify and facilitate funding, and monitor the implementation.

- Fresh water is Guinea's most plentiful renewable resource, yet the majority of the population lacks access to clean water for their daily needs. USAID and others need to address the access, use and disposal issues related to water through its governance and health sectors. Water, sanitation and hygiene have been proven to have close links to biodiversity and conservation especially through fresh water vectors. Healthy and intact ecosystems have been shown to decrease the incidence of disease. The private sector, donors, and government need to coordinate their actions to protect watersheds and vegetative cover to help ensure water systems remain clean and unpolluted. Since Guinea is West Africa's water tower, it has an international obligation to downstream nations to be a steward for their water sources and to ensure that it is as fresh and pollution-free as possible.
- To help reduce both threats from agricultural and mining chemicals to the environment and human populations there needs to be stronger links between water supplies and the careful, monitored, and informed use of these inputs. Local application, storage, disposal, and contingency planning for both small and large spills are paramount concerns for those monitoring public and potable water supplies.
- More careful selection, handling, and use of agricultural chemicals (pesticides and fertilizers) needs to be planned and promoted within the GoG's own National Agricultural Development Strategy. This includes awareness raising at the highest levels of government through the local users of these products. USAID's own PERSUAP and environmental procedures can be a part of the solution, but this also needs to be understood and coordinated with implementers of the Strategy.
- Management of solid and human waste, including medical wastes, is in a critical state, especially in urban areas. Rural populations are similarly affected but guidelines, standards, and norms need to be established for management where they are not and citizens need to be educated and reminded of the consequences to their health if they are not followed. The August 2012 cholera crisis in Conakry is a direct example of this need.
- As the team learned from its interviews, medical wastes management in urban areas is horrific and poses an enormous hazard to humans and other animal species. Conakry's hospital wastes are no longer incinerated and are managed only to the degree that they are transported from the hospital



Solid waste collection point in central business district in Conakry
(Credit: Steve Dennison)

and dumped directly into the sea. There they mix with other garbage that is flushed daily from the city's numerous watercourses only to wash up again on the peninsula's shoreline. Other urban areas throughout Guinea, especially along the coast, face similar threats. This is a critical public health and environmental issue that demands the attention and coordination of actions on the part of citizenry, government, and donors.

- Private sector mining interests, with their massive land clearing and earth moving practices, have yet to enter any serious production phase. Several companies have been conducting their due diligence with respect to environmental impacts and social responsibility functions. The world is watching and is anxious to see that the rigorous standards and norms being touted by the industry to mitigate damage and threats to the environment are upheld, followed, remain transparent, and that the Guinean government can effectively monitor and enforce the new mining legislation that is being put in place. USAID and other donors need to continue to push the environmental governance policies and to make certain that communities where the mining happens, and along rights-of-way, are familiar and apprised of their rights and responsibilities that pertain to their local environments, including mitigation for environmental damage, resolution of conflicts, assistance with oversight activities, recourse for health issues accompanying the mining, and any supporting enterprises and the like.
- As mining activities expand, USAID should foster public-private partnerships so as to build capacity within the Ministry of Environment and other related agencies to oversee and ground-truth environmental assessments. Current capacity within the agency responsible for environmental oversight is extremely limited. Partnerships with private assessment specialists and international actors can ensure that as Guinean mining expands, impacts on local communities are planned for and mitigated to the greatest extent possible. Government oversight of the process is crucial to success and USAID can provide the means by which this capacity is built.
- USAID and other donors need to continue to pursue a biodiversity-offset fund from mining interests. This can help to finance conservation, habitat restoration, and alternative livelihoods that have been negatively impacted as the result of mining activities.
- Civil society organizations, NGOs, and small and medium size enterprises with environmental protection and conservation activities need continued support, guidance, and assistance. The USAID FORWARD program has guidelines for capacity building that can help provide organizational and coordination training. Guinea's NGO Forum for Sustainable Development (*Forum des ONG pour le Développement Durable* (FONGDD)) may be in a position to assist with awareness, coordination, and sharing lessons learned for the NGO community at large.
- All agricultural and commercial activities in the heavily populated coastal zone are threats to one of the country's last remaining intact natural resources: the mangroves and the ecosystem services they support. Although it has been stated elsewhere in this report, this is a resource that is absolutely critical for Guinea's coastal population, their

livelihoods, and the physical protection it provides. It is mandatory that the GoG, civil society, the private sector, and the donor community make it a priority on the economic growth agenda, on the environmental protection agenda, on the public health agenda, and on the improved governance agenda. If attention and a conscious coordination effort are not given to this resource, the damage, threats, and costs in each of these sectors will increase substantially to pay for its loss. USAID, in its new CDCS, has the tools to make inroads to this effort.

- There is a need to transform artisanal mining into sustainable small-scale mining by improving the regulatory and legal conditions, and raising awareness of the regulations and their enforcement, especially at the local level. While USAID is not active in mining, the agency, through its governance and health initiative, can play a role in reducing health hazards and biodiversity loss associated with mining through support to NGO and private sector participation as well as training of artisanal miners in environmentally-responsible practices.
- USFS International Seminars are a means through which USAID and partners can quickly build capacity and share information with other international leaders. These seminars include the international seminars on Watershed Management, Climate Change and Natural Resource Management, and Protected Areas Management. These annual seminars bring together government, NGO, and other leaders in respective fields to stimulate deliberations and problem solving for issues related to natural resource management. Participants are able to learn from leaders from nearly every continent and build networks to respond to the growing threats to the environment. USAID/Guinea staff and partner organization staff would benefit greatly from participation in such activities.

6.0 AN ANALYSIS OF THREATS POSED BY CLIMATE CHANGE WITH LINKS TO USAID/GUINEA'S DEVELOPMENT OBJECTIVE

This section discusses some of the likely climate change elements that Guinea may encounter in the future and their probable impacts on the natural environment and its people. Where practical, links are drawn to USAID/Guinea's new Development Objective and the currently drafted Intermediate Results (IRs) as presented in the most recent Results Framework Paper (USAID/Guinea 2012) available to the assessment team. This analysis also includes some recommendations that the Mission may wish to consider as it completes its CDCS and prepares for its implementation.

The key impacts of climate change are associated with the climate-related parameters of sea level rise, changes in the intensity, timing and spatial distribution of precipitation, changes in temperature (variation and mean values), and the frequency, intensity, and duration of extreme climate events such as droughts, floods, and tropical storms.

6.1 Likely Climate Change Phenomenon and Sector Impacts

Temperature trends in Guinea will trend upward, especially in areas away from the coast. This will bring decreased yields in agricultural production as well as increased insect outbreaks. Greater frequency of warmer/hot spells will lead to greater heat stress in crop production and increase wild fire danger. The *Haute Guinée* region and the northern border region with Senegal, which are normally drier, will feel these changes the most and there will likely be more frequent periods of water scarcity. Increases in temperature and longer warm spells will also increase mortality and illness due to malaria and dengue fever. Higher temperatures will also impact the health of the elderly and chronically sick in Guinea's population.

Precipitation in Guinea is already high (see map in *Annex D*) and this will increase along with a greater frequency of heavy rainfall events. This will damage crops, waterlog soils, and increase the risk of flooding especially in Guinea's many narrow valleys and the low lying areas along the coast and along sections of the Niger River, and its tributary the Milo River, as they flow into Mali. The Mano River region will be equally susceptible. These flooding and other heavy water run-off events can have adverse effects on the quality of surface and groundwater. They increase the risk of contamination of water supplies and (in urban areas like Conakry, Boké, and Forécariah in the coastal region with solid waste management problems) greatly exacerbate the risks of water-borne diseases affecting large portions of the population.

The northern areas of the country and its populations will also be more drought prone than before due to the temperature increases and the greater frequency of warm/hot spells. The pendulum swings in rainfall events also contribute to an increase in dry periods. The thin soils and already degraded lands in this region will increase the risk of lower yields and crop damage and an increase in livestock deaths. There will also be more stress on water supplies and the availability of water in this region. Food shortages are apt to increase and there is increased risk of malnutrition and greater susceptibility by the local population to water- and food-borne diseases. These conditions will also lead to an increased incidence of forest fires or grass fires where leafy vegetation is not present, further degrading the habitats, increasing the risk of soil erosion and its capacity to support agriculture production. Biodiversity in the region is already extremely fragile and

TERMINOLOGY

Adaptation: Adjustment in natural or human systems in response to actual or expected climatic changes or their impacts, so as to reduce harm or exploit beneficial opportunities.

Climate change: Any change in weather averaged over time due to natural variability or because of human activity.

Climate variability: Variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all temporal and spatial scales beyond that of individual weather events. Examples of climate variability include extended droughts, floods, and conditions that result from periodic El Niño and La Niña events.

Hazard Mitigation: Sustained action taken to reduce or eliminate long-term risk to life and property from a hazard event. Considered as one of four phases of emergency management, together with preparedness, response, and recovery.

Mitigation: Within a climate change context, mitigation is a human intervention to actively reduce the production of greenhouse gas emissions (reducing energy consumption in transport, construction, at home, at work etc.), or to remove the gases from the atmosphere (sequestration).

Vulnerability: The degree to which a human or natural system is susceptible to, or unable to cope with, adverse effects of climate change. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity.

Source: USAID 2009.

changes in temperature and rainfall can cause changes in flora and fauna ranges and exacerbate potential losses in biodiversity.

The coastal region of Guinea is currently relatively rich in freshwater resources, flora and fauna biodiversity, and supports a varied and important artisanal livelihood economy due to the presence of the mangrove ecosystem. Climate changes may mean disaster if extreme high sea level events (excluding tsunamis) damage this fragile ecosystem. This could mean salinization of irrigation water, higher salt contents of the estuaries, and a decrease of freshwater availability. This region is already fragile and without proper and adequate safeguards to insure its continued existence, sea level rises could easily put it beyond the reach of most of the population which now depends on it. As reported in the recent Rio+20 Guinea National Report (République de la Guinée 2012), the islands of Kaback, Kakossa, and Kito in Forécariah are considered in recent climate change studies to be the most exposed risk to climate change. The local population is not prepared, nor are any plans being formulated, to improve their resilience.

6.2 Other Impacts of Climate Change

Extreme weather events brought on by climate change such as droughts, flooding, sea level rise, and the increased spread of disease can also act as threat multipliers that foster instability, reduce living standards (even in Guinea where they are near the bottom), rekindle or start internal or transnational conflicts, and undermine support that promotes peace and security. In this region of West Africa, these issues are already present and therefore serve as constant issues with which nations are attempting to cope with and adjust. Migrants, largely due to conflict, into Guinea from Sierra Leone, Liberia and Cote d'Ivoire have been pushing the limits of society for many years. Climate change will add yet another dimension to those issues and potentially exacerbate the threat of environment-induced migration. Related migrations to the urban areas in the already fragile coastal zone are apt to follow global trends exacerbated as climate changes decrease the profitability of agriculture. (Kousky 2012) This will result in many more farm-dependent populations moving to the cities putting additional strain on the already vulnerable resources and services in these areas.

USAID/Guinea has been striving to work consistently and closely with local governments and institutions during this current planning cycle. In the next one, the efforts to strengthen governance at the national and local levels should also factor in disaster relief, climate adaptation and policies to help mitigate the impacts from climate change. Governance is about increasing resilience, first for the population that it serves and second to the natural environment it needs to protect and improve.

Risks associated with climate change can also bring about damage to livelihood assets; an increase in water-borne diseases is also predicted, as well as those linked to lack of access to clean water. New livestock and plant diseases may also appear (Robison and Brooks 2010). In Guinea, this would strain even further fragile traditional coping systems and undermine further efforts to alleviate poverty, and threaten foreign direct and local investment in areas vulnerable to climate variability and change impacts.

Guinea's hydropower investment, which also brings receipts from neighboring countries for the energy exported, is also at risk from climate change elements. Increased flooding will threaten more rapid sedimentation of catchment reservoirs and create greater risks for structural damage

to dams. The country relies significantly on its geographic advantage that provides abundant rainfall. But more precipitation, falling more heavily and with greater frequency, is also a threat to this infrastructure.



Bauxite strip mine site off National Route 1 near Friguiyagbe
(Credit: Mamadou Saliou Diallo)

An important question related to the large investment of the mining interests poised to begin operation in Guinea, is to what extent have these private actors planned for the greater frequency of extreme climate-related events. Flooding and sea level rise are the most direct threats to their operations. Guinean government needs to ensure that the EIAs completed and in process adequately figure in these added risks and what it will mean in terms of adapting each site's operation and mitigating the extreme consequences that are likely to occur. Site specific flooding, erosion and runoff all have the potential for exacerbating damage and

destruction downstream to the environment and to local populations. GoG and private sector actors need to ensure procedures and guidelines are in place for climate-related adaptation and mitigation tasks. Additionally, these partners must work together to ensure that the local prefectures and communes hosting these operations understand the risks. USAID can play an important role in facilitating this dialogue and planning and ensuring that there is there an oversight function that updates and monitors potential threats from climate change-related disaster events that may stem from the mine's operation. In addition, leveraging such resources as the U.S. Forest Service's Incident Command System training and capacity building programs to train and increase capacity for the government and private sector to plan for and mitigate risks from natural and human-induced disasters, will assist Guinea in being prepared for such unforeseen events.

6.3 Opportunities for USAID/Guinea and Others Facing the Risks Accompanying Climate Change

Democratic Governance PLUS is the cornerstone of USAID/Guinea's next Country Development Cooperation Strategy. It fortunately plans to expand its activities to also strengthen national policies and institutions, bolster its assistance to the health system of the country, strive for greater inclusion of the private sector and improve local livelihoods, and include a greater variety of informed groups, professionals and civil society actors in making and implementing development decisions.

In each instance, within each of the intermediate results in the planning framework, climate changes are likely to have an impact on the actors, on the decisions, on the regions and sites targeted for assistance, and most assuredly on the citizens intended as the beneficiaries. In some instances, these impacts will be miniscule, almost unnoticeable. In other instances, these impacts may be more direct and profound. But given the fact that more than eighty percent of Guinea's population relies on land based resources and agriculture for their livelihoods and as can be seen

from this discussion, changes in climate will have an impact on just about everyone in Guinea. Women and children are already the most vulnerable part of this population and will likely see the greatest impacts (see box). Approaches that address gender and climate change have been developed (Aguilar 2008, 2009); some of these can provide a foundation and lessons learned that Guinea can capture in developing its own adaptation program.

Gender Dimensions Of Vulnerability To Climate Change

Men and women are affected differently by the impacts of climate change and climate vulnerability. Women tend to be poorer, more marginalized and much more likely to be afflicted by natural disasters. World-wide, women are more vulnerable because of their social roles, inequalities in the access and control of resources, lower education, poorer health, and their low participation in decision-making. Climate change magnifies existing inequities.

Women are not only the primary victims of climate change, but they can also be effective change agents, managing both mitigation and adaptation. Women have extensive knowledge and expertise that can be applied in assessing community risk, selecting adaptation measures and mobilizing communities to manage risk.

To mainstream gender into climate change adaptation, we need the following types of information:

- ☑ Women's and men's resource use patterns, access, and responsibilities (to include a discussion on how might these change with climate change, and how they would adapt)
- ☑ Women's and men's roles in decision-making
- ☑ Women's and men's vulnerability—the gender dimensions of different climate change impacts (e.g. droughts and flooding) and how they would affect women and men
- ☑ Understanding how men's and women's roles change and may complement each other when coping with climate change

Gender inequalities are deeply ingrained and difficult to change, but you can overcome obstacles by:

- ☑ Ensuring that participatory planning methods are inclusive and motivate, support, and encourage women and men to engage in the process
- ☑ Understanding practical barriers to women's participation in discussions, planning and decision- making, and in micro-enterprise
- ☑ Ensuring that issues identified and analyzed are relevant and of interest to both men and women— this will help both genders formulate ideas and engage in the adaptation process
- ☑ Learning to recognize and handle conflict—personal attitudes and feelings about equal participation and gender mainstreaming will vary and some may work against it
- ☑ Establishing gender focused and disaggregated monitoring

For more information see: Aguilar, L. 2008

http://siteresources.worldbank.org/EXTSOCIALDEVELOPMENT/Resources/244362-1170428243464/3408356-1170428261889/3408359-1202746084138/Gender_Presentation022808.pdf

With its governance focus, USAID/Guinea is in a position to add climate change resiliency, mainly through awareness activities, within each of its IRs as a focal point and element that needs to be a part of everyone's thinking. The assessment team found very little evidence that climate change is on anyone's agenda at this point. There have been workshops and institutions charged with conducting superficial assessments of vulnerability, but no coordinated, visible, and aggressive actions are evident. This represents yet another opportunity for USAID in its governance actions to raise awareness and look for opportunities to leverage funds with other donors and the private sector to begin a coordinated effort to address climate change issues at any number of levels.

In terms of the potential for sustainable landscapes/REDD readiness actions the CDCS should capitalize on activities and lessons from the PEGG Program, as well as other donor-led

Criteria for using USAID climate change funds

■ **Clean Energy Criteria:** USAID prioritizes work with a mix of the existing major emitters, countries projected to significantly increase greenhouse gas emissions under business-as-usual scenarios, and partners most able and ready to demonstrate leadership in clean energy development.

■ **Sustainable Landscapes Criteria:** USAID prioritizes work with partner countries with globally important forest landscapes (e.g. the Amazon basin and the Congo basin which have high current and future carbon storage potential); high demonstration potential (e.g. early movers able to demonstrate credible results-based payments for carbon storage under Reducing Emissions from Deforestation and Degradation (REDD+) programs); commitments to developing monitoring, reporting, and verification systems, and enabling policy structures such as land and resource tenure.

■ **Adaptation Criteria:** USAID prioritizes work with vulnerable countries, both in terms of exposure to physical impacts of climate change and socio-economic sensitivity to those impacts. These include the likelihood of significant physical changes, dependence of population on climate-sensitive sectors, percentage of population in high-risk areas (e.g. low-lying coastal areas), and the ability of a country's economy to respond to climate changes. Thus, USAID is prioritizing working with least developed countries (especially in sub-Saharan Africa), small island developing states (SIDS), and glacier-dependent countries.

Source: USAID 2012

initiatives in the region. Neighboring Liberia, for instance, is a participant in the World Bank-funded Forest Carbon Partnership Facility (FCPF) that helps prepare developing countries for potential REDD+ funding mechanisms to conserve their forest resources. As a participant, Liberia "develops an understanding of what it means to become ready for REDD+, in particular by developing reference scenarios, adopting a REDD+ strategy, designing monitoring systems and setting up REDD+ national management arrangements, in ways that are inclusive of the key national stakeholders (Forest Carbon Partnership Facility 2012)." Further training and capacity building in Guinea, would position the country to be a candidate for the FCPF program, among others.

The PEGG Program is working to build the capacity of the government ministries implicated in environment and natural resource management in Guinea, to be able to do just that. It is imperative that this capacity is built in order to build transparency and relationships with communities and partners. In doing so, Guinea will be better situated to leverage funding and technical resources such as the FCPF mechanisms. Developing a national climate change strategy and climate change policies were identified as priorities during STEWARD and MRU sponsored meetings of regional government leaders in Sanniquellie, Liberia in October 2010 (STEWARD 2010). The Guinean representatives present, including the present appointed Minister of Environment and Water and Forests, developed recommendations including working to develop national policies on climate

change, developing climate change priorities in priority areas, adopting a strategy for implementation of climate change initiatives, and building capacity to understand and take advantage of technical assistance.

The PEGG program has begun to work with the government to address these requests. PEGG sponsored the director of the Guinean Office of Climate Change to attend the USFS International Seminar on Climate Change and Natural Resources Management to learn of the latest advances to address climate change and how other developing and developed nations are working to mitigate and adapt to a changing climate. As a result of his participation, the Director will be training his Guinean colleagues on climate change science and lessons learned during the seminar. Additionally, the Director has developed a base plan for bridging the gap of capacity and the ability to leverage REDD+ funding. This provides a modest starting point from which USAID could focus efforts on building capacity and leveraging partner resources such as those afforded by the World Bank.

Climate change monies have been available from a number of sources, including a climate change earmark established by the U.S. government. The strategy for using these funds (USAID 2012) has clearly defined criteria (see box) that both fit within USAID FORWARD's initiatives and also promote low emissions economic growth. Time could be well spent examining specific options and ways that USAID/Guinea could explore to effectively tap these funds. Leveraging opportunities with the health sector are the most obvious avenues, but adaptation and mitigation trainings for government agencies may also be a way to contribute to results under IR 1 and IR 4 under the new Development Objective. Chances are good that benefits would come to the environment, too.

Other Missions have used a six-step process (USAID 2008) to assess vulnerability to climate change and examine adaptation strategies that will address those risks and provide the basis for additional mitigation actions. Several of these have been undertaken through governance activities and actions, and it would seem logical that this might also be done in Guinea. There is a similar and complementary set of guidelines developed for climate change threats to coastal areas (USAID 2009).

The vulnerability and adaptation (V and A) process can work equally well at the national, provincial, or prefecture level. It has been found to be quite valuable in adding important knowledge about a particular locale as it brings in a cross section of actors: government, health care, CSOs, NGOs, private entrepreneurs, and donors into the process. It helps each of the actors to understand how climate change affects or can affect, their corner of the world, determine in a very participatory and democratic process where the priorities lie, what information exists, where the gaps are, and ultimately what adaptation steps can be logically taken. Plans can then be made to implement adaptation steps decided upon.

Within the context of the new development objective the V and A process could be tried with just one prefecture, but engaging a whole host of actors, to pilot the effort and gain experience in its use and determine its utility as a planning tool with other institutions in other locales. Others (Robison and Brooks 2010) have outlined similar strategies for the West Africa region. They note that resilience and adaptation at the community level are probably more appropriate, immediate, and effective actions than attempting to legislate mitigation. Guinea has been

participating in the UN Framework Convention on Climate Change dialog (UNFCCC 2010) in examining establishing action planning committees and activities, *Programmes d'Action National d'Adaptation* (PANA). USAID, and any V and A planning, need to work/coordinate from the efforts and lessons learned with these activities. Lessons and successes from other programs in Africa (GEF 2012), have not relied on any single approach, but have usually employed multiple coping strategies that can be, and are needed to adapt to climate change.

Changes in climate are inevitable and the more that Guinea can do to understand them and incorporate simple (and complex) adaptation strategies, the more resilient the Guinean people and environment will be in confronting these and other threats. There are no less than six ministries at the national level that have at least working groups dealing with climate change – Ministry of Energy and Environment, Delegated Ministry of the Environment, Water and Forests, the Ministry of Agriculture, the Ministry of Livestock, the Ministry of Transport, and the Ministry of Advanced Learning and Scientific Research. Developing effective responses to climate change at the national, regional, and local levels will be a major challenge with so many players involved. Meaningful approaches, effective adaptation, and workable policies will not happen without careful coordination, communication, and an overt, transparent effort of raising public awareness.

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ANNEXES

ANNEX A - U.S. FOREIGN ASSISTANCE ACT, SECTIONS 118 AND 119

Part I, Section 118\73\ - Tropical Forests

(a) Importance of Forests and Tree Cover. In enacting section 103(b)(3) of this Act the Congress recognized the importance of forests and tree cover to the developing countries. The Congress is particularly concerned about the continuing and accelerating alteration, destruction, and loss of tropical forests in developing countries, which pose a serious threat to development and the environment. Tropical forest destruction and loss--

(1) result in shortages of wood, especially wood for fuel; loss of biologically productive wetlands; siltation of lakes, reservoirs, and irrigation systems; floods; destruction of indigenous peoples; extinction of plant and animal species; reduced capacity for food production; and loss of genetic resources; and

(2) can result in desertification and destabilization of the earth's climate. Properly managed tropical forests provide a sustained flow of resources essential to the economic growth of developing countries, as well as genetic resources of value to developed and developing countries alike.

(b) Priorities. The concerns expressed in subsection (a) and the recommendations of the United States Interagency Task Force on Tropical Forests shall be given high priority by the President--

(1) in formulating and carrying out programs and policies with respect to developing countries, including those relating to bilateral and multilateral assistance and those relating to private sector activities; and

(2) in seeking opportunities to coordinate public and private development and investment activities which affect forests in developing countries.

(c) Assistance to Developing Countries. In providing assistance to developing countries, the President shall do the following:

(1) Place a high priority on conservation and sustainable management of tropical forests.

(2) To the fullest extent feasible, engage in dialogues and exchanges of information with recipient countries--

(A) which stress the importance of conserving and sustainably managing forest resources for the long-term economic benefit of those countries, as well as the irreversible losses associated with forest destruction, and

(B) which identify and focus on policies of those countries which directly or indirectly contribute to deforestation.

- (3) To the fullest extent feasible, support projects and activities--
- (A) which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and
 - (B) which help developing countries identify and implement alternatives to colonizing forested areas.
- (4) To the fullest extent feasible, support training programs, educational efforts, and the establishment or strengthening of institutions which increase the capacity of developing countries to formulate forest policies, engage in relevant land-use planning, and otherwise improve the management of their forests.
- (5) To the fullest extent feasible, help end destructive slash-and-burn agriculture by supporting stable and productive farming practices in areas already cleared or degraded and on lands which inevitably will be settled, with special emphasis on demonstrating the feasibility of agroforestry and other techniques which use technologies and methods suited to the local environment and traditional agricultural techniques and feature close consultation with and involvement of local people.
- (6) To the fullest extent feasible, help conserve forests which have not yet been degraded, by helping to increase production on lands already cleared or degraded through support of reforestation, fuelwood, and other sustainable forestry projects and practices, making sure that local people are involved at all stages of project design and implementation.
- (7) To the fullest extent feasible, support projects and other activities to conserve forested watersheds and rehabilitate those which have been deforested, making sure that local people are involved at all stages of project design and implementation.
- (8) To the fullest extent feasible, support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing, including reforestation, soil conservation, and other activities to rehabilitate degraded forest lands.
- (9) To the fullest extent feasible, support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation, including research in agroforestry, sustainable management of natural forests, small-scale farms and gardens, small-scale animal husbandry, wider application of adopted traditional practices, and suitable crops and crop combinations.
- (10) To the fullest extent feasible, conserve biological diversity in forest areas by--
- (A) supporting and cooperating with United States Government agencies, other donors (both bilateral and multilateral), and other appropriate governmental, intergovernmental, and nongovernmental organizations in efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis;

(B) whenever appropriate, making the establishment of protected areas a condition of support for activities involving forest clearance or degradation; and

(C) helping developing countries identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas.

(11) To the fullest extent feasible, engage in efforts to increase the awareness of United States Government agencies and other donors, both bilateral and multilateral, of the immediate and long-term value of tropical forests.

(12) To the fullest extent feasible, utilize the resources and abilities of all relevant United States Government agencies.

(13) Require that any program or project under this chapter significantly affecting tropical forests (including projects involving the planting of exotic plant species)--

(A) be based upon careful analysis of the alternatives available to achieve the best sustainable use of the land, and

(B) take full account of the environmental impacts of the proposed activities on biological diversity, as provided for in the environmental procedures of the Agency for International Development.

(14) Deny assistance under this chapter for--

(A) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner which minimizes forest destruction and that the proposed activity will produce positive economic benefits and sustainable forest management systems; and

(B) actions which significantly degrade national parks or similar protected areas which contain tropical forests or introduce exotic plants or animals into such areas.

(15) Deny assistance under this chapter for the following activities unless an environmental assessment indicates that the proposed activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development:

(A) Activities which would result in the conversion of forest lands to the rearing of livestock.

(B) The construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undegraded forest lands.

(C) The colonization of forest lands.

(D) The construction of dams or other water control structures which flood relatively undegraded forest lands.

(d) PVOs and Other Nongovernmental Organizations. Whenever feasible, the President shall accomplish the objectives of this section through projects managed by private and voluntary organizations or international, regional, or national nongovernmental organizations which are active in the region or country where the project is located.

(e) Country Analysis Requirements. Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-

(1) the actions necessary in that country to achieve conservation and sustainable management of tropical forests, and

(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

(f) Annual Report. Each annual report required by section 634(a) of this Act shall include a report on the implementation of this section.

Part I, Section 119\75\ - Endangered Species

(a) The Congress finds the survival of many animal and plant species is endangered by overhunting, by the presence of toxic chemicals in water, air and soil, and by the destruction of habitats. The Congress further finds that the extinction of animal and plant species is an irreparable loss with potentially serious environmental and economic consequences for developing and developed countries alike. Accordingly, the preservation of animal and plant species through the regulation of the hunting and trade in endangered species, through limitations on the pollution of natural ecosystems, and through the protection of wildlife habitats should be an important objective of the United States development assistance.

75\ 22 U.S.C. 2151q. Sec. 119, pars. (a) and (b) were added by sec. 702 of the International Environment Protection Act of 1983 (title VII of the Department of State Authorization Act, Fiscal Years 1984 and 1985, Public Law 98-164; 97 Stat. 1045).

(b) 75\ In order to preserve biological diversity, the President is authorized to furnish assistance under this part, notwithstanding section 660,\76\ to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs. Special efforts should be made to establish and maintain wildlife sanctuaries, reserves, and parks; to enact and enforce anti-poaching measures; and to identify, study, and catalog animal and plant species, especially in tropical environments.

76\ Section 533(d)(4)(A) of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1990 (Public Law 101-167; 103 Stat. 1227), added ``notwithstanding section 660" at this point.

(c) \77\ Funding Level. For fiscal year 1987, not less than \$2,500,000 of the funds available to carry out this part (excluding funds made available to carry out section 104(c)(2), relating to the Child Survival Fund) shall be allocated for assistance pursuant to subsection (b) for activities which were not funded prior to fiscal year 1987. In addition, the Agency for International Development shall, to the fullest extent possible, continue and increase assistance pursuant to subsection (b) for activities for which assistance was provided in fiscal years prior to fiscal year 1987.

\77\ Pars. (c) through (h) were added by sec. 302 of Public Law 99- 529 (100 Stat. 3017).

(d) \77\ Country Analysis Requirements. Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-

- (1) the actions necessary in that country to conserve biological diversity, and
- (2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

(e) \77\ Local Involvement. To the fullest extent possible, projects supported under this section shall include close consultation with and involvement of local people at all stages of design and implementation.

(f) \77\ PVOs and Other Nongovernmental Organizations. Whenever feasible, the objectives of this section shall be accomplished through projects managed by appropriate private and voluntary organizations, or international, regional, or national nongovernmental organizations, which are active in the region or country where the project is located.

(g) \77\ Actions by AID. The Administrator of the Agency for International Development shall-

- (1) cooperate with appropriate international organizations, both governmental and nongovernmental;
- (2) look to the World Conservation Strategy as an overall guide for actions to conserve biological diversity;
- (3) engage in dialogues and exchanges of information with recipient countries which stress the importance of conserving biological diversity for the long-term economic benefit of those countries and which identify and focus on policies of those countries which directly or indirectly contribute to loss of biological diversity;
- (4) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity;

(5) whenever possible, enter into long-term agreements in which the recipient country agrees to protect ecosystems or other wildlife habitats recommended for protection by relevant governmental or nongovernmental organizations or as a result of activities undertaken pursuant to paragraph

(6), and the United States agrees to provide, subject to obtaining the necessary appropriations, additional assistance necessary for the establishment and maintenance of such protected areas;

(6) support, as necessary and in cooperation with the appropriate governmental and nongovernmental organizations, efforts to identify and survey ecosystems in recipient countries worthy of protection;

(7) cooperate with and support the relevant efforts of other agencies of the United States Government, including the United States Fish and Wildlife Service, the National Park Service, the Forest Service, and the Peace Corps;

(8) review the Agency's environmental regulations and revise them as necessary to ensure that ongoing and proposed actions by the Agency do not inadvertently endanger wildlife species or their critical habitats, harm protected areas, or have other adverse impacts on biological diversity (and shall report to the Congress within a year after the date of enactment of this paragraph on the actions taken pursuant to this paragraph);

(9) ensure that environmental profiles sponsored by the Agency include information needed for conservation of biological diversity; and

(10) deny any direct or indirect assistance under this chapter for actions which significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas.

(h) \77\ Annual Reports. Each annual report required by section 634(a) of this Act shall include, in a separate volume, a report on the implementation of this section.

ANNEX B - STATEMENT OF WORK

USAID/Guinea CDCS

Environmental Threats and Opportunities Assessment with Special Focus on Biological Diversity and Tropical Forestry through Partnership with the U.S. Forest Service International Programs (USFS/IP)

I. Introduction

USAID/Guinea is currently in the process of developing its CDCS wherein the Mission will align its proposed development objectives with the Government of Guinea's (GOG's) Poverty Reduction Strategy Paper (PRSP). The PRSP has become the GOG's guiding strategy for all its development efforts. Alignment of USAID Guinea's program with the PRSP will signal support for GOG's poverty reduction strategy. Moreover, it will enhance synergy across sectors and increase management efficiency.

The purpose of this activity is to conduct an Environmental Threats and Opportunities Assessment (ETOA) that will constitute the Environmental Annex required in the Mission's CDCS. The assessment will be carried out by a short-term consultant team with experience in USAID strategic planning and with a sound knowledge of USAID's environmental policies, legislation and requirements as governed by 22 CFR 216 and the Foreign Assistance Act. USAID/Guinea will provide a buy-in through the Participating Agency Program Agreement (PAPA) to request U.S. Forest Service to hire and supervise the Assessment Team to conduct the ETOA mission.

II. Background

A. Policies Governing Environmental Procedures

The core environmental requirements of USAID operating unit strategic plans are spelled out in ADS 201.5.10g, and are derived from provisions of the Foreign Assistance Act (FAA).

USAID/Guinea recognizes that protection of the environment and wise management of the natural resources base are absolute requirements of any successful development program. Section 117 of the FAA "Environment and Natural Resources", dictates that operating units will implement their programs with an aim toward maintaining (and restoring) natural resources upon which economic growth depends, and to consider the impact of their activities on the environment. The legal requirements of the FAA are reflected in USAID's ADS Chapter 204 "Environmental Procedures", which provides essential procedures and policy on the application of 22 CFR Part 216. This regulation codified the Agency's procedures "to ensure that environmental factors and values are integrated into the A.I.D. decision making process." Further, 22 CFR 216.5 requires USAID operation units to conduct their assistance programs in ways that are sensitive to the protection of endangered or threatened species and their critical habitats.

Section 118 "Tropical Forests" and Section 119 "Endangered Species" of the FAA codify the more specific U.S. interests in forests and biological diversity. These two provisions require that

all country plans include: 1) an analysis of the actions necessary in that country to conserve biological diversity and tropics forests; and 2) the extent to which current or proposed USAID actions meet those needs. Section 118/119 analyses are specific legal requirements of all USAID operating unit strategic plans.

Translating the intent of the above legal requirements into a practical strategic planning approach, the ADS provides a priority-setting framework for missions to use in determining environmental threats and opportunities (see 201.5.8; and Supplementary References, Joint Planning and Guidelines for Strategic Plans, and Technical Annex B Environment, dated February 1995). The priority-setting process is intended to guide the setting of environmental strategic objectives, as well as to inform strategic objectives in other sectors.

B. USAID's Program in Guinea

Under the current Mission Country Strategic Plan (CSP), there is no Environment Strategic Objective (SO). Most environmental activities of the Mission are now conducted through the current multisectoral SO: Advancing Democratic Governance. Additionally, the Program in Environmental Governance for Capacity Building and Biodiversity Conservation (PEGG) and the regional Sustainable and Thriving Environments for West African Regional Development (STEWARD), both managed by the U.S. Forest Service, contribute towards the SO of the Mission. Much of the existing body of knowledge related to environmental conditions and issues in Guinea has been collected under the auspices of STEWARD and previous natural resources management projects led by private contractors. An area of focus of this assessment contract will be the review of STEWARD generated reports and documents as well as previous NRM projects and the identification of gaps in that data.

USAID/Guinea's current focus areas include:

Governing Justly and Democratically

USAID is working in Guinea to strengthen democratic processes and institutions, fight corruption, help national and local government become more efficient and accountable, and build the capacity of civil society and media. Legislative and presidential elections offer opportunities for Guineans to set their country on a democratic track. In coordination with other donors and Guinean election authorities, USAID assistance enabled the registration of more than 4 million eligible voters using a biometric system. Guinea now has one of the best, most fraud-proof voter registries in West Africa. USAID is also strengthening the National Independent Election Commission's management capacity, promoting civic engagement, training election officials, supporting voter education, especially for women and youth, and encouraging women candidates. USAID-supported voter education efforts have already reached more than 2 million people.

In governance, USAID focuses on the community. USAID has trained thousands of local government officials, council members, and members of civil society on the decentralization law, participatory budgeting, and anti-corruption methods. Programs have also assisted local governments in raising their own revenue and publishing budgets and accounts. As a result, citizen participation in local governance has increased significantly, leading in some cases to corrupt councilors being voted out of office and corrupt practices sanctioned.

Investing in People: Health

USAID seeks to improve health service delivery to reduce maternal and child mortality, increase contraceptive use, and maintain a low HIV/AIDS prevalence—which is now only 1.5 percent. To keep the HIV/AIDS rate from rising, USAID supported 26 centers that have tested and counseled more than 52,000 people. Three hospitals now provide USAID-supported obstetric fistula care, and more than 300 women were successfully treated for fistula in 2009. In addition, USAID helped fund measles vaccination and distribution of vitamin A supplements and de-worming medicine for approximately 2 million children. As a result of USAID support, 532 health centers now offer family planning services; 429 USAID-trained workers provide family planning supplies and services to hard-to-reach communities; and over 1 million contraceptives have been distributed to health facilities. USAID-assisted locations now have an estimated contraceptive prevalence rate of 13 percent—versus the national average of 6 percent.

Economic Growth

Subsistence farmers make up 90 percent of Guinea's rural population. However, many of these small farmers use practices that neither conserve resources nor meet their families' food and income requirements. USAID's goal is to increase farmers' access to and use of improved agricultural technologies, market information, and land management practices to boost their productivity and incomes. In addition, USAID is working to increase farmers' participation in the decision-making processes that affect their natural resource base, agricultural production, and livelihoods. In 2009, USAID assistance led to improved incomes and nutrition for 7,775 vulnerable rural households.

III. Statement of Work

The Assessment Team shall perform the following activities:

1. Pre-travel informational meetings and information gathering. Prior to traveling to the field, the Assessment Team Leader is expected to:
 - a. Hold meetings with the Guinea Mission Technical Team Lead and Africa Bureau Environmental backstop in the USAID/Washington bureau to ensure full understanding of USAID environmental procedures, the role of the mission in environmental compliance, and purpose of this assignment. These meetings may be held remotely or in person.
 - b. Gather and get acquainted with existing background information on Guinea, such as the country's natural resources, geographical, ecological and biological specificities, current status of environment and biodiversity, institutional organization on entity and state level, key stakeholders and donors in environment, tropical forestry and biodiversity, legislation related to the environment, climate change, forestry and biodiversity, and other relevant information required for the country assessment.
 - c. Meet or speak with key stakeholders or managers at the World Bank, USDA Forest Service, and other organizations involved in biodiversity conservation in Guinea or relevant regional efforts. A List of suggested contacts will be provided.
2. Coordinate a team to conduct an overview and general analysis of the country's biodiversity, tropical forests and current status. Upon arriving in Guinea the team will:

- a. Meet with USAID/Guinea staff to get a solid understanding of Mission program goals and objectives under its proposed updated strategy; perspectives of this assignment and specific interests for the team, including advice and protocol on approaching USAID partners and host country organizations with respect to this assignment. The team shall be aware of sensitivities related to an assessment exercise (i.e., the potential for raising expectations, and the need to be clear about the purpose of the assessment) and respect Mission guidance. The team will discuss organizations to be contacted and any planned site visits with the Mission and coordinate as required.
 - b. Hold meetings with donor organizations, universities, NGOs, Community-based Organizations (CBOs) relevant government agencies, and other international or global organizations that are knowledgeable about biodiversity and tropical forestry conservation or are implementing noteworthy projects and gather information locally.
 - c. Conduct no more than two priority site visits, which would supplement understanding of USAID's programs, or of biodiversity, tropical forests, and environmental issues that arise in interviews and literature, or would confirm information in previous assessments. Site visit locations will be determined in consultation with core technical staff members from the Technical Team prior to the assessment team's arrival.
3. Prepare a report on the status of biodiversity, tropical forests and conservation efforts in Guinea and potential implications for USAID or other donor programming and environmental monitoring which shall define the actions necessary for conservation. The report shall include:
- a. The current status of biodiversity, tropical forests, and natural resources in general in Guinea based on current and available information.
 - b. Major ecosystem types, highlighting important, unique aspects of the country's biodiversity, including important endemic species and their habitats.
 - c. Descriptions of natural areas of critical importance to biodiversity conservation, such as forests, wetlands, and coastal areas critical for species reproduction, feeding or migration, if relevant. Particular attention should be given to critical environmental services and noncommercial services they provide (watershed protection, erosion control, soil, fuel wood, water conservation and amenity and recreation). It will also summarize how current land tenure arrangements affect conservation in Guinea.
 - d. An overview table and map of the status and management of protected area systems in Guinea including: an inventory of all declared and proposed areas (national parks, wildlife reserves and refuges, forest reserves, marine reserves, sanctuaries, hunting preserves and other protected areas) including marine and coastal areas. The inventory will identify the institution responsible for the protection and management of each decreed area, its date of establishment, area, and the protection status of each (i.e., staff in place, management plan published, etc.). In addition to this summary of the current protection and management status of each park, an overview of the major threats and challenges facing protected areas in Guinea, including vulnerability of areas to predicted changes in climate, and a brief summary of any recognized economic potential of these areas (including productive assets, environmental services and recreation and tourism opportunities) should be provided.
 - e. Descriptions of plant and animal species that are endangered or threatened with extinction. Endangered species of particular social, economic or environmental

- importance should be highlighted and described, as should their habitats. Technical information resources such as the IUCN red list and their websites should be referenced for future Mission access as required. This section should not emphasize species counts, but look at the relation of endangered species and important habitat conservation areas and issues, and evaluate the pressures on those areas, including vulnerability to predicted changes in climate, and current efforts to mitigate pressures, including the participation and compliance with CITES and other international efforts. Particular attention should be paid to vulnerability to predicted changes in climate, both terrestrially and in marine environments.
- f. Recent, current, and potential *primary* threats to biodiversity, whether they are ecological (i.e., fire, pests), related to human use (i.e., agriculture, contamination, extraction), or institutional (i.e., inappropriate policies) or transboundary issues, as appropriate. These should emerge from a general assessment of national policies and strategies and their effectiveness, issues related to institutional capacity, trade, private sector growth, participation in international treaties, and the role of civil society in the protection of biodiversity and environmental advocacy.
 - g. Conservation efforts, their scope and effectiveness. This section also should include recent, current, and planned activities by donor organizations that support biodiversity and tropical forestry conservation, identification of multilateral organizations, NGOs, universities, and other local organizations involved in conservation, and a general description of responsible government agencies. A general assessment of the effectiveness of these policies, institutions, and activities to achieve biodiversity conservation should be included. Priority conservation needs that lack donor or local support should be highlighted.
 - h. Analysis of the current legislation related to the environment and biodiversity. This section should include identification of laws related to protection and management of biological resources and endangered species. It should also point out any differences in laws that require further harmonization. This section should also review international treaties signed and ratified, as well as those that Guinea needs to sign in order to conserve and manage its biological resources more efficiently (if applicable).
 - i. An overview of the major biodiversity and tropical forest conservation activities of the commercial private sector to identify ways to better foster private sector alliances. Of interest are the norms and standards followed by those commercial entities most engaged in management and use of Guinean forests and tracts near protected areas. Consideration of policies promoted by the Minister of Environment, Minister of Agriculture, the Minister of Economy, the Minister of Planning and other key relevant governmental ministries should also be included.
 - j. An assessment of how USAID's current programs and proposed country strategy (based on the CDCS draft as it stands at the time of the assessment) meets the needs for biodiversity and tropical forestry conservation. This should include potential opportunities for USAID to contribute to biodiversity and tropical forestry conservation, consistent with Mission program goals and objectives, through strategic objectives other than environment. The assessment shall include recommendations on where U.S. comparative advantages and capabilities are likely to have the greatest impact. These issues and recommendations should be prioritized to identify those

- requiring the most immediate attention and based on the level of influence USAID can exert.
- k. An analysis of threats posed by climate change, with a particular focus on when and how USAID Development Objective (DO) teams can productively integrate understanding of climate change impacts into their programs by incorporating mitigation and adaptation needs and opportunities. The analysis should address how climate change may exacerbate other stressors, if and when climate change will threaten USAID investments in key sectors such as health, and strategies USAID programs could employ to productively incorporate mitigation and adaptation concerns into programming outside the environment sector.

On the basis of the lessons learned summarized below, USAID envisions that the assessment team should expend only 20-40 percent of its effort on the baseline environmental components of the assessment (Sections 1 and 2 and sub-elements A-I of Section 3 in the above Scope). These components should be kept brief and can draw from the 118/119 previously completed, as well as the very wide range of existing syntheses.

The remaining 60-80 percent of effort should be devoted to sub-elements J and K of Section 3. These two components are the most relevant to the CDCS process the ETOA Assessment is meant to inform and should therefore constitute the primary focus area of the assessment.

In conducting its assessment, the Assessment Team shall seek to answer the following key questions:

1. What would be the benefits of actions identified as necessary to conserve biological diversity offer in regard to key development sectors and indicators such as economic growth, human health, and employment?
2. What specific actions can USAID undertake across sectors to better protect biodiversity while at the same time improving (or at least not prejudicing) the overall development impact of the investment?
3. What specific actions can USAID undertake across sectors to better address projected climate change impacts and/or reduce associated greenhouse gas emissions while at the same time improving (or least not prejudicing) the overall development impact of the investment?

Additionally, the Assessment Team should bear in mind the following lessons learned:

- a. In the past, some assessment teams have dwelt primarily on conveying purely geographic and biological environment information (e.g., endemism, protected area coverage, or species representation); however, the most effective data in assisting USAID to better understand and improve its conservation role is most often economic indicators (e.g., ecotourism employments, natural product sales or trade, and especially effects on human health) or civil society parameters. In a country like Guinea, where purely biological information is available, a complementary focus on the benefits of addressing conservation and climate concerns becomes particularly relevant.
- b. While some degree of focus on environmental background information is necessary and useful, the assessment should pay particular attention to a careful determination and

analysis of USAID’s own program strategy. Prior 118/119 experience has indicated that spending too much time on the collection of ecological information can be detrimental if it comes at the expense of working closely with each DO team to understand their programs and identify concrete interventions.

- c. The importance of providing constructive, program specific recommendations cannot be overstated. Boiling down the assessment team findings to the very specific conclusions and recommendations that are directly relevant to each DO team is critical for ensuring the assessment will have at least the potential to lead to concrete programmatic actions.

Finally, if any perceived areas of concern related to USAID’s program and its contribution or impact arise during the assessment, the USDA Forest Service shall provide views and suggestions directly to the Technical Team Leader or his/her designee(s) in a separate briefing.

IV. Timing, Staffing and Illustrative Level of Effort

The ETOA Study will be carried out to inform the USAID/Guinea CDCS. USAID anticipates that the entire assessment can be completed in approximately five weeks by a team of four members. The team of consultants will work under the technical direction of the USAID/Guinea Technical Team Leader.

The team leader shall have USAID experience, with hands-on experience conducting assessments and be familiar with USAID environmental regulations and strategic planning processes. The team leader will have a post-graduate degree in biology, zoology, forestry, or closely related field in natural resource management with preference for someone with a background in tropical biodiversity and natural resource conservation. Additionally, the team leader should have knowledge of USAID Strategic Planning processes related to Environmental Threats and Opportunities Assessments including knowledge of 22 CFR 216 and of FAA Sections 117, 118, and 119. Experience in sub-Saharan Africa and experience in West Africa and Guinea is preferred.

The local technical team members should have a combination of skills and knowledge in biodiversity, natural resources management, institutional development, policy, and economics, in order to address issues affecting Guinea.

The USFS/IP Program Manager, Adam Welti, will accompany the team to maintain synergies with PEGG and provide additional support to the ETOA process. Mr. Welti’s travel and salary will be covered by USFS/IP as an in-kind contribution to the ETOA.

With a performance period of June 1-August 31, 2012, the assessment process should broadly adhere to the following timeline and approximate levels of effort:

Component	Time-frame	Approximate LOE	Responsible Team Member(s)
Desk analysis and itinerary establishment	June 18 – June 29	5 person days	Team leader, local consultants, IP Program Manager
Field visits and USAID interviews	July 1 – July 18	60 person days	Team Leader: 15 person days Local Consultants: 30 person days IP Program Manager: 15 person days

Report preparation	July 18 – July 31	10 person days	Team Leader with support (remote if necessary) from the local consultant and IP Program Manager
Report revision following USAID review	August 20 – August 25	5 person days	Team leader with support from the local consultants and IP Program Manager
		Total approx. LOE: 65 person days	

V. Relationships and Responsibilities

The USDA Forest Service shall report to USAID/Guinea. USAID/Guinea’s Environment office will serve as a resource group and will be actively involved in the compilation of the report. The USDA Forest Service will be responsible for identifying and obtaining the majority of the reference materials needed for this study with only minimal interventions on the part of USAID/Guinea. However, USAID staff will be available to assist with certain elements of the assessment, including in particular coordinating field visits; interviews with USAID staff; and helping answer the key questions identified in the Statement of Work.

VI. Deliverables

There shall be five deliverables under this Scope of Work:

1. To ensure that USAID programming (both current and planned) is adequately understood by the Assessment Team, as well as to engender Mission buy-in, the Assessment Team Leader shall meet with the USAID/Guinea Technical Team on at least two occasions. The Assessment Team shall also meet with the Mission Director on at least one occasion, aside from the exit briefing. A preliminary work plan will be developed jointly with the USFS team lead and critical inputs from USAID colleagues and other team members within three working days of arrival.
2. Draft Report: The USDA Forest Service shall submit a draft report to USAID no later than one week after the end of the mission. The report shall not exceed forty pages in English, excluding suitable annexes and pertinent figures (maps, institutional charts, & tables) and references. Among the expected appendices is a briefly annotated bibliography of the most important current reference materials related to the topic and a contact list for each of the organizations discussed in the report.
3. Final Report: The final report is due no later than two weeks after receiving USAID/Guinea’s comments on the first draft report.
4. In-Country Mission Exit Briefings: The team shall meet with USAID/Guinea to provide them with a brief of the report findings. The exit brief shall be accompanied by a two-page written executive summary of key findings and recommendations.
5. USAID/Washington De-brief: The Team Leader (or his/her designee if the Team Leader does not have immediate plans to return to Washington) shall provide a de-brief for the Bureau Environment Officer, Environment Policy Advisors and other interested parties.

The USDA Forest Service will furnish electronic version of all submissions in both Word and PDF formats. In addition, a PDF version of the approved final report should be sent to the Development Exchange Clearinghouse.

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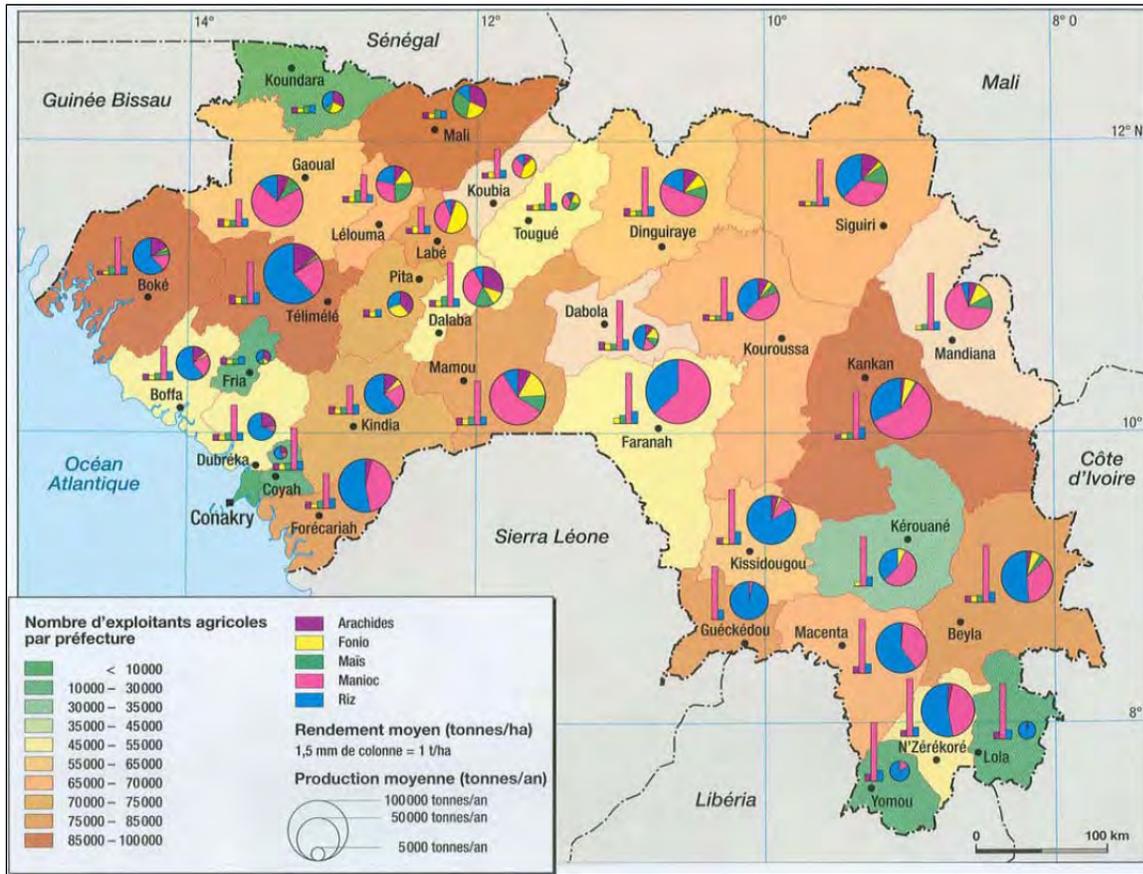
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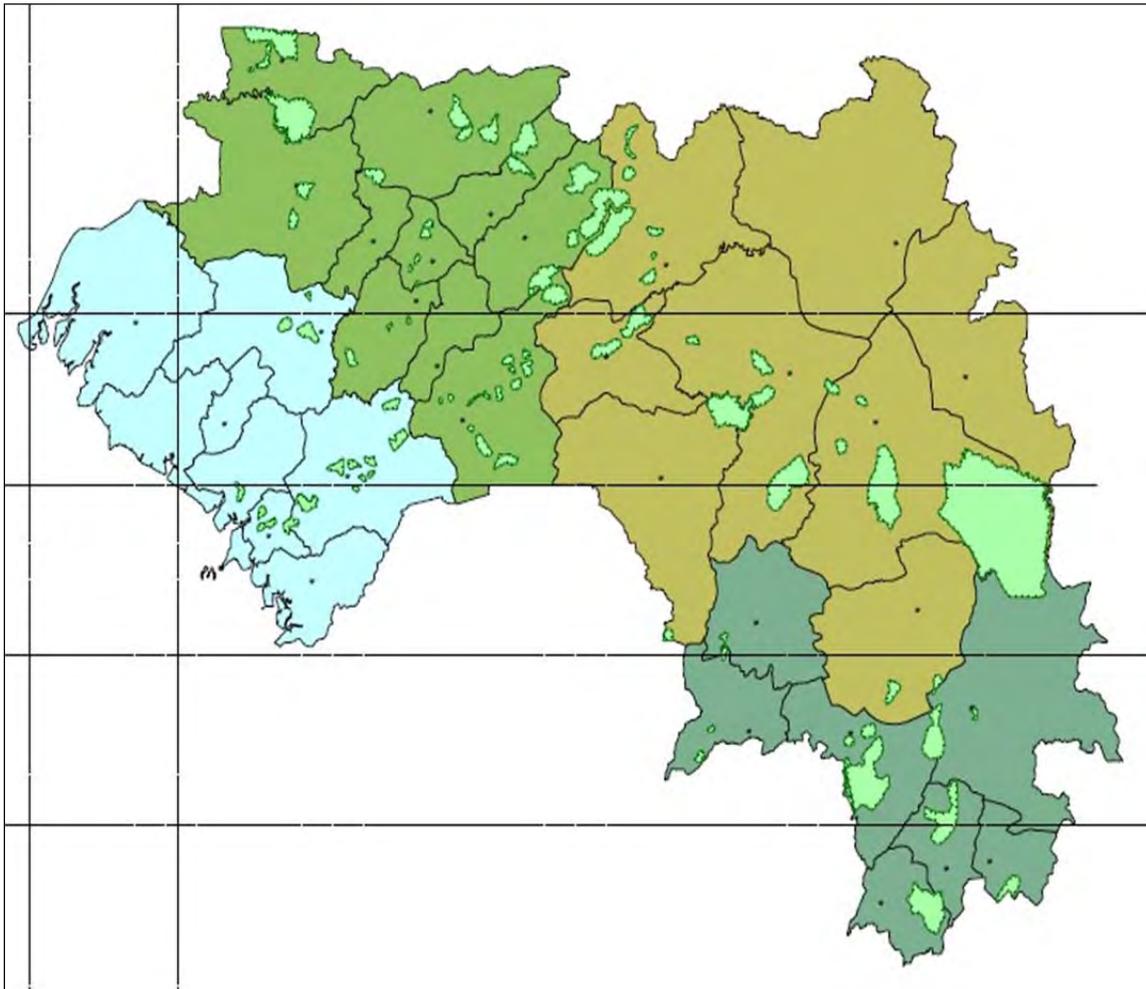
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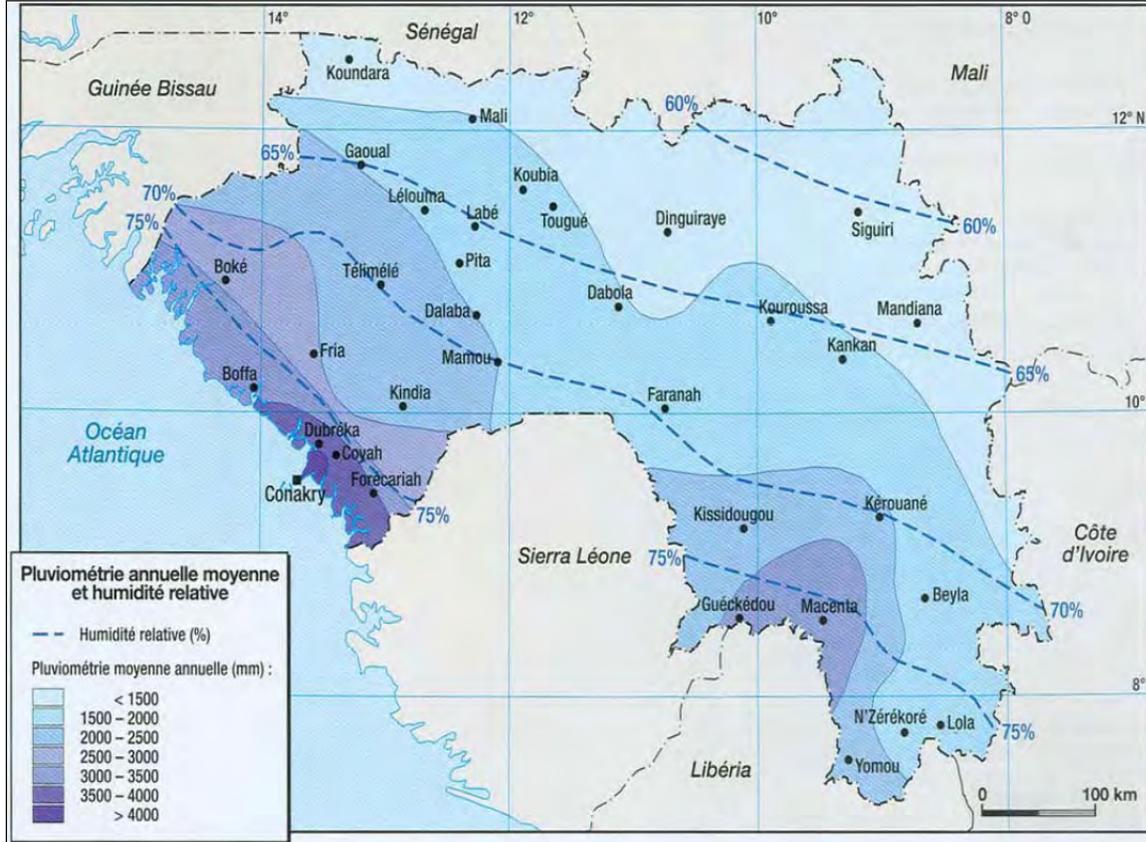
ANNEX D - MAPS



Map A. Agriculture production by prefecture.
Source: Atlas Scolaire de la Guinée.

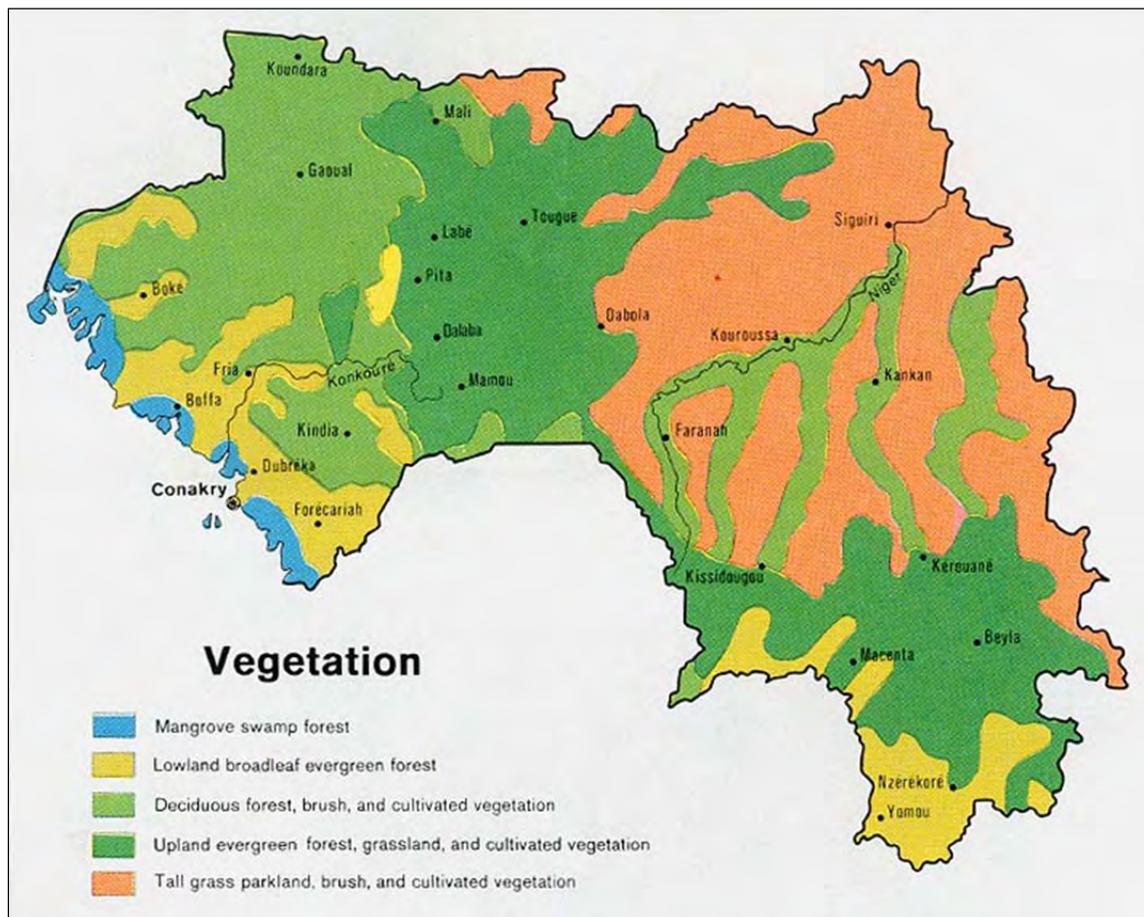


Map B. Location of classified forests within Guinean regions.
Source: IUCN, 2008



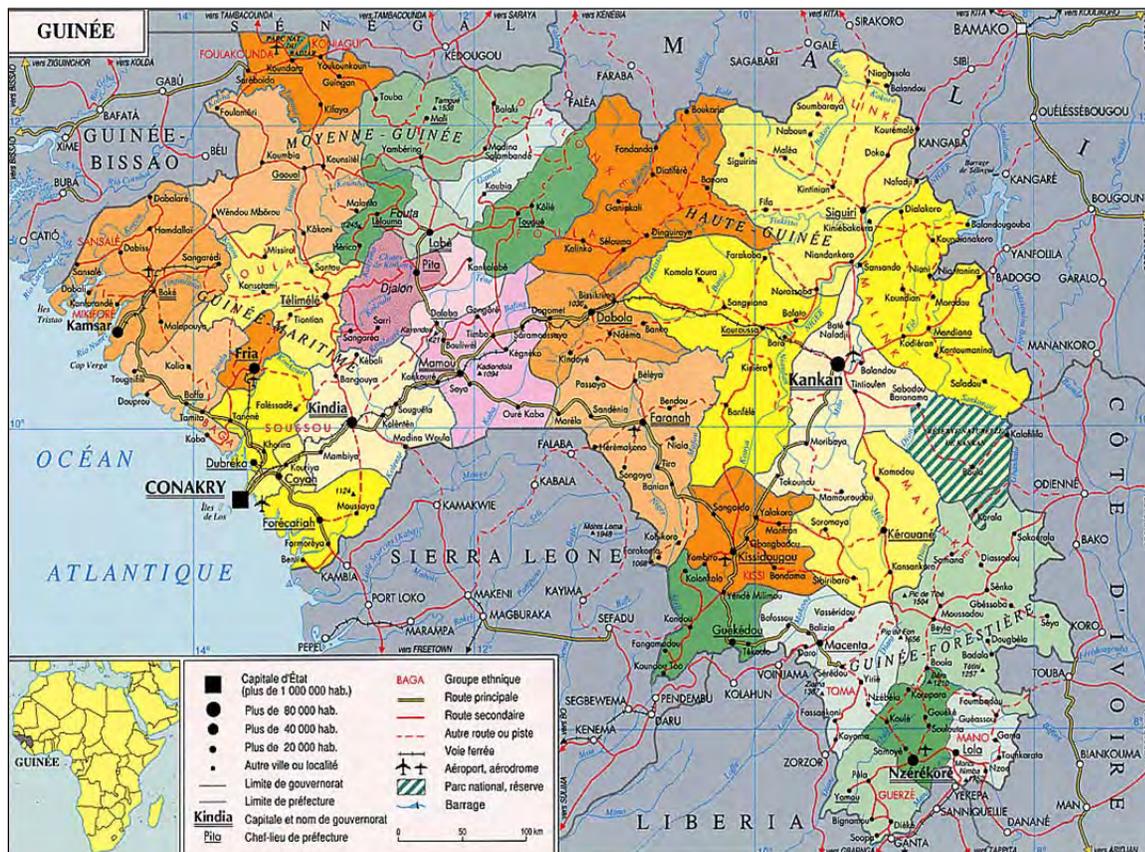
Map C. Annual rainfall zones and relative humidity isohytes.

Source: Atlas Scolaire de la Guinée.



Map D. General vegetation classification.

Source: Univ. of Texas, Perry Castaneda Library Map Collection
http://www.lib.utexas.edu/maps/africa/guinea_veg_1973.jpg, 2012



Map E. Prefecture map and water courses within regions.

Source: www.nationsonline.org, 2012



Map F. Prefectures in Guinea by region.
 Source: ESRI ArcWorld, DCW, IGN



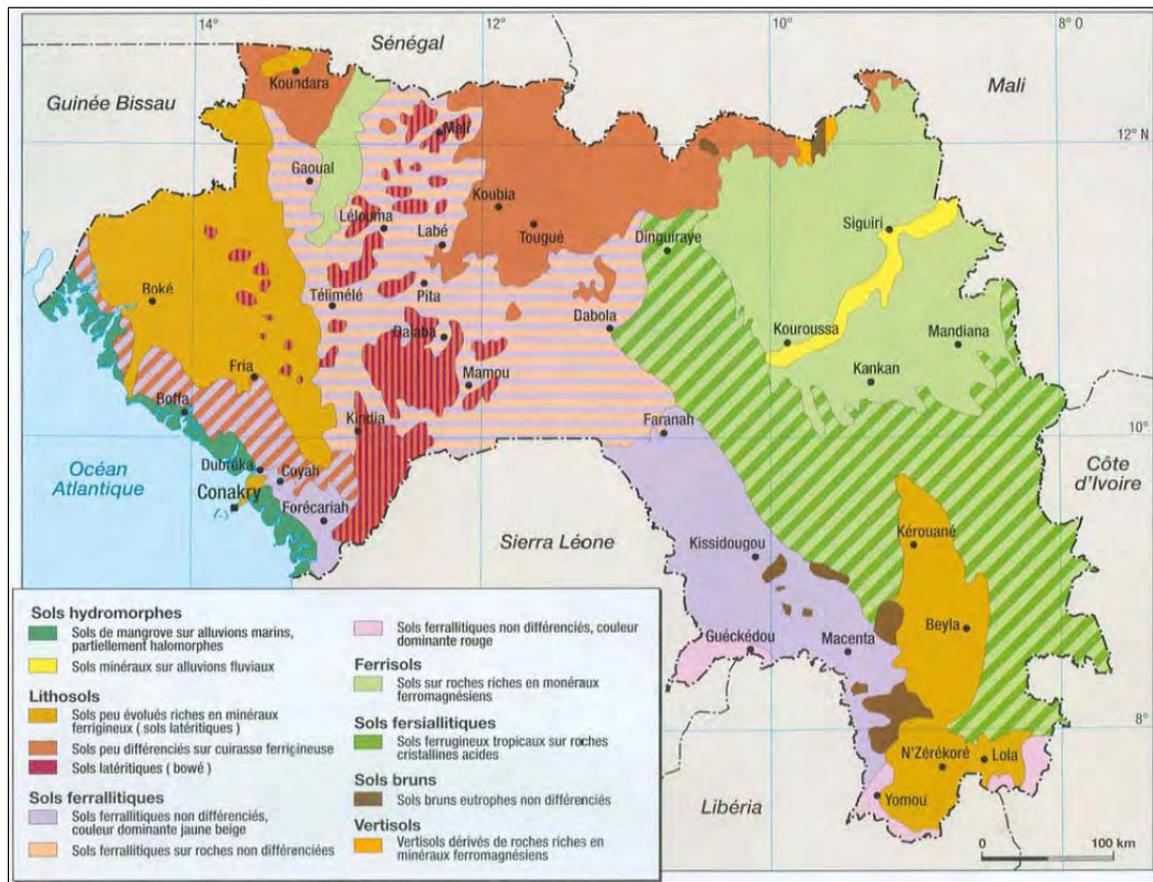
Map G. The Guinean forests of West Africa.

Source: web.biodiversityhotspots.org/xp/Hotspots/west_africa/

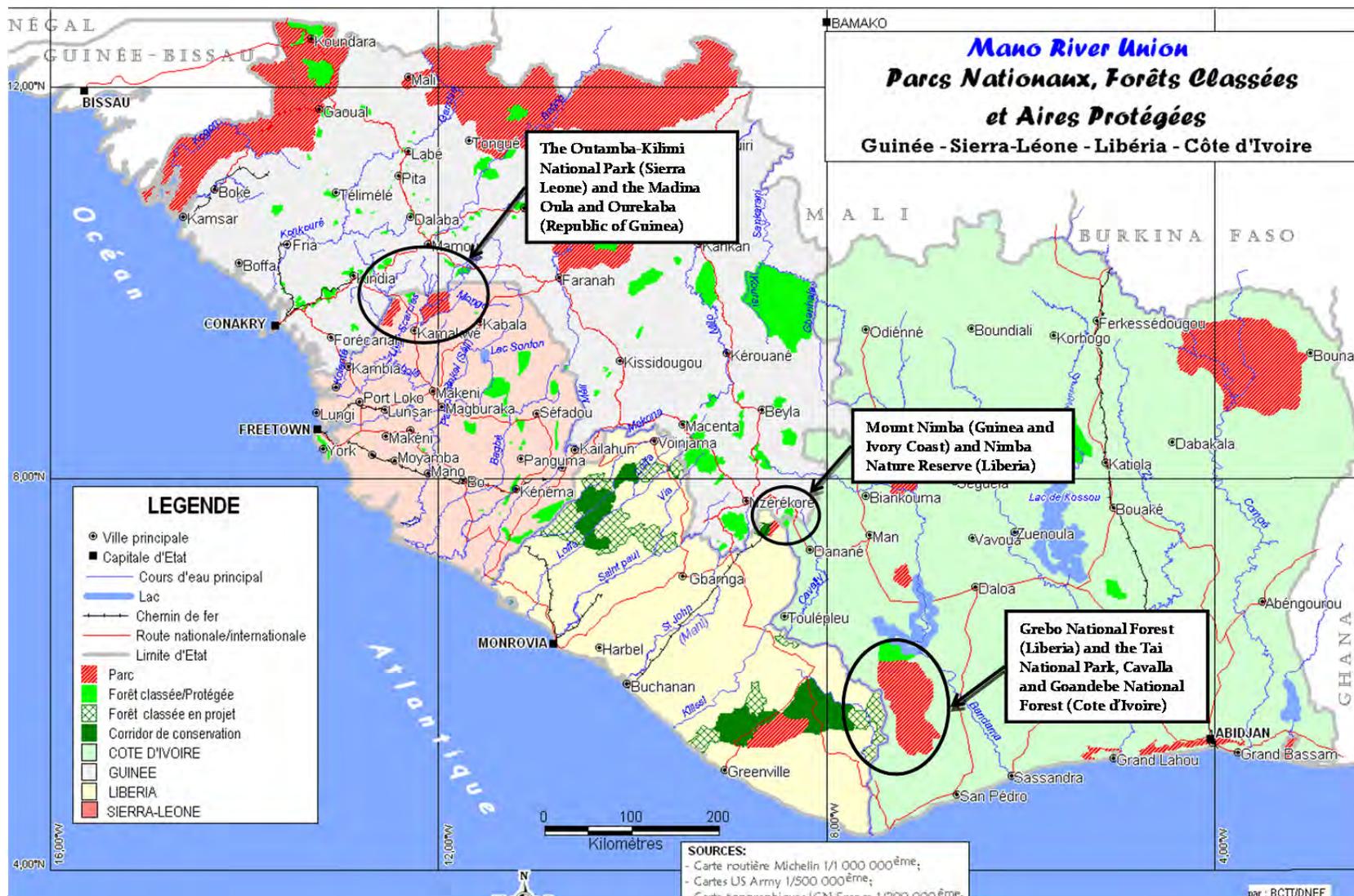


Map H. Ramsar sites in Guinea's coastal zone.

Source: www.birdlife.org



Map I. General soils map.
Source: Atlas Scolaire de la Guinée.



Map J. Steward III priority zones.
Source: Alison, 2011.

ANNEX E - DESCRIPTIONS OF KEY BIODIVERSITY AREAS AND IMPORTANT BIRD AREAS IN GUINEA

(Source: <http://www.birdlife.org>)

1. **KBA/IBA Badiar** (Area : 38200 ha – Latitude: 12.61 – Longitude : -13.31) KBA Code: GN001

Badiar National Park is situated in the north-west of the country, immediately north of the town of Koundara on the international frontier with Senegal, where it is contiguous with Niokolo-Koba National Park (IBA SN016). The park incorporates a mosaic of savanna types and gallery forest. The principal rivers, the Koulountou and the Mitji plus their tributaries are bordered by depressions, some of them extensive, which support savanna grassland and which are occasionally inundated. In the eastern, drier part of the park the habitat is scrub woodland dominated by *Combretum*, *Terminalia* and *Gardenia* spp., *Hymenocardia acida*, *Piliostigma thonningii*, *Burkea africana*, *Parinari* sp., *Bombax costatum*, *Hexalobus* sp. and *Pterocarpus erinaceus*. Bowé are found throughout but are particularly common in the east, where they are often associated with bamboo thickets and dense stands of *Afzelia africana* and *Anthonotha* sp. Wooded savanna and open forest characterize western parts, where the soils are better. The dominant trees are *Pterocarpus erinaceus*, *Afzelia africana*, *Danniellia oliveri*, *Burkea africana*, *Lannea acida* and *Terminalia laxiflora*. There are also patches of *Acacia seyal* on areas of hydromorphic soils, giving a more Sahelian appearance. Palms occur along some of the watercourses while along the Koulountou river there are patches of gallery forest, extremely dense in places. There are a number of permanent wetlands in depressions. The average annual rainfall is 1,000–1,500 mm, mostly falling from June to October.

Badiar National Park was created in 1985. Human pressure on the park is high. There is a sedentary human population within the park, as well as a nomadic one. The resident population clears vegetation in order to grow a variety of subsistence crops. Occupants of villages also hunt for subsistence and for commercial purposes. Transhumant pastoralists bring their herds into the park, particularly during the dry season, in order to get access to the river and its flood-plains. The domestic herds tend to exclude wild mammals from prime grazing areas and also from water sources. Fishermen and palm-wine tappers set up temporary camps along the rivers and live off bush-meat and fish for the period they remain. Excessive tapping is killing many of the palms.

References : Bousquet and Gautier (1994).

Source : <http://www.birdlife.org>

2. **KBA/IBA Nialama** (Area : 12000 ha – Latitude: 11.75 – Longitude : -12.66) - KBA Code: GN002

Nialama is located in the north-west Fouta Djallon, south-west of the town of Linsan, north-west of Lélouma and comprises principally the Nialama (Nyalama) Forest Reserve (10,000 ha), but also includes neighboring parts of the valleys of the Ouésséguélé river and its affluent, the Koundou (Kuundu). The area includes bowé, cliffs and escarpments, hills, a low-lying plain of gently undulating terrain and lowland seasonal swamps. The site is a mosaic of sparse forest, denser gallery forest, open savanna woodland and grassland and patches of bamboo *Oxytenanthera abyssinica*. The dominant forest species are *Parkia biglobosa* and *Pterocarpus*

erinaceus, while *Afzelia africana* and *Elaeis guineensis* are characteristic savanna species. Average annual rainfall is 1,145 mm. The precise limits of the site have yet to be determined.

An enclave of 150 ha has been established in the center of the Forest Reserve which contains two permanent villages. Bush fires, set to clear land for farming, are an annual feature, since at least the time of the gazettelement of the reserve in 1943. Some swamp areas are cultivated for rice production and much of the western part of the forest reserve is under cultivation. The area is also subject to hunting, fishing and the grazing of livestock as well as the collection of various natural products for medicines, food, dyes and building materials. At the end of the 1980s, much timber, particularly *Khaya senegalensis* and *Borassus aethopium*, was extracted from the reserve.

References: Bourque (1996).

Source : <http://www.birdlife.org>

3. **KBA/IBA Chutes de la Sala** (Area : 1000 ha – Latitude: 11.31 – Longitude : -12.51) - KBA Code: GN003

The Chutes de la Sala lies within the Fouta Djallon due west of the town of Labé and includes a small Forest Reserve (568 ha). The area is grassland with scattered trees and shrubs, some dense stands of trees and shrubs, and gallery forest along the watercourses. Much of the reserve lies at around 1,000 m and contains a waterfall where the Kakrima river begins its descent to the lowlands. Precise limits of the site have yet to be determined.

Overgrazing is a threat, although much of the area is protected by its relative inaccessibility.

4. **KBA/IBA Balandougou** (Area : 2800 ha – Latitude: 10.45 – Longitude : -12.58) - KBA Code: GN007

Balandougou Forest Reserve is situated in the south-west of the Fouta Djallon, north-east of the town of Kindia and to the west of Mamou. It is drained by the headwaters of the Konkouré river and some of its tributaries. The habitat is savanna woodland and dry forest, with gallery forest along the watercourses.

It is likely that bush fires and habitat clearance for shifting agriculture are problems

5. **KBA/IBA Mafou** (Area : 208800 ha – Latitude: 10.38 – Longitude : -10.28) - KBA Code: GN008

Mafou site is located in the eastern lowlands, immediately west of the town of Kouroussa. It includes the core area of the Haut Niger National Park, centred on Mafou Forest Reserve, which covers an area of 52,000 ha, together with the surrounding Controlled Hunting Zone, which occupies a further 156,800 ha. Excluded, however, is the larger, encircling buffer zone of a further 392,400 ha. As defined therefore, the site is bounded by the roads linking the towns of Kouroussa, Banféfé, Faranah, N'Déma, Cisséla and Kouroussa. The area is drained by the Niantan river, flowing east from the Fouta Djallon, and by the northward flowing Mafou river from the Guinea Highlands, which unite at the north-east corner of Mafou Forest Reserve to become the Niger. The area is a relatively flat granitic plateau with greater relief provided by some stream valleys. Mafou Forest Reserve is uninhabited, almost untouched savanna woodland

with gallery forest along the larger rivers, other forest patches in depressions and bowé. The closed forests are dominated by *Chlorophora excelsa*, *Erythrophleum guineense*, *Nauclea latifolia*, *N. pobeginii*, *Pterocarpus santalinoides*, *Syzygium guineense* and *Vitex doniana*. The savanna habitat comprises woodland, wooded grassland and grass savanna on laterite. The woodland formations are characterized by the trees *Afrormosia laxiflora*, *Combretum glutinosum*, *Danniellia oliveri*, *Annona senegalensis*, *Pterocarpus erinaceus*, *Lophira lanceolata* and *Uapaca togoensis*. There are also areas of dense *Isoberlinia* (*I. doka* and *I. dalzielli*) woodland. The grasslands are dominated by *Andropogon gayanus*, *Hyparrhenia* spp. and *Imperata cylindrica*. Annual rainfall is between 1,500 and 1,700 mm.

Mafou Forest Reserve was established in 1954 and was incorporated into Haut Niger National Park on its creation in 1997. This core area is entirely unpopulated, probably due to the prevalence of onchocerciasis in the area; population densities in the hunting zone are about 1.1 persons/km². Clearance for agriculture, particularly by burning, in the latter area has degraded the savanna woodland in places. Burning has exerted a selective pressure on the savanna, favouring fire-resistant species.

References : Nikolaus (2000).

6. **KBA/IBA Gangan** (Area : 9000 ha – Latitude: 10.1 – Longitude : -12.88) - KBA Code: GN0010

Gangan Forest Reserve, on the southern edge of the Fouta Djallon, is centred on a steep-sided mountain which dominates the town of Kindia, immediately to the south-east. The habitat is wooded savanna and grassland with remnant patches of forest and some areas of cultivation.

The reserve was gazetted in 1942. Threats include harvesting of wood for fuel and construction, as well as clearance for agriculture.

7. **KBA/IBA Kabitaï** (Area : 4900 ha – Latitude: 9.93 – Longitude : -13.58) - KBA Code: GN0011

Kabitaï (Khabitaye) Forest Reserve is located south-east of the town of Wassou and north of Dubréka on the south-western edge of the Fouta Djallon, some 20 km from the sea and only a short distance from Konkouré (IBA GN013). The habitat is mixed wooded savanna and grassland, although some areas are cultivated.

The reserve was gazetted in 1944. Threats include collection of wood for fuel and construction, and clearance for agriculture.

8. **KBA/IBA Grandes Chutes** (Area: 13400 ha – Latitude: 9.86 – Longitude : -13.11) - KBA Code: GN0012

Grandes Chutes Forest Reserve is situated in the southern Fouta Djallon immediately north of the town of Mambiya, beside the Conakry–Kindia road. The habitat is wooded savanna and grassland and, along the northern boundary of the reserve, a tributary of the River Badi is lined by gallery forest. The terrain is hilly, with some steep slopes and sheer rock-faces.

The reserve was gazetted in 1944. Threats include collection of wood for fuel and construction, and clearance for agriculture. But, mining remains the greatest threats as the reserve is within a mining concession established and exploiting bauxite for the last 30 years.

9. **KBA/IBA Kounoukan** (Area: 5032 ha – Latitude: 9.53 – Longitude : -12.86) - KBA Code: GN0014

Kounoukan Forest Reserve, also known as Kamalayah, is located 90 km south-east of Conakry, north of the town of Moussaya, on the southern tip of the Fouta Djallon. The forest sits on a massif of Devonian sandstone, rising to 1,094 m above the coastal plain. The massif is dissected into several steep-sided plateaus. The vegetation is mainly old-growth (more than 150 years) secondary, closed canopy, semi-evergreen rainforest, mostly confined to the ravines. Representative tree species include *Azelia africana*, *Aningeria altissima*, *Cola gigantea* and *Morus mesozygia*. Savanna woodland occurs on the ridge tops with areas of farmbush on the lower slopes.

The reserve was gazetted in 1994. Firewood-collection is considered to be the most significant threat to the remaining area of forest. Other threats include agricultural encroachment and uncontrolled bush fires. Hunting pressure appears to be relatively low.

References: Barnett et al. (1994), Hayman et al (1995).

10. **KBA/IBA Massif du Ziama** (Area: 116170 ha – Latitude: 8.36 – Longitude: -9.33) - KBA Code: GN0016

The Massif du Ziama Biosphere Reserve forms part of the Guinea Highlands in the south-east of the country, situated 40 km south-east of the town of Macenta and 100 km north-west of Nzérékoré. Part of the western boundary is contiguous with the Wonegizi mountains in Liberia (IBA LR002). Much of the terrain is extremely rugged. The whole area was forested originally, but primary forest now remains only in the remote upland parts of the south-west, next to the Liberian border. Most of the remainder, including the valleys, is now secondary forest, dominated by *Parinari* and *Erythrophleum* spp. There are also areas of swamp and of wooded savanna on lateritic outcrops of the high plateau. The core zone of the reserve covers 60,000 ha, outside of which is a buffer zone. Annual rainfall is in the range 1,700–2,000 mm.

The area was declared a Biosphere Reserve in 1980. A population of 29,000 live in 23 villages in and on the margins of the reserve and in the town of Sérédou, on its eastern edge. The site is administered locally by the Centre Forestier de Sérédou. The reserve is divided into two main management zones, the protection zone (60,000 ha) and the production zone. Timber extraction is permitted in the latter where there is a forestry concession of 30,000 ha, containing a forestry station and chipboard factory. There is also a quinine plantation, processing station and an 8 ha palm grove within the reserve boundaries. Although there is a management plan, it is not known to what extent it is being followed in the exploitation of the production zone, nor whether or how much illegal exploitation is taking place. Encroachment by shifting agriculturalists and by refugees is also a problem.

11. **KBA/IBA Mt Nimba** (Area : 12540 ha – Latitude: 7.7 – Longitude -8.36:) - KBA Code: GN0017

The Nimba massif is located in the extreme south-east of the country, at the point where the international border with Côte d'Ivoire and Liberia meet, some 50 km due east of Nzérékoré. Nimba lies at the eastern end of the Guinea Highlands and rises from the almost flat surrounding plain to 1,752 m at Mont Richard-Molard, which straddles the frontier with Côte d'Ivoire and is the highest point of both countries. The Nimba massif is some 40 km long and the largest and most dramatic part of it is in Guinea. The Nimba mountains are dissected by deep, richly forested valleys with abrupt cliff-faces between plateau, rounded hilltops, rocky peaks and bare granitic blocks. There are three major vegetation-types within the reserve; grassland, forest and wooded savanna. High-altitude grassland with *Loudetia kagerensis* occurs near the summit with woody plants such as *Protea occidentalis* on the slopes. Forest remnants at high altitude are dominated by Myrtaceae, with the tree-fern *Cyathula cylindrica* in ravines. At lower altitudes savanna occurs, interspersed by gallery forests (with *Parinari excelsa*) between 1,000 m and 1,600 m. Primary forest is located mainly on the foothills and in the valleys, with *Triplochiton scleroxylon*, *Chlorophora regia*, *Morus mesozygia*, *Terminalia ivorensis*, *Lophira procera*, *Tarrietia utilis* and *Mapania* spp. among the dominants. Drier, mid-altitude forests are found at the northern end, in which *Piptadeniastrum africanum* and *Parkia bicolor* are conspicuous elements. The whole area constitutes a vast water catchment; mean annual rainfall in the less wet Guinean parts is around 2,000 mm.

The floristic and faunistic importance of Monts Nimba is considerable. Endemic plants include the fern *Asplenium schnellii* and the flowering plants *Blaeria nimbana*, *Osbeckia porteresii* and *Dolichos nimbaensis*. More than 500 species of fauna new to science have been described from specimens collected in the Mount Nimba Reserve. Endemics include an amphibian *Schoutedenella nimbaensis*, known only from the type-locality in Guinea, a viviparous toad *Nimbaphrynoides occidentalis* (EN) and an aquatic insectivore *Micropotamogale lamottei* (EN). Other, non-endemic, mammals of global conservation concern include *Colobus polykomos* (LR/nt), *Procolobus badius* (LR/nt), *Cercopithecus diana* (VU), *Pan troglodytes* (EN), *Hexaprotodon liberiensis* (VU) and *Genetta johnstoni* (DD).

The Nimba mountains in Guinea and Côte d'Ivoire were declared a Strict Nature Reserve in 1944. They form part of a transboundary World Heritage Site, shared with Côte d'Ivoire, that was declared in 1981, and were also created a Biosphere Reserve in 1980. The reserve in Guinea now covers an area of 12,540 ha, following the excision of 1,550 ha in the northern part in 1993 as a result of the effects of prospecting for minerals that took place in the area between 1969 and 1978 and of the potential future exploitation of the extremely rich iron-ore deposits that were found. In 1995, the Guinea government established CEGEN, the center for the management of the Mount Nimba complex. There has probably never been any settlements on the mountains themselves, but there are 10 villages in its immediate vicinity with several thousand inhabitants, mainly growing crops. Some illegal hunting and cultivation occurs within the reserve. As a result, there has been considerable degradation of the lower, northern parts of the reserve, around the edge of which runs the road linking Nzérékoré with Danane in Côte d'Ivoire. The influx of large numbers of refugees from Liberia in the recent past has exacerbated this problem. The main threat to the site as a whole, however, is from mining; not only of those deposits on the Guinean side which have yet to be exploited but also from the recommencement of massive iron-ore mining

operations in the southern part of the mountains in Liberia. Here about 6,000 ha have been drastically affected by the building of roads, wells, mine-shafts, workshops and townships. In particular, the removal of hundreds of square meters of soil over large areas has led to streams throughout the area becoming polluted with heavy-metal-tainted run-off.

References : Bourque (1993), Brosset (1984), Lamotte (1998), République du Guinea (1995), UNESCO (1993), WCMC/IUCN (1986).

12. **KBA/IBA Diécké** (Area : 59000 ha – Latitude: 7.5 – Longitude : -8.91) - KBA Code: GN0018

The Diécké Forest Reserve is situated in the extreme south-east of Guinea, south of Nzérékoré and immediately north of the town of Diécké, close to the Liberian border. It is an area of lowland rainforest near the north-western limit of its distribution. Representative tree species include *Parkia bicolor* and *Piptadeniastrum africanum*. Although parts of the north-east of the reserve have been logged, much of the remainder is mature forest. The reserve also includes areas of swamp-forest dominated by *Raphia* palms, which makes access for commercial timber exploitation difficult or impossible in places. Annual rainfall is in the range 1,900–2,000 mm.

The frog *Phrynobatrachus tokba* is known only from its type-locality, close to Diécké. Fauna of conservation concern include the crocodile *Osteolaemis tetraspis* (VU) and the mammals *Cercopithecus diana* (VU), *Procolobus badius* (LR/nt), *Colobus polykomos* (LR/nt), *Cercocebus atys* (LR/nt), *Pan troglodytes* (EN), *Cephalophus dorsalis* (LR/nt), *C. jentinki* (VU), *C. niger* (LR/nt), *C. sylvicultor* (LR/nt), *C. zebra* (VU), *Neotragus pygmaeus* (LR/nt), *Hexaprotodon liberiensis* (VU), *Hyemoschus aquaticus* (DD), *Tragelaphus euryceros* (LR/nt) and *Hylochoerus meinertzhageni* (VU).

The reserve was gazetted in 1945. Some 5,000 ha in the north-east of the reserve were logged in the 1960s. Farms were then established on this land under the ‘taungya’ system whereby farmers care for tree seedlings alongside their crops for a number of years before leaving the area to become reforested. The area was not, however, returned to forest.

ANNEX F - PROTECTED AREA NETWORK OF GUINEA

	Protected Area	Established	Area (ha)
Terrestrial Ecosystems			
1	Badiar Biosphere Reserve (N.P. in 1985) includes:	2002	146,600
	Badiar Nord Classified Forest	1954	38,000
	Badiar Sud Classified Forest	1956	8,600
	N'Dama Classified Forest	1956	67,000
	Buffer Zone 1 and 2	--	32,800
2	Haut Niger Biosphere Reserve (N.P. in 1997) includes:	2002	752,200
	Mafou Classified Forest	1954	52,500
	Mafou Peripheral Zone	--	597,600
	Kouya Classified Forest	1952	67,400
	Amana Classified Forest	1952	19,800
	Tamba Classified Forest	1945	15,000
3	Ziama Biosphere Reserve (Classified Forest in 1943)	1980	112,300
4	Mount Nima Biosphere Reserve (Strict N.R. in 1943)	1980	13,000
5	Kakoulima Classified Forest (and Dubreka Zoo)	2006	150
6	Kankan-Folonigbè Wildlife Reserve	1926	255,000
7	Bafing-Falémé Transboundary Area (with Mali; 2,666,000 ha total) incl:	2006	1,777,333
	Kabela Classified Forest	1955	3,920
	Dokoro Classified Forest	1943	7,800
	Boula Classified Forest	1955	27,500
	Woundou Nord Classified Forest	1952	28,168
	Woindou Sud Classified Forest	1952	9,400
	Bakoum Classified Forest	1955	28,000
	Gambia Classified Forest	1955	15,500
	Gombo Classified Forest	1966	12,580
8	Rio Cogon, Korubal & Nunez Transboundary Area (with Guinea Bissau; 1,700,000 ha total)	2006	800,000
9	Kounounkan Natural Reserve (former Classified Forest)	1994	5,032
10	Forokonia Natural Reserve (former Classified Forest and source of the Niger River)	1945	4,770
11	Pinséli Natural Reserve	1945	13,000
13	Manden Woula - Warandogoba Natural Reserve	2006	136,000
14	Somoria Chimpanzee Reserve	1996	N/A

15	Bissikrima Fauna Reserve (incl. Balayan-Souroumba Classified Forest, est. 1952)	2006	50,000
16	Reserve of Maritime Guinea	2006	200
17	Middle Guinea Reserve	2006	200
18	Reserve of Upper Guinea	2006	200
19	Reserve of Forested Guinea	2006	200
20	Reserve of Gbinia and Banan incl:	2006	
	Classified Forest of Gbinia	1945	6,175
	Classified Forest of Mount Banan	1952	990
21	Diwassi - Boula – Baranama Private Reserve in Kankan	2003	104,000
Coastal, Marine & Island Ecosystems and Wetlands of International Importance/Ramsar Sites			
22	Tristao Islands	1992	85,000
23	Alcatraz Island	2003	1
24	Delta du Konkouré	1992	90
25	Rio Pongo	1992	30,000
26	Rio Kapatchez	1992	20,000
27	Iles de Loos Wildlife Sanctuary incl:	1992	57.80
	Ile Blanche Ramsar Site	1992	13.40
	Ile Corail Ramsar Site	1992	3.75
	Ile Cabri Ramsar Site	1992	0.65
Protected Freshwater Ecosystems/Ramsar Sites			
28	<< Missing, & may be a Coastal site?>>		
29	Niger - Tinkisso Ramsar Site	2002	400,600
30	Niger - Niandan - Milo Ramsar Site (including the Baro, Kouya, and Kourani-Ouéleté Classified Forests)	2002	1,046,400
31	Niger – Mafou Ramsar Site (incl. the Mafou and Amana Classified Forests)	2002	1,015,450
32	Tinkisso Ramsar Site (incl. the Sincéri, Balayan, Nono and Tamba Classified Forests)	2002	896,000
33	Sankarani - Fié Ramsar Site (incl. part of the Kankan Wildlife Reserve)	2002	1,015,200
34	Niger Source Ramsar Site (includes the Forokonia Classified Forest)	2002	180,400
35	Gambie - Koulountou Ramsar Site	2005	281,400
36	Gambie - Oundou-Liti Ramsar Site	2005	527,400
37	Kinkon Falls Wetland (including Kikon's Falls Classified Forest)	2006	320
38	Grandes Chutes Wetland	1944	13,500

39	Garafiri's Dam Wetland	2006	TBD
40	Tinkisso Falls Wetland (incl Tinkisso Classified Forest)	1945	1,100
Other Sites of Significance			
41	Mount Béro Classified Forest (included in the Mount Nimba complex)	1952	23,600
42	Gban Classified Forest	N/A	500
43	Pic de Fon Classified Forest	1953	25,600
44	Diécké Classified Forest	1945	64,000
45	Nyalama Classified Forest	N/A	N/A
46	Ecological Hills of Diécké	N/A	N/A
47	Botanical Gardens and Arboretum	N/A	N/A

ANNEX G - INTERNATIONAL ENVIRONMENTAL TREATIES AND PROTOCOLS RATIFIED BY GUINEA

	Treaty/Protocol/Agreement	Date
1	African Convention on the Conservation of Nature and Natural Resources, Algier	1969
2	Convention sur la mise en valeur du fleuve Gambie	1978
3	Convention sur la conservation des espèces migratrices appartenant à la faune sauvage, Bonn	1979
4	Convention de Paris concernant la protection du patrimoine mondial, culturel et naturel	1979
5	Convention sur le commerce international des espèces de faune et de flore sauvages menacées d'extinction (CITES)	1981
6	Convention relative à la coopération en matière de protection et de mise en valeur du milieu marin de la région de l'Afrique de l'ouest et du centre	1981
7	Convention internationale pour la prévention de la pollution des eaux de la mer par les hydrocarbures et amendements du 11 avril 1962 et du 21 octobre 1969	1981
7	Convention sur l'Autorité du Bassin du Niger et Protocole (ABN)	1982
8	Convention internationale pour la protection des végétaux	1983
9	Convention de Ramsar sur les zones humides d'importance internationale	1992
10	Convention des Nations Unies sur la diversité biologique	1993
11	Convention cadre sur les Changements Climatiques	1994
12	Convention des Nations Unies sur la lutte contre la désertification	1997
13	Accord AEWA sur la conservation des oiseaux d'Afrique et Eurasie	1999
14	Convention africaine sur la conservation de la nature et ses ressources naturelles	2005
15	Convention Cadre des Nations Unies sur les Changements Climatiques	2005
16	Convention de Stockholm sur les polluants organiques persistants (POP)	2005
17	Protocole de Cartagena sur la prévention des risques biotechniques relatif à la convention sur la diversité biologique (signé en 2000)	2005
18	Protocole d'Accord-cadre de coopération entre la République de Guinée et l'Organisation pour la Mise en Valeur du fleuve Sénégal (OMVS)	2006
19	Protocole de Kyoto	2007
20	Convention internationale pour la prévention de la pollution des eaux de la mer par les hydrocarbures et amendements du 11 avril 1962 et du 21 octobre 1969	1981
21	Convention sur les criquets migrateurs	1963
22	Convention sur la protection du patrimoine mondial, culturel et naturel -	1979
23	Convention de Vienne sur la protection de la couche d'ozone - Adhésion de la Guinée	1992
24	Protocole de Montréal sur les substances qui appauvrissent la couche d'ozone	1992
25	Convention de Bâle sur le contrôle des mouvements transfrontières des déchets	1969

	dangereux et de leur élimination - Adhésion de la Guinée	
26	Convention de Bamako relative à l'interdiction d'importer en Afrique des déchets dangereux, au contrôle des mouvements transfrontières et la gestion des déchets dangereux produits en Afrique	1995
27	Convention de Rotterdam sur la procédure de consentement préalable en connaissance de cause applicable à certains produits chimiques et pesticides dangereux qui font l'objet d'un commerce international - Adhésion de la Guinée	1991
28	Convention sur les criquets migrateurs	2001

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