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118/119 Biodiversity and Tropical Forest Assessment for Lesotho

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118/119 Biodiversity and Tropical Forest Assessment for Lesotho

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ACRONYMS

AENRC	Agriculture, Environment and Natural Resource Commission
AGOA	African Growth and Opportunity Act
BATS	Biodiversity Analysis and Technical Support
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
HDI	Human Development Index
IFAD	International Fund for Agricultural Development
IUCN	World Conservation Union
LCN	Lesotho Council of Non-Governmental Organizations
LDF	Lesotho Defense Force
LHWP	Lesotho Highlands Water Project
LREBRE	Lesotho Renewable Energy Based Rural Electrification
LWP	Lesotho woodlot project
MDG	Millennium Development Goal
MDTP	Maloti-Drakensberg Transfrontier Conservation and Development Project
NGO	non-governmental organization
PEPFAR	President's Emergency Plan for AIDS Relief
RCSA	Regional Center for Southern Africa
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Program
UNEP	United Nations Program for the Environment
WFP	World Food Program
WRI	World Resources Institute

EXECUTIVE SUMMARY

This report was commissioned by USAID/Africa Bureau as part of the Biodiversity Analysis and Technical Support (BATS) program. BATS will provide analytical and technical assistance to USAID/Africa and support its operating units in the design and implementation of assistance activities in Africa in a manner that conserves natural resources and biodiversity, including tropical forests and other critical habitats.



Wetlands like these in Lesotho are high in biodiversity.

SOURCE: WWW.RAMSAR.ORG

This report is designed to fulfill legal requirements under sections 118/119 of the Foreign Assistance Act. The act requires all USAID

operating units to include in their country plans an analysis of the actions necessary to conserve biological diversity and tropical forests, and the extent to which current or proposed USAID actions meet those needs. The report is designed to help formulate Lesotho's foreign assistance strategy over the next year and to plan for biodiversity and forest conservation concerns over the medium to long term.

This report provides details on the extent, threats, and major issues in the biodiversity and forest sectors of Lesotho, as well as information on current U.S. Foreign Assistance and USAID programming. For countries such as Lesotho, which lie entirely outside the tropics, the 118 assessment of tropical forest is not required.¹ However, this document includes information and analysis based on the non-tropical forests of Lesotho, and it is highly recommended that this information be considered when planning USAID activities.

With more than 80 percent of the land at an altitude of 1,800 meters or higher, Lesotho is distinguished by cooler temperatures than other areas at the same latitude. Winters are dry and cold, reaching 0 degrees Fahrenheit in the highlands. Snow can be found year-round in the highlands and from May through September in the lowlands. Summers are hot and wet, with frequent thundershowers and the lowlands reaching up to 85 degrees.

Although not rich in game and wildlife like neighboring South Africa, Lesotho still remains an important priority for successful implementation of conservation and natural resource management activities. The IUCN Red List indicates over 400 entries for Lesotho, including the African lion and several species of frog and bird. Lesotho has one national park and three conservation areas, where these and other endangered and vulnerable species can be found. The lack in overall species numbers is due to a combination of habitat loss from anthropogenic

¹ To date, no such assessment has been conducted for Lesotho, although an analysis was produced by Nathan Associates in 2003 under a USAID/Regional Center for Southern Africa contract to provide environmental conservation guidance for the southern Africa region.

activities, hunting pressures, and competition for land with domesticated livestock. Large game including zebra, wildebeest, blesbok, and eland are believed to have thrived in large numbers within Lesotho's borders, and they are still common in surrounding South Africa.

With over 2 million citizens (2006) and a growth rate of 0.144 percent (2007)², the majority of Basotho are concentrated in the western lowlands where agricultural land is best. Approximately 19 percent of all residents live in urban centers with the remaining 81 percent in rural areas. As one of the world's poorest countries³, Lesotho's economy is dominated by subsistence agriculture and animal husbandry, though production has been declining for several decades.

In addition to population increase, other pressures from poverty, poor land tenure and management, and infertile soils are driving people onto marginal agricultural lands and so-called protected areas, contributing to environmental degradation. Unemployment is rampant, with 45 percent (2003) of citizens without steady income. In 2003, almost 35 percent of male Basotho worked in mining operations in South Africa and thus were able to supplement household income, however this number has declined recently due to increased mechanization, stagnation in gold mining, and a new preference for South African labor. Lesotho is also in the midst of an HIV/AIDS crisis, with an estimated 29 percent of adults infected. The crisis has led to the negative growth rate and shortened the average lifespan to less than 40 years.

Exports (\$779.1 million in 2006) include electricity, diamonds, clothing, footwear, livestock, wool, and mohair. Recently the garment manufacturing industry, which is the largest employer in the country, has greatly increased in size and is now a multi-million dollar industry, accounting for 77 percent of exports and almost 20 percent of GDP (2003). Over 80 percent of Lesotho's exports are to the United States. Imports (\$1.401 billion in 2006) consist of food, building materials, vehicles, machinery, medicines, and petroleum products, with the majority originating in Asian countries.

Lesotho's most prominent natural resource is water, which has become an important economic asset through the Lesotho Highlands Water Project (LHWP). Financed by the World Bank, the African Development Bank, European Investment Bank, and many other bilateral donors, the multi-billion dollar project began in 1986. Due to the LHWP and the rapidly growing manufacturing sector, the country has become one of the fastest growing economies in Africa.

Other natural resources include diamonds, clay, sand, and building stone. Currently, exploration for iron, coal and uranium are underway. The country's forest resources are extremely limited, with a total of 140 km² in forest plantations (about 0.2 percent of arable land), which are managed by the government. In addition, Lesotho has very small, isolated patches of remaining indigenous forest, mostly in remote areas. Due to the lack of available firewood and building materials, the government has encouraged plantations of exotic species like pine and eucalyptus and developed a forestry policy and forest service. More recently, local communities have been encouraged by the government of Lesotho and local and international NGOs to establish reserves and reforestation projects using indigenous species.

² U.S. Department of State estimate

³ The HDI places it at 145/177, with average per capita GDP at \$2,600 (2006)

Less than 1 percent of Lesotho's total land area is dedicated to protection of natural habitat and biodiversity. The protected areas are made up primarily of Sehlabathebe National Park, Tsehlanyane Nature Reserve, Bokong Nature Reserve, the Maloti-Drakensberg Transfrontier Conservation and Development Program, and the Masitise Nature Reserve. The Global Environment Facility (GEF) is funding some work to increase these areas through the organization Conserving Mountain Biodiversity in Southern Lesotho, and several new areas of protection have been proposed.

Threats to Lesotho's environment stem from the very beginning of the country's formation. Originally, the Basotho lived in a much larger area within South Africa, including most of what is now the Orange Free State. This flat region was ideal for the Basotho, who specialize in agriculture and animal husbandry, particularly cattle. After being driven from the Free State by the Boers⁴ in a series of wars from 1856-1868 into what is now Lesotho, the Basotho lost most of their fertile agricultural and pasture land.

They continued to carry on the tradition of livestock grazing and agriculture in the mountainous region of Lesotho, but without changing management practices to accommodate the steeply-sloped land. In addition, the increasing population continued to push livestock and agriculture farther and farther out onto steep mountain slopes and amplified the need for building materials and fuel wood. Without proper knowledge of soil conservation techniques, the land quickly began to worsen, and today Lesotho is facing a severe threat of land degradation, erosion, deforestation and desertification. The issue of land tenure insecurity is exacerbating the problem.

Lesotho is a non-presence USAID country, and support is directed through the Regional Center for Southern Africa (RCSA), based in Botswana; the HIV/AIDS regional office in Pretoria; and the U.S. Embassy in Lesotho.

The foreign assistance budget for 2008 is \$7,550,000, and \$50,000 of these funds has been directed toward peace and security to aid in the professional development of law enforcement. The remaining \$7,500,000 will go towards increasing the capacity of organizations focusing on HIV/AIDS. U.S. objectives to advance health and law enforcement hold potential to incorporate biodiversity and forest conservation activities.

With the help of the Global Environment Facility and UNEP, the government of Lesotho has taken an active role in designing a strategic action plan for protection of biological diversity. Lesotho is also a signatory to a number of conventions dealing with conservation and biodiversity, including the Convention on Biological Diversity. Lesotho has begun enforcement of that convention's terms, including a National Environmental Action Plan that was developed in 1989 and refined and modified by subsequent documents.⁵

⁴ "Boer," the Dutch or Afrikaans word for farmer, came to denote the descendants of the Afrikaans-speaking pastoralists of the eastern Cape frontier in South Africa during the 1700s, as well as those who left the Cape Colony in the 1800s to settle in the Orange Free State, Transvaal, and Natal.

⁵ National Paper on Environment and Development in Lesotho (1992), National Action Plan to Implement Agenda 21, National Environment Policy (1996), and the draft environment bill (1997).

In 2000, the government of Lesotho made a big step forward in development by introducing Vision 2020, a long-term initiative for development. This plan includes a section on improving environmental health and management. Vision 2020 is discussed further on page 12.

Better conservation management practices must be implemented immediately in order to stop the downward spiral of land degradation in Lesotho. Pressures of overgrazing and agriculture on delicate lands need to be alleviated before any further damage is done, and additional efforts in protection of unique flora and fauna should be made. These threats are not being addressed sufficiently by current U.S. Foreign Assistance programming, giving USAID an opportunity to take the lead on activities that will mitigate the impact of activities with the potential for detrimental environmental consequences.

Therefore, the following recommendations are offered to USAID to be implemented at the project level.

- Activities directed at the rural population should encourage and promote better natural resource management practices. Appropriate technologies need to be integrated into agricultural systems such as terracing and contour planting on hillsides, to prevent erosion; and sustainable grazing techniques and introduction of compost and cover crops, to improve soil fertility. To this end, working with and supporting local non-profit organizations will help target problem areas and amplify dissemination efforts at the grassroots level.
- Support efforts to increase clear land tenure security, especially for women.
- Assist in the formation of new protected areas and support the process of increasing the amount of land under protection. Ensure that protected areas are adequate for accommodating large animals, including IUCN listed species, and span a variety of diverse ecosystems and unique flora. Ensure protected area laws are enforced and boundaries protected.
- Work with other development organizations in the country that are concentrating on issues other than the environment. Habitat protection and conservation of natural resources are broad subjects that can find secondary support in other fields such as health, education, and business. For example, environmental sensitization can be incorporated into education programs, and health workers can emphasize the relationship between healthy environment and healthy communities. While no money is explicitly set aside in the FY08 congressional budget for biodiversity or environmental conservation, activities under Peace and Security and Investing in People can be reorganized to incorporate conservation and natural resource management elements which would positively affect Lesotho on multiple levels.

INTRODUCTION

Lesotho is a landlocked country, completely surrounded by South Africa. Major environmental issues faced by Lesotho are land degradation due to overgrazing and agriculture, erosion, deforestation and desertification. The map below shows the main cities and geography of Lesotho.

ENVIRONMENT AND NATURAL RESOURCE MANAGEMENT IN LESOTHO

Lesotho has a land area of 30,355 km², with 59 percent considered the “mountain region,” characterized by bare rock and deep river valleys; 17 percent the “lowland region,” along the western border; 15 percent the “foothills region,” and the remaining 9 percent the “Senqu Valley,” which is the narrow strip of land along the banks of the Senqu (Orange) River. All of Lesotho lies above 1,400m, with 80 percent over 1,800m, thus creating cool weather year round. The highlands receive snow throughout the year, while the lowlands reach highs of only 85 degrees in the summer. Winters are characterized by low temperatures, and summers are hot and wet, with frequent thunderstorms.

The country is covered with a majority of shrub lands used for grazing, and a small area of forest plantations (140 km²), consisting mostly of *Eucalyptus* and *Pinus*. Less than 1 percent of Lesotho’s total area is natural forest, having been preserved largely due to their inaccessibility in ravines and gullies. These areas, which are generally managed by traditional authorities, are classified as Afromontane forest and found in well-watered, north-facing areas.

With over 2 million citizens (2006) and a growth rate of 0.144 percent (2007), the majority of Basotho are concentrated in the western lowlands where agricultural land is best. Average population density is 59/km² (2005), but because most people live in the lowlands, density there is much higher than the average.

Although the high HIV/AIDS prevalence prevents the total population from increasing rapidly, high anthropogenic pressure has become a driving force in ongoing land degradation problems, forcing people to settle on and exploit marginal lands.

Map A. Lesotho



SOURCE: WWW.THECOMMONWEALTH.ORG

One of Africa's poorest countries, Lesotho has an economy dominated by subsistence agriculture and animal husbandry, which contributes almost 20 percent of the country's GDP (2006) and involves over 80 percent of the population in some capacity. This dependence on agriculture and animals reflects Lesotho's vulnerability to environmental crises such as drought, desertification, and soil degradation.

Primary agricultural products are maize, sorghum, barley, peas, beans and wheat. Cultivated land in 2002 totaled 3,340 km² (11 percent of total land), 3,300 km² of which was arable land, and 40 km² of which was under permanent crops. Due to poor farming practices and drought, agriculture in Lesotho is characterized by low productivity, and as a result, the country is obliged to import almost 50 percent of its domestic food requirement needs.⁶

The principal marketable natural resource in Lesotho is water, with a multi-billion dollar venture begun in 1986 called the Lesotho Highlands Water Project. Developed by the governments of Lesotho and South Africa, LHWP is designed to collect and transport water from the Orange River system in Lesotho to South Africa's Free State and the Johannesburg area. The purpose of this project is to provide income and hydroelectric power to Lesotho while benefiting South Africa with a steady source of water to its most industrial and populated province. With the completion of phase one in 1998, Lesotho became almost self-sufficient in the production of electricity. A profit of approximately \$24 million annually has been achieved due to the sale of electricity and water, the most recent data from 2004-2005 report just over \$17 million.⁷ Other natural resources include diamonds (1,140 carats extracted in 2001), clay, sand, and building stone.⁸ Currently, exploration for iron, coal, and uranium are underway.

BACKGROUND ON USAID ACTIVITIES

Lesotho is a non-presence USAID country, and support is directed through USAID's Regional Center for Southern Africa⁹ (RCSA) in Botswana and USAID's regional HIV/AIDS program in Pretoria (RHAP), with help from the United States Embassy in Lesotho.¹⁰ RCSA programs focus on three issues: increasing trade and strengthening regional economic ties, mitigating the HIV/AIDS crisis and food insecurity, and strengthening democracy to improve stability in the region. USAID/RHAP focuses on prevention of HIV/AIDS, HIV/AIDS counseling and testing, human capacity development, and prevention of mother-to-child transmission. The U.S. Embassy is focused on assisting in formation of democracy, helping fight the HIV/AIDS epidemic, promoting sustainable economic development and bilateral trade and investment, building support for United States Government Policies; and providing assistance to traveling American citizens. Table 1 on the following page shows RCSA's budget for the last three years.

⁶ World Resources Institute - Earthtrends

⁷ Lesotho Highlands Water Project (<http://www.lhwp.org.ls/news/default.htm>)

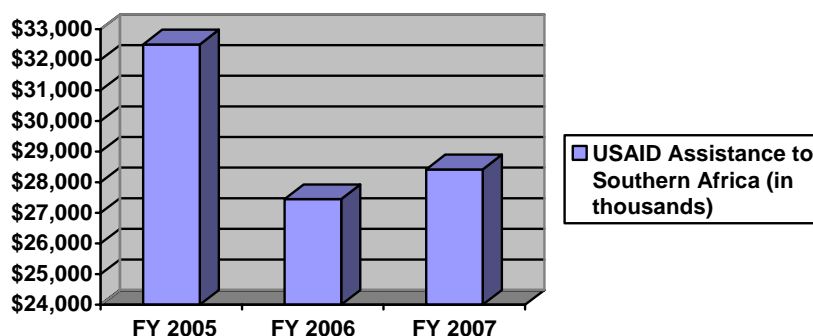
⁸ Between 1995 -2001, these minerals contributed about 3 percent of GDP (IMF 2002)

⁹ RCSA covers Angola, Lesotho, Malawi, Mozambique, Tanzania, Zambia, Botswana, Namibia, South Africa, Swaziland, and Zimbabwe.

¹⁰ For more information on these USAID missions, see www.rhap.org.za (RHAP), and www.southernafrica.usaid.gov

USAID's Food for Peace Program has provided emergency food aid to Lesotho during food shortages, and USAID's trade hubs have assisted the garment industry in Lesotho by connecting them to U.S. markets through business linkages, capacity building and problem solving trade facilitation.

Table 1. USAID Assistance to Southern Africa



Under a USAID contract, the National Oceanic and Atmospheric Administration and the U.S. Geological Survey developed the E-INFORM (Environmental Information for Natural Resource Management) program. This program aims to strengthen the capacity of regional organizations, community groups, NGOs, and government natural resource management authorities in Southern Africa by collecting and analyzing data and information about the region's natural resources. The enhancement of the Southern African Development Community (SADC) Natural Resources Database is the first in the series of E-INFORM activities. The main focus of this activity is to provide technical assistance to the SADC Regional Remote Sensing Unit (SADC-RRSU) in order to update the regional natural resources database and enhance ecological information dissemination.¹¹

CURRENT U.S. GOVERNMENT PROGRAMMING

In addition to USAID, many other U.S. government programs have a presence in Lesotho, mostly dealing with the HIV/AIDS crisis. They include:

- The United States Department of Defense HIV/AIDS prevention program, which has provided assistance to the Lesotho Defense Corps troops living with HIV/AIDS.
- The United States Department of Labor HIV/AIDS Workplace Strategy, which has sponsored a workplace education program.
- The U.S. Embassy, which provides three special project funding sources: The Ambassador's Girls Scholarship Program, designed to help girls attend school; awards scholarships based on academics; degree of poverty and effects of HIV/AIDS; The Ambassador's Self-Help Fund, which awards money for community development, especially in the areas of HIV/AIDS and women's rights; and the Democracy and Human Rights Fund, which provides money for activities that promote democracy and protection of human rights.

¹¹ More information can be found at http://www.nric.net/pub_project/proj_detail.cfm?ProjectID=640&Searchtopic=NRM

- The United States Peace Corps has supported almost 2,000 volunteers to date, with 76 currently serving in three sectors: Education, Community Health, and Community Economic Development. All sectors have a special focus on HIV/AIDS training.

In 2004, Lesotho (classified as a “transforming” country by the U.S. Department of State) received \$1.4 million to aid proposal development for the Millennium Challenge Corporation. The proposal has been completed and is currently in the due diligence process. The proposal focuses on water/sewage infrastructure, health infrastructure, human resources, and improvements in business and investments. Its aim is to attract new investment, develop value-added manufacturing, and increase employment in Lesotho.

For FY 2008, \$7,550,000 in the foreign operations budget has been requested for Lesotho, broken down as follows:

- \$50,000 in Peace and Security, to aid in the professional development of law enforcement
- \$7,500,000 in Investing in People, which will be used to increase capacity of organizations with a focus on HIV/AIDS

RATIONALE FOR A BIODIVERSITY ASSESSMENT IN LESOTHO

It is required by the U.S. Congress and stipulated in the U.S. Foreign Assistance Act (FAA) that all USAID operating unit strategic plans include a technical environmental analysis. Sections 117, 118, and 119 of the FAA require USAID Missions to examine issues of environmental impacts and forest and biodiversity conservation when preparing strategies for development assistance. Specifically, this assessment is designed to take into consideration the FAA provisions related to:

- Section 117: Consideration of the impact of proposed activities on the environment and how to implement programs with an aim toward maintaining and restoring natural resources upon which economic growth depends
- Section 118: Analysis of the actions necessary to achieve conservation and sustainable management of forests and the extent to which the actions proposed by USAID meet these needs
- Section 119: Analysis of the actions necessary to protect endangered species and to conserve biological diversity and the extent to which the actions proposed by USAID meet these needs

It is not required, however, for non-presence USAID countries, like Lesotho, to conduct these assessments. Nevertheless, such an assessment can provide important advice and help guide future programs. This particular assessment includes an overview of the status of biodiversity and forest conservation, an overview of the legislative and donor community framework particular to Lesotho, and an analysis of major threats to biodiversity conservation and forests.

The report also examines how the proposed activities in the operational plan for USAID assistance could contribute to conservation needs and includes recommendations for actions as well as near-term and long-term suggestions for additional programming. These additional

suggestions could also be presented for consideration by other donors, depending on the future funding levels and capacity of USAID/Africa. These recommendations are aimed at supporting environmental sustainability and conservation objectives in a manner consistent with the overall strategy of USAID and in ways that help to address the needs identified in this assessment.

LEGISLATIVE AND INSTITUTIONAL STRUCTURES AFFECTING BIODIVERSITY AND FORESTRY

The Kingdom of Lesotho is a constitutional monarchy with a prime minister as head of government with full executive authority and a King acting as figurehead. The constitution states that all citizens are granted freedom of speech, freedom of association, freedom of the press, freedom of peaceful assembly, and freedom of religion. The country is composed of 10 districts and 24 wards, which are controlled by hereditary chiefs. Central government revenues from 2003 were \$560 million, while expenditures for the same year were \$599 million.

POLICIES AND TREATIES RELATED TO THE ENVIRONMENT

Lesotho is party to several international agreements and conventions pertaining to the environment, including the Convention on Biological Diversity. Since joining, Lesotho has been active in implementing the requirements of the convention. With the help of GEF and the UNDP, Lesotho has addressed the requirements of article 6 in the convention, which requires the drafting and implementation of a strategic action plan.

Other international environmental conventions in which Lesotho is involved are:

- United Nations Framework Convention on Climate Change – Kyoto Protocol
- African Convention on the Conservation of Natural Resources
- Convention on Climate Change
- Convention to Combat Desertification
- Convention on International Trade in Endangered Species
- Basel Convention on hazardous wastes
- Marine Life Conservation
- Ozone Layer Protection
- Convention on Wetlands of International Importance
- Cartagena Protocol on Biosafety
- Law of the Sea (signed, but not ratified)

Lesotho has taken steps towards protecting its natural resources with its addition to numerous conservation conventions and forward steps with the Convention on Biological Diversity. However, the degree to which the country is actually active in treaties, implements their provisions, or follows the relevant laws is unclear, due to lack of documentation.

LEGISLATION RELATED TO THE ENVIRONMENT

Lesotho's National Environmental Action Plan (1989) is designed to:

- Ensure the fundamental right of all people living in Lesotho to an environment adequate for their health and well-being
- Conserve the cultural heritage and use the environment and natural resources of Lesotho for the benefit of both present and future generations;

- Maintain stable, functional relations between the living and non-living parts of the environment through preserving biological diversity and respecting the principle of optimal sustainable yield in the use of natural resources
- Reclaim lost ecosystems where possible and reverse the degradation of natural resources
- Establish adequate standards on environmental quality and resource use, and monitor changes and publish relevant data
- Require prior environmental assessments of proposed activities that may significantly affect the environment or use of a natural resource

The Environment Bill, passed by Congress in 2001, states that all Basotho are guaranteed the right to a clean and healthy environment, provides individuals the right to take legal action if they feel an act might jeopardize their well-being, and asks citizens to safeguard and enhance their environment. The bill calls for:

- The duty to develop and integrate environmental planning at the national, district, and local levels
- Undertaking environmental impact assessments of all major development projects
- Monitoring compliance and auditing of ongoing activities by an environmental inspectorate
- Controlling pollution based on the “polluter pays” and precautionary principles
- Serving environmental restoration orders on activities that degrade the environment
- Setting environmental standards for water, air, and noise
- Declaring environmentally protected areas and natural heritage sites
- Use of economic instruments to assure compliance
- Developing legislative proposals to implement international and regional environmental conservation
- Conventions ratified by Lesotho
- Promoting environmental education

Other environmental reports by the government include the Forest Act (1998), the Land Act (1979), the National Park Act (1975), the National Forestry Policy (1997), Biodiversity Strategy and Desertification (1998), National Action Plan (1998), and the National Report on Desertification (1999).

Since the mid-1800s, Lesotho's various governments have managed forest resources. To this day, very little planting occurs outside of government actions and international NGO-supported activities. Begun in 1973, the Lesotho Woodlot Project (LWP) establishes tree plantations that are owned and operated by the government. Called forest reserves, these areas total over 70km². In addition, LWP produces seedlings for planting in water catchment areas and carries out forestry research. Forestry activities and tree ownership were originally administered by the Forest Act of 1978, which supported the development of woodlots and did not provide for local ownership. In 1997, Lesotho enacted a new National Forestry Policy, which called for communities to take a more active role in forestry management.

The policy states, "It is the policy of the Lesotho Government to maximize, through actions consistent with other stated policies and development goals, the contribution that forests can make to the alleviation of poverty, livelihood security and environmental protection in Lesotho, and to enhance the participation and contribution of women in this endeavor."

Communities or individuals who wish to claim ownership of land must first apply to the chief forest officer (CFO) and show that the resource will be managed successfully. The applicant is then obligated to follow a management plan approved by the CFO. If the new owner does not follow the regulations, the government has the right to repossess the resource.

In 2000, the Government of Lesotho recognized that in order to ensure continued development, a long-term, far-reaching strategy must be designed. To this end, a framework was devised that would incorporate all sectors of society and lead to a common goal.

This national plan became "Vision 2020," which states, "By 2020, Lesotho shall be a stable democracy, a united, prosperous nation at peace with itself and its neighbors. It shall have a healthy and well developed human resource base. Its economy will be strong, its environment well managed and its technology well established."

Specifically, the environment section identifies several critical success strategies:

- Improved waste management systems
- Urban and rural land use planning
- Access to clean water, including sanitation and a water drainage plan
- Designate land categories in order to manage balanced ecosystems
- Encourage sources of renewable energy (biomass gas generation, wind and solar energy)
- Promote tree planting and preserve endangered animal and plant species
- Develop, promote, and protect national parks
- Ensure environmentally sound mining practices

Under the framework, an office is to be created to lead and manage the future steps of Vision 2020, and will include staff from both the public and private sectors and housed in the prime minister's office under the leadership of the government secretary. The office will work together with all Basotho and development partners to accomplish the goals of Vision 2020.

INSTITUTIONS RELATED TO THE ENVIRONMENT

All government institutions in Lesotho play at least a minor role in the environment, and four ministries are directly involved:¹²

- Ministry of Environment, Gender, and Youth Affairs: Coordinates and develops activities centered on water and minerals.
- Ministry of Agriculture and Food Security: Implements policies and programs with farmers to increase sustainable agricultural production.
- Ministry of Forestry and Land Reclamation provides the overall capacity for an environmentally safe and economically viable agricultural production that ensures food security. The Department of Forestry, under the auspices of this ministry, has a mandate to “cover the country with trees,” with the vision of 5 percent coverage by 2020. The department also works to ensure that jobs will be created, poverty alleviated, and land reclaimed.
- Ministry of Tourism, Environment and Culture: Promotes and ensures that the present and future development of Lesotho is environmentally sustainable by:
 - Coordinating, advising, and regulating environmental management
 - Setting standards and guidelines and monitoring compliance to environmental impact assessments
 - Disseminating information regularly on environmental issues and ensuring the country’s adherence to environmental treaties and international conventions
 - Empowering and creating awareness among local communities and other stakeholders on conservation of the country's environment

Established in 1994 by the prime minister, the Department of Environment is responsible for co-ordinating activities that affect Lesotho’s natural resources with cooperation from other government agencies, the private sector, NGOs, and local communities. The department is also responsible for developing and reviewing an environment policy and framework law for the country. The following are completed projects:

- Environmental Management for Poverty Reduction: To protect and rehabilitate land; sponsored by UNDP and Government of Lesotho. Ended in 2004.
- Zero Emissions Research Initiative: Produce mushrooms for medicinal and consumption purposes; sponsored by UNDP. Ended in 2005.

¹² For additional information on these and other ministries: <http://www.lesotho.gov.ls/home/default.php>

- Micro-Credit for HIV/AIDS Youth: Increase youth employment; sponsored by UNDP. Ended in 2004.

MAJOR NON-GOVERNMENTAL ORGANIZATIONS WORKING IN LESOTHO

Without a great number or variety of endangered animal and plant species, Lesotho lacks the presence of many of the international environmental protection and conservation minded non-governmental organizations that work elsewhere in Southern Africa. However, there are numerous NGOs working in other related fields. The Lesotho Council of Non-Governmental Organizations (LCN) was established in 1990 to provide support to NGOs working in Lesotho.

The council provides this support through networking leadership training and development, information dissemination, capacity building, coordination, advocacy, and representation when dealing with the government and the international community. These NGOs within the council are concentrating in various areas such as health (HIV/AIDS), agriculture, environment, tourism, mining, education and advocacy. Within LCN is the Agriculture, Environment, and Natural Resource Commission (AENRC) with member NGOs specifically involved in programs targeting sustainable agriculture, food security and environmental issues. The commission:

- Focuses on building the capacity of member NGOs to consider environmental and agricultural projects
- Represents the NGO sector on environmental issues of national interest
- Informs and trains NGOs on environmental and agricultural issues, international agreements, environmental law, and other pertinent issues in agriculture, forestry, land reclamation, and environmental management and planning
- Enables NGOs to work in partnership with each other, the government, international organizations, and the private sector in order to influence wide scale change on the ground and informing national policy
- Conducts yearly action planning with all AENR members to guide future work

The following are LCN members — mostly local NGOs specializing in conservation or a closely related field.

- Boseele Association: Tree nursery, soil and water conservation, and farming
- Bana ba Khoale: Agricultural production and support to small farmers
- Africa 2000 Association: Soil and water conservation and institutional capacity building, reforestation, financial support for community initiatives
- Boiteko Women's Association: Agriculture
- Lesotho Girl Guide Association: Environmental education and protection
- Lesotho National Wool and Mohair Growers Association: Farmer training

- Technologies for Economic Development: Biogas and renewable energy
- GROW: Household agricultural projects

Other conservation NGOs working in Lesotho but without membership to LCN are:

- Helvetas Swiss Association for Development: Agriculture
- Highlands Church Action Group: Agriculture and tree planting
- Lesotho Workcamps Association: Agriculture
- Plenty Lesotho: Agriculture
- Rural Self-help Development Association: Agriculture
- World vision Lesotho: Cleaning campaign and environmental education
- Durham-Lesotho Link: Forestry planting
- ADRA (Adventist Development and Relief Agency): Agriculture
- CARE International: Water supply construction, forestry, and agriculture

DONOR ORGANIZATIONS

Numerous international donors contribute to Lesotho's environment, including the following.

- United Nations programs
 - UNDP (United Nations Development Program). Projects supported by UNDP fall into four categories: Democratic Governance, HIV/AIDS, Poverty and Food Security and Energy and Environment.

The United Nations Development Program has taken an active role with aiding the government of Lesotho in improving environmental management, and moving toward the Millennium Development Goal of ensuring environmental sustainability. In particular, UNDP has helped with the assessments of gaps that must be filled in order to meet the MDGs, with focus on the Sustainable Land Management project, which disseminates knowledge in order to mitigate the causes and negative impacts of land degradation, and to improve capacities to plan and monitor land and natural resource management activities.

In addition, under the Lesotho Renewable Energy Based Rural Electrification (LREBRE) project, effort is being made to integrate environmentally sound energy technologies into household and community levels to reduce the pressure on biomass currently used for fuel. The UNDP is currently in collaboration with the Ministry of Environment and Tourism to assist in the environmental agenda, especially in the integrated waste management which includes plans for a new landfill.

The UNDP has also been instrumental in the Lesotho Highlands Water Project, discussed on page 19. The Global Environmental Facility, under the UNDP, has been a constant source of funding for environmental programs in Lesotho. Currently, eight projects deal with climate change, biodiversity conservation, and persistent organic pollutants. Past projects conducted in Lesotho by the UNDP include conservation of mountain

biodiversity, environmental management for poverty reduction, and identifying barriers to adoption of renewable energy.

- UNEP (United Nations Environment Program). In 2001, UNEP selected two individuals from rural Lesotho into the Global 500 Roll of Honor for outstanding contributions to the protection of the environment. UNEP Chemicals is implementing a project to help the government of Lesotho manage PCBs. Lesotho is also one of nine African countries participating in the Environmental Planning and Management approach that helps with urban environments. In the past, UNEP has helped mitigate effects of drought in Lesotho.
- UNESCO (United Nations Educational, Scientific, and Cultural Organization). This program involved in technical and vocational education through the Learning for Life, Work, and the Future project.
- FAO (Food and Agriculture Organization)
- UNCDF (United Nations Capital Development Fund): Provides support to Lesotho's efforts to decentralize and aids in the push toward the Millennium Development Goal of poverty reduction.
- WFP (World Food Program)
- IFAD (International Fund for Agricultural Development)
- The Global Environment Facility. As mentioned, Lesotho has received funding for eight projects relating to climate change, biodiversity and persistent organic pollutants.
- Multilateral Development Banks
 - The World Bank: International Finance Corporation, Multilateral Investment Guarantee Agency, and International Development Association
 - The African Development Bank
 - The Southern African Development Bank
- International Monetary Fund (IMF): Recently signed an Interm Poverty Reduction and Growth Facility with Lesotho
- International Aid
 - Government of Ireland
 - Government of the United Kingdom
 - The European Union
 - United States Government

- Government of Germany
- Canadian Government - The International Development Research Center (IDRC) has supported over 20 projects to date in Lesotho¹³
- Environmental Technical Center of Japan (\$160,000 for waste management)

MCC Support

On May 6, 2004, Lesotho was made eligible for Millennium Challenge Compact assistance, with a total amount requested of \$362.6 million over a five-year period. More recently, in 2006, a revised copy of the proposal was submitted. The country is currently in the due diligence process, with missions analyzing all sectors within the country. This money will be broken down into five sectors: Health Infrastructure (\$122.4 million), Urban and Rural Water (\$164 million), Program Administration Management (\$40 million), and Private Sector Development (\$36.1 million)..

The overall goal of the compact is to: “...reduce poverty by safeguarding the health of the population to achieve the productive participation of those of working age in the economy and to secure the productive participation of future generations. It also aims to enhance the prospects of short-term economic recovery and the long-term viability of private sector led economic growth.”

Although the proposal does not include a specific environment section, in its authorizing legislation, MCC uses objective and quantifiable indicators to evaluate a country’s commitment to “economic policies that promote the sustainable management of natural resources.” The MCC employs two environmental indicators to provide added information to the country selection process: the Natural Resource Management Index and the Land Rights and Access Index. Lesotho failed in both categories, with a 22nd percentile in NRM and 39th percentile in Land Rights. These failures are partially due to the restrictions on land access for women, an issue on which MCC is holding Lesotho accountable in order to receive full funding. Details on Lesotho’s scorecard can be found at <http://www.mcc.gov/selection/scorecards/2007/index.php#m>.

REGIONAL INITIATIVES

Because it is completely surrounded by South Africa, Lesotho considers transboundary conservation issues in detail. The five-year Maloti-Drakensberg Transfrontier Conservation and Development Project (MDTP) is a collaboration between South Africa and Lesotho to manage and protect the Maloto-Drakensberg Mountains through conservation, sustainable resource use, and land-use and development planning. Further information can be found in the General Status and Management of Natural Resources section to follow.

¹³ The IDRC is a public corporation created by the Parliament of Canada in 1970.

STATUS AND MANAGEMENT OF NATURAL RESOURCES

Because subsistence and commercial agriculture are principal livelihood strategies for the Basotho, they are actively engaged in natural resource utilization and conservation. The population is dependent on a healthy environment to provide such commodities as building materials, food, fuel wood, and medicine.

Early settlers (and later, the colonial government) recognized the dearth of natural forests in Lesotho, and that demand for wood would eventually outpace supply. To prevent the problem, tree plantations were begun. While there were some early successes in tree propagation, Lesotho still has a severe lack of forested lands — less than 1 percent of its total land area. Almost all wood products are imported, and forestry plantations in Lesotho are focused on the protection of water and soil resources.

GENERAL STATUS AND MANAGEMENT OF NATURAL RESOURCES

With respect to wildlife, Lesotho is lacking in the biodiversity of other African nations. However, Lesotho does have a wide range and substantial number of both flora and fauna, several endemic to the area.

Flora

Lesotho has approximately 2,000 species of flowering plants. Many unique species occur within the Maloti-Drakensberg mountain range, which is considered to be a regional hot spot for plant diversity. These mountains cover approximately 35,000 km² with 60 percent located in Lesotho. The number of plant species found within the Maloti-Drakensberg area is estimated at 1,750, of which 30 percent are endemic. Table 1 shows vegetation found in Lesotho and the percentage under conservation or protection.

Table 1: Vegetation Types, Area Covered, and Proportion of Conserved Areas

VEGETATION TYPE	AREA (KM2)	TOTAL AREA (PERCENT)	CONSERVED (PERCENT)
Afromontane Forest	1	0	0
Moist Cold Highland Grassland	6,689	22.63	0
Moist Cool Highland Grassland	198	0.67	0
Wet Cold Highland Grassland	58	0.2	3.28
Afro Mountain Grassland	15,489	52.4	0
Alti Mountain Grassland	7,118	24.08	1.08
Moist Upland Grassland	3	0.01	55.78
TOTAL AREA	29,558	100	0.27

Source: <http://www.bangor.ac.uk/rangeland/reports/le-task0.htm>

Forest resources in Lesotho fall into five categories based on ownership:

- Indigenous trees and shrubs (346.85 km): Mixed evergreen and deciduous forest found in gullies and valleys in the lowlands, where they are protected from bush fires. These forests are used for grazing, and vegetation loss is great.
- Government-owned plantations (61.31 km): Most of these plantations are left over from the Lesotho Woodland Project of 1973-1987. The majority of these woodlots were planted in the lowlands and foothills, and contain primarily pine and eucalyptus. These plantations are generally poorly managed and not restocked on a regular basis to maintain sustainable harvesting.
- Privately owned tree lots: No formal study of private tree planting has been conducted. Stands of poplar and silver wattle were planted under the Tree Planting Scheme of 1994-1997.
- Trees belonging to individual families: Over 80 percent of households have at least one tree in the yard, usually fruit trees.
- Trees in the urban environment: There is no documentation pertaining to urban trees in Lesotho, but all towns and cities have at least some trees which provide shade and wind block to the community.

Fauna

Information on diversity of animals in Lesotho is sparse and, as a result, little is known about occurrence, abundance, or distribution. Table 2 below gives some general information regarding animal diversity in Lesotho.

Table 2: Faunal Diversity in Lesotho

FAUNA	NUMBER OF SPECIES
Mammals	54
Birds	288
Snakes	16
Frogs and Toads	20
Fish	18
Swallowtail Butterflies	8
TOTAL	404

SOURCE: [HTTP://WWW.BANGOR.AC.UK/RANGELAND/REPORTS/LE-TASK0.HTM](http://www.bangor.ac.uk/rangeland/reports/le-task0.htm)

Lesotho Highlands Water Project

Water, being Lesotho's only real marketable natural resource, has become a huge export industry. The Lesotho Highlands Water Project, consisting of multiple large dams and canals, transports water from the highlands of Lesotho to South Africa's Free State.

Although the LHWP has infused millions of dollars into Lesotho's economy and succeeded in producing hydroelectricity for Lesotho and water for South Africa, there are many negative social and environmental implications both upstream and downstream of the dams. Large dams, like the ones used in the LHWP, force people from their homes upstream and inundate farmland, grazing pastures, and forests. Downstream, water flow is greatly disrupted, affecting fish and amphibian populations as well as any animals which may use the river. The combination of these factors leads to increased social, cultural, environmental, and economic poverty of those surrounding communities.

The World Bank refers to LHWP as "a very successful project that has met its major goals, although it is not yet close to meeting its social goals", adding, "...vigorous action is being taken to address the problems." LHWP officials signed a treaty at the onset of the project, stating that they had environmental and social commitments to encourage environmental management, maintain livelihoods of surrounding communities, and provide compensation for losses. Unfortunately, it seems that local communities have not been fully compensated, nor has the environment been sufficiently protected. Although the project pulls in millions of dollars, little if any of the money is actually seen by most citizens of Lesotho.

The Government of Lesotho, through its proposal for MCC funding, has asked for \$45 million to build the Metolong Dam which will supply water to the industrial sector of Lesotho where garments and other exports are produced. In addition, this water will be used for agricultural irrigation, household consumption and will provide hydroelectric power. The project consists of building a dam on the Phithiatsana River along with pumping stations, pumping plants, and pipelines. The total project will cost over \$120 million, with additional funding coming from the World Bank and various governments.¹⁴

THREATS TO NATURAL RESOURCES

Anthropogenic impact is the primary threat to natural resource conservation in Lesotho. Population pressures, along with increased agricultural production and grazing, lead to severe land degradation. These threats are especially detrimental in steeply sloping areas, where erosion leads to loss of fertile topsoil and to siltation in rivers and streams.

Exacerbating this problem is the issue of land tenure insecurity. In 2000, The Land Policy Review Commission called for the abolishment of the current land tenure system, which is based on the Land Husbandry Act of 1969 and the Land Act of 1979 (and their amendments). These acts state that land is owned by all citizens, and thus the system uses no written titles. The King acts as guardian and trustee. Local chiefs are responsible for the actual allocation of land, and rights to arable land are given directly to male farmers, while grazing pastures are communal.

¹⁴ See "Lesotho Country Proposal to the Millennium Challenge Corporation," 2006.

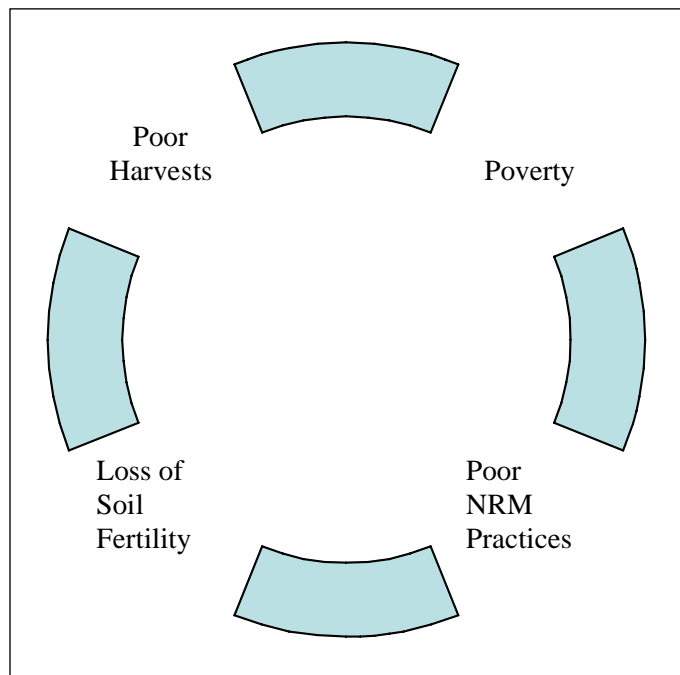
The Lesotho Land Reform process was developed and carried out by the Agricultural Policy and Capacity Building Project and funded by multiple donors. Issues addressed in the land reform include land management and environmental issues, discrimination towards women regarding land tenure rights, and weak law enforcement. Both the Amending Deeds Registering Act and the Draft Land Bill call for a woman to gain the right to own land in her name.

The government approved the New National Land Bill in 2003, making land lease the legal form of land acquisition. However, the bill faces possible threats to implementation due to lack of support by traditional community leaders. The Millennium Challenge Corporation is working with the government to ensure that gender equality in the area of economic land tenure rights is legally guaranteed before signing a compact agreement. Recently, the impact of HIV/AIDS has become more important in land ownership rights, as an increasing number of orphans are at risk of losing family land.

Hindrances to sustainable natural resource management fall under several primary causes.

- **Population:** An increase in human activity in already fragile areas causes soil erosion, pollution, and loss of biodiversity.
- **Inadequate land tenure system:** Without full rights to ownership of land, farmers and grazers fall into the philosophy of the “tragedy of the commons,” wherein people use the land to excess without thought to sustainability or the future.
- **Industrialization:** Extractive industries such as mining and water acquisition (the LHWP, for example) can lead to detrimental effects on the environment, if not conducted appropriately.
- **Limited access to education and finance:** Many farmers simply are not educated about harmful practices that affect the surrounding environment, and how appropriate technologies would greatly increase soil fertility and decrease erosion. In addition, any sort of financing in order to increase knowledge and change these harmful practices is lacking.

Lesotho’s population is caught in the cycle of poverty and environmental degradation, explained in the diagram at right.¹⁵ Poverty leads to inadequate knowledge of natural resource management techniques, which then



¹⁵ Created by author

leads to a loss in soil fertility and results in poor harvests, which only increase poverty and insecurity for the next cycle. In addition, periods of drought and an increase in desertification intensify the downward spiral of Lesotho's environment.

PROTECTED AREAS

Lesotho has the smallest amount of protected land within any country on the entire continent of Africa, with less than 0.4 percent of total land under protection. The one national park (a transboundary park with South Africa) and three established nature reserves are listed below in Table 3, along with other areas of conservation and protection.

Map B. Sehlabathebe National Park



SOURCE: WWW.LONELYPLANET.COM

Sehlabathebe National Park, with an area of 65 km², is home to small populations of several mammals such as the eland, oribi, baboon, black-backed jackal, wild cat, and otter. In addition, bird species such as the bearded vulture and the wattled crane are frequently seen. Most notable, however, is the small minnow-like fish, *Oreodaimon quathlambae*, which was thought to be extinct until it was discovered in the Tsoelinkana River.

The National Parks Act of 1975 provides for the designation and maintenance of national parks as well as conservation of animals, preservation of vegetation and features of historical or scientific interest, and the enjoyment of parks by visitors. Map B shows the location of Sehlabathebe National Park and the Drakensberg mountains, where the issue of transboundary management becomes apparent, since it lies on the border with South Africa's Natal Drakensberg Park.

Recently, Lesotho and South Africa have combined efforts and created the Maloti-Drakensberg Transfrontier Conservation and Development Program, which covers over 8,000 km of land along the southeastern border. The park, established in 2001, covers 5,000 km² in Lesotho and 3,000 km² in South Africa, incorporating both Sehlabathebe National Park and South Africa's Natal Drakensberg Park. This particular area is quite biologically important as it is rich in endemic species, with a total of 2,153 species of plant, 48 mammals, 299 birds, 48 reptiles, 26 amphibians, and 8 fish species.

Lesotho's second largest national preserved area, at 56 km², is Ts'ehlanyane Nature Reserve. Located in the northern part of the country, this area contains many unique examples of flora,

including Chichi woodland and a number of undergrowth plants found only in this habitat. Berg bamboo stands, which is the host plant for the endangered butterfly *Mestisella syrinx*, are found on the banks of rivers and streams. A few mammals including the Klipspringer and Rhebuck antelope are found here. The area is also considered an important breeding place for threatened wildlife. Unfortunately, because it is a sizeable area and contains large trees, this protected area is extremely vulnerable to illegal logging for fuelwood. This issue requires immediate action in order to prevent further destruction.

At the top of the Mafika-lisiu pass, near Ts’ehlanyene Nature Reserve, lies the Bokong Reserve (19.7 km²). The reserve has good examples of afro-alpine wetland sponges, which are the source of the Bokong River and the Lepagoa stream. The rare and endangered bearded vulture and several other bird species endemic to this ecoregion are found here, as are as baboons, vaal rhebuck, and numerous colonies of the endemic ice rat.

The World Conservation Union defines protected areas as: “An area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means.” Below is a full listing of currently protected or proposed areas of protection that exist in Lesotho and how they fall into IUCNs six categories. There are no areas that fall under Category I, which are strict nature reserves used mainly for scientific research. Further information about IUCNs categories can be found on their website at http://www.unep-wcmc.org/protected_areas/categories/index.html.

Several proposed protected areas are in the works, with the Mount Moorosi Reserve the closest to completion. This reserve has already been surveyed and plans are being made to preserve it under the UNESCO MAB (Man and Biosphere) program.

Table 3. Protected Areas in Lesotho

IUCN CATEGORY	NAME	MANAGEMENT OBJECTIVE
Category II	<ol style="list-style-type: none"> 1. Sehlabathebe Wild Life Sanctuary and National Park 2. Masitise Nature Reserve 3. Proposed Ts’ehlanyane Nature Reserve 4. *Maloti-Drakensberg Transfrontier Conservation and Development Program (added in by author) 	Managed Primarily for ecosystem protection and recreation
Category III	<ol style="list-style-type: none"> 1. Thaba-Bosiu Mountain 2. Proposed Liphofung Natural Monument 3. NUL Botanical Garden 4. Proposed Qoaling National Botanical Garden 5. MOA Arboretum 	Managed mainly for conservation of specific natural or cultural feature
Category IV	Proposed Management Area	Managed mainly for conservation through management intervention
Category V	Proposed Muela Reserve	Managed mainly for land and seascape conservation and recreation

Category VI	<ol style="list-style-type: none"> 1. <i>Maboella</i> Areas 2. Sehlabathebe RMA 3. Pelaneng/Bokong RMA 4. Malibamato/Matsoku RMA 5. Qhoali RMA 6. Proposed Biosphere Reserve 	Managed mainly for the sustainable use of natural ecosystems
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SOURCE: WWW.BANGOR.AC.UK/RANGELAND/REPORTS/LE-TASK0.HTM

THREATS TO PROTECTED AREAS

Under Lesotho's legislation and management approaches, plant and animal species living within these areas are protected; however, the reality is somewhat different. Several factors threaten to undermine the intentions to preserve and conserve these areas. As was already mentioned, the protected areas are threatened by fragmentation and transboundary issues. In order to conserve large animal species such as the antelope, lion or baboon, large areas of land are needed. Another threat is one posed by the surrounding communities, which still consider the protected areas part of their community land. For example, Sehlabathebe National Park is surrounded by a population that often uses the park for grazing livestock. Due to ongoing land disputes concerning grazing access, this issue may not reach a conclusion anytime soon. Encroachment on the protected area and further fragmentation would be highly detrimental to these few remaining pieces of protected land.

Other specific threats faced by protected areas in Lesotho include:

- Fragmented areas and management schemes
- Large amounts of trans-boundary areas, and resulting management issues
- Bush fires and clearing of forest lands for fuel wood, timber or grazing pastures
- Illegal exploitation of resources
- Livestock grazing
- Successive droughts
- Poverty leading to an inability to plan for long-term management

STATUS AND PROTECTION OF ENDANGERED SPECIES

The IUCN's Red List includes only one species in Lesotho (the Maulti minnow) as critically endangered, while two are endangered and 11 are vulnerable. The full list is provided at right, and original information is provided at the IUCN Red List website:

<http://www.iucnredlist.org/>.

IUCN RED LIST OF CRITICALLY ENDANGERED, ENDANGERED, AND VULNERABLE SPECIES OF LESOTHO

Critically endangered (1):

- Maulti minnow

Endangered (2):

- White tailed mouse
- Long-toed tree frog

Vulnerable (11):

- Natal banana frog
- Yellow-breasted pipit
- Black harrier
- Lesueur's hairy bat
- Lesser kestrel
- Southern bald ibis
- Wattled crane
- Blue crane
- Cape griffon
- African lion
- Red stinkwood

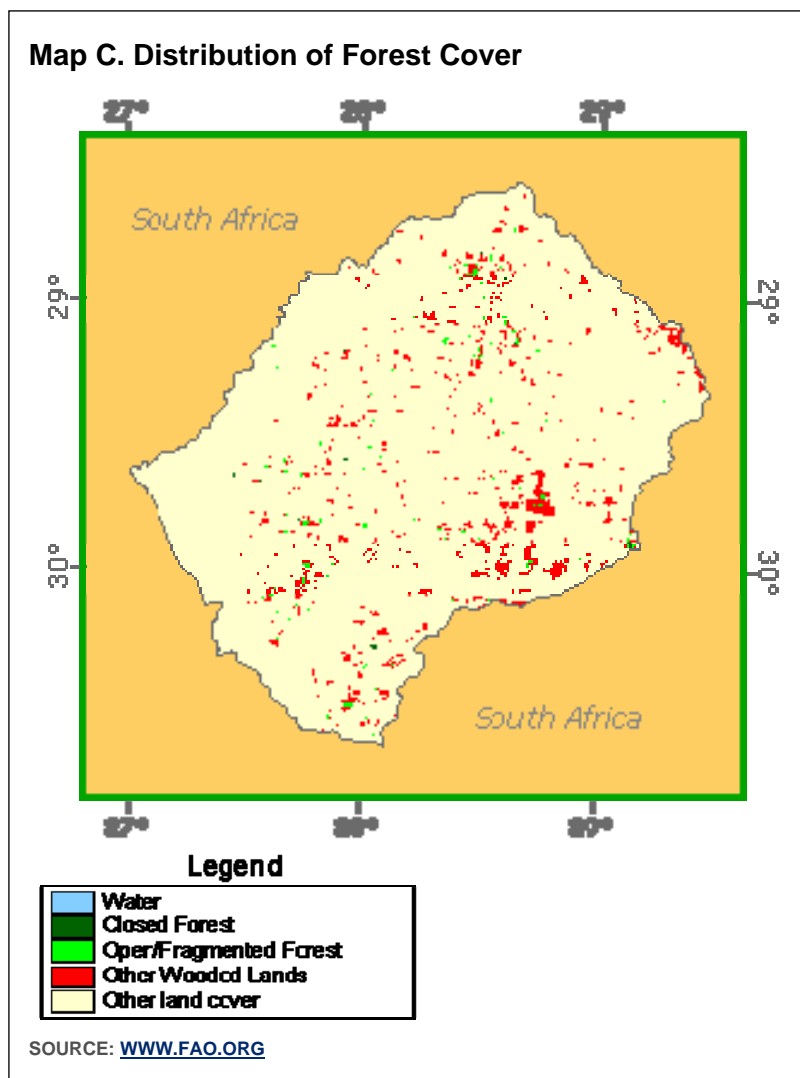
The status and extent of endemic species in Lesotho is not well known, which points to the need for further surveys and studies. However, the World Conservation Monitoring Center (UNEP) reports a total of 417 known animal species, 1 percent of which are endemic and 2.4 percent of which are threatened. Lesotho is also home to over 1500 plant species, 0.1 percent of which is endemic. These endangered species are vulnerable to many of the same pressures as the protected areas themselves: bush fires, population pressure, animal husbandry practices, droughts, and loss of habitat to destruction.

STATUS AND PROTECTION OF FOREST RESOURCES

Total forest area in Lesotho is about 140 km², less than 0.5 percent of total land area in the country (2000, Earth Trends). Of that area, 12.5 percent (17.5 km²) is primary forest (Mongabay). Between 1990 and 2005, Lesotho's forests increased by 300 ha, or 60 percent. However, during the same 15-year interval, the total rate of habitat conservation (defined as change in forest area plus change in woodland area minus net plantation expansion) decreased by 69.2 percent (Mongabay). Map C shows the distribution of land cover in Lesotho, where the small amount of forest cover can be readily observed.

Data representing wood production and trade is limited and inadequate. Wood that is felled and sold by the government should be thoroughly documented; however, these statistics are rarely reported to forestry headquarters. Wood harvested and sold by individuals or communities is never documented, as they are not held responsible for reporting. These circumstances make it impossible to fully understand how much is being removed from forests. All sawn timber that is used locally is imported from South Africa. Several major threats to forest resources are occurring in Lesotho, most notably:

- Land cleared for agriculture
- Grazing in protected areas
- Bush fires
- Drought
- Domestic, commercial, and industrial exploitation



CONSERVATION OUTSIDE OF PROTECTED AREAS

Conservation outside of protected areas is quite limited, which creates significant challenges for viable conservation of Lesotho's rare and endemic plant and animal species. Poor agricultural techniques employed by farms adjacent to protected areas have a negative impact on these areas and their flora/fauna. Bushfires, erosion, runoff into waterways, and desertification due to human activity are all preventable threats. Conservation and good management practices outside of protected areas would be very beneficial, increasing the availability of fuel wood, housing materials, and natural medicines and providing areas for traditional ceremonies. The biggest factors limiting conservation outside of protected areas are lack of education and knowledge in good resource management practices and land tenure instability.

MAJOR THREATS TO BIODIVERSITY AND FOREST CONSERVATION

Biodiversity in Lesotho faces several major threats, which are only continuing to intensify. These issues can be fit into 5 broad categories: drought and desertification, population pressure, bush fires, soil degradation, and natural resource management capacity.

DROUGHT AND DESERTIFICATION

Drought is defined as an extended period of months or years wherein an area experiences a deficiency in water supply. Africa has historically been hard hit by droughts, leading to devastating effects on agricultural lands, biodiversity and poverty and malnutrition. Lesotho has experienced several consecutive years of drought leading to food instability.

The 1992 U.N. Conference on Environment and Development in Rio de Janeiro defined desertification as “land degradation in arid, semi-arid, and dry sub-humid areas resulting from various factors, including climatic variations and human activity.” The transformation in habitat that is caused by desertification is significant to the biodiversity that lives there and those animals that depend on it. This has led to the decline and even extinction of species previously adapted to the climate. In addition, the decline in arable land causes great losses in agricultural productivity, leading to poverty and malnutrition and an increase in pressure on already vulnerable lands. Desertification leads to soil erosion, reduced soil moisture retention, increased runoff, and reduction in land productivity.

Luckily, Lesotho has a relatively well-developed transport infrastructure, a fairly stable government, and good relations with other Southern African nations. This has equaled a more rapid and prolific response to droughts than in other African nations. The government is primarily responsible for importation, storage, and transportation of food, leaving the Red Cross and other NGOs to concentrate on identifying the most vulnerable households and targeting food distribution locally. These NGOs have also been working on community-based early warning systems, developing sources of drinking water, and promoting rain catchments and seed banks.

POPULATION PRESSURES

Total population in Lesotho now stands at over 2 million residents, with a growth rate of -0.46 percent in 2006. Average population density is 59/ km²; however, the majority of people occupy the lowland areas, making the density much higher in those areas while lowering density in the highlands. Although the population is actually decreasing, people are still exerting great pressure on surrounding lands that will continue to increase if practices are not changed.

Lesotho has one of the highest rates of HIV/AIDS on the continent, which has implications on land tenure and biological conservation measures. As more and more children are orphaned, the remaining family land is split up, to provide each child with the means to support himself or herself.

People living in poverty generally do not have the opportunity to concern themselves with possible environmental concerns looming ahead. Farmers are forced to overgraze on what little land they lease, on already degraded communal grazing lands, or illegally in protected areas.

Additionally, agricultural lands are managed poorly, with the loss of sufficient fallow periods between crops to restore nutrients.

BUSH FIRES

One of the largest fire threats to Lesotho's remaining forests is honey collectors, who often cause forest fires. Fires cause a decrease in biomass, leading to a decline in soil cover and increased erosion as well as a loss of nutrients and animal biodiversity.

Most fires that occur in Lesotho damage less than 0.1 km^2 , because the intensive grazing of livestock is so high that the germinated vegetation is browsed immediately and very little dead material is left. However, the few remaining forested areas are still in danger. The Forest Act states that fires in woodlots are forbidden and the person responsible must pay a fine for damage. Transferring government forest plantations to local communities may be a good way for locals to feel a commitment to protecting this remaining resource and deter wildfires.

DEGRADATION OF SOILS

Given Lesotho's geography of steep slopes and very little arable lowland, it is not surprising that it suffers from severe degradation of soils. Inappropriate land management practices have led to depletion of nutrients in the soil, extreme erosion, loss of topsoil, and siltation in streams. Inadequate fallow periods do not allow for soils to recover between crops. Numerous NGOs (see pages 14-15) are currently working in the field to curb this problem.

NATURAL RESOURCES MANAGEMENT STRATEGY AND POLICIES

Land tenure insecurity is an important issue when discussing management practices. Because most farmers do not have future rights to their land for agriculture or grazing, they don't feel the need to use sustainable practices. This leads to overgrazing and planting crops on land that is unhealthy. Land tenure insecurity is an issue that is currently being addressed by the Government of Lesotho and the Millennium Challenge Corporation.

PROPOSED ACTIONS AND RECOMMENDATIONS FOR USAID PROGRAMMING

The scope of this assessment has been limited to U.S.-based research and document review, utilizing such publicly available information as the 2008 Congressional Budget Justification for Foreign Operations and other information about USAID-supported activities in Lesotho in recent years. However, this analysis can allow for some general recommendations for USAID to contribute to biodiversity and forestry conservation that are consistent with U.S. goals and objectives. It should be noted that limited information was available on actual USAID programming, so recommendations are general in nature and would be contingent on the specifics of the programming.

Given the importance of transboundary protected areas, the high prevalence of HIV/AIDS, and the need for appropriate technology education, there is great potential for USAID to have an impact on biodiversity conservation in Lesotho. Although USAID does not have an office in Lesotho, it is proposed by the author that the regional offices in Botswana and Pretoria, with the help of the U.S. Embassy in Lesotho, begin to focus on how USAID can support conservation efforts, either through existing NGOs and the Government of Lesotho or by initiating new programs with an environmental focus. Specific recommendations for proposed program elements are detailed below.

Peace and Security/Consolidating Democracy

For FY 2008, \$50,000 has been requested for aiding in the professional development of law enforcement officers. The Lesotho Defense Force (LDF) is integral to the democratic process and has been rebuilding itself since 1998, when a failed coup d'etat¹⁶. An agreement has been signed which allows for the United States to help the International Military Education and Training programs which emphasize leadership, management, civil/military relations and human rights.

Although peace and security activities are not directly tied with conservation efforts, they have important connections with the potential to affect environmental activities. The need for regional peace and security is apparent when considering that protected areas need law enforcement along borders, especially in transboundary protected areas. The threat from conflict is especially pronounced in forest regions that may serve as a hideout for rebel groups, although this is not a threat at this time in Lesotho.

Therefore, USAID should work with organizations implementing the peace and security activities and conservation organizations in Lesotho. Together, these organizations can identify and target those areas that need security and natural resource protection the most. The added security will protect conservation areas from illegal use such as poaching and timber harvesting.

Investing in People – HIV/AIDS

The FY 2008 foreign aid budget calls for \$7,500,000 to increase capacity of organizations focusing on HIV/AIDS. The Masaru Embassy has promised to add a USAID program director

¹⁶ Estimated at about 4,000 personnel, the LDF consists of an army, an air wing, and a paramilitary wing.

and a USAID prevention coordinator to the existing HIV/AIDS program at the Embassy by FY08 (the regional HIV/AIDS program in Pretoria will continue to provide technical assistance). In addition, the MCA Compact's largest component will be a program that focuses on improving health care infrastructure (\$144 million) and the President's Emergency Plan for AIDS Relief (PEPFAR) funding contributions will be \$9.5 million.

Lesotho's people are suffering from the HIV/AIDS crisis, which is having a direct effect on conservation efforts through loss of human capacity, natural resource management, and land use. "The conservation community cannot rely purely on the health sector for solutions for HIV/AIDS: it needs to engage actively with partners in a multi-sector approach to reduce impacts"¹⁷. Conservation organizations are losing highly trained staff members to HIV/AIDS, as well as experiencing a loss in productivity due to staff taking time off to attend numerous funerals. Many AIDS-affected households are turning to natural resources for alternative income — fishing, farming and charcoal production — are on the rise. Unsustainable medicinal plant harvesting to treat side effects of AIDS and timber harvesting for coffins are on the rise. Unsustainable, intensive farming is also on the rise, due to the loss of family members and decline in household income.

USAID can affect environmental conservation efforts through HIV/AIDS work in a number of ways: Promote HIV/AIDS education throughout environmental conservation organizations in order to reduce infected employees, work with health organizations to improve natural resource management, and educate families about appropriate technologies that will increase their food production while caring for the soil, and promote alternatives to overharvesting of medicinal plants and timber.

¹⁷ Oglethorpe, Judy and Gelman, Nancy, 2007. *HIV and Conservation: Impacts and Ways to Reduce Them*.

CONCLUSION

Overall, the need to increase natural resource management and conservation is an important one. With only one national park and a handful of special reserves, Lesotho is just beginning to realize the importance of biodiversity conservation and the need for protection. However, the country suffers from extreme anthropologic pressure and annual drought, which are making conservation and protection of its lands difficult.

Although USAID does not have staff in Lesotho, the regional office in Botswana has been active in dealing with the HIV/AIDS crisis. However, little attention seems to be placed on environmental protection and natural resource management, which leaves the door open for USAID to reorganize already planned health activities to incorporate elements of conservation and thus positively affect the livelihoods of the Basotho on a number of levels.

A review of the proposed FY 2008 U.S. government assistance to Lesotho does not present any major threats in terms of the proposed program's potential impacts on Lesotho's biodiversity and forest resources. In fact, the opportunity to include conservation objectives into already planned activities is an important one that should not be missed. In order to make sure these objectives are streamlined, USAID should make sure the environmental impact assessments are conducted routinely and taken into consideration when planning future activities.

The following general recommendations are offered as specific USAID programming is considered and planned:

- Ensure that agricultural projects encourage sustainable management practices.
- When working with rural communities, focus on those living near or in biologically diverse areas/protected areas. Promote and encourage better natural resource management practices and increase clear land tenure security.
- Look for projects that have the potential for cross-cutting programming, such as incorporating environmental awareness into health and education activities. Work with other development organizations that are concentrating on issues other than the environment.
- Actively monitor possible negative environmental impacts of programming, and employ Regulation 216 in conducting environmental impact assessments for projects.

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