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# ANGOLA BIODIVERSITY AND TROPICAL FORESTS: 118/119 ASSESSMENT



February 2013

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**Cover photo:** *Welwitschia mirabilis*, [Wikimedia Commons](#) and Giant sable antelope, [Angola Field Group](#)

# ANGOLA

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### **AUTHORITY**

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## ACRONYMS

ABC	Brazilian Agency for International Cooperation
ACADIR	Association for Environmental Conservation and Integrated Rural Development
AfDB	African Development Bank
ADPP	People to People Angola
ADRA	Action for Rural Development and Environment Angola
AHEAD	Animal & Human Health for the Environment and Development
APAES	Angolan Protected Area Expansion Strategy
BCLME	Benguela Current Large Marine Ecosystem
CBD	Convention on Biological Diversity
CBJ	Congressional Budget Justification
CDCS	Country Development Cooperation Strategy
CETAC	Center for Tropical Ecology and Climate Change
CI	Conservation International
CITES	Convention on the International Trade in Endangered Species of Wild Flora and Fauna
CTMA	Technical Multisectoral Commission for the Environment
DW	Development Workshop Angola
EIA	Environmental Impact Assessment
ENA	National Environmental Strategy
ENDIAMA	Empresa Nacional de Diamantes E.P
FAA	Foreign Assistance Act
FAO	Food and Agriculture Organization (United Nations)
FSDEA	Fundo Soberano de Angola
GDP	Gross Domestic Product
GEF	Global Environment Facility
GIZ	German Agency for International Cooperation
GoA	Government of Angola
IBA	Important Bird Area
IDF	Institute for Forestry Development (MINADERP)
IDRC	International Development Research Center (Canada)
IPA	Institute of Development of Artisanal Fisheries and Aquaculture
IPAD	Portuguese Institute for Development Support

IUCN	International Union for the Conservation of Nature
JEA	Ecological Youth of Angola
KAZA TFCA	Kavango-Zambezi Transfrontier Conservation Area
KfW	Kreditanstalt für Wiederaufbau
LNG	Liquefied Natural Gas
MARPOL	Convention for the Prevention of Pollution from Ships
MINADERP	Ministry of Agriculture, Rural Development, and Fisheries
MINAMB	Ministry of Environment (formerly MINUA)
MINEA	Ministry of Energy and Water
MINGMI	Ministry of Geology, Mining and Industry
MINPET	Ministry of Petroleum
MoU	Memorandum of Understanding
MPLA	Movimento Popular de Libertação de Angola
NAPA	National Adaptation Program of Action
NGO	Non-governmental organization
NORAD	Norwegian Agency for Development Cooperation
NTFP	Non-Timber Forest Product
OKACOM	Okavango River Basin Water Commission
PEPFAR	President's Emergency Plan for AIDS Relief
PGNA	National Environmental Management Program
REDD	Reducing Emissions from Deforestation and Forest Degradation
SADC	Southern African Development Community
SAREP	Southern African Regional Environmental Program
SONANGOL	National Hydrocarbon Company of Angola
TFCA	Transfrontier Conservation Area
TNC	The Nature Conservancy
UN	United Nations
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
UNFCCC	United Nations Framework Convention on Climate Change
UNITA	União Nacional para a Independência Total de Angola
USAID	U.S. Agency for International Development
USFS	U.S. Forest Service



USFWS

WCS

WWF

U.S. Fish and Wildlife Service

Wildlife Conservation Society

World Wildlife Fund for Nature

## EXECUTIVE SUMMARY

Angola is home to exceptional forest and biodiversity resources, though a full understanding of the biota is constrained by outdated, scarce data. The major threats to biodiversity and tropical forests in Angola include both direct and indirect factors related to:

- Poverty and population growth;
- Habitat conversion and overexploitation of natural resources; and,
- Institutional and management challenges.

Many natural resources are over-exploited, and the environment faces increased degradation from unsustainable agricultural practices, deforestation, grazing, pollution, and a variety of other anthropogenic factors. Desertification and climate change add to the stress, as do poverty and population growth.

Most of Angola's natural resources are not formally protected or suffer from ineffective protection, which can be attributed to a variety of policy, capacity, and governance barriers. Legal and regulatory provisions intended to protect forests and biodiversity are inadequate and seldom respected. Policies and regulations for tapping into economic opportunities such as tourism and biodiversity offsets for furthering conservation objectives are lacking. Knowledge of the high-value biodiversity of Angola and how this can be leveraged to promote both conservation and strengthen livelihoods is not being used in policy-making.

Historically, weak enforcement of conservation regulations has resulted in uncontrolled use of forest and biodiversity resources, due to a lack of technical and operational capacity. Protected areas lack management plans, are easily accessible for illegal activities and the market value of their resources is important. In general, other stakeholders (e.g., NGOs, private sector) are not being mobilized for managing resources, and conflicts over land tenure and access to resources persist. In addition, the human resources and knowledge bases are insufficient for effective protected area management and overall biodiversity conservation.

USAID/Angola currently supports programs in health and governance. There are no environment-specific objectives within USAID/Angola's current Mission Strategy, though a new Country Development Cooperation Strategy (CDCS) has been initiated. The CDCS planning effort presents an important opportunity to integrate environmental emphases within other program areas. Because environment and natural resource issues are often underlying causes for many development challenges, the Mission is urged to support activities that address environmental threats to facilitate sustainable development.

The USAID/Southern Africa Mission activities through the Southern African Regional Environmental Program (SAREP) provide an exemplary model that integrates natural resource conservation with community engagement, improved services such as water and sanitation, and sustainable livelihoods. The USAID/Angola Mission is strongly encouraged to support additional integrated programming efforts that facilitate both development objectives and natural resource conservation. Angola is home to many transboundary natural sources, such as river basins and TFCAs, which present opportunities to build and leverage capacity between countries and other partners.

Mission activities can indirectly ease certain drivers of deforestation, wildlife loss, and natural resources degradation. For instance, improving food security can reduce the dependence of rural

populations on unsustainable coping strategies, such as poaching or overfishing. Continuing efforts to strengthen the agricultural livelihoods of the rural poor reduces the risk of a return to these practices. To the extent that USAID/Angola's democracy and governance activities help stabilize the political context and promote progress towards effective and equitable governance, these activities can also facilitate effective, transparent and accountable environmental management institutions. In the health sector, because people struggling with poor health and nutrition often resort to less sustainable livelihood practices, support targeting specific diseases has reduced the impact of disease on overexploitation of natural resources. USAID/Angola also provides support to family planning activities, a long term indirect driver of environmental degradation. Finally, opportunities exist to integrate education, training, behavior change, awareness, capacity building, and decision-making related to the environment as a complement to other programming results. As the CDCS is being developed and implemented, the continued examination of environmental considerations into programming decisions is strongly encouraged; a list of opportunities and recommendations for USAID/Angola is provided in Table 5. Some suggestions involve relatively minor modifications to incorporate natural resource themes or to prioritize sites near protected areas, while other suggestions may require larger programming shifts and investments to accomplish. In particular, a climate vulnerability and adaptation assessment that meets USAID standards is strongly encouraged, to facilitate programming choices that enhance resilience.



## A. INTRODUCTION

### A1. LEGAL REQUIREMENT

U.S. Agency for International Development (USAID) environmental compliance is directed by U.S. policy and law. Section 118 of the Foreign Assistance Act (FAA) states that each country development strategy statement or other country plan prepared by USAID 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. Section 119 of the FAA relates to endangered species. It states that “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 habits should be an important objective of the United States development assistance”. Furthermore it states, “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”.

USAID/Angola is preparing a new Country Development Cooperation Strategy (CDCS) to guide its bilateral programs in Angola. To inform this process and ensure that USAID investments across its entire bilateral portfolio address Angola’s conservation and sustainability challenges to the maximum productive extent, USAID/Angola has undertaken this Biodiversity and Tropical Forestry Assessment, to update the 118/119 assessments completed in 2006 and 2008. The assessment offers strategic recommendations across sectors, and adheres to the requirements of sections 118(e) and 119(d) of the Foreign Assistance Act of 1961, as amended (FAA) and ADS 201.3.4.1(c) regarding tropical forestry and biodiversity analyses for country strategic plans and other plans prepared by USAID.

Current USAID/Angola focuses on preventing major infectious diseases, strengthening health systems, increasing access to family planning and reproductive health services, and building capacity within non-governmental organizations (NGOs) working in health advocacy and health service delivery. U.S. assistance will also continue to promote stabilization and security sector reform. USAID/Angola programming incorporates two program areas ([CBJ](#) FY2013):

- Peace and Security
  - International Military Education and Training
  - Non-proliferation, Anti-terrorism, De-mining and Related Programs
- Investing in people
  - Global Health Programs
    - President’s Emergency Plan for AIDS Relief (PEPFAR) – prevention, care, and treatment
    - Malaria
    - Maternal and Child Health
    - Family Planning and Reproductive Health

## **A2. PURPOSE AND OBJECTIVES**

The purpose of this assessment is to ensure compliance with Sections 118 and 119 of the FAA, as amended, and to inform USAID/Angola's strategic planning exercise as per the Strategic Framework for Foreign Assistance and country strategy guidelines under ADS 201.3.4.11 and ADS 204.5. The objectives of the assessment are to:

- Assess the current state of biodiversity and forested areas in Angola.
- Identify the root causes of processes and trends that threaten biodiversity and tropical forests.
- Identify the immediate causes for the threats to biodiversity and tropical forests.
- Identify priority actions necessary to better conserve tropical forests and biological diversity in Angola.
- Provide specific recommendation to USAID/Angola about how to incorporate biodiversity and tropical forests conservation actions into its strategic priorities given budget and programmatic constraints.
- Build upon the previous 118/119 analyses while identifying new environmental challenges.
- Assess USAID/Angola's portfolio and suggest areas of possible synergy with other USAID/Angola programming.

## **A3. METHODS**

This desk-based assessment is focused largely on a review of existing information and literature compiled by U.S. Forest Service analyst Beth Hahn, and complemented by staff from the USAID/Angola and USAID/Southern Africa Mission offices. A 118/119 analysis for Angola was conducted in 2006 as part of the 2006-2009 USAID/Angola strategic planning process, followed by an extensive update in 2008 that was produced by a team of specialists and included field verification. This document updates the 2006 and 2008 documents by adding additional insights and suggestions based on recent studies and documents. Unfortunately, the lack of recent quantitative information that compromised the depth of the 2006 and 2008 analyses continues to be a limiting factor for any environmental analysis in Angola, including the development of the National Biodiversity Strategy and Action Plan (MINAMB 2006a).

## B. COUNTRY PROFILE

Angola is located on the west coast of Africa between 4° 22' and 18° 02' south latitude and 11° 41' and 24 ° 05' west longitudes. Angola has a land area of 1,246,700 km<sup>2</sup> across 18 provinces. The province of Cabinda is an exclave, separated from the rest of the country by the Democratic Republic of the Congo. The country is bordered on the north by the Democratic Republic of the Congo and the Republic of Congo, the east by Zambia, the south by Namibia, and the west by the Atlantic Ocean, with a coastline of 1,600 km (Figure 1).

**Figure 1.** Administrative map of Angola (UN)



### B1. PHYSIOGRAPHY

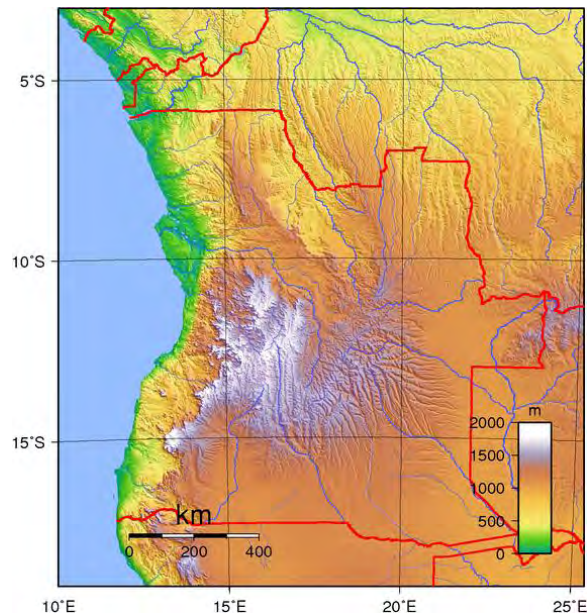
#### *B1a. Climate*

The climate of Angola is strongly influenced by two factors: the South Atlantic high-pressure cell and the cold northward flowing Benguela current. The South Atlantic high-pressure cell limits the southward migration of the inter-tropical convergence zone, while the Benguela current generates a strong temperature inversion along the coast that has a pronounced stabilizing effect on the lower atmosphere. This preempts the upward movement of cloud-forming moist air along the Namibian and southern portions of the Angolan coastline. The result is a gradient of increasing precipitation from south to north and from west to east (Figure 2).





**Figure 3.** Topographic map of Angola ([Wikimedia Commons](#) 2007)



### ***B1c. Topography and Geology***

A low-lying (0-200 m) undulating coastal belt stretches from Cabinda to the southern border with Namibia (Figure 3). This geomorphic unit, composed of sedimentary rocks and weakly consolidated sediments, ranges in width from 200 km south of Luanda to around 10 km between Benguela and Namibe. To the east, a deeply incised strip separates the coastal belt from the interior plateau and mountainous areas. This transitional geomorphic unit—including schists, arkoses, and quartzites—ranges from 200-500 m in altitude and from 60-250 km in width. Geomorphologically, it is composed of sediments in the arid south and residual hills and narrow valleys that gain altitude further inland. In the southern reaches, the transitional belt includes inselbergs and massifs that tower 1,000 m above the regional base level.

An elevation bulge between 1,500 and 2,000 m located in the midwestern section of the country (Figure 3) is known as the “central plateau.” This is a rolling erosional surface underlain mostly by basement complex rocks such as gneiss, granites, and migmatites. Considering southern Africa’s regional hydrology, the central plateau is an extremely important land unit. It hosts the headwaters of the Cunene and Cubango rivers and feeds some of Angola’s principal rivers, such as the Kwanza, Cutato, and Cunhinga. The Cubango is the primary source of water for the Okavango River and its delta in Botswana.

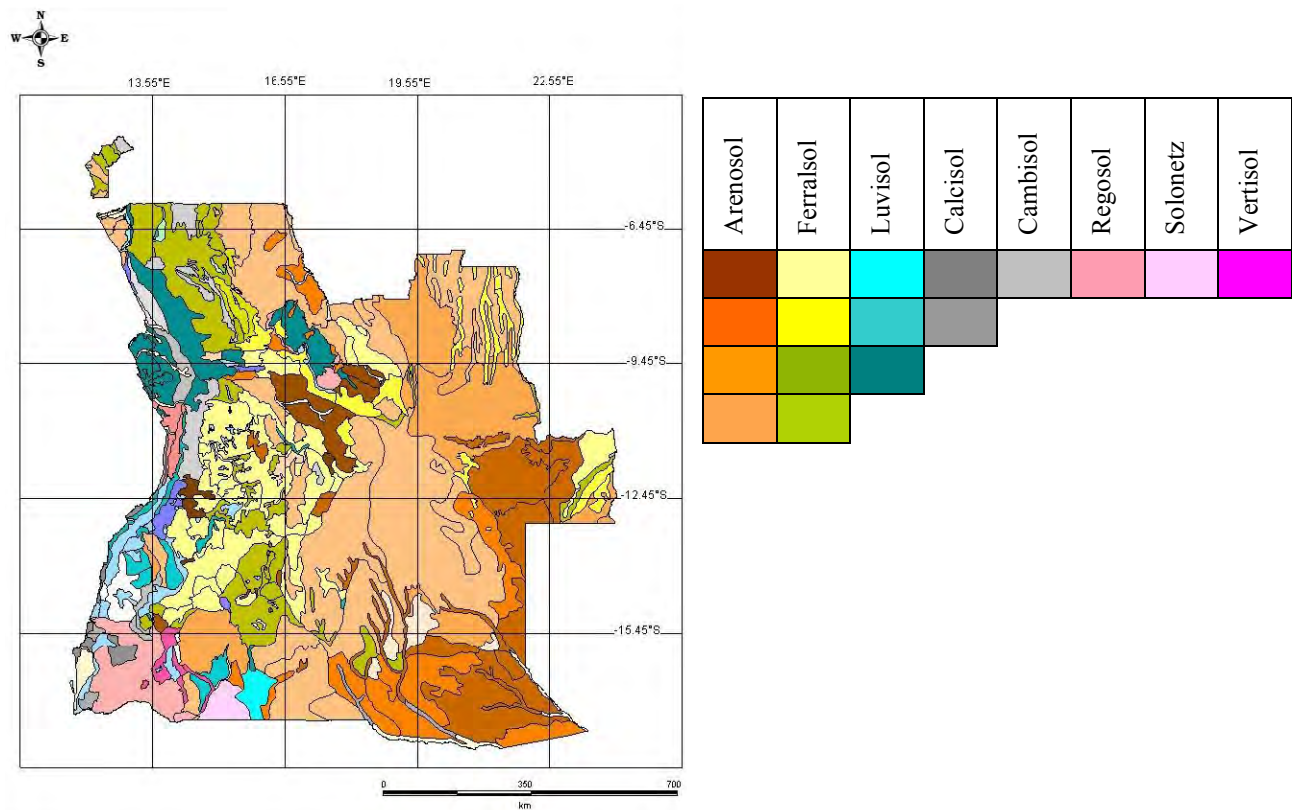
A number of important mountains separate the central plateau from the westerly sloping transitional zone. These elevated points exceed 2,000 m and support afro-montane forests considered to be centers of high biodiversity and endemism, including the highest point in Angola, Mount Moco (2,620 m).

Most of the country east of the coastal areas and the central plateau lies between 1,000 and 1,500 m. These areas are mostly undulating and covered by medium- to coarse-textured sediments associated with the Kalahari system.

## B1d. Soils

Angola hosts significant soil variety (Figure 4). The two dominant soil groups are Arenosols and Ferrasols. Arenosols dominate the eastern two-thirds of the country, where the parent material consists of coarse-textured sediments. Ferrasols occupy large portions of the western highlands and adjacent areas. These two infertile soil groups cover more than 80 percent of Angola's surface. Other important soil types include Luvisols, Calcisols, and Cambisols. The Luvisols are common in the northeastern hills and adjacent slopes where coffee cultivation used to be an important activity during colonial times. This area is now covered by dense forests that support a healthy population of small antelopes and avian fauna. Because of its relatively high agricultural potential, the opportunity cost of conservation in these fertile areas is higher than in areas dominated by Arenosols, where cultivation is a marginal activity at best.

**Figure 4.** Generalized soils map of Angola (FAO 1997)



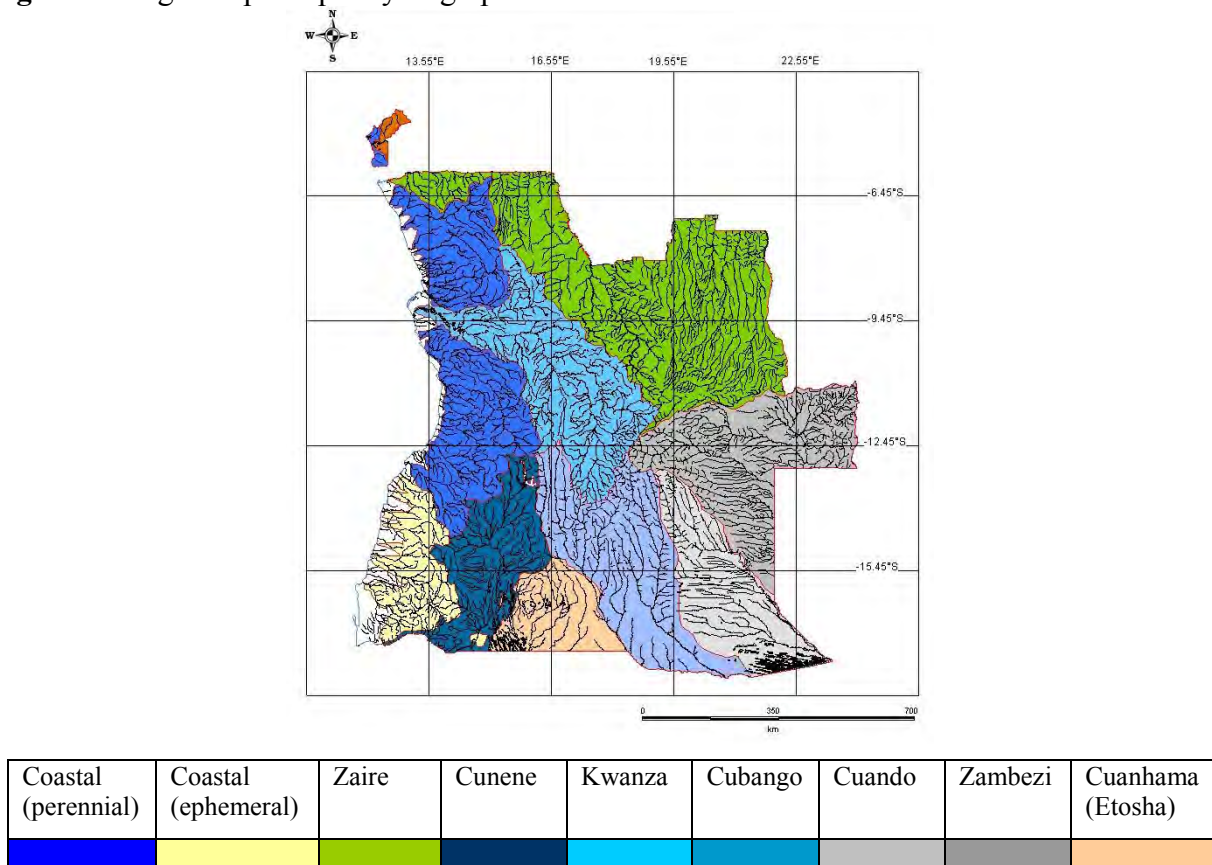
## B1e. Hydrography

Excluding Cabinda province, Angola can be subdivided into nine large hydrographic basins (Figure 5):

- |                                |                             |
|--------------------------------|-----------------------------|
| 1) Perennial coastal system    | 2) Ephemeral coastal system |
| 3) Zaire system                | 4) Cunene system            |
| 5) Kwanza system               | 6) Cubango system           |
| 7) Cuando system               | 8) Zambezi system           |
| 9) Cuanhama, or Etosha, system |                             |

Angola's management of its hydrographic basins is of utmost importance to neighboring countries, and the entire Southern Africa region, for two primary reasons. First, seven of Angola's nine major hydrographic basins are transnational. Of these, four originate in Angola (Cunene, Cubango, Cuando, and Cuanhama). Furthermore, the Cunene, Cubango, and Cuando rivers flow into two arid countries, Namibia and Botswana. The Cuanhama system is an enclosed basin that feeds into Namibia's Etosha pan system, one of the most important wildlife conservation areas in Southern Africa. Second, from a hydrologic viewpoint, the central plateau is critical to the water supply of neighboring countries. The headwaters of three major rivers—Kwanza, Cunene, and Cubango—originate there, with the majority of secondary rivers that make up the coastal drainage systems. The economic well-being of millions of people in the region depends on how these watersheds are managed. This is both an opportunity for collaboration and a potential source of regional conflict.

**Figure 5.** Angola's principal hydrographic basins



## ***B1f. Vegetation***

There are no reliable data on vegetation cover in Angola. No comprehensive post-war vegetation assessment exists, though IDF has begun a satellite-based assessment of forest cover; the numbers provided here are only indicative.

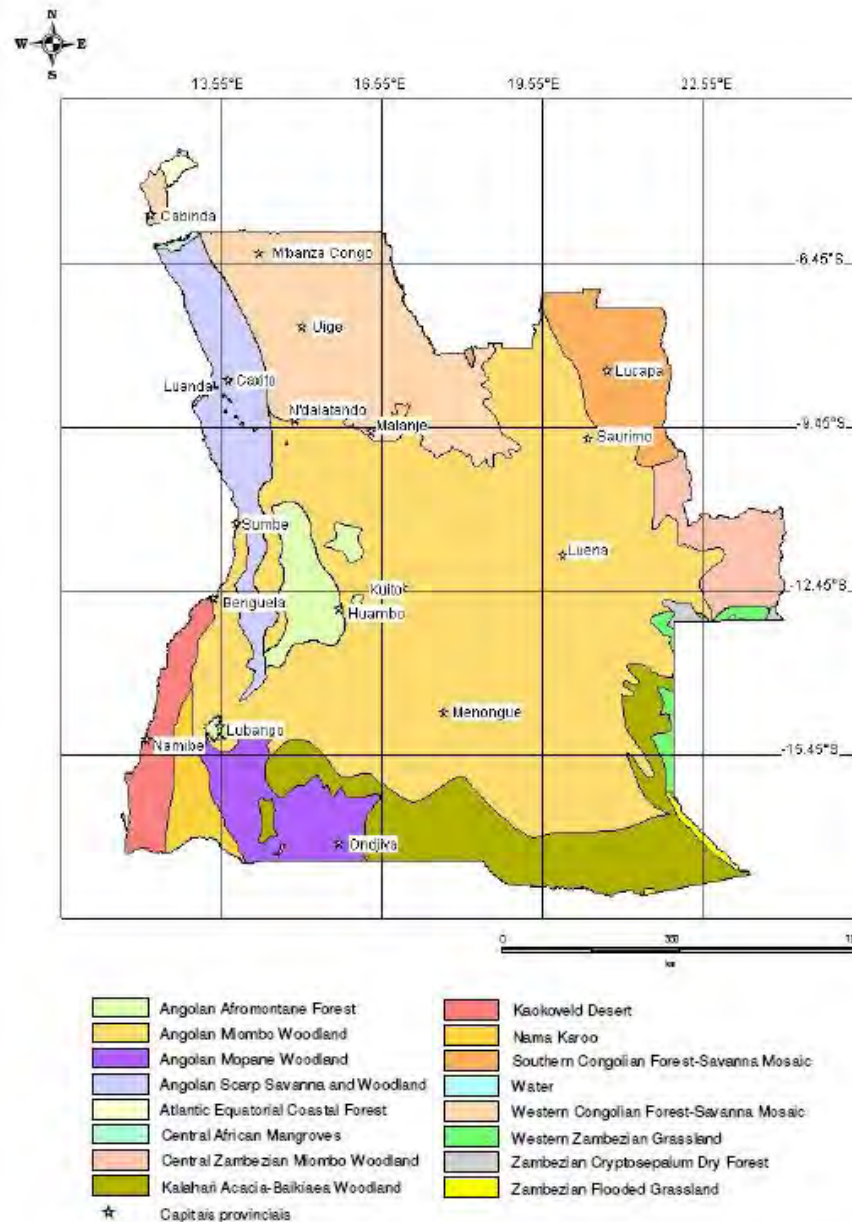
The proportional representation of major potential vegetation types, according to IDF (2004), is given in Table 1. These numbers do not apply to the current vegetation cover, but rather to the potential cover in the absence of major anthropogenic disturbance – in other words, urban and agricultural areas are not taken into account in this table. For example, IDF (2004) estimates that more than 45% of the area of Angola would likely support miombo woodland (Table 1), but the actual percent of Angola currently covered by miombo is lower, as much miombo has been cleared for agriculture, urban construction, charcoal production, and other uses. Based on these estimates, it appears that 60-70% of Angola has the capacity to support tree-dominated landscapes (i.e., in the absence of major human disturbance), 80-90% if savanna systems are included. The IDF estimates appear to be based on the Carta Fitogeográfica de Angola (Barbosa 1970), which divides potential vegetation into 32 different types, many of which are mosaics of different lifeforms.

**Table 1.** Estimates of cover for broad vegetation categories (source: IDF 2004)

<b>Potential vegetation type</b>	<b>% of total area</b>
Open tropical forest ( <i>Miombo</i> )	45.4
Dry tropical woodland (savanna)	24.2
<i>Miombo</i> -savanna mosaic (transition)	19.8
Grassland/meadow	5.2
Steppe	3.1
Tropical rainforest ( <i>Maiombe</i> )	2.0
Desert	0.3

Angola can also be divided into “ecoregions”, based on climate, dominant lifeforms and biogeographic affinities of the flora. Figure 6 is a generalized map of the basic ecoregions of Angola, originally from Barbosa (1970) but copied from MINAMB (2006a). Miombo is clearly the dominant ecoregion, while Angolan Afro-montane forest (the occurrence of which is much “patchier” than Figure 1 would indicate), Southern Congolian Forest-Savanna Mosaic, and natural grasslands are the rarest ecoregions. In terms of species diversity, endemism, and deforestation threat, the Afro-montane forest is of particular note, but there are no conservation units whatsoever within this ecoregion. MINAMB (2006b) and Stuart and Adams (1990) make mention of the need to carry out basic biological inventories and landscape assessments of conservation potential in Afro-montane Forest and the S. Congolian Mosaic.

**Figure 6.** Simplified potential vegetation cover map of Angola (derived from Barbosa 1970)



## B2. HUMAN ENVIRONMENT

### *B2a. Political Context*

The Republic of Angola gained independence in 1975, following 500 years of Portuguese colonial rule and 14 years of armed struggle between the Portuguese colonizers and a splintered Angolan nationalist movement. Upon independence, the nationalist groups, unable to reconcile their respective aspirations for national power but able to draw first on the largesse of respective Cold War sponsors and later on Angola's abundant mineral wealth, plunged into a brutal, 27-year civil war. The two largest groups to emerge during the long period of struggle were the Movimento Popular de Libertação de Angola (MPLA), led by Jose Eduardo dos Santos, and the



União Nacional para a Independência Total de Angola (UNITA) , led by Jonas Savimbi. The battle between the MPLA and UNITA, interrupted by only a few short periods of peace, lasted until the death of UNITA's leader in 2002.

Despite occasional, minor flare-ups in regions outside Luanda and in the oil-rich enclave of Cabinda, the peace has held and is likely to continue. Unlike earlier attempts to bring peace to Angola, the peace agreement of 2002 was signed following UNITA's clear military defeat by the MPLA. Furthermore, after 14 years of armed struggle for independence and 27 years of civil war, the Angolan people are exhausted by war and determined to move forward. The emergency response to the immediate post-conflict situation has given way to a more comprehensive focus on the actions necessary to support sustained, longer-term development.

President Jose Eduardo dos Santos was selected by the MPLA party to take over after the 1979 death of former President Augustino Neto under a one-party system and stood for re-election in Angola's first multiparty elections in 1992 but the election was suspended. Dos Santos was indirectly re-elected president by the National Assembly following legislative elections on 31 August 2012, and was inaugurated on 26 September 2012 to serve the first of a possible two terms under the 2010 constitution.

The combined effect of the legacies of colonialism and civil war is that Angola compares quite poorly with other countries on measures of good governance. In 2011, Angola scored below the 25th percentile on the six elements of governance measured in the World Bank's [Governance Matters](#) data sets; and, scored below the 10th percentile on the measures of rule of law and control of corruption. On the 2012 Transparency International's [Corruption Perceptions Index](#), Angola ranks 157 out of 176 countries.

In late 2012, the GoA officially launched the Fundo Soberano de Angola (FSDEA), a new Sovereign Wealth Fund with \$5billion of assets under management. The FSDEA will make investments in Angola and internationally in support of its mandate to promote the economic and social development of Angola and generate wealth for the country's future generations. The Fund's infrastructure investments will focus on sectors with immediate development potential such as agriculture, water, energy generation and transportation. The Fund will also seek to make investments that support the development of Angola's business infrastructure and help promote Angola as a destination for foreign direct investment.

## ***B2b. Socioeconomic Context***

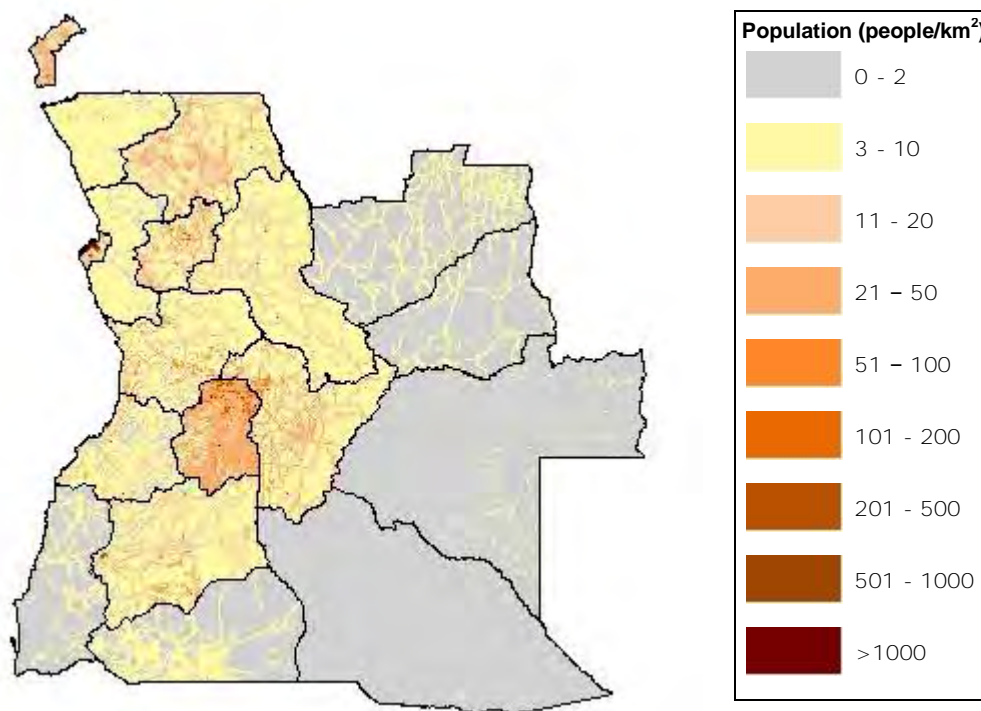
The total population in Angola is estimated at 18,056,072, with 44% under the age of 15. Both annual population growth rates (2.8%) and annual urban growth rates (4%) are high ([CIA 2012](#)). The country has not held a full census since 1970—before independence from Portugal—though a full census is expected in 2014.

Angola's struggle for independence and the subsequent civil war had a profound impact on all aspects of social and economic life in the country. All told, as many as 1 million Angolans were killed, 4.5 million became internally displaced, and another 450,000 fled the country as refugees. Most internal displacement was from rural to urban areas. More than 20,000 refugees and asylum-seekers reside in Angola ([UNHCR](#)). This figure includes nearly 12,000 refugees from the Katanga province of the Democratic Republic of the Congo who have been in the country since the late 1970s, as well as refugees from other countries such as Chad, Mauritania, Rwanda,

Sierra Leone, Somalia and Sudan. For the many Angolans who fled the country during the battle for independence and the long civil war, the UNHCR and the Government of Angola (GoA) began a [repatriation program](#) in 2012.

Rural-urban migration continues, due to the absence of basic services and transportation in rural areas, and minimal economic opportunities. Much of Angolan society lost its agricultural knowledge and tradition due to forced migration into urban centers and the collapse of the agricultural sector. Thus, the country is left with a sparsely populated countryside and congested urban centers (Figure 7). The existence of large population centers in Benguela, Lobito, Huambo, Lubango, N'dlatando, and Malanje, and the fact that Luanda's population alone (estimated at 4.5 million) is about one-fourth of the entire Angolan population, indicate that Angola is one of the most urbanized countries in Africa.

**Figure 7.** Population density in Angola ([FAO 2007](#))



With the exception of the central plateau region—always one of the most densely populated areas in Angola—and urban areas, the bulk of the country supports population densities of less than 10 people per square kilometer. The eastern half and southeastern corner are almost depopulated. This reflects not just the impact of the war, but also the inherently low soil fertility and limiting climatic conditions. The effect of the diamond industry is evident in the relatively high population along the rivers and in the northeast section of Lunda Norte. The forested zones of Uíge and Kwanza Norte, where the more fertile soils are found, also are areas of relatively high population.

Angola's economy has experienced extraordinary growth over the last 12 years, with annual gross domestic product (GDP) rates as high as 22.6 percent in 2007. The global recession that started in 2008 temporarily stalled economic growth, but remained a healthy 3.9 percent in 2011. Angola's high growth rate in recent years was driven by high international prices for its oil.

Angola's economy is dominated by hydrocarbons, which account for more than 60 percent of the GDP, 95 percent of exports, and 98 percent of government revenues in 2011 ([EIA 2013](#)). Angola is the second-largest oil producer in Sub-Saharan Africa behind Nigeria, and recent exploration suggests that Angola's reserves may be larger than initially estimated (EIA 2013). The first cargo of liquefied natural gas (LNG) is scheduled to leave Angola in early 2013, which will position Angola to capitalize on the high demand for LNG to bolster its export portfolio.

Angola is among the world's top producers of rough diamonds, and most of Angola's diamond deposits remain largely untapped. In 2009, Angola accounted for about 11% of the world's total diamond production by volume and for about 13% of the world's total diamond production by value ([USGS 2010](#)). Diamonds represent the majority of non-oil exports, and are estimated to contribute 5% to the GDP. The state mining company Empresa Nacional de Diamantes E.P. ([ENDIAMA](#)) was established in 1981 as the exclusive body controlling the development of Angola's diamond sector. It does so largely through joint ventures with multinational companies, in which it retains a majority ownership position.

Subsistence agriculture provides the main livelihood for 85 percent of the people and contributes 10 percent to the GDP, but half of the country's food is still imported. Prior to independence in 1975, Angola was a leading exporter of agricultural commodities. Angola's fertile land nourishes one of the largest areas of planted forest in Africa which, to date, has been minimally exploited for productive purposes. A postwar reconstruction boom and resettlement of displaced persons has led to high rates of growth in construction and agriculture as well.

Angola's striking economic growth has yet to have a significant impact on poverty reduction and various measures of socio-economic development ([World Bank DataBank 2013](#)). While the World Bank estimates average per capita income at \$5,318 (2011), relatively high for sub-Saharan Africa, 40.5 percent of the population is estimated to live on or below the poverty line (2006), defined as an income of US\$2/day. The proportion of people living beneath the poverty line is suspected to be much higher among the rural population than in urban areas. Angola's health indicators are poor: average life expectancy is 51 years (2011), the infant mortality rate is 96 per 1,000 live births (2011), the under-five mortality rate is 157 per 1,000 live births (2011), and the maternal mortality rate is 450 per 100,000 live births (2010). HIV prevalence among adults aged 15-49 years is 2% (2011). Adult literacy rates average 70% (2010). Angola ranks 148 of 187 countries on the 2011 UNDP [Human Development Index](#).

Much of the country's infrastructure is still damaged or undeveloped from the long civil war, and land mines remain in the countryside. Estimates from 2010 suggested that access to improved sanitation facilities was 58 percent (19 percent in rural areas and 85 percent in urban areas), while access to improved water sources was 51 percent (38 percent in rural areas and 60 percent in urban areas) ([World Bank DataBank 2013](#)). Angola's fractured electricity system serves 30 percent of the population and progress towards providing greater access is proving difficult. Angola's many rivers provide it with significant hydroelectric resources, though these have not been fully exploited for energy production.

The tourism sector has been limited by poor infrastructure and a restrictive visa system, but the GoA has recently identified tourism as a key sector for Angola in 2013. President dos Santos has created a commission to prepare plans for boosting tourism, with a particular focus on the accommodation of international cruise ships at the newly enlarged port of Lobito and a smaller



one at Namibe, close to the Namibian border, and the development of hotels and other facilities (Economist Intelligence Unit 2012).

### **B3. LEGAL INSTRUMENTS RELATED TO THE ENVIRONMENT**

Some of Angola's legal framework pertaining to the environment dates back to the colonial era, is incompatible with Angola's status as an independent and democratic country, and does not incorporate the last four decades of advancements in conservation and environmental management thinking. Since the end of hostilities in 2002, however, there have been important advances in Angola's legal environmental framework, and the country is actively engaged in updating legislation.

#### ***B3a. International and Regional Conventions***

Angola is party to the following regional and international [treaties and conventions](#) related to conservation and natural resource management:

- African Convention on the Conservation of Nature and Natural Resources
- Bamako Convention on the Ban on the Import and Transboundary Movement and Management of Hazardous Wastes within Africa
- Cartagena Protocol on Biosafety
- Convention on Biological Diversity
- United Nations Convention to Combat Desertification (UNCCD)
- Convention on the Conservation of Migratory Species of Wild Animals
- Convention on World Cultural and Natural Heritage
- Cunene River Water Use Agreement – Angola and Namibia
- International Convention for the Prevention of Pollution from Ships (MARPOL)
- International Treaty on Plant Genetic Resources for Food and Agriculture
- Kavango Zambezi Transfrontier Conservation Area Treaty – Angola, Botswana, Namibia, Zambia and Zimbabwe
- Permanent Okavango River Basin Water Commission – Angola, Botswana, Namibia
- Protocol to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter
- The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade
- Regional Agreement on the Conservation of African-Eurasian Birds of Prey
- SADC Protocol on Shared Fisheries
- SADC Protocol on Forestry
- SADC Protocol on Shared Watercourse Systems
- SADC Protocol on Wildlife Conservation and Law Enforcement
- Stockholm Convention on Persistent Organic Pollutants
- United Nations Framework Convention on Climate Change (UNFCCC)
- Kyoto Protocol to UNFCCC on greenhouse gas reductions
- United Nations Convention on the Law of the Sea
- Vienna Convention on Protection of the Ozone Layer

Of particular relevance to this assessment, Angola is not a party to the following agreements:

- Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES);
- Convention on Wetlands of International Importance (Ramsar);
- International Tropical Timber Agreement;
- Convention on Fishing and Conservation of Living Resources of the High Seas;
- Lusaka Agreement on Co-operative Enforcement Operations directed at Illegal Trade in Wild Fauna and Flora; and,
- Nagoya Protocol on Access to Genetic Resources and their Fair and Equitable Sharing of Benefits Arising from their Utilization to the Convention on Biological Diversity.

### ***B3b. Cross-Cutting Legal Instruments***

#### **B3b.1. Constitution**

On 21 January 2010 the National Assembly of Angola approved a new constitution to replace the interim constitution in effect since independence in 1975. The constitution clarifies the ambiguous land rights that existed in Angola, stating that all land is owned by the state, which can decide who is entitled to use it. The state will only provide land rights to Angolan nationals or companies registered in Angola. The Constitution provides the basis for the Environment Framework Law through Article 39:

- 1) Everyone has the right to live in a healthy and unpolluted environment and the duty to defend and preserve it.
- 2) The state shall take the requisite measures to protect the environment and species of flora and fauna throughout the national territory, maintain the ecological balance, ensure the correct location of economic activities and the rational development and use of all natural resources, within the context of sustainable development, respect for the rights of future generations and the preservation of species.
- 3) Acts that endanger or damage conservation of the environment shall be punishable by law.

In addition, Article 90(e) reads that the state shall promote social development by “ensuring that all citizens enjoy the benefits resulting from collective efforts in terms of development, specifically with regard to quantitative and qualitative improvements to standards of living.” These articles are essential to sustainable development, by focusing on conservation and protection of natural resources, biodiversity and a healthy environment, with a view toward maintaining the natural ecological balance and meeting basic human needs.

#### **B3b.2. Environment Framework Law**

The 1998 Environment Framework Law (Lei de Bases do Ambiente), No. 5/98 of 19 June 1998 is based on Article 39 of the Angolan Constitutional Law (as amended), and provides the framework for all environmental legislation and regulations in Angola. The Environment Framework Law is administered by the Ministry of the Environment (MINAMB). It gives the definitions of important concepts, such as the protection, preservation and conservation of the environment, the promotion of quality of life, and the use of natural resources. The Law

incorporates the main international sustainable development declarations and agendas (e.g. UN Agenda 21), and establishes citizens' rights and responsibilities.

Key provisions include:

- Article 12 bestows on the government the responsibility to “defend” the environmental patrimony through the involvement of communities and environmental defense associations among others.
- Article 13(1) prohibits “all activities that threaten the biodiversity, conservation, reproduction, quality, and quantity of biological resources ... especially those threatened with extinction.” Article 13(2) states that the government must ensure that adequate measures are taken to “maintain and regenerate animal species, recover damage habitat, and control, especially, the activities or substances likely to be harmful to animal species and their habitat.”
- Article 14 allows for the establishment of environmental protection areas and the setting of rules for those areas, including the identification of activities that would be prohibited or permitted in protected areas and their surroundings.
- Article 16 mandates Environmental Impact Assessments (EIAs) for all undertakings that may have an impact on the balance and wellbeing of the environment and society. Clause 2 of this Article states that the government will develop more specific legislation on EIAs, which was accomplished with the July 2004 passage of the Ministerial Decree No. 51/04 on EIAs. The term ‘environment’ is not defined in the EIA Decree, but environmental impacts are described as “any change to the environment, either to better or worse, especially with effects on the air, water, soil and subsoil, biodiversity, health of persons and cultural heritage, resulting directly or indirectly from human activities.” This definition implies that health and cultural aspects are included, but other social aspects are not specified, such as social cohesion, wellbeing or livelihoods. The Environment Framework Law establishes a broad rationale for the kinds of projects that are subject to an EIA, stating that an EIA is compulsory when actions “interfere with the social and environmental equilibrium and harmony.” The projects that require an EIA include activities in the agriculture, fisheries and forestry; extractive industries, such as petroleum, mining and dredging; energy industry; gas industry; chemical industry; and, infrastructure sectors.
- Article 17 deals with the issue of environmental licensing and Article 18 with environmental auditing.

Although none of the environmental legislation refers to transboundary impacts, Angola's active involvement in the Benguela Current Large Marine Ecosystem project, the Permanent Joint Technical Committee with Namibia, the Okavango River Commission, and Transfrontier Conservation Areas (TFCAs) shows a commitment to dealing with cross-border environmental impacts. For instance, Angola's National Action Plan for its portion of the Okavango River Basin acknowledges the need to respect downstream uses, conservation, and biodiversity (Republic of Angola 2011a).

### ***B3c. Forests***

Angola's legal framework on forest resources is being developed with the assistance of the FAO. A forestry law has been drafted but has yet to be approved, and laws and regulations applicable

to the forestry sector currently in use date back to colonial times. These are complemented by recent stop-gap measures, such as ministerial “orders.”

As things stand, the Forest Regulation Decree No. 44.531 issued by the colonial government in 1962 is still the regulating document for the forestry sector. This decree created forest reserves with the objectives of conserving forests, regulating the hydrographic and climatic regimes, conserving flora with special scientific value or prone to extinction, and conserving and rehabilitating eroded soils.

Ministerial Order 149/00 issued by the MINADERP in 2000 pertains to the licensing requirements and procedures for forest exploitation. It outlines the requirements and procedures for obtaining forest exploitation permits and attributes the responsibility for establishing the amount of timber to be extracted under permits to MINADERP’s Institute for Forestry Development Institute.

### ***B3d. Protected Areas***

The establishment of protected areas (national parks, nature and forest reserves) was first mentioned in a colonial “regulation” in 1936, and the first protected area, Parque Nacional de Caça do Iona, was established in 1937. The first statute on nature conservation and on the establishment of protected areas — initially for hunting purposes and later for nature conservation — was issued on January 20, 1955 through Colonial Decree No. 40.040. This decree covered aspects related to the protection of soil, fauna and flora, the conservation and use of game, the establishment of national parks, nature reserves, and controlled hunting areas. It created the Nature Conservation Council as the organization responsible for managing protected areas and developing conservation legislation. This legislative package included the Hunting Regulation (Regulamento de Caça), Decree No. 2873 of 11 December 1957, Forestry Regulation (Regulamento Florestal), Decree No. 44 531, and National Parks Regulation (Regulamento de Parques Nacionais), Decree No. 10 375 of 15 October 1958.

Some of this legislation was revoked after independence by Decree No.43/77 of 5 May 1977.

Besides revoking selected legal instruments, Decree No. 43/77 approved the structure of the Ministry of Agriculture and defined five categories of protected areas:

- *National park*. An area reserved for the protection, conservation, and propagation of wild animal life and indigenous vegetation, for the benefit and enjoyment of the public.
- *Strict nature reserve*. An area for the total protection of wild flora and fauna.
- *Partial reserve*. An area where it is forbidden to hunt, kill or capture animals, or to collect plants, other than for authorized scientific or management purposes.
- *Regional nature park*. An area reserved for the protection and conservation of nature, in which hunting, fishing, and the collection or destruction of wild animals or plants and the conduct of industrial, commercial or agricultural activities are prohibited or placed under limits.
- *Special reserve*. An area where the killing of certain species, whose conservation cannot be ensured in any other manner, is prohibited.

These categories do not cover the creation of community-managed conservation areas; nor do their definitions clarify specific conservation objectives. Angola does not allow communities to legally reside in protected areas (Jones 2008).

Ministerial decree No. 41/89 created the Institute for Forestry Development (IDF) located within the Ministry of Agriculture and Rural Development (MINADERP) and tasked the IDF with the development and enforcement of legislation on protected areas. IDF works on five specific areas, namely forestry; wildlife protection; control; administration; and regional centers. In the late 1990s, there were negotiations to transfer the management and protection of protected areas (excluding agricultural areas) from the MINADERP to the MINAMB. Despite this agreement, the protected areas are still being managed by the IDF within the MINADERP.

Wildlife hunting is not permitted in protected areas. In 1996 the MINADERP issued Order No. 204/96, which established hunting seasons for specific wildlife species, as well as listing the species prohibited from hunting (28 mammals, 19 birds, and four reptile species, including the giant sable, manatee, giraffe, elephants, rhinos, penguins, cranes, turtles, and crocodiles). Angola permits the shooting of wildlife (including specially protected species such as elephant) in self-defense or in defense of someone else's life. Trophy hunting is allowed and is regulated, and professional hunters have to be licensed. This Order was repealed by Combined Executive Decree No. 37/99 of 1999 issued by the Ministry of Agriculture and Rural Development and the Ministry of Finances. This decree was approved to provide an updated list of species for which hunting is permitted or prohibited. The new decree does not bring much in the way of changes, however. (Jones 2008)

### ***B3e. Land***

A new Land Law (Law 9-04), which superseded previous land legislation, was enacted in February 2005. The Land Law considers land to be the property of the state and proposes the following multiple uses:

- A shelter and home for the inhabitants of Angola, which implies the existence of an appropriate urban planning system;
- A source of natural resources that can be used for mining, agriculture, forestry and land planning; and,
- A support for economic, agricultural and industrial activities.

The Land Law contains a number of environment-related articles and clauses:

- Article 10 states that all natural resources are state property and that the state's rights over the land are not transmissible.
- Article 14(b) establishes that the state can intervene in the management and concession of the land affected by the present Act. Two important objectives are the protection of the environment, and economically efficient and sustainable use of the land.
- Article 16 affirms that the occupation and use of the land depends on norms and standards for environmental protection, particularly relating to the protection of landscape, flora and fauna, the preservation of ecological equilibrium, and the right of citizens to a healthy and non-polluted environment. It further states that the occupation and use of the land shall not compromise its regenerative capacity or its ability to produce.
- Article 19 presents land classification for administrative purposes and affirms the right of the government to establish marine and terrestrial protected areas.

- Clause 70/1(a) recognizes that environmental organizations can play an important role in environmental protection.

The Land Use Planning and Urban Development Act, No. 3/04 of 25 June 2004, adopts a concept of integrated planning, which not only includes socio-economic aspects but also attempts to create synergies in the relationship between the city and the countryside. It calls for the establishment of a decentralized system to coordinate land use planning.

### ***B3f. Fisheries***

The Biological and Aquatic Resources Act, No. 6-A/04 of 8 October 2004, is the mechanism for harmonizing different legislation on marine resources, particularly on fisheries and aquaculture activities. It has several key objectives: to establish principles and rules for the protection of biological water resources and marine ecosystems; to promote the protection of the marine environment and coastal areas; and to establish principles and rules for responsible fishing. The act makes provisions for the protection of endangered aquatic species; the creation of marine and fluvial protected areas; setting fishing quotas; regulating fishing; and, prohibiting damaging fishing methods. Enabling legislation of this Act was approved, focusing on the rules of fishing concessions and licensing (Decree No. 41/05 of May 2005). The GoA is also developing two decrees relevant to inland, fresh water fisheries, but they have yet to be finalized. SAREP is currently working closely with the GoA to develop a transboundary fisheries management plan for the Okavango basin. There are currently no other management plans for inland fisheries resources, but the GoA intends to use the Okavango transboundary management plan as a template for other systems (Chris Brooks, personal communication).

### ***B3g. Water***

The Water Law (Lei das Águas), No. 6/02 of 21 June 2002, focuses on regulating the management and distribution of water resources. This Act establishes priorities for surface water resources in Angola, and notes that water resources are state property. The Act describes a number of principles of water management that the government should put into practice. These include: the right of individuals and entities to access water; integrated management of water resources; institutional coordination and community participation; the harmonization of the water management policy with land use planning and environmental policies; water as a renewable resource for people; and, recognizes the responsibility of polluters to bear the costs of pollution. Finally, the Water Law encourages the development of a new administrative policy for the water sector, which includes a decentralized system of control over the use of water, as well as for the protection of water resources and the environment.

The State Secretariat for Water Law on Internal Waters, Ocean and Exclusive Economic Zone (Lei sobre águas interiores, oceanos e zona económica exclusiva), No. 21/92 of 28 August 1992, regulates control over internal waters and lakes; the use of natural resources; the protection of the marine environment; the promotion of scientific marine research; and, the use of artificial structures.

### ***B3h. Mining***

The Mining Code (Código Mineiro), passed 23 September 2011, repeals a number of old laws relating to mining, such as the Law of Mines (Lei das Minas), No. 27 of 1979, the Geological and Mining Activities Law, No. 1 of 1992, and the Diamond Act, No. 16 of 1994. The new Mining Code harmonized the previous regulations, and applies to all mining activities in all terrestrial and maritime areas that are subject to the Angolan jurisdiction. It does not apply to hydrocarbons, whether in liquid or gas form. All mineral resources that can be found in Angola and within the maritime boundary of Angola are deemed the property of the Angolan state. However, the minerals explored and extracted by holders of mining rights are the property of these parties in accordance with the terms of their concession, though the Angolan state is entitled to compensation. The Code contains specific rules for mining activities that involve strategic minerals, including gold, diamonds and radioactive minerals. The Mining Code imposes a number of obligations on the holders of mining rights regarding the exercise of their rights, including: hygiene, health, security and training; environmental protection; use of soil; and, use of explosives.

### ***B3i. Petroleum***

The Oil Activities Decree (Decreto Lei das Actividades Petrolíferas), No. 39/00 of 10 October 2000, aims at protecting the environment from petroleum exploration and production activities. It defines the environment as including fauna, flora, soil, water, landscape, cultural values, atmosphere and the like, and is applicable to activities both off- and onshore. The Decree also calls for compulsory implementation of EIAs, the development of “spill response” and waste management plans, and stipulates that the concession holder must either remediate environmental impacts or compensate the state for damage.

The Petroleum Activities Law, No. 10/04 of 12 November 2004, includes principles of economic policies, particularly for the protection of national interests, the promotion of the workforce, the valuation of minerals, and environmental protection. This Act establishes the exclusivity principle for the Angolan National Oil Company (SONANGOL), by giving SONANGOL the right to use natural resources through the establishment of partnerships with other foreign companies. Article 7/2 states that all petroleum operations must be conducted carefully, by considering the safety of people and infrastructure as well as the protection of the environment and the conservation of nature. Furthermore, Article 9/3 notes that rights for petroleum operations can only be granted if measures are in place to ensure the sovereignty of the country, safety, environmental protection, research and the management and preservation of natural resources, including the living and non-living aquatic biological resources. Article 24 on Environmental Protection indicates that all companies involved in petroleum operations, including SONANGOL, have to implement appropriate measures to ensure environmental protection and preservation. This includes health, water, soil and subsoil, air, biodiversity preservation, flora and fauna, ecosystems, landscapes, atmosphere and cultural, archaeological and aesthetic values. In addition, Article 24/2 requires plans on environmental preservation, EIA plans, rehabilitation plans and environmental audits to be submitted to the competent authorities within the established timeframes.

Other legislation for the petroleum industry includes an Executive Decree on the procedures for waste management (No. 8/05 of 5 January 2005), an Executive Decree on the procedures for oil

spill notification (No. 11/05 of 12 January 2005), and an Executive Decree on procedures for the management of operational discharges (No. 12/05 of 12 January 2005).

## **B4. INSTITUTIONAL AND POLICY FRAMEWORK**

Angola's institutional framework is undergoing a process of evolution and consolidation. The Angola government's environmental strategies, policy framework and management approaches and priorities are spelled out in two major documents: the National Environmental Management Program (PGNA) and the National Environmental Strategy (ENA). Responsibility for formulating and implementing environmental policies and programs and for environmental management lies with the Ministry of Environment (MINAMB).

### ***National Environmental Management Program (PGNA)***

The PGNA was finalized by the Ministry of Environment in 2009, with assistance from the UNDP, and is seen as an important instrument for achieving sustainable development, while emphasizing environmental protection. The PGNA has five strategic subprograms: promotion of inter-sectoral coordination; protection of biodiversity, flora and terrestrial and marine fauna; ecosystem rehabilitation and protection; environmental management; and, environmental education, information and awareness. The Environment Framework Law recognizes that the implementation of the PGNA should be the responsibility of all governmental sectors that affect the environment and all private individuals and organizations that use natural resources.

### ***National Environmental Strategy (ENA)***

The ENA is a guiding framework closely related to the PGNA, which aims to identify the main environmental problems in Angola and address them in order to achieve sustainable development goals.

### ***National Biodiversity Strategy and Action Plan (2006)***

The government approved this Strategy (Resolution No. 42/06 of 26 July 2006) to guarantee the conservation and sustainable use of biological diversity components that enable the fair and equitable sharing of the benefits of the use of biological resources. Its objective is to incorporate measures for the conservation and sustainable use of biological diversity and the fair and equitable sharing of biological resources into development policies and programs for the benefit of all Angolans. Eight strategic areas were identified: Research and Information Dissemination; Education for Sustainable Development; Biodiversity Management in Protected Areas; Sustainable Use of Biodiversity Components; The Role of Communities in Biodiversity Management; Institutional Strengthening; Legislation and Implementation; and, Management, Coordination and Monitoring.

### ***B4a. Ministry of Environment ([MINAMB](#))***

In 1993, the National Secretariat for the Environment was established. Over the years, the name of this Ministry has changed several times (previously was called the Ministry of Urbanism and Environment, MINUA), but it is currently known as the Ministry of Environment (MINAMB). MINAMB is the federal ministry responsible for the coordination, development, implementation and enforcement of environmental policies (e.g., PGNA, ENA), particularly in the areas of biodiversity, environmental technologies, environmental impact assessment, and environmental education and research. In 2012, the Center for Tropical Ecology and Climate Change (CETAC)



was established in central Huambo province to develop applied research, ensure environmental quality and better water management, and to study environmental quality in aquatic ecosystems.

#### ***B4b. Ministry of Agriculture, Rural Development, and Fisheries ([MINADERP](#))***

The Ministry of Agriculture and Rural Development (MINADERP) is responsible for: 1) national programs and strategies agriculture, livestock, fisheries, aquaculture, forestry, food security, rural development, poverty alleviation and rural communities; 2) supporting livelihoods related to production, processing, packaging, manufacturing, processing and marketing of products from the fisheries, aquaculture, agriculture and forestry sectors; 3) ensuring the sound management of lands for agriculture, livestock and forestry; and, 4) promoting the development of agriculture, forestry, livestock and fisheries.

MINADERP has the mandate to define forestry policy and planning and directing all tasks related to forest resource management. MINADERP's Institute for Forestry Development ([IDE](#)) continues to play an ineffective role in the management of forests and protected areas.

#### ***B4c. Other Federal Ministries***

In addition to MINAMB and MINADERP, other Angolan ministries have a bearing on biodiversity conservation and environmental management:

- Ministry of Energy and Water ([MINEA](#))
- Ministry of Geology, Mining and Industry ([MINGMI](#))
- Ministry of Petroleum ([MINPET](#))

#### ***B4d. Provincial Level Government Institutions***

There is no established provincial-level institutional structure for the environment that operates consistently across provinces. In most cases, the jurisdiction over environmental matters is ascribed to the Provincial Directorate for Agriculture Fisheries and Environment, which encompasses a provincial-level Department of Environment. This province-level arrangement combines the sectoral responsibilities that are split at the federal level into MINAMB and MINADERP.

#### ***B4e. Cross-Sectoral Coordination***

To foster cross-sectoral coordination on environmental matters, the government created the Technical Multisectoral Commission for the Environment (CTMA) in 2000. The commission is supervised by MINAMB and composed of technical representatives from selected sectoral ministries, technical representatives of provincial governments, guest specialists, and representatives of environmental organizations. The CTMA is a consultative body with the faculty to issue pronouncements on policies, programs, and actions related to the environment, and coordinate actions by different sectors that impinge on the environment.

## **B5. INTERNATIONAL ENGAGEMENT AND COOPERATION**

### ***B5a. Bilateral Donors***

#### ***Brazil***

Agência Brasileira de Cooperação ([ABC](#)) currently has no active projects focused on biodiversity and forest conservation and management, but in the past has completed several projects to increase environmental awareness in Angola.

#### ***Canada***

International Development Research Centre (IDRC) previously funded [Partnership Africa Canada](#) which developed a variety of programming related to conflict minerals, including diamonds.

#### ***Germany***

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) is currently working to build capacity across diverse Angolan sectors, including training ex-combatants to become park guards. In addition, GIZ is working on two other relevant projects: 1) [Development of integrated MRV systems for REDD+ in the SADC region](#); and, 2) [Regional approach for Reducing Emissions from Deforestation and Forest Degradation](#). Kreditanstalt für Wiederaufbau (KfW) has a project in the [Kavango Zambezi TFCA](#) that involves a protected area management training needs assessment, training facilities, and protected area management training.

#### ***Norway***

Norwegian Agency for Development Cooperation ([NORAD](#)) has helped to draft the new petroleum legislation that came into effect in 2004. Since then a number of regulations under the law have been prepared, including regulations relating to safety and the environment. Current focus is on technical assistance and grant building rather than grant-making. There are no active projects focused on biodiversity and forest conservation and management.

#### ***Portugal***

Portuguese Institute for Development Support ([IPAD](#)) is currently focused on health, governance, capacity building, law enforcement, education, and agriculture projects. There are no active projects focused on biodiversity and forest conservation and management.

#### ***United States***

- U.S. Agency for International Development (USAID) - USAID/Angola

USAID's assistance to Angola began soon after the nation's declaration of independence from Portugal and the start of the subsequent civil war. In 1977-1978, USAID began to fund food assistance and extension services and agricultural support through the International Committee of the Red Cross. Further work in Angola ceased until 1989, when USAID began providing large-scale humanitarian aid and emergency assistance. In 1992, with the prospect of elections and a viable peace process, USAID began a development assistance program in Angola for the first time. With the resumption of fighting soon after the elections, assistance was terminated until 1995 when development assistance resumed with a grant of \$4 million for agricultural rehabilitation and \$2 million for assistance to displaced children and orphans. In 1996, a USAID office was established in Luanda with the arrival of the first resident USAID official, and initial programs were relief in nature: immunization campaigns, emergency feeding, and service

delivery. In April 1998, the Angola office was upgraded to full mission status. Between 2001 and 2005, USAID/Angola implemented an evolving program that began with a large initial emergency humanitarian assistance component and gradually evolved to help address Angola's post-war development needs, focusing on improved food security, strengthened democratic governance, maternal and child health and HIV AIDS, and market-oriented economic analysis. The program also included one of USAID's first corporate partnerships (USAID/Angola [History](#)).

USAID/Angola is now focused on implementing a unified set of programs focused on improved democratic governance and health. Programming is targeting stabilization and security sector reform, as well as preventing major infectious diseases, strengthening health systems, increasing access to family planning and reproductive health services, and building capacity within non-governmental organizations (NGOs) working in health advocacy and health service delivery. In addition, USAID/Angola has begun funding a climate change demonstration project focused on the Cunene province, to be implemented with the help of World Learning and U.S. Forest Service.

- U.S. Agency for International Development (USAID) - USAID/Southern Africa Region

Starting in 2010, USAID/Southern Africa Regional Mission began funding the Southern Africa Regional Environmental Program ([SAREP](#)); SAREP follows the previous Integrated River Basin Management project, a five-year program that ended in 2009. Two new national parks were created in southeast Angola in 2011—Luiana and Mavinga—based in part on the work completed during the Integrated River Basin Management Project. SAREP focuses on improving transboundary management of the Okavango River Basin, which includes Angola, Botswana, and Namibia. Working through the Southern Africa Development Community (SADC), with the endorsement of the Permanent Okavango River Basin Water Commission (OKACOM) and other partners, SAREP will: 1) Improve the provision of water supply and sanitation services in selected areas that will enhance the conservation of biodiversity; 2) Create demand for improving hygiene and promote behavior change and link this to improved sanitation services; 3) Reduce potential for Human-Wildlife Conflicts (such as elephants); 4) build on previous USAID activities to further develop the land-use plan for transboundary areas within the Okavango basin critical for both human settlements and wildlife; 5) Conserve biodiversity within the Okavango river basin critical for maintaining ecosystem services and wildlife habitat; and, 6) Create demand for community based sustainable use of natural resources for productive livelihoods.

Anticipated results under the Natural Resources and Biodiversity Program Element are to promote community based natural resource management (CBNRM) to empower communities within Angola through engaging Namibia and Botswana communities to share CBNRM best practices to promote local natural resource governance and conserve biodiversity and ecosystem services with the basin. Promoting CBNRM can have profound effects on local community livelihoods if the political will and proper legal frameworks are put in place. Relevant programmatic objectives include the protection of biodiversity and ecosystem services, through with explicit objectives that address threats to biodiversity in biologically significant areas and have associated indicators for biodiversity conservation.

SAREP will build further on previous work by moving beyond baseline biodiversity assessments to ensure the availability of quality and quantity of scientific data to aid in decisions to conserve

precious resources. Key among these activities will be the identification of areas within the basin where biodiversity is critically threatened and the development of strategies to address these threats. A key partner will be the University of Botswana's Okavango Research Institute. In addition, SAREP will build on previous efforts to improve biodiversity conservation through support to the Angolan government and other actors for improved management of more than 70,000 km<sup>2</sup> of reserve areas in southeast Angola. For instance, SAREP is currently working with MINAMB to draw the boundaries of Luiana National Park and Mavinga Partial Reserve.

USAID/Southern Africa has also recently funded USFS for joint work with SAREP in the Cubango basin focusing on remote sensing, climate vulnerability, and protected area management.

- U.S. Forest Service (USFS), Office of International Programs

The USFS has assisted USAID/Angola with a variety of efforts over the last ten years, including the previous 118/119 assessment in 2008, as well as several capacity-building efforts in the forestry sector. Recent work includes a 2011 Angola Climate Change Adaptation Workshop (USAID 2011), and a 2012 assessment of interpretive and recreational opportunities in the Special Conservation Area Kissama National Park (USAID 2012b). The USFS is currently planning to provide technical assistance to support a climate resilience program for Cunene province led by World Learning, related to land use change and disaster mitigation planning.

- U.S. Fish and Wildlife Service (USFWS)

[USFWS International Affairs](#) has previously supported two projects: 1) Conserving the West African Manatee (*Trichechus senegalensis*): Capacity Building for Long-Term Success. In partnership with Ecohealth Alliance, the purpose of this project was to build a collaborative network of African researchers and resource managers who can work together to conserve West African manatees. 2) Development of a Conservation and Management Program for Leatherbacks Nesting in Angola – support for nesting surveys (Morais 2011).

## ***B5b. Multilateral Donors***

### ***African Development Bank (AfDB)***

- [Support to Environmental Sector](#) (2010- ) The proposed program consists of two components: environmental legislation, governance and information system and institutional and capacity building for the environment sector; and, institutional capacity building and strengthening of MINAMB and regional environmental departments.
- [Sumbe Water Supply, Sanitation and Institutional Support Project](#) (2011- ) The project includes rehabilitation and expansion of water supply and sanitation system in Sumbe and the development of a Comprehensive National Rural Water and Sanitation Program.
- [Fisheries sector support project](#) will expand work from a pilot-scale artisanal fisheries development project to cover a wider geographical zone; the project addresses fisheries infrastructure, monitoring, control and management
- A new project involves transboundary small irrigation infrastructure in Cubango Province.

### **European Union - EuropeAid Development and Cooperation**

- The [National Biodiversity Project: Conservation of Iona National Park](#) (2012) project will focus on the rehabilitation of Iona National Park to create and strengthen sustainable management units for protected areas and facilitate the implementation of the National Strategy and Action Plan for Biodiversity.

### **Global Environment Facility (GEF)**

- [Expansion and Strengthening of Angola's Protected Area System](#) (UNDP, GoA/MINAMB) This project aims to enhance management effectiveness, including operational effectiveness and ecosystem representation.
- [Land Rehabilitation and Rangelands Management in Small Holders Agropastoral Production Systems in Southwestern Angola](#) (FAO, GoA/MINAMB/MINADERP). This project aims to enhance capacity of SW Angola's small-holder agropastoral sector to mitigate land degradation, and to mainstream sustainable land management technologies.
- [National Biodiversity Project](#) (EU, Spain) (2011-2015) This project aims to strengthen the Angolan protected areas network by rehabilitating Iona National Park as a key catalyst to improve the management of globally significant biodiversity.

### **United Nations Development Program (UNDP)**

- [Urban and Peri-urban Water and Sanitation Joint Program Management](#) (2009-2013; with Spain) This program aims to promote sustainable, equal and non-discriminatory access to sufficient, safe, physically accessible and affordable drinking water and adequate sanitation for peri-urban and rural communities in the Luanda and Moxico provinces of Angola, by enhancing the governance of the sector and promoting a rights-based approach to water and sanitation delivery.
- [Growing Sustainable Business](#) (2011-2013; with Spain) This project will encourage market access to farmers, producers and sectors players to address product value chains for agriculture, agro/processing, water resources, tourism and construction. The target beneficiaries for the project will be the poor and unemployed. Also through the tourism value chain development in liaison with the Angolan Ministry of Tourism to assist rural development and conservation in Malanje, Okavango and Cabo-Ledo; this initiative will benefit the people who live in these communal lands and support the use of wildlife as an important natural resource by sustainable and appropriate management of the environment.
- [Environmental Protection and Sustainable Management of the Okavango River Basin](#) (2006-2010; with GEF) This project is complete, and produced a Trans-boundary Diagnostic Analysis and a Strategic Action program. After all three OKACOM countries have received political level endorsement of the Transboundary Diagnostic Analysis and the Strategic Action Plan for OKACOM, the development of a second phase will begin, including funding proposals.
- [Sustainable Land Management Capacity Building in Angola](#) (2008-2012; GEF, GoA) This project focused on demonstration sites for sustainable land management mechanisms within three production systems (agriculture, livestock and sustainable forestry) to reduce land degradation in Huambo, the province most affected by these land

uses. More than 100,000 ha were brought under sustainable land management over five years. This project has ended, but SAREP is attempting to continue some of the activities in Kuando Kubango province.

- The UNDP is developing a project to support the implementation of the National Biodiversity Strategy and Action Plan. One of the components will establish an implementation unit within MINAMB.
- [Integrated Management of Benguela Current Large Marine Ecosystem](#) (BCLME)

#### **United Nations Environment Program (UNEP)**

- UNEP supports efforts by the governments of Angola, Botswana, Namibia, Zambia and Zimbabwe who are working jointly towards the establishment of as the Kavango-Zambezi, a Transfrontier Conservation Area (KAZA TFCA). UNEP is collaborating with Roots of Peace and Conservation International to develop and implement a program to open a wildlife corridor which will enhance conservation of wildlife and stimulate economic development, in Eastern Angola. UNEP is also working with the KAZA secretariat and the liaison with SADC.

#### **United Nations Food and Agriculture Organization (FAO)**

- National Forestry Resources Assessment: Building Partnerships, National Capacity and Institutional Strengthening for Forest and Trees Resources Monitoring in Angola (2008-2012)
- Support for government institutions to improve the management of tenure and land administration and natural resources, in the provinces of Huambo and Bie, Angola (2010-2013)
- Intra-African Training and Dissemination of Technical know-how for Sustainable Agriculture and Rural Development with Africa-ASEAN Country Cooperation within the Framework of South-south Cooperation (2007-2013)
- Land rehabilitation and rangelands management in small holders agropastoral production systems in Southwestern Angola (PPG) (2012-2013)
- Urban and peri-urban horticulture for reducing poverty and malnutrition (2012-2013)
- Strengthening of Livestock Services in Angola (2012-2013)
- Formulation of the Community of Portuguese Language Countries South-South/North-South Cooperation Program for the Implementation of United Nations Convention to Combat Desertification (UNCCD) (2008-2011)
- [Participatory Formulation of Forest, Wildlife and Conservation Areas Policy and Legislation](#) (2005-2007) The United Nations Food and Agriculture Organization is a key player in the development of the forestry policy and proposed forestry law. FAO, supported by the Netherlands, is conducting a forestry inventory and developing the regulatory framework for wildlife (hunting), conservation areas, forestry, and monitoring.

#### **World Bank**

- [Water Sector Institutional Development](#)
- [Market Oriented Smallholder Agriculture Project](#)



## ***B5c. NGOs and Foundations***

### ***B5c1. International and Foreign Organizations***

[Conservation International](#) (CI) is working with partner organizations to identify the most important freshwater areas within [Miombo-Mopane region](#), an area among the most food insecure in the world, where human reliance on water-related resources is near-absolute. This project is investigating the key factors driving and maintaining such systems, and developing programs that will ensure that the essential services that these freshwater systems provide will remain viable into the future. CI will provide this information to governments, industry, NGOs and local stakeholders for improved land-use planning and development decisions. Efforts to date have supported rural people in focal Miombo-Mopane regions to live more harmoniously within their local environments. Results include training and support for conservation agriculture, human-wildlife conflict mitigation techniques, bee-keeping and honey production, development of small-scale eco-tourism enterprises, and planning for the establishment of ecological corridors across large landscapes.

The [IUCN](#) Eastern and Southern Africa regional program builds on the growing global recognition and understanding of the trends and links between ecosystem changes and human well-being, and seeks to contribute to the region's development in a way that benefits both ecosystem and human health.

[Landesa Rural Development Institute](#) has worked on several projects in Angola in recent years, in partnership with USAID and FAO: land tenure assessments of Benguela and Kuando-Kubango provinces (2009-2010); legal framework for the formalization of land rights (2006-2009); land law and regulatory development: assistance to civil society NGOs and the GoA in the development of the regulations needed for the overlying land law (2003-2008); and, land law and policy assessment (2002-2003).

[Oikos](#) - Cooperation and Development is a Portuguese NGO that works on a variety of humanitarian, sustainable development, and justice issues, and had several projects in [Angola](#) in the past.

The [Peace Parks Foundation](#) was established in 1997 to facilitate the establishment of transfrontier conservation areas (TFCAs), and develops human resources, thereby supporting sustainable development, the conservation of biodiversity and regional peace and stability. The Peace Parks Foundation has been involved with all of the TFCAs in Angola: Kavango Zambezi (signed treaty); Iona-Skeleton Coast (signed MoU); and, Liuwa Plains – Mussuma (pending MoU).

[The Nature Conservancy](#) (TNC) is not currently working in Angola, but has a relevant project in Africa: the [aridlands of Namibia](#) in the Kunene region, where TNC is working to conserve this vast desert ecosystem and enhance its people's quality of life. The Kunene's rocky desert, arid grasslands and dry riverbeds provide a sparsely populated corridor for iconic wildlife, including the desert-dwelling black rhinoceros and the desert elephant. Besides the rhino and elephant, the Kunene boasts a full range of large carnivores — desert lion, cheetah, leopard and hyena — as well as healthy populations of hoofed animals, including mountain zebra, giraffe, springbok, oryx and kudu.

The [WILD Foundation](#) is an international NGO with a vision of protecting and interconnecting at least half of the planet, land and water, because wild-areas provide essential social, spiritual, biological and economic benefits. After the end of the civil war, the WILD Foundation helped to re-establish Kissama National Park, providing critical capacity building and financial support, and facilitating wildlife re-introductions.

The Wildlife Conservation Society ([WCS](#)) is working to inform policy discussions on the impacts of offshore oil and gas development around the world. In the Gulf of Guinea and Angola, WCS is helping to set industry standards that are sensitive to the needs of the region's humpback whales and leatherback turtles. In addition, the WCS Animal & Human Health for the Environment and Development ([AHEAD](#)) project is focused on problems facing biodiversity conservation and development in large, transboundary landscapes from the critically important perspective of the linkages among wildlife health, domestic animal health, and human health and livelihoods. They have recently completed a transboundary analysis of animal diseases in the KAZA TFCA (Penrith and Thomson 2012).

[World Wildlife Fund](#) for Nature (WWF) is working on two relevant projects: 1) WWF is working throughout the [Miombo Woodlands](#) region to conserve the woodlands and to help meet human needs and development through the sustainable use of natural resources. This includes conservation agriculture and sustainable charcoal production. WWF has been working for years with local authorities in the Selous Game Reserve in Tanzania to conserve elephant and rhino populations as well as other wildlife. 2) WWF is also working in the [Namib Desert](#) to support the conservancy movement, which gives local communities responsibility and right of ownership over their natural resources and wildlife, with profits invested back into the community.

### **B5c2. Angolan Organizations**

Associação de Conservação do Ambiente e Desenvolvimento Integrado Rural ([ACADIR](#)) / Association for Environmental Conservation and Integration Rural Development is a NGO based in Menongue, and the principal partner for SAREP in Angola.

Accao para o Desenvolvimento Rural e Ambiente ([ADRA](#)) / Action for Rural Development and Environment Angola is a NGO committed to democratic and sustainable development that is socially, economically and environmentally just, and to promoting the process of national reconciliation and peace in Angola. Actions include strengthening the capacity of the excluded, valuing the traditions and practices of rural communities and strengthening the capacity of civil society organizations.

Ajuda De Desenvolvimento De Povo Para Povo Angola ([ADPP](#)) / People to People was started in 1989 and has three objectives: to promote solidarity between people; to promote the economic and social development of Angola by implementing development projects in the areas of education, training, social well-being, health, culture, environment, production, agriculture, and trade; and, to promote a better life for the underprivileged and the most needy part of the population.

[Birds Angola](#) is a small team of group of dedicated individuals that support, promote and conduct research and conservation of Angolan birds and their habitats.

Development Workshop Angola ([DW](#)) has been working in Angola since 1981 at the national government's request to assist in developing policies and programs for human settlements and



self-help housing. Through the last decades, DW has adopted a strategy of supporting the emerging Angolan civil society and the process of local government decentralization while working closely with local community organizations. DW continues to have one of the strongest NGO presences in Angola and currently manages a large number of successful projects in the following sectors: Water and Sanitation, Participative Planning, Micro-finance, Shelter, Peace building and Citizenship, Decentralization, Monitoring, Research & Strategy, and Land Tenure.

Juventude Ecological Angolana ([JEA](#)) / Ecological Youth of Angola is a NGO founded in Luanda in 1991, dedicated to protection, restoration and preservation of the environment. The JEA mission is to improve the quality of environment and quality of life for all Angolans, and to facilitate sustainable development and environmental education.

The Kissama Foundation was founded in 1996 by a group of South Africans and Angolans who were concerned about the present state of Angola's National Parks and the conservation of the country's natural resources in general. The primary objectives of the Foundation are the rehabilitation of the Kissama National Park as well as the other national parks of Angola. The main objective of the Foundation is the protection, conservation, development and equilibrium of the Angolan fauna and flora, as well as their enrichment, study and research.

### ***B5d. Extractive Industries***

The financial support of extractive industries to environmental activities has been small but significant. Esso (Exxon) is a key supporter of the Giant Sable Conservation Initiative, as well as a number of community health, education, and infrastructure projects in 15 of Angola's 18 provinces. In the past [SONANGOL](#) has supported the Kissama Foundation's effort to restore the Kissama National Park, build an electric fence, reintroduce a number of species from South Africa, and pay the salary of a park manager. British Petroleum is funding research on the impact of platforms on the deep sea environment and environmental education. The project aims to measure and monitor deep sea biological communities and oceanographic conditions, understand the pace of recovery from any unforeseen impacts and differentiate between natural and man-made changes. [Angola LNG](#) is a major LNG producer with operations in Angola that provides funding to support biodiversity conservation through the national Biodiversity Action Plan; by supporting in partnerships and collaborations; by increasing environmental awareness and education; and, supporting research.

Investments by oil companies from Angola-derived revenue on development assistance projects in Angola must be approved by SONANGOL, because any investment in non-oil related activities detracts from the bottom line. This is not the case, however, if the funds are provided from company funds from outside the production sharing agreements. The petroleum industry has provided some assistance towards very specific environmental management and conservation activities. The magnitude of the assistance, however, is small relative to the size of their operations in Angola. The state-owned diamond company, ENDIAMA, does not have a strong history of meaningful investment in natural resource management and mitigation of riparian systems that are directly affected by diamond mining practices.

## C. STATUS AND TRENDS OF TROPICAL FOREST AND BIODIVERSITY

Angola is home to exceptional biodiversity that results from a combination of factors: the vast size of the country, the inter-tropical geographical location, the altitudinal variation, the biome types, and the 1,650 km-long coastline. To date comprehensive baseline surveys have not been conducted on natural resources in Angola. Consequently, the current status of conservation or degradation of biodiversity in the country is poorly known. Various surveys and assessments were conducted of some components of biodiversity by various institutions and university researchers. However, efforts are outdated and have not been coordinated.

### C1. ECOSYSTEM DIVERSITY

#### *C1a. Forests, Woodlands, and Savannas*

Most forestlands in Angola are miombo woodlands or savanna (Section B1f, Table 1). Estimates of forested land cover are highly variable, ranging 19-56% of the national territory (Caetano 1999; FAO 2003; IDF 2004; MINAMB 2006a; USAID 2006). The discrepancies may be due to poor math or different ways of classifying vegetation cover (standard international definition of forest from UNESCO is an area with  $\geq 25$  percent canopy cover by trees). The most common estimate of “forested” land is 53 million ha of Angola, which is about 43% of the national territory, which likely refers to the number given in the Carta Fitogeográfica de Angola from 1970 (Barbosa 1970); that estimate is no longer accurate, given the patterns of deforestation and forest threats in the country. Based on an analysis for the 2008 118/119 Assessment for USAID/Angola (Safford 2008), a best-guess estimate of current forest cover is probably 40-45 million ha, or 35 percent of the national territory. Of the area currently covered by forest (however defined), MINADERP/MINAMB (2006) states that about 80% is comprised of miombo and savanna formations, and only 2% of rainforest. Mangrove forests, which are of extreme importance with relation to ecosystem function (e.g., species diversity, primary productivity, fish reproduction, sediment retention, water purification) are found on about 1,250 km<sup>2</sup> of estuarine lands, or about 0.1% of the Angolan national territory. Aside from forestlands, other general land categories include grazing lands (about 23% of the national territory), and arable lands, including permanent cultivation (3% of the national territory) (MINAMB 2006a).

Deforestation rates in Angola over the last three decades have been relatively high, even though huge displacements of people from the countryside to urban areas have allowed for forest recovery in many areas that had previously been under cultivation. The primary causes of deforestation are charcoal production, land clearing for agricultural purposes, and fire. Current rates of deforestation are probably at least 1% per year (Safford 2008), based on an analysis of charcoal and firewood demand in Angola. Earlier estimates of deforestation rates were lower (0.3-0.8% per year), but the absence of data confounds precise estimates (IDF 2004; MINAMB 2006a; USAID 2006).

Despite these patterns in deforestation from land use and land cover change, Angola has high-productivity sites with abundant forestry resources, with considerable potential for sustainable development. According to the National Forestry Strategy (IDF 2006), top priorities include legislative reform in the forestry and wildlife sector, the completion of a national forest

inventory, and completion of a National Afforestation and Reforestation Strategy. In 2008 IDF began to fund a satellite-based assessment of forest cover and decadal changes therein, which includes field validation. This effort should provide improved, updated numbers. Angola has significant opportunities to initiate large-scale afforestation and reforestation programs, from which several economic, social and environmental advantages can be drawn, alleviating the pressure on primary forests. For instance, many already degraded and marginal sites unsuitable for agriculture could be converted into forest plantations, with environmental and social benefits in terms of soil protection, watershed protection, climate change mitigation, and sustainable development of forestry products (e.g., construction materials, pulp, wood fuel). Analysis by IDF indicated that Kwanza Norte, Uíge, Bengo, Kwanza Sul, Malanje, Lunda sul, Huambo and Moxico provinces are best positioned for afforestation and reforestation efforts.

Angola recently submitted its First Communication to the UNFCCC (Republic of Angola 2012), which included several forestry mitigation measures: payments for ecosystem services options related to forests, wildlife, and protected areas; expanding the involvement and role of the community, NGO, and private sectors in sustainably managing forests, wildlife, and protected areas; improving integrated resource management of forests, wildlife and protected areas; and, harmonizing institutional management of forestry, wildlife, and protected area administration. The country is currently not participating in any national REDD+ preparedness activities but FAO estimates consider the potential for earnings from REDD+ in Angola to be substantial.

### **C1a1. Economic Value of Forests**

- **Wood products**

Current and accurate data are difficult to find, though there is consensus that Angola is home to highly productive forests, and that production could be substantially expanded to meet demand and lessen pressures on native forests. At one time, tree plantations in Angola were among the most extensive in Africa, consisting primarily of Eucalyptus species (~85% of planted area) and Pine and Cypress (~15%). Today many of these plantations have disappeared, due primarily to uncontrolled use of the growing stock for fuelwood and charcoal. One issue affecting roundwood extraction is low larger-scale sawmill capacity in Angola; at a much smaller scale, many operators use portable mills but there are no data to document their impact (IDF 2004). Unfinished forest wood products are collected and used for construction and maintenance of houses, sheds, fences, and other structures in many rural communities in Angola (FAO 1999; MINAMB 2006a). It is estimated that 80-90% of Angolans rely entirely on fuel wood or charcoal for their cooking and heating needs, and that fuel and charcoal use consumes approximately 6 million m<sup>3</sup> of wood products annually (FAO 2003; MINAMB 2006a); note that the latter number is from a 1992 estimate and may be much higher today. About 60% of the Angolan population is rural (MINADERP/MINAMB 2006), and charcoal is a major source of income for many rural people.

- **Non-Timber Forest Products (NTFPs)**

There is no quantitative information available on current non-timber forest product (NTFP) collection or use in Angola, although MINAMB (2006a) estimates 1) that at least 80% of the Angolan population uses plant-based remedies of some form; and, 2) that around 60% of Angolans depend on forest products like bushmeat, fish, and insects as their principal source of protein. Collection of NTFPs focuses on 1) edible plants and plant products such as fruits,

leaves, tubers, roots, nuts, and mushrooms; 2) medicinal plants; 3) animals and animal products such as bushmeat and honey; and, 4) fodder (FAO 1999, 2003; MINAMB 2006a; USAID 2006; Zweede et al. 2006; USAID 2008). NTFPs are important providers of protein (e.g., bushmeat) and vitamins (e.g., fruits) in the diets of many rural people, and they represent a significant income source as well. Although unlicensed bushmeat trade is illegal in Angola, bushmeat is readily available in much of the country and can be bought openly along roadsides. Medicinal forest plants are of great importance in rural areas of Angola, due to cultural practice as well as to limited access to modern medicine and treatments. Many village people have extensive knowledge of forest plants and their uses. According to FAO (1999), of 235 tree species known to exist in Angola, at least 40 have documented uses in traditional medicine. MINAMB (2006a) estimates that at least 200 plant species of all kinds are used for medicinal purposes in Angola. During colonial times honey and beeswax production was a major source of national income. Most of this production came from developed apiculture in western Angola, but today beekeeping is mainly a subsistence activity and only carried out on a local basis. Traditional honey collection is quite destructive and usually involves the cutting or burning of trees and the destruction of the hive. Beginning in 2003, IDF developed a series of pilot apiaries in various towns in the Angolan interior, including a training program in honey production and processing (MINAMB 2006a).

### **C1a2. Forest Threats**

- **Forest clearing for charcoal production**

Charcoal production is thought to be a serious threat to Angola's forests (MINAMB 2006a, 2006b; Zweede et al. 2006). As noted above, most Angolans rely on charcoal for their everyday cooking and heating needs. The major causes of high rates of charcoal production in Angola are (1) the vast urban-based market for charcoal, (2) the ease of charcoal production, compared with, e.g., agricultural pursuits, and (3) the high profitability of the practice. Moving even a minor part of the population of Luanda to natural gas (or electricity) would likely have a very beneficial impact on forest loss throughout Angola. Another major issue is the nearly complete lack of regulation of the charcoal trade, despite a licensing system that IDF is tasked with managing.

- **Forest clearing for agricultural use**

Slash and burn agriculture requires periodic clearing of forest to plant new fields as productivity declines at old sites. For typical clearing, up to perhaps 1-2 ha, there is no need for a license but larger areas require legal consent of the authorities at the local level (Zweede et al. 2006). The wood removed is used for firewood or sometimes turned to charcoal, and then often sold. In most places, at least some of the cleared wood is piled and burned and planting is carried out in the nutrient-rich ash.

- **Selective harvest of valuable tree species (“high-grading”)**

IDF is the government agency which is entrusted with management of the national timber resource. Licenses/concessions to cut wood for commercial use are issued by local IDF offices for volumes less than 500 m<sup>3</sup>; concessions asking to cut more than this must be approved by the Director in Luanda. However, previous visits have reported much unapproved cutting of wood for commercial purposes throughout Angola, especially near the Namibian border (Zweede et al. 2006). The species most at threat in eastern and southern Angola include *Pterocarpus angolensis*

(Girassonde or Múkoa), *Guibourtia coleosperma* (Mussivi), and *Afzelia cuanzensis*, all of which have high value for use in construction, furniture, and medicine. Seedling recruitment rates of *P. angolensis* are extremely low, and the long-term outlook for this species seems especially doubtful (Schwartz et al. 2002; Caro et al. 2005). Although IDF theoretically manages timber harvest in Angola, previous field visits and interviews (Zweede et al. 2006; USAID 2008) make it clear that there is little control of selective harvest, and indeed, IDF officials are themselves sometimes directly involved in unsustainable high-grading practices. There is no ecological underpinning for the process by which logging permits (for commercial use or for charcoal production) are approved or rejected, and Angola's lacks a landscape-scale, long-term strategy for sustainable forest management.

- **Fire**

Within Angola, anthropogenic fire is thought to be a significant cause of deforestation; with ignitions used to clear land for agriculture and to flush animals for hunting (MINAMB 2006b, USAID 2006). The Zweede et al. (2006) report stemmed originally from a request by the Angolan government to assess the impacts of fire on natural vegetation in Kuando-Kubango Province. At some level, fire is a natural disturbance feature of the ecology of miombo, and many tree species exhibit adaptations to fire, including thick, corky bark, or enhanced germination after fire (Lawton 1978; Pomeroy and Service 1986). Dry-season fires are very common in miombo and they are primarily human-caused. Damage to miombo canopy trees is usually minor (Boaler 1966), except during the late dry-season and especially after years with heavy wet-season precipitation, when the chances for escape and canopy tree loss are significantly increased due to high amounts of very dry fine-fuels (Trapnell 1959; Cauldwell and Zieger 2000). Large areas of miombo in the Provinces of Malange, Moxico, Bié, and Kuando-Kubango (among others) have burned in late season fires in recent years.

Anthropogenic fire is probably of most concern in the escarpment forests and Afromontane formations of western Angola, especially in the Provinces of Kuanza Norte, Kuanza Sul and Huambo. These dense, highly diverse forests exist because of orogenic precipitation and are not adapted to fire. Lightning strikes occur almost entirely during the wet season when ignition and fire spread are extremely limited, but human ignitions are concentrated in the dry season and almost invariably result in the loss of some forest adjacent to the clearing. In extremely dry years under severe hot and windy conditions, fires along the escarpment can destroy very large tracts of forest. Due to such practices, formerly contiguous swathes of escarpment forest are now largely reduced to small, isolated patches restricted to moist microsites or areas protected by rocky outcrops. There are no protected areas within either the escarpment or Afro-montane forests, even though these represent the center of plant diversity and endemism in Angola. As of today, there has been no credible estimate of the contribution of fire to forest loss in Angola. Technologies now exist that can use remotely-sensed imagery to measure fire occurrence, extent, and severity, as well as impacts on forest cover. The current IDF-Angola Alliance effort to map forest change over the last few decades may provide concrete numbers.

- **Diamond mining**

Current diamond mining practices are a serious threat to riparian forests (not to mention aquatic and other resources) throughout central and eastern Angola. At the industrial scale, general practice is to completely reroute rivers and then to dredge all alluvium within the river bed and in adjacent alluvial deposits, to a depth which depends on the balance of extraction cost versus



projected diamond recovery. All vegetation at the mining site is destroyed in the mining process, and vegetation surrounding the mining site is often significantly damaged as well. After mining, the rivers may be returned to their original geographic location, or they may not. There is also informal artisanal-scale mining happening at various locations in Angola, but the government has declared such activity to be illegal and is rapidly shutting these operations down. Environmental impacts at these sites are similar but of smaller scale.

### ***C1b. Aquatic Ecosystems***

Angola is home to enormous aquatic biodiversity found in marine, coastal, and inland freshwater ecosystems. As with data on terrestrial ecosystems, most studies were conducted during the colonial period and covered a relatively small geographic extent; a coordinated, national inventory is needed.

The coastline of Angola stretches for 1,650 km, and is one of the most productive fisheries in the world. This area is also an important center of marine biodiversity, because of the Angola – Benguela thermal front (between 14° and 17° S latitude), where the warm Guinea current conducive to tropical marine fauna converges with the much colder Benguela current, which is more conducive to temperate fauna (Figure 8). Mangrove forests along the Angolan coast serve as transitional zones between coastal and inland ecosystems, and provide critical ecosystem regulation such as storm buffering and sediment loading. Mangroves provide essential habitats for crustaceans and fish that are critically important for sustenance and livelihoods.

**Figure 8.** Angola-Benguela Thermal Front



The surface water resources in Angola are relatively abundant (See also Section B1e). At least 26 perennial rivers flow into the Angolan coast and many others flow towards the north, east and southeast. Several rivers, mainly in the south-west have intermittent water supplies, depending on the season and rainfall amounts. Most rivers originate from the plateau region, and Angola functions as a water tower for neighboring countries. Wide estuaries such as those of the Congo, Dande, Cuanza and Cunene rivers provide the food and water essential to the livelihood of the population, including those of neighboring countries. As noted in the IUCN (1992) report, Angola's rivers were in good condition in 1992. Save for areas near urban centers and selected estuaries, this is still the situation in most of Angola with one serious exception: the rivers in the diamond producing areas, especially in Lunda Norte, particularly the Cuango River. The north-flowing diamond-bearing rivers in Lunda Norte are fringed by gallery forests that have species composition representative of the Guineo-Congolian biome, in sharp contrast with the surrounding vegetation. From a biodiversity conservation perspective, they are far more important than their relatively small geographic extent suggests.

Angola's mangroves, estuarine systems, and coastal zones in general are under a number of pressures due their proximity to population centers and irregular settlements established during the war. Rapid economic growth in the absence of effective environmental governance compromises the future of some of the most productive coastal ecosystems in the country, such as the Kwanza and Longa River mouths, and other estuaries and bays near urban centers. Marine habitats are threatened by semi-industrial and industrial fishing, and disturbance and pollution related to energy and mineral exploration and extraction. Coastal habitats face a variety of anthropogenic threats, including uncontrolled recreation, over-fishing, logging, development, and pollution. Estuaries and mangrove ecosystems are under pressure from wood extraction and heavy poaching of manatees. There is also international interest in developing shrimp farms and hydroelectric facilities, both of which could dramatically impact coastal ecosystems.

### **C1b1. Fisheries and Aquaculture**

Angola's fisheries include marine (industrial and artisanal) and inland sectors. The area from Lobito to the mouth of the Cunene River, also known as the southern fishing zone, is by far the most productive of Angola's marine fishing zones, with an abundance of horse mackerel, sardines, tunas and a range of demersal species including hake. Overexploitation and change in hydrological conditions have strongly impacted industrial-scale marine fisheries. Artisanal marine fishing activities are scattered along the coast; Benguela and Luanda provinces have the best fishing areas and potential for further expansion exists. For inland fisheries, Angola has several high value freshwater fish species, including Tilapia and catfish. Inland fisheries are mainly for subsistence, though there is potential for increased production (FAO 2007).

Angola is endowed with both inland and marine aquatic resources suitable for aquaculture (Silva 2005; FAO 2007). Currently, aquaculture production in Angola is primarily small-scale and focused on inland freshwater sites. Infrastructure and institutional capacity are the two primary constraints to the development of aquaculture in Angola. The most cultivated species and that of major trade value in Angola are the various species of Mackerel (Cichlidae family, especially *Tilapia* spp.), Bagre (Bagridae family) and Cabuenha (Cyprinidae family).

Fisheries and aquaculture are considered priorities of the Angolan Government to promote sustainable economic development and contribute to poverty reduction and food security. In late

2012, MINADERP announced a plan to invest in the recovery of the fishing resources, improvement to the infrastructures of support, development of the salt industry, agriculture and training of personnel. Technical support includes the Institute of Development of Artisanal Fisheries and Aquaculture (IPA) within MINADERP, and construction of the new College of Fisheries and Ocean Sciences in Namibe Province is due to be complete at the end of 2013.

## C2. SPECIES DIVERSITY

Many descriptions of Angolan taxonomy start by acknowledging the paucity of sampling and data. There have been no significant taxonomic studies in the country for nearly four decades. During this period, taxonomists elsewhere have recognized new species and subspecies and eliminated others based on new methods and criteria. In addition, there have been no significant field studies or surveys since 1975 to establish the actual status of different species in country. What we know today about Angola's biodiversity is actually less than what was known in 1975 when Angola achieved independence. Nonetheless, Angola hosts diverse fauna and flora both within and outside its protected areas.

Angola is thought to be home to at least 8,000 plant species, 275 mammal species, 78 amphibian species, 227 reptile species, and 915 bird species (IUCN 1992; Republic of Angola 2006; BirdLife International 2012). The number of insect species catalogued exceeds 300, but the total number is certain to be many orders of magnitude higher. More than 420 fish species have been identified and 655 crustaceous species have been found in Angolan waters. Angola reputedly has the second highest number of endemic plants (1260 species) in Africa. It hosts 12 endemic bird (Table 2) and 19 endemic reptile species.

**Table 2.** Bird species endemic to Angola ([BirdLife International](#))

Common Name	Scientific Name	IUCN Status*
GREY-STRIPED FRANCOLIN	<i>Francolinus griseostriatus</i>	LC
SWIERSTRA'S FRANCOLIN	<i>Francolinus swierstrai</i>	EN
RED-CRESTED TURACO	<i>Tauraco erythrolophus</i>	LC
GOLDEN-BACKED BISHOP	<i>Euplectes aureus</i>	LC
GABELA BUSH-SHRIKE	<i>Laniarius amboimensis</i>	EN
ORANGE-BREASTED BUSH-SHRIKE	<i>Laniarius brauni</i>	EN
GABELA'S AKALAT	<i>Sheppardia gabela</i>	EN
ANGOLA CAVE-CHAT	<i>Xenocopsychus ansorgei</i>	NT
PULITZER'S LONGBILL	<i>Macrosphenus pulitzeri</i>	EN
ANGOLAN SLATY FLYCATCHER	<i>Melaenornis brunneus</i>	LC
WHITE-FRONTED WATTLE-EYE	<i>Platysteira albifrons</i>	NT
GABELA HELMET SHRIKE	<i>Prionops gabela</i>	EN

\* LC: Least Concern EN: Endangered NT: Near Threatened

The country's two most famous endemics are the prostrate conifer *Welwitschia mirabilis* in the southern part of Angola (Namibe province) and the giant black sable antelope (*Hippotragus niger varianti*), an endemic species from Angola (Malanje and Bié provinces). The black sable antelope was first discovered in 1909, and by the 1970s was only found in Cangandala National Park and Luando Strict Nature Reserve. The species was considered extinct after several



decades of armed conflict facilitated poaching and left protected areas without staff, but field work rediscovered the black sable antelope in 2005. The giant sable is the subject of extensive research and conservation [efforts](#) in Cangandala National Park and Luando Strict Nature Reserve, including the tracking of collared animals, re-locations of black sables between Cangandala and Luanda to increase genetic diversity for breeding, and fenced enclosures to prevent hybridization with roans *Hypotragus equinus*.

A search of IUCN's Red List for vulnerable (VU), endangered (EN), and critically endangered (CR) taxa yielded 119 species of plants and animals (Appendix A) in Angola. Interestingly, the search did not capture the giant sable or *Welwitschia mirabilis*, omissions that clearly illustrate the lack of updated information on the status of biodiversity in Angola. Furthermore, not only are certain threatened species omitted from IUCN's Red List, but some are given a status that clearly understates the threats. For example, there is a strong likelihood that the African wild dog, ranked Endangered, is either critically endangered or extinct in Angola. Given the pressures, the West African manatee, listed as "vulnerable," is likely close to extinction in Angola unless decisive action is taken to conserve it and its habitat.

IUCN's Red List still provides information to guide priorities for habitat and species conservation. For example, the list calls attention to the plight of the black rhino — ranked Critically Endangered but probably extinct in Angola — the chimpanzee, the lowland gorilla, three species of turtle (green, leatherback, olive ridley) and nine endangered species of bird, of which five are endemic to Angola. This indicates conservation efforts aimed at Angola's humid forests that serve as habitat for the two large primates, and efforts to conserve turtle nesting sites and the Afro-montane forests that serve as habitat for endemic bird species. It also suggests an effort to determine the status of Angola's rhino population.

As mentioned previously, Angola lacks a current and comprehensive inventory of biodiversity. Baseline inventories are needed, followed by periodic inventories to document status and trend over time. Some progress is being made: rapid ecosystems health assessments, biodiversity surveys, and hotspot surveys are included in the SAREP program of work for the Cubango-Okavango River Basin, which includes southeastern Angola (USAID 2012c). Recent SAREP surveys of aquatic diversity in the upper Angolan catchment of Cubango-Okavango River Basin yielded new understandings of fish distribution, several undescribed species of fish and dragonflies, and many new records of amphibians and reptiles for Angola (USAID 2012a).

Direct threats to biodiversity include commercial hunting, subsistence poaching and the illegal pet trade (e.g., grey parrot); indirect threats include habitat degradation and loss from bushfires, logging, and poor management of protected areas.

### **C3. PROTECTED AREAS**

The current protected area network consists of national parks, regional parks, and reserves (Figure 9, Table 3). The network includes two new national parks in southeastern Angola that were approved in 2011 (Mavinga and Luiana), based in part on work done under USAID's Integrated River Basin Management project (USAID 2009). This network covers approximately 8.5% of the national territory, a relatively low proportion in Africa. According to the National Biodiversity Strategy and Action Plan (MINAMB 2006a) and the Fourth National Report to the CBD (Republic of Angola 2009), Angola intends to increase the extent of the protected area network to cover 15% of the country. Angola also has a number of game reserves: Ambriz

(1,125 km<sup>2</sup>); Luengué (13,800 km<sup>2</sup>); and, Milando (6,150 km<sup>2</sup>). Angola's original protected area system was not designed to provide balanced representation of the country's exceptionally rich biodiversity, nor to protect ecosystem processes, nor to mitigate the impacts of climate change. These new challenges need to be addressed in response to the demands of Angola's rapidly growing economy, its social development programs and its expanding regional and global responsibilities (Huntley 2010).

Most of the protected areas represent Zambebian biomes. The protected area network does not include some of the most biodiverse ecosystems in Angola: the Afro-montane cloud forests represented in the country's highest points, such as the Morro do Moco in Huambo Province, and other sites in Bié Province. These residual patches are repository of a significant number of bird and plant species endemic to Angola. They are severely threatened by burning and logging. The semi-deciduous humid forests of Angola's northwestern highland (Uíge, Cuanza Norte, and Bengo) are also excluded from the country's protected area system. Floristically, they are related to the Guineo-Congolese biome in what was Angola's coffee producing area. These coffee plantations have been abandoned and now support a healthy population of small antelopes, primates, and an impressive avifauna. The wildlife, primarily primates and antelopes, are under heavy hunting pressure. The MINAMB has been evaluating proposals to establish a Maiombe Forest Transfrontier Conservation Area TFCA in partnership with the Republic of Congo and the Democratic Republic of Congo (See Section C4).

A new 'Angolan Protected Area Expansion Strategy' (APAES) was developed by an expert on Angolan biodiversity resources, Dr. Brian Huntley, in collaboration with MINAMB (Huntley 2010). APAES was approved by the Council of Ministers, the highest decision-making body in Angola, in April 2011. This strategy outlines 11 areas of high diversity in Angola especially worthy of protection, with all major biomes and geographic regions of the country represented. However, baseline biodiversity assessments are still needed to inform conservation and management practices at each site.

The long period of conflict in Angola dramatically affected the natural resources and infrastructure of the protected area network, and these areas are challenged by a number of threats:

- Management and protective measures have not worked and in some cases have been nonexistent. There is a chronic confusion regarding the overlap in responsibility between MINAMB, MINADERP, and IDF. This poorly defined authority, combined with low institutional capacity, has contributed to weak oversight of protected areas and environmental regulation. None of the protected areas have management plans, and there is a severe shortage of qualified staff, and financial resources.
- Local communities have not participated in protected area management.
- Many of these areas were occupied by surrounding communities during the war, and the effects of human encroachment are notable: hunting, agriculture, livestock, housing, and bush fires.
- Wildlife populations have been severely reduced by commercial hunting and subsistence poaching.

**Figure 9.** Existing (green) and proposed (hatched) protected areas in Angola (Huntley 2010).



Map number	Name	Map number	Name
<b>Existing protected areas</b>		<b>Proposed protected areas (Huntley 2010)</b>	
1	Quicama National Park	13	Maiombe National Park
2	Cangandala National Park	14	Serra Pingano Strict Nature Reserve
3	Luando National Park	15	Serra Mbango Strict Nature Reserve
4	Cameia National Park	16	Lagoa Carumbo National Park
5	Chimalavera Regional Park	17	Gabela Strict Nature Reserve
6	Buflalo Partial Reserve	18	Kumbira Strict Nature Reserve
7	Namibe Partial Reserve	19	Morro Namba Strict Nature Reserve
8	Bicuar National Park	20	Morro Moco Strict Nature Reserve
9	Mupa Partial Reserve	21	Serra da Neve Strict Nature Reserve
10	Mavinga Partial Reserve	22	Serra da Chela Strict Nature Reserve
11	Iona National Park	23	Mussuma National Park
12	Luiana National Park		

Since the war ended, the GoA has attempted to restore the National Parks, through infrastructure renovation; re-introduction of animals from nearby over-populated southern African protected areas; and, the training of managers and guards. To date, management infrastructure at Bicuar, Cangandala and Kissama National Parks has been refurbished; these are the only national parks with even a minimal degree of management. The European Union has recently begun funding a project to rehabilitate Iona National Park. Some areas, such as Mupa National Park, are believed to be beyond recovery, because of extensive human encroachment and resource exploitation. Although there is limited information about the condition of the other categories of protected areas, their situation is assumed to be more precarious than that of the national parks.

Tourism in the protected areas is relatively undeveloped, though Iona and Kissama National Parks, Chimalavera Regional Park, and Namibe Partial Reserve have some facilities. However, the GoA has recently identified tourism as a key sector for Angola in 2013, which may provide resources to rehabilitate and develop the infrastructure needed for ecotourism. In 2012, USFS evaluated interpretive and recreational opportunities within the Special Conservation Area within Kissama National Park (USAID 2012b); this assessment provides a list of actions for further development.

The MINAMB Protected Area Department has developed a program of work to address the many needs associated with revitalizing the national protected area network. Priorities include:

- Re-assess the status of the existing protection areas and their infrastructure through ecological surveys and inventories.
- Propose the creation of protected areas to include important ecosystems, habitats and species that are of high biological value, which are not yet duly protected.
- Rehabilitate the protection areas and their infrastructure in order to enable the conduct of scientific research, biodiversity conservation, ecotourism and environmental education actions.
- Establish a national integrated management system that allows the reconciliation of the conservation and sustainable use of biodiversity and tourism with the interests of local communities.

**Table 3.** Angola existing protected area.

Site	Dominant Vegetation	Current Status	Management Status	Major Threats
National Parks (IUCN Category II)				
Bikuar National Park Decreed 1964 Huila Province 7,900km <sup>2</sup>	Miombo and Mopane woodlands with ephemeral watercourses	Previously known for large herds of common antelopes, elephant, roan, eland, kudu, wildebeest, and some rare species (wild dog). All species populations believed to be severely reduced. Avifauna poorly known.	Incipient collaborative effort between Provincial Government of Huila and MINAMB to establish management. GTZ funding rehabilitated infrastructure in 2008.	Poaching; human encroachment; commercial farming within park limits; illegal logging; livestock grazing.
Cameia National Park Decreed 1964 Moxico Province	Seasonally inundated grasslands; miombo woodlands	Had large herds of migratory animals (wildebeest) and animals adapted to flooded areas such as sitatunga	Absent; there is a serious lack of staff, resources and support for the park	Poaching; human encroachment; fires; uncontrolled fishing.

Site	Dominant Vegetation	Current Status	Management Status	Major Threats
14,450km <sup>2</sup>		( <i>Tragelaphus spekei</i> ) and red lechwe ( <i>Kobus lechwe</i> ). Large herbivore populations were documented as severely reduced by the early 1970s. Avifauna poorly known.		
Cangandala National Park Decreed 1970 Malanje Province 630km <sup>2</sup>	Miombo and edaphic (poorly drained) savannas	Vegetation in excellent condition. Fauna seriously depleted but residual number of large (roan) and small (duiker) antelopes persist. Important population (30+) of giant sable ( <i>Hippotragus niger</i> ) persists. Rich avifauna.	Park benefiting from Giant Sable project. Community guards patrol park on regular basis. Catholic University of Angola, the Ministry of Environment, and the Provincial Government of Malanje. Park infrastructure has been rehabilitated since the war.	Poaching; human encroachment; agriculture; charcoal production; large human resident population
Iona National Park Decreed 1970 Namibe Province 15,150km <sup>2</sup>	Namib Desert, sparsely vegetated gravel plains and plateaus, scrubland, dunes and extensive beaches, gravel plains. <i>Welwitschia mirabilis</i> habitat	Desert elephant, black rhino, desert lions presumed extinct. The 'big five' of Iona now include: Springbok (Gazelle), Kudu, Ostrich, Oryx and presumably cheetah. The landscape is mostly empty, although many animals (especially Springbok) can still be found inside and outside the park. Avifauna not well documented.	Absent; The park was occupied by Ovahimba pastoralists up to and including the early 1970s, but the current situation and current threats to biodiversity in the park are not known.	Livestock grazing; poaching
Kissama (Quiçama) National Park Decreed 1957 Bengo Province 9,960km <sup>2</sup>	Semi-arid Baobab savannas, mangroves, wetlands	Vegetation in good condition, fauna severely depleted. The mammal fauna includes <i>Trichechus senegalensis</i> (VU), which occurs in the lower course of the river, and large carnivores such as <i>Lycan pictus</i> (EN), <i>Acinonyx jubatus</i> (VU) and <i>Panthera leo</i> (VU) (Cabral 1987; Cabral and Simões 1988). Up to the early 1970s the park had fairly robust populations of <i>Loxodonta africana</i> (EN) (Huntley 1974a), but	Small northern section (10,000+ ha) under-administration by Kissama Foundation. Minimal presence in rest of park. Re-introduction of selected species managed within enclosure. In 2001, the Kissama Foundation, a group of Angolans and South Africans, initiated 'Operation Noah's Ark' to transport animals, especially elephants, from neighboring Botswana and South	Development in park (shrimp farming), encroachment, cultivation in wetlands, oil production, livestock grazing, charcoal production. Up to the early 1970s, Quiçama National Park had a long history of illegal hunting within its borders. There was also a private cattle-ranching operation with over 25,000 head of cattle, thousands of hectares of cotton fields, two oil

Site	Dominant Vegetation	Current Status	Management Status	Major Threats
		the current status of the large herbivore populations is not known. Marine turtles nest on the park coast (Huntley 1974a). Avifauna not well studied, but available habitats are highly varied; species diversity probably high.	Africa. These animals, which were from overpopulated parks in their home countries, adapted well to the move. Noah's Ark was the largest animal transplant of its kind in history and has given the park momentum to be restored to its natural state.	companies in active production, diamond-prospecting, a military detention barracks and a resident indigenous population of more than 5,000 people (Huntley 1974a). It is likely that these disturbances are still present, and may even have intensified with the movement of displaced people to the Luanda area.
Mupa National Park Decreed 1964 Cunene Province 6,600km <sup>2</sup>	Mopane woodlands; forest-savanna mosaic, woodland and savanna with dry shrubs	Established to conserve Angola's Giraffe ( <i>Camelopardalis angolensis</i> ) believed to be extinct in wild. Species previously present (black rhino, hippopotamus ( <i>Hippopotamus amphibious</i> ), eland, kudu, and predators believed to be locally extinct. Avifauna virtually unstudied. Large sections believed to be beyond recovery.	Absent	Invasion by refugees; poaching; human encroachment; subsistence agriculture; commercial farming along the Cunene River; charcoal; logging. Many Angolans reside within the park, which, along with nomadic pastoralists and mineral prospecting threatens to destroy the park's birdlife
Luando National Park Decreed 1938 Malange Province 8,280km <sup>2</sup>	Zambezi biome; humid woodlands			
Luiana National Park Decreed in 2011 Cuando-Cubango Province 8,400km <sup>2</sup>	Zambezi biome; extensive plains and swamps; open forests; savanna		SAREP is working with MINAMB to draw protected area boundaries, develop management plans, and train newly-hired rangers.	
Mavinga National Park Decreed a Partial Reserve in 1966; National Park in 2011 Kuando Kubango Province 5,950km <sup>2</sup>	open forests; savanna	Large mammal survey conducted in 2007 within Mucusso Game Reserve region (Verissimo 2008)	SAREP is working with MINAMB to draw protected area boundaries, develop management plans, and train newly-hired rangers.	Hunting, population growth, agriculture, fire, logging, drought, grazing, little local awareness of laws and regulations (Verissimo 2008)

Site	Dominant Vegetation	Current Status	Management Status	Major Threats
Regional Park (IUCN Category V)				
Chimalavera Regional Park Decreed 1974 Benguela Province 150km <sup>2</sup>	coastal savanna with Acacia		MINAMB signed an agreement in <a href="#">2012</a> with Imogestin SA to operate this park.	
Partial Reserve (IUCN Category IV)				
Namibe Partial Reserve Decreed 1960 Namibe Province 4,450km <sup>2</sup>	Namib desert and dune ecosystems; located north of Iona National Park			
Búfalo Partial Reserve Decreed 1974 Benguela Province 400km <sup>2</sup>	Open forest and savanna, anhara steppe with sparse grass and small shrubs			
Strict Nature Reserve (IUCN Category IV)				
Ilhéu dos Pássaros (Bird Islet) Decreed 1973 Luando Province 2km <sup>2</sup>	Mangroves	Important site for migratory birds.		
Luando Decreed 1957 Malanje, Bié Provinces 8,280km <sup>2</sup>	miombo woodlands, savanna, seasonally inundated plains	Rich avifauna, with 264 species recorded.		Extensive settlements, farming, diamond-prospecting within reserve boundaries.

#### C4. TRANSFRONTIER CONSERVATION AREAS

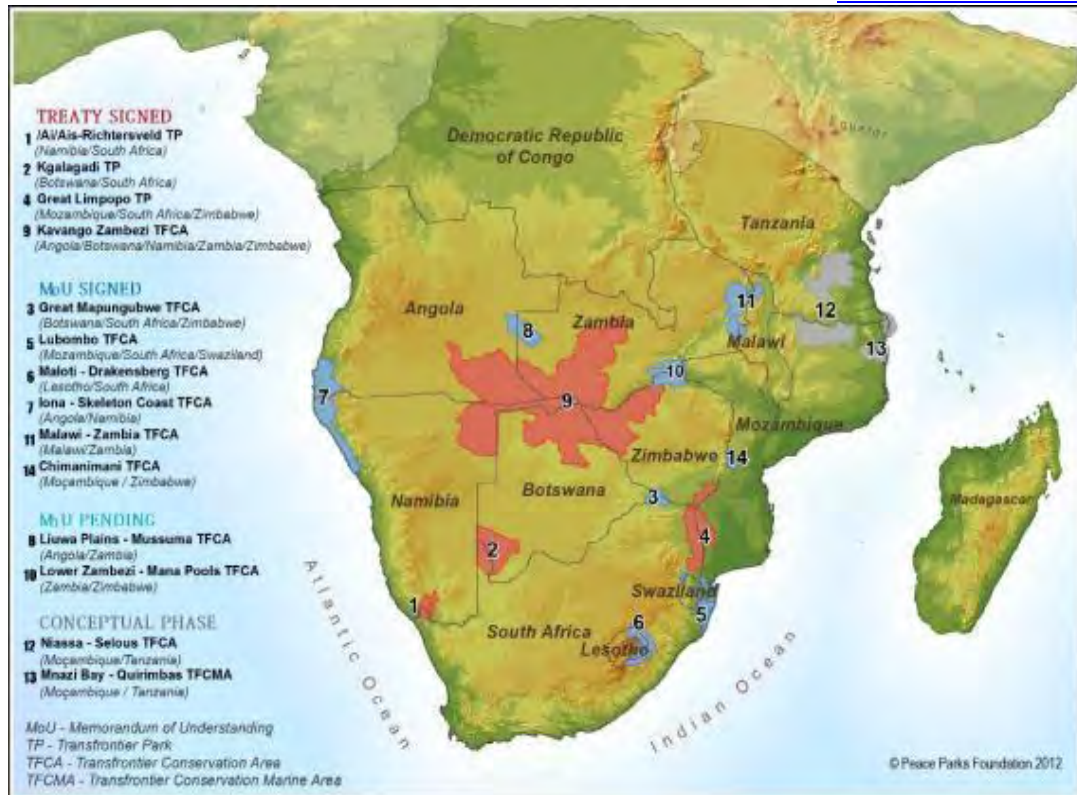
In addition to the nationally-designated protected areas, Angola is currently participating in four transfrontier conservation areas (TFCAs). The definition of a Transfrontier Conservation Area in the SADC Protocol on Wildlife Conservation and Law Enforcement is “an area or component of large ecological region that straddles boundaries of two or more countries, encompassing one or more protected areas as well as multiple resource use areas.”



## ***Kavango Zambezi Transfrontier Conservation Area ([KAZA TFCA](#))***

The KAZA TFCA spans 400,000 km<sup>2</sup> across five southern African countries—Angola, Botswana, Namibia, Zambia and Zimbabwe—centered on the Caprivi-Chobe-Victoria Falls area (Figure 10, TFCA #9). The KAZA TFCA includes 36 formally proclaimed national parks, game reserves, forest reserves, game/wildlife management areas, as well as conservation and tourism concessions set aside for consumptive and non-consumptive uses of natural resources. Angolan protected areas include Luiana National Park and Longa-Mavinga Game Reserve. Primary vegetation types include grassland; wetland; dry forest in the north; and, various types of woodlands. The KAZA TFCA is endowed with an abundance and diversity of wildlife species that are of considerable economic and ecological value, including the largest contiguous elephant population on the African continent, and more than 600 species of birds that are characteristic of the southern African savannas, woodlands and wetlands. Plant diversity consists of at least 3,000 species, some 100 of which are endemic to the sub-region. The KAZA TFCA also includes some of the world’s renowned natural features and tourist attractions, such as the Victoria Falls and the Okavango Delta.

**Figure 10.** Southern Africa Transfrontier Conservation Areas. *Source: [Peace Parks Foundation](#)*



## ***Iona-Skeleton Coast TFCA***

The Iona-Skeleton Coast spans approximately 30,000 km<sup>2</sup> across Namib Desert, coastal, and dune ecosystems in northern Namibia and southwestern Angola (Figure 10, TFCA #7). Angolan protected areas include Iona National Park and Namibe Partial Reserve. A memorandum of understanding was signed in 2003.



### ***Liuwa Plains-Mussuma TFCA***

The Liuwa Plains-Mussuma TFCA is located between Angola and Zambia, and protects the largest migratory population of blue wildebeest in the miombo ecosystem in Africa (Figure 10, TFCA #8). Every year massive herds of blue wildebeest migrate from Zambia to Angola and back again, traversing the plains in their thousands and very often mingling with zebra along the way. The TFCA will also protect a significant portion of the catchment area for the Zambezi River. A Memorandum of Understanding is currently under negotiation.

### ***Maiombe Forest TFCA***

The Maiombe Forest TFCA is still in the planning phase, but is intended to include Guineo-Congolese forest ecosystems across an area that includes Angola, the Republic of Congo, and the Democratic Republic of Congo. Implementation of the strategic plan will begin in [2013](#).

## **C5. CONSERVATION OUTSIDE OF PROTECTED AREAS**

More than 90% of Angolan territory is located outside of the protected area network. Angola is not party to the Convention on Wetlands of International Importance, and thus does not have any Ramsar Wetland Sites. However, Angola is among the wettest of countries in southern Africa and is home to diverse wetlands that are home to great taxonomic diversity (Table 4). Two lakes, Lago Cameia and Lago Dilolo (the largest lake in Angola), are located outside the Cameia National Park boundaries. Both lakes have extensive reed beds and grassy swamps that are rich in aquatic birds.

Angola has very high avian diversity. BirdLife International has identified 23 Important Bird Areas (IBAs) in Angola, covering an area of 7,385,000 ha. IBAs are key sites for conservation that are small enough to be conserved in their entirety and often already part of a protected-area network. Angola is also host to four **Endemic Bird Areas (EBAs), which are globally significant** regions of the world where the distributions of two or more restricted-range species overlap:

- Gabon-Cabinda coast. This area includes a narrow coastal strip in Gabon, Zaire and Cabinda provinces of northern Angola, which includes swamp-forest, landward mangrove edge and savanna habitats that are being converted to agricultural land in parts of its range (defined by the range of Loango Weaver *Ploceus subpersonatus*).
- West Zaire and North Angola forests. This area is defined by the range of the threatened White-headed Robin-chat *Cossypha heinrichi*, which uses gallery forests and adjacent savannas, based on sightings at one site in northern Angola and two sites in western DRC.
- Namibian escarpment. The mountain slopes and hillsides of the Namibian escarpment extending into extreme southern Angola support the endemic Herero Chat *Namibornis herero*, which favors areas of mixed Acacia and Commiphora trees.
- Western Angola. Several vegetation zones meet in western Angola: it is bounded to the north by the lowland rain forests of the Zaire basin, to the south by the Namib Desert and to the east by a vast area of Zambezian miombo woodland. At the western edge of Angola's high plateau is a steep escarpment (at 400-1,000m) where the cold Benguela

current creates almost continuous cloud cover. A band of semi-evergreen forest that is 1-15km wide and extends 300km almost as far south as Lubango is bordered to the west by an arid coastal belt and inland by miombo woodland. Another important habitat is Afromontane forest, of which there are now only a few isolated patches in Huambo, Benguela, Cuanza Sul and Huila provinces, mainly in deep mountain ravines.

Although IBAs and EBAs are identified on the basis of their significance to bird conservation, these sites are partly selected by their distinctive biophysical conditions and habitat characteristics, which suggests that these areas are important to other taxa.

**Table 4.** Primary wetlands in Angola.

Wetlands Region	Conservation Status
Cunene River System	The floodplain is unprotected, but higher stretches of the river and some small swamps and dambos are situated in Bikuar and Mupa National Parks. However, park management and conservation has not been effective in the past.
Cubango River System	Limited protection of this system; Luiana National Park borders the Cuito River, which is a tributary of the Cubango River.
Cuito River floodplains	The Cuito River is key to the functioning of the whole lower Cubango-Okavango River system, because of its strong year-round flow, its wet-season storage of floodwaters on vast floodplains and the gradual release of water back into the river in the dry season. Unprotected.
Southeastern Interior: Cuando River System	The large swamp on the lower reaches of the Luiana, and some smaller ones on its tributaries, are situated in the Luiana Partial Reserve.
Southeastern Interior: Interior Regions of Impeded Drainage	A large part of the swampland in the Mavinga district, traversed by the Cubia, Lomba and Cueio Rivers, is protected by legislation in the Mavinga Partial Reserve, though management has not been effective.
Central Eastern Interior	A substantial area, 1,445,000 ha, in the west of the Zambezi headwater basin, is protected in the Cameia National Park, and this contains representative areas of all the regional wetland types. However, there are several centers of population in the park, and recent civil unrest has made it difficult to manage the park properly. Poaching has always been a problem.
Upper Cuanza System	Large areas of upper floodplain, together with some lakes and permanent swamps, are protected in the Luando Integral Nature Reserve. This contains long stretches of the Luando and Cuanza Rivers, including their confluence. The area has been protected since 1938, initially as a hunting reserve, but from 1957 as a nature reserve. However, its present condition is not known.
Coastal Lakes and Floodplains	A substantial area of the coastal plain (996 000 ha), including wetlands along the Cuanza and Longa Rivers, is protected in Kisama National Park, proclaimed in 1957, but formerly protected as a hunting reserve from 1938. The flood plains of two intermittent rivers, the Bero and Dos Flamingos, are protected in the Mocamedes Partial Reserve.
Tidal Wetlands (Mangroves, Saltmarshes)	Small areas of southern tidal forests at the mouths of the Longa and Cuanza Rivers are protected in Kisama National Park, while saltmarshes in the Baia dos Tigres and at the Cunene River mouth are protected in Iona National Park. Elsewhere unprotected.
Uige, North Lunda Provinces	Unprotected.
Cabinda Province	Unprotected.

## D. CLIMATE CHANGE

Angola's climate is primarily tropical, but varies geographically, with semi-arid areas in the south and coastal lowlands and rainforest in the north (See Section B1a). Current climate variability, including incidence of floods and droughts, adversely impact different areas of the country. These events are made worse by an under-developed emergency preparedness system (NORAD 2008; Republic of Angola 2011b, 2012).

Over the next 50 to 100 years, climate models predict that Angola will experience increased temperatures, more extreme weather events, an expansion of arid and semi-arid regions, seasonal shifts in rainfall, localized floods, increased wildfires, sea level rise, increased rainfall in the northern parts of the country, changes in river flows and changes in sea and lake temperatures (Eriksen et al. 2008; NORAD 2008; FAO 2011; Republic of Angola 2011b, 2012). According to one source, available projections agree that there will be a decline in the length of agricultural growing period in southern Angola and along the coast, while areas in the north that currently benefit from two growing seasons may in the future only experience one (NORAD 2008).

In light of these projected changes in climatic conditions, the country's key vulnerabilities by sector include forestry and biodiversity, human health, infrastructure, fisheries, and agriculture and food security, freshwater resources, and coastal zone management (Eriksen et al. 2008; FAO 2011; Republic of Angola 2011b, 2012). Another issue of increasing concern is the increased transmission of disease between wildlife species, and between wildlife and humans.

Action is needed to address these vulnerabilities as well as the improvement of hydrological and meteorological observation networks, institutional capacity, and to raise awareness about adaptation at all levels of Angolan society. Climate change also needs to be integrated into the country's development policies (NORAD 2008; Republic of Angola 2011b, 2012). Climate change has not figured prominently on Angola's political agenda over the past decade due to competing development priorities, although there are signs this is changing: in 2011, Angola submitted their National Adaptation Program of Action ([NAPA](#)), followed by the 2012 submission of the [First National Communication](#) under the United Nations Framework Convention on Climate Change. The country is currently not participating in any national REDD+ preparedness activities but FAO estimates consider the potential for earnings from REDD+ in Angola to be substantial.

Adaptation needs and priorities, by sector, include (Republic of Angola 2011b, 2012):

- Agriculture: Increasing awareness of sustainable natural resource management among pastoral communities; research into drought-resistant seed varieties; strengthening the productive capacity of the agricultural sector; and strengthening the adaptive capacity and resilience of the livestock sector.
- Human health: Undertaking preventive initiatives (including education programs, improved water systems, early warning systems for natural disasters, improved access to health services); improving basic sanitation infrastructure; launching anti-malaria campaigns; and enhancing measures in place to reduce vector-borne diseases.
- Freshwater resources: Increasing access to safe drinking water; developing a plan for the use of water resources; building capacity for national integrated water resource management; improving the use of surface water resources to reduce climate vulnerabilities and improve food security; and developing irrigation infrastructure.

- Coastal zone management: Improving zoning requirements in the coastal zones and resettlement programs; improving the strength and resilience of coastal housing; improving protection through the construction of dikes; and improving coastal zone observation, information-sharing and climate risk management.
- Forestry: Capacity building among communities for forest management; promoting urban and peri-urban forestry; expanding community participation in reforestation projects; and expanding reforestation, conservation and sustainable forestry management projects for REDD+ benefits.
- Fisheries: Building shelters and mooring stations for fishing boats; developing early storm warning systems; and increasing the productivity and safety of local fisheries.

More specifically, priority adaptation projects were prioritized (Republic of Angola 2011b, 2012):

- Promote alternative renewable energies to reduce deforestation;
- Promote sustainable landscape management for increased agricultural yields;
- Ensure basic access to health services and health monitoring;
- Complete a climate vulnerability and adaptation analysis of the fisheries sector;
- Extend electricity to rural areas;
- Revise sectoral laws for proactive adaptation;
- Create an early warning system for flooding, storms, droughts, desertification;
- Develop a national institutional mechanism to integrate adaptation planning;
- Promote the control of soil erosion through organic methods;
- Diversify crops to include climate-resilient varieties, and varieties adapted to local conditions;
- Conduct a technology needs assessment;
- Improve the national climate monitoring and data management system; and,
- Complete a climate vulnerability and adaptation analysis for the livestock sector, including animal diseases.

Angola is currently benefitting from a small number of adaptation projects, all of which are occurring through regional initiatives:

- [Strategies for Adapting to Climate Change in Rural Sub-Saharan Africa: Targeting the most vulnerable](#)
- [Southern Africa Regional Climate Change Program](#)
- [Southern African Science Service Centre for Climate Change and Adaptive Land Management](#)

## **E. THREATS TO TROPICAL FORESTS AND BIODIVERSITY**

Angola is home to remarkable biodiversity and tropical forest resources, but their persistence is threatened by a suite of issues, which are primarily related to human use and institutional weaknesses. Extensive poverty and high population growth rates, habitat degradation and the overexploitation of resources, and political and institutional constraints are the major threats to natural resources in Angola.

### **E1. POVERTY AND POPULATION GROWTH**

In Angola, the combination of expanding population and increasing poverty puts increasingly severe demands upon the natural environment, as well as the institutional structures and the resources available to manage them. Current population estimates are 18 million, with a high annual growth rate of 2.8%. The population is characterized by a strong rural to urban migration, with an annual urban population growth rate of 4% ([CIA 2012](#)). According to some estimates, unemployment and underemployment affect nearly 50 percent of the Angolan population. There are few alternatives for a large proportion of the population but to eke a living out of the exploitation of natural resources: producing and selling charcoal; poaching wild animals for subsistence and commercial purposes; and illegal logging of valuable timber. Uncontrolled use and unclear resource and land tenure regimes, which render wildlife, land, and trees free-access resources, compound the situation.

### **E2. HABITAT CONSERVATION AND OVEREXPLOITATION OF RESOURCES**

Many of Angola's natural habitats have been converted to human-dominated ecosystems, such as croplands and pastures (subsistence and commercial agriculture, grazing, bush fires), plantations and urban and industrial areas. These habitat type conversions have led to losses in soil quality, erosion, and in some areas, desertification. The spatial and temporal patterns of these land use and land cover changes, however, have varied. For example, during three decades of warfare, Angola experienced massive population movements from rural areas to urban centers, and high densities settled in coastal areas. The virtual depopulation of rural areas, except for the Central Plateau, allowed the vegetation, rivers, and streams to recover in rural areas that were once cultivated or used for livestock production. Poaching, however, decimated wildlife populations throughout the country; on the coast, West African manatee and sea turtle populations plunged. In the semi-arid and arid regions in the country's southwest, where the dominant production system is nomadic pastoralism, population growth did not rapidly increase, but the rise of cattle ranching interfered with wildlife migratory routes and access to water resources.

Overexploitation of natural resources is a pervasive threat. Subsistence agriculture provides the main livelihood for 85 percent of Angolans, and slash-and-burn practices that contribute to deforestation and soil infertility are the norm. Extraction of forest, fish, and soil and water resources has the potential to result in wide-scale land use and land cover change, with concomitant risks of erosion, degradation of watersheds, depletion of water necessary for environmental flows, and ancillary pollution. Legal and illegal hunting and fishing at both subsistence and commercial scales continues to threaten species persistence, including species of conservation concern. Angola has never finalized its commitment to CITES, and the illegal pet

trade for the international market remains a concern. Unsustainable levels of timber harvest for construction, fuel wood and charcoal production continue to drive deforestation.

Development of alternatives for food, fuel, and income generation in Angola would go a long way toward solving many of the pressing environmental and agricultural problems in the country, including deforestation. Serious collaboration with rural Angolans in developing non-timber agroforestry markets should be undertaken. There seem to be genuine possibilities in, for example, honey production (Sommeijer et al. 1997; Segeren 2004), mushroom collection or cultivation (Munyaziza 1996; Härkönen et al. 2003; Boa 2004), wild fruit collection, or understory coffee cultivation (Ricketts et al. 2004). More efficient cropping and gardening practices, and government subsidy of small amounts of N-P-K fertilizer to allow longer crop rotations would also help. At a larger scale, development of some self-sufficiency in agricultural (i.e., large-scale, permanent cultivations), restoration of the road network, and construction of an electrical grid in Angola will help to more evenly spread resources and may help to reduce rural land use pressures on those landscapes that still support important blocks of forest.

Extractive industries have the potential to bring great economic benefits to Angola, but also have direct and indirect impacts on biodiversity, air, water, soil, and people. Direct impacts of mining and oil and gas extraction include: deforestation and habitat destruction, alteration of flow regimes and water quality in wetlands through water extraction, and pollution from tailings, wastes, and spills.

Climate change, and its impacts on ecosystems and people, may be the biggest threat to biodiversity and tropical forestry conservation. Africa is particularly vulnerable to impacts of climate variability and change because of multiple stresses and low adaptive capacity. Angola will likely experience increased temperatures, more extreme weather events, an expansion of arid and semi-arid regions, seasonal shifts in rainfall, localized floods, increased wildfires, sea level rise, increased rainfall in the northern parts of the country, changes in river flows and changes in sea and lake temperatures. Climate change is closely tied to and has an impact on land use. Existing protected area networks may not be adequate for biodiversity conservation in a time of changing climate, as species and vegetation distribution patterns shift. Changing temperatures and rainfall patterns, changes in seasonality and an increase in the frequency of severe rainfall, floods and droughts create obstacles to the challenges of conserving biodiversity and the ecosystem services that people depend upon. There will be indirect impacts on biodiversity from people as a result of climate change, such as increased reliance on natural resources with agricultural failure, migration to areas of high resource density, and increased competition for water between people and wildlife. Angola contributes significantly to climate change primarily because of continuous flaring and venting of natural gas, and deforestation. In addition, Angola does not properly manage solid and liquid wastes, which has important implications for climate change and human health. Waste in landfills is a large source of anthropogenic methane emissions, which are 23 times more potent as a greenhouse gas agent than carbon dioxide.

### **E3. INSTITUTIONAL AND MANAGEMENT CHALLENGES**

The ineffectiveness of existing environmental policies, regulations, and enforcement is pervasive throughout government and particularly the lack of coordination of environmental policies and responsibilities among various government ministries (e.g., MINADERP/IDF continues to exercise protected area functions that are now legally ascribed to MINAMB). The lack of

coordination between ministries may result in redundancies or conflicts that could be mitigated. Institutions and programs—as well as protected areas—suffer from severe shortages of funding, equipment and expertise to successfully manage the forests and biodiversity of Angola. Ultimately, the absence of oversight makes it easy for poachers, charcoal producers, and livestock herders to practice their trade within protected area boundaries. Furthermore, management plans for protected areas need to be both developed and implemented; there is no strategic framework that balances the use and conservation of natural resources. Moreover, biomes with high biodiversity and endemism—Afro-montane and Guinea-Congolese forests—are not currently represented in the current protected area network; these natural resources are highly vulnerable. Finally, to effectively manage natural resources there must be accurate data on the distribution and abundance of biodiversity and forests, and the factors affecting their sustainability.

The significance of ecosystem services provided by forest and biodiversity resources in Angola is not reflected within GoA practices, which remain focused on rehabilitating the country's infrastructure, productive apparatus, and basic social services provision. For instance, the giant sable, Angola's national symbol and its most famous, charismatic endemic, is on the brink of extinction, and GoA investment in this conservation effort has been minimal. Angola has financial resources from oil and diamonds to address fundamental recovery needs, such as the construction of airports, roads, hydroelectric power plants, and buildings. Simultaneously, Angola's institutional, legislative and regulatory framework is undergoing an extensive process of evolution and consolidation, and the country is still developing EIA, mitigation, and enforcement systems. Balancing the rapid pace of development with appropriate environmental safeguards and planning is a major threat to Angola's natural resources.



## **F. PROGRAM OPPORTUNITIES AND RECOMMENDATIONS FOR USAID**

As described in the FY 2013 [CBJ](#), USG assistance to Angola will target Peace and Security and Investing in People program areas. There are no environment-specific objectives within USAID/Angola's current Mission Strategy, though a new Country Development Cooperation Strategy (CDCS) has been initiated. Because environment and natural resource issues are often underlying causes for many development challenges, the Mission is encouraged to support activities that address environmental threats to facilitate sustainable development.

The USAID/Southern Africa Mission activities through SAREP provide an exemplary model that integrates natural resource conservation with community engagement, improved services such as water and sanitation, and sustainable livelihoods. The USAID/Angola Mission is strongly encouraged to support additional integrated programming efforts that facilitate both development objectives and natural resource conservation. Angola is home to many transboundary natural sources, such as river basins and TFCAs, which present opportunities to build and leverage capacity between countries and other partners.

Mission activities can indirectly ease certain drivers of deforestation, wildlife loss, and natural resources degradation. For instance, improving food security can reduce the dependence of rural populations on unsustainable coping strategies, such as the poaching or overfishing. Continuing efforts to strengthen the agricultural livelihoods of the rural poor reduces the risk of a return to these practices. To the extent that USAID/Angola's democracy and governance activities help stabilize the political context and promote progress towards effective and equitable governance, these activities can also facilitate effective, transparent and accountable environmental management institutions. Land tenure continues to be a controversial issue with direct effects on biodiversity and forestry resources, as well as sustainable livelihoods. In the health sector, because people struggling with poor health and nutrition often resort to less sustainable livelihood practices, support targeting specific diseases has reduced the impact of disease on people's management of natural resources. USAID/Angola also provides support to family planning activities, a long term indirect driver of environmental degradation. Finally, opportunities exist to integrate education, training, behavior change, awareness, capacity building, and decision-making related to the environment as a complement to other programming results. As the CDCS is being developed and implemented, the continued examination of environmental considerations into programming decisions is strongly encouraged.

Table 5 provides a list of opportunities and recommendations for USAID/Angola to consider in the development of a new CDCS. Some suggestions involve relatively minor modifications to incorporate natural resource themes or to prioritize sites near protected areas, while other suggestions may require larger programming shifts and investments to accomplish. In particular, a climate vulnerability and adaptation assessment that meets USAID standards is strongly encouraged, to facilitate programming choices that address development objectives and enhance climate resilience.

**Table 5. Opportunities for Linkages to Forestry and Biodiversity: Current and Potential Future Programming**

Current Programming		
Program Area	Mission Activities	Opportunities and Recommendations
Peace and Security	International Military Education and Training Non-proliferation, Anti-terrorism, De-mining and Related Programs	<p>Government agencies need support in asserting their authority within many protected areas, as well as promotion and support for better enforcement of natural resource laws. For instance, USAID could provide equipment and training for law enforcement associated with protected areas and forest reserves.</p> <p>USAID could work with the GoA, NGOs, and other partners to identify and target those protected areas that most need security and natural resource protection.</p> <p>Peacekeeping efforts that increase communication within and between diverse groups provide an opportunity to focus on natural resource issues that contribute to conflict, such as land use and land tenure, and to build consensus on a range of solutions. USAID could deliberately include communities and NGOs that support the voicing of environmental concerns.</p>
Investing in People	Global Health Programs PEPFAR – HIV/AIDs Malaria Maternal/Child Health Family Planning Reproductive Health	<p>Where appropriate, the GoA could be encouraged to reinvest oil revenues to reduce poverty, improve health care infrastructure, and to address sustainable natural resource management.</p> <p>Wherever possible, USAID should encourage building local capacity to foster a sense of ownership on the part of local communities over the natural resources upon which they depend.</p> <p>Given the interrelated nature of health and the environment, USAID could dedicate some health care and PEPFAR funding to incorporate messages about the importance of environmental conservation. Funding dedicated to health programming should consider including “health and the environment” on their agendas to raise awareness of conservation issues and emphasize the health benefits of a healthy and sustainably managed resource base. Health workshops and conferences offer opportunities to introduce crosscutting environmental themes to agendas and materials.</p>
Potential Future Programming		
Program Area	Mission Activities	Opportunities and Recommendations
Governing Justly and Democratically	Good Governance Consensus Building Civil Society	<p>Improve capacity, transparency, and governance, within the GoA</p> <ul style="list-style-type: none"> <li>• Foster public-private partnerships to build capacity within the MINAMB, MINADERP, SONANGOL, ENDIAMA and other relevant ministries to oversee and ground-truth environmental assessments. Partnerships with private assessment specialists and international actors can ensure that impacts on local communities are planned for and mitigated to the greatest extent possible.</li> <li>• Develop trainings that target government ministries and legislators, to strengthen environmental awareness.</li> <li>• Improve oversight and management of protected areas and the forestry sector. Continue building capacity within the relevant GoA ministries (e.g., land management planning, environmental impact assessment, rapid ecological surveys, participatory methods, land use</li> </ul>

		<p>land cover change detection).</p> <ul style="list-style-type: none"> <li>• Working with the GoA, use a rehabilitated National Park as a model for an effective, community-based natural resource management program, including a management plan, trained staff, local community involvement.</li> <li>• Promote full ratification and implementation of CITES.</li> <li>• Where appropriate, the GoA could be encouraged to reinvest oil and diamond revenues in critical infrastructure and services that could help alleviate natural resource pressures and restores natural resources. A national Environmental Fund could be established, following models in other countries, that could help to finance conservation, habitat restoration, and alternative livelihoods that have been affected by oil and diamond operations. A national Environmental Fund has been proposed within the country several times in the past, most recently at the 2<sup>nd</sup> National Environment Forum.</li> <li>• USDA Forest Service <a href="#">International Seminars</a> are a means through which USAID and partners can quickly build capacity and share information with other international leaders. Held on an annual basis, these 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 professional networks.</li> </ul> <p>USAID should continue to facilitate legislative, regulatory, and policy development and harmonization by the GoA and partners. For example:</p> <ul style="list-style-type: none"> <li>• Given the importance of Angolan’s freshwater resources to the southern Africa region, USAID should encourage negotiations for integrated water management agreements.</li> <li>• GoA should be encouraged to develop effective protection measures in favor of the environment should lead to a much greater participation and involvement of local communities in upholding their natural resource base.</li> </ul> <p>Strengthen civil society organizations that participate in the management of natural resources management. The Kissama Foundation is one of the few examples of an Angolan NGO actively contributing to natural resource management; more NGO capacity is needed.</p> <ul style="list-style-type: none"> <li>• Encouraging fair, democratic systems and practices will strengthen public trust and will encourage participation in the legal process. This will help build the base needed for improved participatory management of natural resources and protected areas.</li> <li>• USAID could strengthen civil society organizations that promote sound environmental management with trainings, capacity building, and seed funding for projects.</li> <li>• The 2<sup>nd</sup> National Environment Forum was held in 2010; USAID could encourage more frequent meetings to increase environmental awareness among all stakeholders, and to promote open dialogues on natural resources challenges and solutions.</li> </ul>
Investing in People	Education Health	<p>Education</p> <ul style="list-style-type: none"> <li>• Literacy programming provides an excellent opportunity to educate children on natural resource issues in general, and tropical forest and biodiversity in particular. In addition,</li> </ul>

		<p>outreach and education efforts could focus on educators and parents.</p> <ul style="list-style-type: none"> <li>• Work with the Ministry of Education and NGOs to develop and implement an environmental education curriculum.</li> <li>• USAID could bolster its support of national, regional, and local government capacities of natural resource management. Support could take the form of funds for increased and more frequent training of local community members as forest ombudsmen.</li> <li>• UNDP/Angola has created a series of environmental awareness courses for communities, primary school children, high school children and university students that addresses the lack of understanding of environmental issues in Angola. USAID could leverage these already-developed resources.</li> </ul> <p>Water, Sanitation, Health</p> <ul style="list-style-type: none"> <li>• 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. Protected area buffer zones could be prioritized in local site selection.</li> <li>• In partnership with many of the organizations working on this issue, USAID could engage in initiatives that focus on increasing the accessibility of potable water and to protect the watersheds that are ultimately responsible for supporting the resource.</li> <li>• USAID should also actively support the development of water use agreements for transboundary water basins.</li> </ul>
Economic Growth	Trade and Investment Infrastructure Agriculture	<p>Programming that promotes sustainable practices designed to conserve and restore soil and water resources and increase the use of trees in agriculture and horticulture, while at the same time improving food security and livelihoods, should be promoted.</p> <ul style="list-style-type: none"> <li>• USAID could provide local communities with the tools and techniques to sustainably increase productivity. For example, where possible, fish-stocking programs should focus on the use of native species; agricultural projects could evaluate crop varieties, irrigation and mulching schemes with respect to climate change and the genetic integrity of indigenous horticultural varieties; sustainable NTFP harvest techniques could be taught; and, aquaculture programs could develop best practices for pond water release.</li> <li>• Conservation agriculture projects such as the GEF and FAO <a href="#">Sustainable Land Management Capacity Building in Angola</a> project in Bie and Huambo provinces were successful demonstrations of improved agricultural productivity, soil management, resilience to climate change, and reduced deforestation. SAREP is supporting the introduction of similar conservation agriculture methods into Kuando Kubango province.</li> <li>• Efforts are needed to reduce additional declines in natural forests, and should be pursued simultaneously: (1) manage the remaining natural forests and regenerate those that have been partially degraded; and, (2) establish fast-growing plantations in fallow areas to meet the demand for commercial fuel wood and industrial roundwood. Individual and community plantations of fuel wood, coupled with the use of fuel-efficient stoves, would reduce reliance on natural forests. Biogas should also be explored as a non-wood source of decentralized energy.</li> </ul>

		<ul style="list-style-type: none"> <li>• Small-scale enterprise to promote the domestic production of bush rats (or other, non-invasive protein source) as an alternative to bushmeat hunting could be explored, if the Mission became involved with livestock production projects directly, or through partner organizations.</li> <li>• USAID should continue to promote the diversification of and increased access to markets for growth-oriented sectors (e.g., NTFPs), which could provide employment, and in some cases, food. Program sites in close proximity to protected areas could be targeted to address sustainable livelihoods and economic growth issues while at the same time helping to lessen pressures on biodiversity and forestry resources.</li> <li>• Ecotourism may be viable in some resource-rich areas of Angola, such as the Special Conservation Area Kissama National Park. Improved recreational and interpretive programming would help facilitate tourism (USAID 2012b), though the restrictive visa system would need revision to facilitate greater tourism.</li> <li>• Encourage participatory resource-use planning. For example, designate and demarcate lands for community agriculture and fishing; encourage community seedling production and tree planting efforts in forests outside government-controlled forest estates; have communities participate in invasive species restoration efforts, and fire prevention and firefighting (fire management); and, engage communities in wildlife conservation. Designate and demarcate lands and waters for marine use and mangrove preservation.</li> </ul> <p>Mineral Extraction</p> <ul style="list-style-type: none"> <li>• To mitigate the potential negative effects of industrial pollution, including petroleum and diamond operations, it is critically important that the GoA, NGOs, and donors engage with the major corporations to ensure that local communities benefit. Furthermore, transparent practices on the part of government will allow local and international actors to monitor activities to ensure they are being undertaken responsibly. Employing local citizens in monitoring activities is a way to support sustainable industrial practices.</li> </ul>
Cross-Cutting Needs to Improve Natural Resource Management		<p>Natural Resource Data</p> <ul style="list-style-type: none"> <li>• There is a critical need for an inventory of existing natural resources. Angola lacks current data on the status of natural resources and protected areas. There is piecemeal research and data collection related to specific species and activities, but an overall coordinated effort to document flora and fauna is required as a metric for future reference and as a comparative standard. An independent forum could help establish priorities, guidelines, standards, logical deadlines, identify and facilitate funding, and monitor the implementation. Implementation in Angola could take the form of a partnership involving GoA, NGOs, and universities. Local citizens should be involved in natural resource monitoring activities. Data clearinghouses should be developed coordinate, analyze, and disseminate biodiversity information to inform natural resources management decisions. SAREP surveys may provide a successful model that could be scaled-up to fill information gaps.</li> <li>• USFS work with SAREP on deforestation and degradation monitoring using satellite imagery and subsequent on-the-ground technical interventions could support further integration of the data and methodological expertise to both OKACOM and GoA through workshops and</li> </ul>

		<p>technical exchanges. This could be further complemented by Angolan government officials visiting SAREP sites and participating with USFS experts in the execution of the activities. If resources exist, USFS could also support a remote sensing workshop focusing on this methodology and results for Angolan experts in Luanda.</p> <p>Protected Areas / Biodiversity / Forestry</p> <ul style="list-style-type: none"> <li>• Angola’s protected area network needs to be expanded to include two of the most diverse biomes, the Afro-montane forests, and the Guineo-Congolese rainforests. Provide technical assistance to MINAMB, MINADERP/IDF in an effort to identify, design, and demarcate conservation unit(s) that encompasses the best remaining examples of these habitats and species.</li> <li>• Community forestry technical assistance, including sustainable harvest, forest monitoring, reforestation of riparian woodland.</li> <li>• Consistent, reliable funding to support the Giant Sable Initiative would facilitate success.</li> </ul> <p>Climate change</p> <ul style="list-style-type: none"> <li>• A vulnerability and adaptation assessment that meets USAID standards should be completed, tailored to specific locations, livelihoods, and value chains. This assessment could be linked to implementation of the 2011 <a href="#">National Adaptation Program of Action</a>.</li> <li>• Provide technical support to implement activities identified in Angola NAPA.</li> <li>• Climate change / REDD readiness, including carbon monitoring and afforestation / reforestation technical assistance.</li> <li>• Fuel-efficient stove projects are needed to reduce dependence on timber harvest for fuel wood and charcoal.</li> </ul> <p>Risk management/Disaster planning</p> <ul style="list-style-type: none"> <li>• USFS could help Angola develop an Integrated Inter-Agency Coordination System to be used in responding to any sort of “incident” or disaster (i.e. flood, fire).</li> </ul>
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## APPENDIX A. SPECIES LISTED BY IUCN AS VULNERABLE OR ENDANGERED.

*VU: Vulnerable; EN: Endangered; CR: Critically Endangered*

Common Name	Scientific Name	Status
<b>Mammals</b>		
AFRICAN ELEPHANT	<i>Loxodonta africana</i>	VU
AFRICAN LION	<i>Panthera leo</i>	VU
AFRICAN WILD DOG	<i>Lycan pictus</i>	EN
ATLANTIC HUMPBACKED DOLPHIN	<i>Sousa teuszii</i>	VU
BLACK-FOOTED CAT	<i>Felis nigripes</i>	VU
BLACK RHINOCEROS	<i>Diceros bicornis</i>	CR
BLUE WHALE	<i>Balaenoptera musculus</i>	EN
CHEETAH	<i>Acinonyx jubatus</i>	VU
CHIMPANZEE	<i>Pan troglodytes</i>	EN
HIPPOPOTAMUS	<i>Hippopotamus amphibius</i>	VU
FIN-BACKED WHALE	<i>Balaenoptera physalus</i>	EN
LOWLAND GORILLA	<i>Gorilla gorilla</i>	CR
SEI WHALE	<i>Balaenoptera borealis</i>	EN
SPERM WHALE	<i>Physeter macrocephalus</i>	VU
WEST AFRICAN MANATEE	<i>Trichechus senegalensis</i>	VU
<b>Plants</b>		
AFRICAN MAHOGANY	<i>Khaya ivorensis</i>	VU
WHITE MAHOGANY	<i>Khaya anthotheca</i>	VU
AFRICAN PEARWOOD	<i>Baillonella toxisperma</i>	VU
AFRICAN WALNUT	<i>Lovoa trichilioides</i>	VU
ALBIZIA	<i>Albizia ferruginea</i>	VU
CEDAR KOKOTI	<i>Entandrophragma candollei</i>	VU
RAPHIA PALM	<i>Raphia regalis</i>	VU
RED STINKWOOD	<i>Prunus africana</i>	VU
SAPELE	<i>Entandrophragma cylindricum</i>	VU
WHITE AFZELIA	<i>Afzelia pachyloba</i>	VU
Common name not listed	<i>Afzelia bipindensis</i>	VU
Common name not listed	<i>Amanoa strobilacea</i>	VU
Common name not listed	<i>Brachystegia bakeriana</i>	VU
Common name not listed	<i>Calochone acuminata</i>	VU
Common name not listed	<i>Crotalaria bamendae</i>	VU
Common name not listed	<i>Drosera beguerti</i>	VU
Common name not listed	<i>Entandrophragma angolense</i>	VU
Common name not listed	<i>Entandrophragma utile</i>	VU
Common name not listed	<i>Genlisea angolensis</i>	EN
Common name not listed	<i>Gossweilerodendron balsamiferum</i>	EN
Common name not listed	<i>Gossweilerodendron joveri</i>	VU
Common name not listed	<i>Hallea ledermanni</i>	VU
Common name not listed	<i>Hallea stipulosa</i>	VU
Common name not listed	<i>Ledermanniella cristata</i>	VU
Common name not listed	<i>Ledermanniella warmingiana</i>	VU
Common name not listed	<i>Leiothylax quangensis</i>	EN
Common name not listed	<i>Mikaniopsis vitalba</i>	VU
Common name not listed	<i>Nauclea diderrichii</i>	VU

Common Name	Scientific Name	Status
Common name not listed	<i>Rotala fontinalis</i>	VU
Common name not listed	<i>Rotala smithii</i>	VU
Common name not listed	<i>Stenandrium gabonicum</i>	VU
Common name not listed	<i>Tapinanthus preussii</i>	VU
Common name not listed	<i>Turraeanthus africanus</i>	VU
<b>Reptiles</b>		
AFRICAN DWARF CROCODILE	<i>Osteolaemus tetraspis</i>	VU
GREEN TURTLE	<i>Chelonia mydas</i>	EN
LEATHERBACK	<i>Dermochelys coriacea</i>	CR
OLIVE RIDLEY	<i>Lepidochelys olivacea</i>	VU
<b>Fish</b>		
ANGULAR ROUGH SHARK	<i>Oxynotus centrina</i>	VU
BIGEYE THRESHER SHARK	<i>Alopias superciliosus</i>	VU
BIGEYE TUNA	<i>Thunnus obesus</i>	VU
BLACKCHIN GUITARFISH	<i>Rhinobatos cemiculus</i>	EN
BLOTCHED CATFISH	<i>Clarias submarginatus</i>	VU
BLUE MARLIN	<i>Makaira nigricans</i>	VU
BOTTLENOSE SKATE	<i>Rostroraja alba</i>	EN
COMMON GUITARFISH	<i>Rhinobatos rhinobatos</i>	EN
COMMON SMOOTHHOUND	<i>Mustelus mustelus</i>	VU
COMMON THRESHER SHARK	<i>Alopias vulpinus</i>	VU
COMMON SAWFISH	<i>Pristis pristis</i>	CR
DUSKY GROUPER	<i>Epinephelus marginatus</i>	EN
GREAT WHITE SHARK	<i>Carcharodon carcharias</i>	VU
GREENHEAD TILAPIA	<i>Oreochromis macrochir</i>	VU
GULPER SHARK	<i>Centrophorus granulosus</i>	VU
LARGETOOTH SAWFISH	<i>Pristis perotteti</i>	CR
LESSER GUINEAN DEVIL RAY	<i>Mobula rochebrunei</i>	VU
LIVER-OIL SHARK	<i>Galeorhinus galeus</i>	VU
LUBBERT'S GUITARFISH	<i>Rhynchobatus luebberti</i>	EN
NIGHT SHARK	<i>Carcharhinus signatus</i>	VU
QUEEN TRIGGERFISH	<i>Balistes vetula</i>	VU
SAWBANK ANGEL SHARK	<i>Squatina aculeata</i>	CR
SCALLOPED HAMMERHEAD	<i>Sphyrna lewini</i>	EN
SHORTFIN MAKO	<i>Isurus oxyrinchus</i>	VU
SMOOTHBACK ANGEL SHARK	<i>Squatina oculata</i>	CR
SPINEBACK GUITARFISH	<i>Rhinobatos irvinei</i>	VU
TARPON	<i>Megalops atlanticus</i>	VU
THREESPOT TILAPIA	<i>Oreochromis andersonii</i>	VU
WEST AFRICAN SEAHORSE	<i>Hippocampus algiricus</i>	VU
WHITE MARLIN	<i>Kajikia albida</i>	VU
WHITE-SPOTTED GUITARFISH	<i>Rhinobatos albomaculatus</i>	VU
WHITE-TIPPED SHARK	<i>Carcharhinus longimanus</i>	VU
WIDE SAWFISH	<i>Pristis pectinata</i>	CR
WHALE SHARK	<i>Rhincodon typus</i>	VU
Common name not listed	<i>Barbus collarti</i>	VU
Common name not listed	<i>Varicorhinus ansorgii</i>	VU
Common name not listed	<i>Gymnura altavela</i>	VU
Common name not listed	<i>Haplochromis schwetzi</i>	VU
Common name not listed	<i>Labeobarbus roylii</i>	EN
Common name not listed	<i>Marcusenius cuangoanus</i>	VU

Common Name	Scientific Name	Status
Common name not listed	<i>Oreochromis lepidurus</i>	EN
Common name not listed	<i>Synodontis cuangoanus</i>	VU
<b>Birds</b>		
AFRICAN PENGUIN	<i>Spheniscus demersus</i>	EN
ATLANTIC YELLOW-NOSED ALBATROSS	<i>Thalassarche chlororhynchos</i>	EN
BLACK-BROWED ALBATROSS	<i>Thalassarche melanophrys</i>	EN
CAPE GANNET	<i>Morus capensis</i>	VU
CAPE VULTURE	<i>Gyps coprotheres</i>	VU
EGYPTIAN VULTURE	<i>Neophron percnopterus</i>	EN
GABELA AKALAT	<i>Sheppardia gabela</i>	EN
GABELA BUSH-SHRIKE	<i>Laniarius amboimensis</i>	EN
GABELA HELMET-SHRIKE	<i>Prionops gabela</i>	EN
GREY CROWNED-CRANE	<i>Balearica regulorum</i>	EN
GREY PARROT	<i>Psittacus erithacus</i>	VU
HOODED VULTURE	<i>Necrosyrtes monachus</i>	EN
LAPPET-FACED VULTURE	<i>Torgos tracheliotos</i>	VU
LOANGO WEAVER	<i>Ploceus subpersonatus</i>	VU
LUDWIG'S BUSTARD	<i>Neotis ludwigii</i>	EN
ORANGE-BREASTED BUSH-SHRIKE	<i>Laniarius brauni</i>	EN
PULITZER'S LONGBILL	<i>Macrosphenus pulitzeri</i>	EN
SECRETARYBIRD	<i>Sagittarius serpentarius</i>	VU
SOUTHERN GROUND-HORNBILL	<i>Bucorvus leadbeateri</i>	VU
SWIERSTRA'S FRANCOLIN	<i>Francolinus swierstrai</i>	EN
TRISTAN ALBATROSS	<i>Diomedea dabbenena</i>	CR
WATTLED CRANE	<i>Grus carunculatus</i>	VU
WHITE-BACKED VULTURE	<i>Gyps africanus</i>	EN
WHITE-HEADED ROBIN-CHAT	<i>Cossypha heinrichi</i>	VU
WHITE-HEADED VULTURE	<i>Trigonoceps occipitalis</i>	VU

## **APPENDIX B. STATEMENT OF WORK**

### **ANGOLA 118/119 BIODIVERSITY AND TROPICAL FORESTRY ASSESSMENT With an Emphasis on Tropical Forestry and Biodiversity Conservation With USAID/Angola in partnership with US Forest Service International Programs**

#### **Overview and Purpose:**

USAID/Angola is in the process of developing a new Country Development Cooperation Strategy (CDCS) for its assistance program to the Government of Angola (GOA). To be in compliance with policies governing environmental procedures, and for USAID Missions to effectively determine potential threats and opportunities associated with the management of natural resources and environmental factors, an assessment is needed to inform Mission planning. The purpose of this task is to deliver to USAID/Angola a countrywide desktop 118/119 Biodiversity and Tropical Forestry Assessment to update the 118/119 assessment completed in May 2008. This assessment will include special focus on Tropical Forest and Biodiversity Conservation that meets the requirements of Sections 118(e) and 119(d) of the Foreign Assistance Act of 1961, as amended (FAA) and ADS 201.3.4.1(c) regarding tropical forestry and biodiversity analyses for country strategic plans and other plans prepared by USAID. The results of this assessment will provide recommendations to USAID/Angola on how to effectively contribute to the conservation needs identified, and plan for environmentally sound development interventions.

This 118/119 assessment will build upon the previous analyses while identifying new environmental challenges. It will assess USAID/Angola's portfolio and suggest areas of possible synergy with other USAID/Angola programming.

#### **Background:**

##### **A. Policies Governing Environmental Procedures**

The Foreign Assistance Act (FAA) of 1961, Section 117, requires that the President takes fully into account the impact of foreign assistance programs and projects on the environment and natural resources of developing countries (Section 117 (c)(1)).

Section 118(e) states that each country development strategy statement or other country plan prepared by the U.S. 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.

Section 119 of the FAA relates to Endangered Species. It states that "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" [FAA, Sec. 119 (a)]. Furthermore it states, "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" [FAA, Sec. 119 (d)].



## **B. USAID/Angola Program**

USAID/Angola is currently developing a multi-year Country Development Cooperation Strategy (CDCS). The CDCS will help to ensure that USAID programs coordinate with other U.S. Government agencies and donors to support sustainable development in a democratic context. This 118/119 will provide analysis to inform the identification of these key, multi-dimensional and cross-cutting complementary development objectives, as well as assist in the prioritization and coordination of USAID/Angola and other donor resources for greatest development impact and sustainability. Notably, it will highlight opportunities to build linkages between natural resource and environmental conservation and priority development themes identified in the CDCS and Government of Angola submissions as signatory to the Convention on Biodiversity.

### **Statement of Work**

The USFS shall perform the following activities:

- A) Complete a desk assessment and field verification to conduct an overview and general analysis of the country's biodiversity and its current status. The USFS specialist will communicate with relevant USAID/Angola Mission staff via email and telephone to get a solid understanding of Mission program goals and objectives under the proposed new 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 specialist 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 specialist will also coordinate with the USAID-funded Southern Africa Regional Environmental Program (SAREP) in order to place findings and recommendations in a southern Africa regional context. USAID/Angola Program Office will facilitate telephone and/or email exchanges with other USAID Development Objective teams and U.S. Department of State offices relevant to the assessment, as well as organizations to be contacted to provide additional input to the 118/119 assessment.
- B) Assess and summarize the needs for biodiversity and tropical forestry conservation in Angola based on key threats and analysis of country, donor and NGO responses to meet these needs. Prepare a report on the status of biodiversity, tropical forestry and conservation efforts in Angola and potential implications for USAID or other donor programming and environmental monitoring which shall define the actions necessary for conservation. The report shall include:
  - The current status of the environment, biodiversity, tropical forests, and water resources in Angola based on current and available information.
  - Major ecosystem types, highlighting important, unique aspects of the country's biodiversity, including important endemic species and their habitats.
  - Descriptions of natural areas of critical importance to biodiversity conservation, such as forests and wetlands critical for species reproduction, feeding or migration, if relevant. Particular attention should be given to

critical environmental services and non-commercial services they provide (watershed protection, erosion control, soil, fuel wood, water conservation, carbon sequestration, and amenity and recreation). It will also summarize how current land tenure arrangements affect conservation in Angola.

- An overview table and map of the status and management of the protected area system in Angola including: an inventory of all declared and proposed areas (national parks, wildlife reserves and refuges, forest reserves, sanctuaries, hunting preserves and other protected 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). In addition to this summary of the current protection and management status of each protected area, an overview of the major threats and challenges facing protected areas in Angola, 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.
- 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 International Union for Conservation of Nature (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 pressure on those areas, including vulnerability to predicted changes in climate, and current efforts to mitigate pressures, including the participation and compliance with the Convention on International Trade in Endangered Species (CITES) and other international efforts.
- Recent, current, and potential *primary* threats to biodiversity, whether they are ecological (i.e., fire, pests), related to human use (i.e., agriculture, contamination), or institutional (i.e., failed policy) or trans-boundary 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.
- Examination of conservation efforts, their scope and effectiveness. This section 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. This section should also include regional biodiversity and tropical forestry conservation efforts, and—specifically—reference the impact of SAREP activities in Angola. 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.

- 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 Angola needs to sign in order to conserve and manage its biological resources more efficiently.
- 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 Angola's tropical forests and tracts near protected areas, including tourism developers and coffee producers. Consideration of policies promoted by the key relevant governmental ministries should also be included.
- An analysis of climate change impacts in Angola, current and near future. This includes impacts on development and conservation measures (agricultural production, disease prevention, etc.) as well as trends, gaps, and opportunities for carbon market financing mechanisms and for potential linkages with USAID/Angola programs and donor collaboration to address climate vulnerability.
- An assessment of how USAID's Development Objectives, if available, and programs within the proposed country strategy address the needs for biodiversity and tropical forestry conservation, and its impacts, positively or negatively, on biodiversity and tropical forestry resources. The assessment shall include recommendations on where the USG is likely to have the greatest impact based on its comparative advantages and capabilities. These issues and recommendations should be prioritized to identify those requiring the most immediate attention.

If any perceived area of concern related to USAID's program and its contribution or impact arise during this assessment, USFS shall provide views and suggestions directly to the Mission Environmental Officer.

**Technical Expertise:**

The USFS specialist will have qualifications in conservation biology, wildlife biology, forestry, conservation management or related specialization with no less than ten years international experience in conservation. The USFS specialist will also have experience in developing countries and extensive knowledge in natural resource management. Expertise in Environmental Impact and Climate Change Vulnerability assessments is highly desirable. The specialist should have significant evaluation experience and should have conducted similar biodiversity and forestry conservation analyses in Africa. Other key characteristics will include excellent communication skills (oral and written) and analytic skills. Background in USAID strategic planning processes related to 118/119 assessment and knowledge of 22 CFR 216 and of FAA Sections 117, 118, and 119, and related USAID and USG directives is desirable.

### **Period of Performance and LOE**

USAID/Angola anticipates this 118/119 assessment will be completed by January 25, 2013 by a USFS Specialist with the consultation of USAID staff. This desk study will require 3 weeks level of effort by a USFS specialist.

### **Responsibilities and Relationships**

This will be managed by the Program Office with technical support from the Mission Environmental team. The Mission will provide comments (along with USAID/Southern Africa, E3/FAB) on the draft report submitted by the USFS specialist.

### **Deliverables**

All reports will be provided to USAID/Angola in hard-copy and in electronic format using MS Word and in Adobe PDF.

### **Tasks and Deliverables**

1. Complete a draft 118/119 desk study report to the USAID/Angola mission.
2. Prepare draft report for review by MEO, USAID staff, and host country partners. It is expected that USAID will review the draft focusing on sensitivities and overall focus and not comment on specific technical findings.
3. Incorporate necessary edits and prepare final report and associated presentation materials.

Specific Deliverables will include:

- **Draft report** with additional associated appendices and supporting materials as outlined in the SOW.
- **Final report** submitted in paper and electronic copies not more than one week after comments are received. Report must meet all USAID branding, style and formatting requirements.
- All reports shall be in English

### **Key Reference Documents and Sources**

In preparing a response, the USFS specialist is encouraged to utilize the following key documents for relevant background information:

- [118/119 Biodiversity and Tropical Forestry Assessment for Angola, May 2008](#)
- Angola, Fourth National Report (2010-01-22)
- Angola, Third National Report (2008-07-18)
- Angola, First National Report (2008-07-18)
- Angola, National Biodiversity Strategy and Action Plan (2006-11-13)
- Angola, National Action Plan for the Programme of Work on Protected Areas
- The Frame web site for Angola
- [USAID's Definition of Biodiversity Programs](#)
- [USAID's Biodiversity Conservation Guide for Staff & Partners](#)
- [Tropical forestry and biodiversity \(FAA 118 and 119\) analyses: lessons learned and best practices from recent USAID experience.](#) (655 KB) Associates in Rural Development, Inc. (ARD); USAID. Bur. for Economic Growth, Agriculture and Trade. Ofc. of Environment and Natural Resources. Sep 2005. 74 p. PN-ADE-195
- [Best practices for biodiversity and tropical forest assessments](#) (508 KB) Chemonics International Inc.; USAID. Bur. for Economic Growth, Agriculture and Trade. Ofc of Agriculture. Apr 2005. 28 p. PN-ADE-673

The USFS specialist is also encouraged to communicate with the USAID-sponsored SAREP in order to place findings and recommendations in a regional context. Key points of contact for SAREP are:

Steve Johnson, Director SAREP, [SJohnson@sarep.co.bw](mailto:SJohnson@sarep.co.bw), + 267 714 55 455

Brian App, Deputy Director SAREP, [bapp@sarep.co.bw](mailto:bapp@sarep.co.bw), +267 741 57 420

Chris Brooks, Integrated NRM Coordinator SAREP, [cbrooks@sarepmaun.com](mailto:cbrooks@sarepmaun.com),  
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