

ASSESSMENT OF TROPICAL FORESTS  
AND  
BIODIVERSITY  
IN ZAMBIA

A Background Analysis in Response to Sections 118 and 119 of the Foreign Assistance Act

*Conducted by:* RICHARD PELLEK  
**REDSO/ESA Natural Resources/Policy Advisor**

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## EXECUTIVE SUMMARY

This brief assessment report combines the topics of tropical forestry and biodiversity into a single analysis, as they pertain to the present circumstances in Zambia. Such an analysis is required by USAID/Lusaka in compliance with the legislative requirements set down in Sections 118 and 119 of the Foreign Assistance Act of 1961, as amended. The combined analyses show clearly that the Government of the Republic of Zambia and its development partners such as donors, NGOs and international organizations have recognized the importance of natural resources in Zambia and have taken steps to conserve, protect and/or enhance those resources by underwriting a variety of studies, policy statements and action plans which are designed to maintain environmental quality while simultaneously providing economic benefits to Zambian citizens in a grand strategy of sustainable development.

The following analysis describes the most important features of Zambia's forest estate and wildlife natural resources, evaluates their present status as regards their conservation and management; pressures affecting them; and priority actions which should be taken to ensure sustainability of the resource base. USAID/Lusaka is but one of the actors in the collaborative effort to address the multiple issues facing both the forestry sector and that of biodiversity-- which encompasses every ecosystem and is relevant in agricultural, wildlife, forestry and livestock sub-sectors. Other donors have perhaps been more prominent than USAID in the breadth of their involvement, and their contributions should be acknowledged as setting in-country precedents which describe the current circumstances, cite major environmental problems and constraints, and the requirements for effective action. Many background reports also make recommendations intended to establish priorities and elicit response from the GRZ and its development partners. Donor and NGO collaboration is, after all, a fitting model which makes use of both financial and human resources to achieve common objectives. The true extent of integration, however, is difficult to ascertain because of the dynamics among organizations. In this analysis, no attempt is made to divine the achievements of the multiple actors engaged in environmental initiatives because of the speculative nature of the synergism which exists. That synergism does exist, however, and is the lifeblood of the development partnership among donors, NGOs and the GRZ.

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## INTRODUCTION

Several recent legislative and institutional structures in Zambian government have influenced the nature and the pace of conservation of biological resources. Perhaps the most important piece of recent legislation was the passage in 1990 of The Environmental Protection and Pollution Control Act. The Act provides for the creation of an Environmental Council and covers procedural and policy issues regarding water, air, waste, pesticides and toxic substances, noise, ionising radiation, and natural resources conservation. Current functions of the Environmental Council include establishing standards for all categories of environmental concern, and to enforce and monitor compliance with those standards. The relatively new body undertakes a broad and critical role in environmental matters, but it is too early to make a fair assessment of their effectiveness. Together with the National Parks and Wildlife Act and the Tourism Act which affect how Zambia's natural resources are managed and regulated, now and in the future.

At the present time only a small amount of the arable land in Zambia is devoted to agriculture. Some 41 million ha are suitable for agriculture but only 1.4 million ha are cropped annually. But vast rural landscapes of veld are given over to range, forest and wildlife habitats that could be more fully developed. Development and conservation are two sides of the same coin and in 1985 Zambia launched a conservation strategy to satisfy the basic needs of all its people, through the wise management of natural resources

Several categories of environmental and natural resource maladies have been identified: deforestation, soil erosion, degradation of pasture and rangelands, pollution (air, water, urban waste, industrial effluent) and poaching. In 1991 USAID/Lusaka commissioned a preliminary investigation of the major environmental concerns, as seen by the Zambians themselves (Pellek, 1991). The preliminary report was based on assumptions used in the preparation of the draft USAID/Lusaka Country Development Strategy Statement (CDSS), precursor of the present CPSP. The initial and internal USAID/Lusaka document (Draft: SOW on Environment and Natural Resources, Zambia CDSS, undated) listed several resource and environmental issues which were earlier identified in the 1982 Environmental Profile of Zambia. They were:

- A. Soil Erosion
- B. Deforestation and Rangeland Degradation
- C. Environmental Health
- D. Industrial Pollution
- E. Wildlife (poaching)

The Pellek report led to a more detailed assessment of selected sectoral issues, undertaken by a multidisciplinary team from TR&D and the U.S. Forest Service, Forestry Support Program. The broad assessment of the selected sub-sectors (TR&D, 1992) was pursuant to possible inclusion of an environment and/or natural resources strategic objective in the FY92 USAID/Lusaka CPSP.

Some first hand findings put certain issues into a limited perspective, but the views were not necessarily conclusive. Nonetheless, some of the findings were, as follows. The Director of the Natural Resources Department in 1991 listed the most pressing problems in order of their

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apparent magnitude. They were: 1) deforestation, 2) soil erosion, 3) pollution and 4) a lack of awareness on the part of the people to do something about it. Another priority, from the standpoint of implementation within the Department of Natural Resources was the lack of training and transport for extension personnel to reach out to the public. Unfortunately, there was at the time little hard data to substantiate the priorities given by the Director or for arguments regarding the categories themselves as they were described in various literature sources. Some citizens in the private sector, however, said that soil erosion may be serious in three or four local areas, but erosion cannot be viewed as a national problem of great magnitude. Land degradation in the form of soil erosion and loss of fertility predominate in the Central, Southern and Eastern provinces. A summary assessment, taken from the Pellek (1991) report reads:

(A). Soil Erosion - Thought to a problem (by some professionals) throughout Zambia as a result of slash and burn agriculture (chitemene), overgrazing, poorly constructed roads, land burning practices, etc. Erosion is a universal problem which is exacerbated by human economic activity. However, except for specific localities where it may be accelerating beyond control, it would be difficult to isolate soil erosion as an issue which could be addressed in a discrete and decisive way.

(B). Deforestation and Rangeland Degradation - An October 1990 report by the Zambia Natural Resources Department paints a reassuring picture of the status of forests in Zambia. It is estimated that over 55% of the country is forested (413,000 km<sup>2</sup>), that the growing stock of forest biomass is almost 3,000 million tonnes, and that the average annual growth is about 90 million tonnes. What the report does not discuss is the rate of deforestation and degradation of the standing resource as a result of chitemene. The Director of Natural Resources acknowledged that shortcoming and urged that a proper forest inventory be conducted as a prerequisite to effect planning. One unconfirmed (November 1990) report puts deforestation in 1988 at 9,000 km<sup>2</sup> and the forest area at 405,000 km<sup>2</sup>. The Department of Natural Resources says the deforestation rate is 200,000 - 300,000 ha per year. According to another brief account of the situation, at present rates of deforestation, all the trees in Zambia will be gone within 23 years. All of the sources, however, put deforestation as the highest priority problem facing Zambia.

There is one plan underfoot to establish a 20,000 ha plantation of hardwoods. Under the circumstances of plans for a pulp and paper mill on the banks of the Kafue River (by Zambezi Paper Mills), the issue of sustainable yields is a relevant one. In the larger context, however, replacement for the considerable volume of wood which is extracted for charcoal is more important. Charcoal manufacture is thought to be a major drain on forest resources, but accurate data

on the charcoal industry is lacking. The most informed person on the subject of wood sources for charcoal is perhaps Professor E.N. Chidumayo of the University of Zambia. He has published data which is important to obtain.

The FAO is developing a Tropical Forest Action Plan (TFAP) for Zambia. Although the process is in only a rudimentary stage at present, the main components of the Zambian TFAP are:

- \*To encourage the establishment of small and large scale forest industries.
- \*Strengthen institutions dealing with conservation of natural resources.
- \*Deal with general conservation issues.
- \*Deal with land use issues.

(C). Environmental Health and (D). Industrial Pollution

Due to the high level of urbanization in Zambia, and the importance of mining and extraction industries, both environmental health and industrial pollution are important subsectors affecting the human environment. Malaria and cholera are serious problems, and potable water is a major developmental issue throughout the country. A survey of the status of urban pollution, especially water supplies, seems to be a priority. Toxic and hazardous wastes also constitute an acute threat in some areas.

In addition, the improper disposal of agricultural pesticides and the negative effects of farm fertilizers on soils and ground water should be investigated.

In the case of Natural Resources Conservation, *per se*, (Part X of the Act), the emphasis is on dereliction and contamination of land, but also includes a mandate to conduct appropriate reclamation activities.

(E) Wildlife (poaching) - Wildlife as a category does not appear to be something USAID-Lusaka needs to be involved in, since the Zambian approach under the Administrative Design for Game Management Areas (ADMADG) and two other programs: Luangwa Integrated Resource Development Project and the Wetlands Project are going fairly well and are being adequately supported by the central government. Poaching had been reduced by more than 90%, according to some sources, as a result of the Government of Zambia decision to put the proprietorship of the wildlife resources into the hands of the people.

Wildlife share the land with livestock, thus the issues of wildlife habitat and range management are, to a large extent, similar concerns. Livestock and their

management, on the other hand, produce direct environmental impacts because the size and movement of livestock herds are regulated by man. Since much of Zambia is better suited to range management than it is to agricultural pursuits, the issue of livestock management is also inexorably entwined in the system. Although Zambia does have some international trade in livestock, exports are limited by cattle diseases which affect both quantity and quality of the products, and undermine confidence in Zambian livestock in world markets.

## BACKGROUND

Several recent documents show that the issues of conservation and wise use of natural resources are well recognized in Zambia. Both internal USAID documents and those commissioned by USAID, other donors or Non-Governmental Organizations (NGOs) indicate that the overall subject matter of the environment has been considered on its own merits for some years. For example, an Environmental Profile of Zambia was commissioned by the US Man and the Biosphere Project in 1982, in conjunction with USAID; and the National Conservation Strategy for Zambia (1985) has become the basis for later actions. The USAID/Lusaka sponsored Natural Resources Management (NRM) Project Grant Agreement of January 1990 emphasizes community-based natural resource management and utilization programs, while simultaneously sustaining the natural resources of the Project areas. Anti-poaching measures are part of the Project Grant Agreement, as are resource management protection, ecological monitoring and wildlife management initiatives. The program in Zambia, known as the Administrative Management Design (ADMADe), is part of the Southern Africa Regional NRM Project. The 1992 DeGeorges mid-term evaluation of the ADMADe project made numerous references to wildlife as a resource; and made many recommendations on how to improve collaboration with various Government of the Republic of Zambia (GRZ) departments and ministries pursuant to enhancing sustainability of the wildlife and non-wildlife resources. Some of the issues covered included: collaboration on various natural resources management schemes; development of a land use management plan; a proposed literature review concerning management of *mopane* and *miombo* woodlands; a wildlife census; graduate and On-the-Job Training in forest management, and accounting practices leading to greater transparency; subsequent monitoring and evaluation of the ADMADe project; and encouragement of practices which lead to sustainable use of wildlife and other natural resources.

A similar community-based resource management project sponsored by the GRZ has many of the same ideals. The Luangwa Integrated Rural Development Project (LIRDp) seeks to develop all of the land related resources, including agriculture, forestry, wildlife and water. LIRDp is administered under the National Parks and Wildlife Board and uses existing financial resources of the Wildlife Conservation Revolving Fund.

Another USAID document which highlights present circumstances and makes recommendations on how to improve operations of both the ADMADe and its parent organization, the National Parks and Wildlife Service (NPWS), is the February 1994 Rosenthal et. al. "Mid-Term Planning

Assessment of Zambia Component" of the Southern Africa Regional NRM project. One of the more important USAID commissioned documents is the "Zambia Natural Resource Management Strategy Assessment" (1992) written by a team of specialists from Tropical Research & Development (TR&D) and the U.S. Forest Service, Forestry Support Program. The TR&D report addresses the subjects of tropical forests and biodiversity, *inter alia*, with recommendations on priorities for proposed action.

The Zambian National Environmental Action Plan (NEAP) is nearing its completion in draft form, and should be distributed by August 1994. Many components of the NEAP recognize the implied value of the tropical forests, their importance in the economic life of many Zambians, the contribution to GDP of the forest industry; and the necessity to conserve the resource so that it can be sustained without degradation for years to come. The Minister of Environment and Natural Resources affirmed the role of the NEAP in a televised address to the nation on 4 June 94. It should be noted that the final version of the NEAP incorporates salient information from "The National Conservation Strategy for Zambia" (1985) and many of the policy issues contained in "Zambia's National Report to UNCED" (1992). The report to UNCED made specific reference to conservation of biological diversity, with wildlife as a separate section, and the status of tropical forests. In addition, the report stressed the biological richness of Zambia's wetlands and the value of its fisheries. The UNCED report defined six country strategies and recommendations; and five strategies requiring international collaboration (see Appendix F).

Review comments by members of organizations involved in the collaborative crafting of the NEAP have gone into the final draft of the NEAP. A number of workshops have been held to finalize the final wording of the NEAP. Many organizations have been active in drafting both the report to UNCED and the final version of the NEAP (see Appendix E).

A recent manual "African Biodiversity: Foundation for the Future" (1993) included examples of traditional farming systems in miombo woodland in Zambia by Prof. E.N. Chidumayo, member of the African Biodiversity Advisory Group and Chair of the Planning and Steering Committee of the Zambian NEAP; IUCN and WWF. It brings into sharper focus some major elements in the 119 assessment. The most important sectoral documents on tropical forestry which relate to the 118 assessment are a series of working papers which will be used to finalize the Tropical Forest Action Plan (TFAP). One of the more important ones is known as the Zambia FINNIDA Forestry Action Plan, which is still in draft form as of this writing. Although there have been activities in developing action plans for certain provinces in the past three years, the nationwide TFAP process itself has been much delayed for lack of donors. A formal launching of the TFAP is expected by the end of June 1994.

Other important documents include: "The State of the Environment" (1990) and individual project reports by environmental and/or conservation NGOs working in and around various National Parks, Game Reserves and other protected areas. For example, in addition to studies of a nationwide scope, during 1988-89 several environmental profiles were written for individual provinces, with the financial and technical assistance of donors. Many of these reports have been incorporated into documents with a national focus. A 1994 version of "The State of the

Environment" will be available by July 1994. Ensemble, these several documents contain much background information that would form the basis of an extensive analysis of 118 and 119 issues.

### **Other Donors, NGOs and International Organizations**

Other donors and NGOs have been engaged in on-going projects whose files contain numerous published reports, working documents and pending proposals which should not be discounted in importance. For example, the massive Child and Lee (1992) report on "Reorganization and Restructuring the Department of National Parks and Wildlife Services" was conducted by the World Wide Fund for Nature (WWF) Zambia, on behalf of the European Community and at the request of the GRZ. But due to the nature of modifications in draft reports and the uncertainty of funding of project proposals, no attempt is made here to include more than a token mention of working documents. Nevertheless, proposals are the formal culmination of important and often urgent intended actions. Progress in the environmental movement usually depends on the "if and when" they are accepted and implemented.

One major commitment of the GRZ vis-à-vis environmental accountability could be realized if funding is secured for the GRZ/IUCN proposal to establish a national system for environmental assessment and planning. The proposal pending has a lot of inter-governmental agency involvement: the National Commission for Development Planning; the Ministry of Environment and Natural Resources; and the National Environment Council.

## **ENVIRONMENT AND NATURAL RESOURCES**

On the basis of various assessments conducted by or prepared for USAID, GRZ, FAO, UNDP, the World Bank, IUCN, WWF, and others; the picture of environmental circumstances is fairly well known. More important, the problems and constraints have been identified in all major sectors; and recommendations and/or action plans have been devised for each of them. Some reports separate out the renewable resources from the non-renewable such as minerals, coal, etc. This report emphasizes only a few of the renewable resources, which include: water resources, forests, wildlife and fisheries resources. Tropical forests (Section 118 of the FAA) will be considered first.

### **A. Tropical Forests: Area, Status and Management Policies**

Located entirely within the tropical region between 8° and 18° south of the Equator, Zambia should be considered as a key county with respect to conservation of tropical forests. At one time approximately 80% of the country was covered by forest, more than half of which was classified as miombo woodland, dominated by *Brachystegia* spp., *Julbernardia* and *Isoperlinia* species. Although they make up a tiny portion of closed canopy forests, a few high value hardwoods are important in the species mix. *Alzelia quanransis* (pod mahogany), *Baikiaea*

plurijuga (mkusi or Zambezi teak), Faurea saligna (sanginga), Guibouritia coleosperma (muzauli), and Pterocarpus angolensis (mukwa) are highly prized in commerce. Today the remaining forests cover 45-60% of the land, depending upon source of reference. The current area in forests is quite high in comparison with other African countries. Of those forests, miombo woodland is still the dominant vegetation type, covering 35-45% of Zambia's land area of 752,972 km<sup>2</sup>. Gazetted forests cover only 9.9% of the total forest estate, thus forest policies extend to only a small portion of the total forest estate. Nevertheless, the vast forests of Zambia are valued for the products and environmental services they provide.

Wood is the major raw material for: home construction, furniture, utility poles, fencing, mine timbers, railway sleepers, and turnery products. Charcoal and fuelwood provide 58% of the nation's energy needs. In addition, forests provide a number of non-wood products such as honey, fruit, fodder, mushrooms, medicines, fiber, and edible caterpillars.

The extensive forests of Zambia protect agricultural lands, absorb excess rain water, reduce runoff, enrich the topsoil, maintain river flows, are the chief sources of clean drinking water; and are important habitats for many of the 4,200 species of plants and the 1,500 species of animals found in the country. Forests, therefore, are a primary gene bank for a large number of species, both plant and animal.

Despite the inherent richness of Zambia's forests, weak and/or ineffective management, protection and unenforceable policies have resulted in severe degradation and/or deforestation in recent years. The TR&D report (1992) states boldly that, "the Forest Department does not have the power or the means to control cutting trees in the gazetted forest estate (of 7 million ha) and has even less control over forests under traditional tenure" (40 million ha). One result has been the overexploitation of the Mungongo tree (Ricinodendron rautanenii) for the craft industry near Livingstone and the popular tourist attraction of Victoria Falls.

## **B. Biodiversity**

With over 4,200 species of plants, 1,500 species of vertebrate animals, 732 bird species, 152 kinds of reptiles, and 83 types of amphibians in Zambia, the country is significant in its regional biodiversity. Zambia's rivers, lakes and swamps support 156 known fish species. The extensive wetlands of the country are a unique resource and important habitats for birds and other forms of wildlife. It is estimated that Zambia, endowed with an abundance of lakes, rivers, wetlands and groundwater resources, has nearly 45% of all the water resources in Southern Africa.

Of the 4,200 plant species in Zambia, 211 have been found nowhere else. Of the 1,500 vertebrate animals, 42 species are protected. Reports indicate that indigenous mammal species number over 200, including several large mammals that are unique to Zambia. These include the Kafue Flats lechwe, black lechwe, Thornicroft's giraffe and Cookson's wildebeest. A significant number of endangered species occur in Zambia, and have come under severe pressure from poaching and habitat destruction. For example, the endangered African elephant has

declined from 100,000 in 1973 to 22,000 in 1992; and the similarly endangered black rhino has dropped from 4,000 to near extinction in the same period. Today only 5-6 rhinos are known to exist in the wild in Zambia. Other endangered species include the African dog (Lycon pictus), leopard (Panthera pardus), cheetah (Acinonyx jubatus), lechwe (Kobus leche), the Nile crocodile (Crocodylus niloticus), and the African slender-snouted crocodile (Crocodylus cataphractus).

## DISCUSSION

The environmental movement in Zambia is rich in background studies and reports which show clearly that the GRZ is well aware of the issues, priority actions, and recommended next steps in regard to tropical forest management and biodiversity. Any number of reports mention various aspects referred to in AID/W guidance cable 032584, regarding preparation of background assessments in response to Sections 118 and 119 of the FAA. Need to conserve tropical forests and biodiversity has never been in question; but the means to accomplish such a huge task has always been a problem in Zambia.

Many ministries and their departments face challenges of undertrained, understaffed and undercapitalized field operations. Although forests and wildlife are renewable resources, the former has yet to produce revenues which are anywhere near the vast potential which exists, by GRZ estimates. And the latter, wildlife, has in the past been a net consumer of financial resources. Taking wildlife as an example, the 1985 National Conservation Strategy for Zambia noted specific constraints to a more sustainable use of wildlife. Among them were: lack of public participation; conflicts over land use; low finances; and deficiencies in (enforcing) laws.

The National Conservation Strategy for Zambia became an official policy document. Policy formulation and implementation, however, are two different issues, as noted by the authors of the 1992 UNCED report. Many constraints exist, the chief ones noted were:

- the absence of strong cross-sectoral guidelines for land and natural resources allocation and conservation according to productive capacities.
- inadequate coordination between current conservation and development efforts, which cause both duplication and gaps in coverage of activities.

Other constraints mentioned are in the areas of finance, legislation, extension, education, manpower, information inventory and research.

## The NEAP--Updated Look at Environmental Issues

As a prototype document that has been evolving in dozens of countries across Africa for the past several years, the NEAP is presumed to be written in a uniform format and contains elements

that can be referenced from other NEAPs. As the latest document of such a comprehensive nature, many people have expectations that the Zambia NEAP will blend all of the most important information from predecessor documents. This is not the case. Although the final version may yet appear to embody key elements of earlier works, the current draft is not promising in that respect.

The comprehensive categories are all there, and it is instructive to see Renewable Natural Resources in a separate chapter. It is also encouraging to see environmental issues and their associated action plans following one after the other. But it is not encouraging to realize that biodiversity, which had been discussed in relation to agriculture and other sectors in previous documents, left out entirely as a factor, in some cases. Also, since biodiversity is generally incorporated or blended into each subject matter (or meant to be), it does not attain the prominence it enjoyed in earlier reports. As a result, biodiversity as a subject sometimes appears as an issue, and sometimes not.

The draft NEAP has watered down some of the issues contained in other documents. Although the NEAP has yet to be officially released, it seems clear that the treatment of some issues such as forestry, agriculture and biodiversity (in separate chapters) are not necessarily improvements over earlier deliberations. For example, despite the fact that the agricultural sector covers one of the largest units of areal extent: 42 million ha of potentially arable cropland and 10 million ha of rangeland, there is no discussion about biodiversity on these lands, or in these sub-sectors. Nor is there a discussion about where biodiversity fits into the plan for agricultural research, which is treated in the chapter on agriculture (Chapter 5).

As regards forestry, there is clear evidence that little known information has been added to the NEAP that did not occur in earlier published documents. For example, Chapter 6 on renewable natural resources does add information on biodiversity in indigenous forests. The mention of 5,500 species of flowering plants (Section 6.2.1) contradicts literature references to there being 4,200 species; however, the draft NEAP includes fresh mention of 88 species of mosses, and 146 species of ferns (Chisumpa 1990; Phiri and Ochyra 1988; Kornas 1979). Mention is also made that there are eight species in Zambia on the world list of endangered species (World Conservation Monitoring Centre 1993).

Unfortunately, Section 6.2.3 discusses charcoal and woodfuel harvesting as the equivalent of deforestation. Since harvesting occurs in both reserved forest and ungazetted (open) forests, it gives the impression that deforestation occurs when harvesting takes place. If the land reverts to forest, or is kept for that purpose, the process should not be referred to as deforestation. In any case, with approximately 60 million ha of land in one category or another of forest land, management issues and biodiversity conservation are important considerations.

One finding of the NEAP notes that current forest policy places too much responsibility for the forest estate on the Forest Department. Several points in the forest policy are listed. Problems which afflict the Forest Department would seem to also plague the National Parks and Wildlife Service. The NEAP mentions the absence of management plans for both National Parks and

GMA's as contributing to the failure to resolve land use conflicts and to establish acceptable zoning for wildlife management.

Information on the management of wildlife resources considers biodiversity of Zambia's fauna, protected in 19 National Parks and four bird sanctuaries. Land devoted to National Parks covers 6.4 million ha, with an additional 16.6 million ha in game management areas, surrounding the National Parks.

### **Environmental Policy Development**

Up until 1990, no single body of law existed in Zambia which could be described as the country's environmental legislation. Existing laws which dealt with prevailing needs and circumstances served the nation, but were administered through different Ministries and Departments.

Up to 1989, the following enactments related to the environment:

- Natural Resources Conservation Act CAP.315 of 1970. Administered by the Department of Natural Resources; mainly restricts practices that could lead to natural resources degradation.
- The Water Act CAP.312 of 1964 administered by the Department of Water Affairs. Covers abstraction and discharge of water into natural water, rather than prescribing mandatory abatement.
- The Local Administration Act of 1980, CAP.480. Through District Councils, has tried to introduce water pollution standards but enforcement in most cases has been weak.
- The Forest Act CAP.311 of 1973. Administered by the Forestry Department which was established in 1947, it covers issues of forestry development in Zambia.
- The National Parks and Wildlife Act CAP.316 of 1968. Administered by the Department of National Parks and Wildlife, provides for the setting aside of national parks and game management areas to conserve representative wildlife and ecological units; and to controlling wildlife harvesting.
- The Town and Country Planning Act CAP.475 of 1962. Provides for the appointment of planning authorities and preparation, approval, and revocation of development plans for the control of development and subdivision of land.

- The Fisheries Act CAP.314 of 1974. Provides for the supervision and management of the major fisheries of Zambia through the Fisheries Department which enforces the Act through licensing and net sizes control.
- The Industrial Development Act of 1974. Provides for regulation of resource extraction such as mining.
- Environmental Protection and Pollution Control Act of 1990. Provides for the creation of the National Environmental Council (NEC) as the umbrella body to coordinate environmental related activities. The Act also provides for the regulation of the environment through the creation of inspectorates responsible for the quality of water and air; the regulation and control of waste disposal; the regulation of the manufacture, distribution and use of pesticides and toxic substances; and the regulation of noise pollution and ionizing radiation and natural resources conservation.
- The National Parks and Wildlife Act of 1991 repealed the Act of 1968 (CAP.316) and provides for establishment, control and management of National Parks and Wildlife and objects of interest in National Parks; Game Management Areas; licensing of hunting; control of possession of trophies and the control of bush fires. (Source: draft of NEAP, May 1994)

Some experts consider the influence of NGOs to be relatively weak, in comparison with the enormous breadth of environmental problems. A 1993 study, "Non-Governmental Organizations and Natural Resources Management: An Assessment of Eighteen African Countries" stated boldly that Zambian NGOs have relatively little experience implementing NRM (natural resources management). Church groups or church-supported community groups are the primary implementors of project activities which have local impact on the natural resources. Community-based resource management activities which are supported by outside donors are being implemented by either the Department of National Parks and Wildlife Services or international NGOs. There are very few programmes and few NGOs. Thus, at government and donor level there is little confidence in NGO capabilities in the natural resources sector. Nonetheless, many host country programs and projects demonstrate that the conservation issues are known; and a variety of NGO and international organization activities also demonstrate that those interests are shared with the environmental community on a global basis.

## APPENDIX A

### FOREIGN ASSISTANCE ACT OF 1961 (P.L. 87-195) (as amended) Sec. 117, 118 and 119

**Sec. 117.<sup>71</sup>Environment and Natural Resources.**-(a) The Congress finds that if current trends in the degradation of natural resources in developing countries continue, they will severely undermine the best efforts to meet basic human needs, to achieve sustained economic growth; and to prevent international tension and conflict. The Congress also finds that the world faces enormous, urgent, and complex problems, with respect to natural resources which require new forms of cooperation between the United States and developing countries to prevent such problems from becoming unmanageable. It is, therefore, in the economic and security interests of the United States to provide leadership both in thoroughly reassessing policies relating to natural resources and the environment, and in cooperating extensively with developing countries in order to achieve environmentally sound development.

(b) In order to address the serious problems described in subsection (a), the President is authorized to furnish assistance under this part for developing and strengthening the capacity of developing

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<sup>71</sup> 22 U.S.C. 2151p. Sec. 117 was added by sec. 201(b) of Public Law 99-440 (100 Stat. 1094). A previous version of sec. 117, "Infant Nutrition", was repealed in 1978.

<sup>72</sup> 22 U.S.C. 2151p. Sec. 117 was redesignated from being sec. 118 by sec. 301(d) of Public Law 99-529, resulting in the creation of two sections 117. Sec. 301(e) of Public Law 99-529 (100 Stat. 3014) further deleted subsec. (d) of that section which dealt with tropical forests, and then sec. 301(f) of Public Law 99-529 added a new section 118 entitled "Tropical Forests". This section, as added by sec. 113 of Public Law 95-88 (91 Stat. 537) and amended by sec. 110 of Public Law 95-424 (92 Stat. 948) and sec. 122 of Public Law 96-53 (93 Stat. 948), was further amended and re-stated by sec. 307 of the International Security and Development Cooperation Act of 1981 (Public Law 97-113, 95 Stat. 1533). This section previously reads as follows:

"Sec. 118. Environment and Natural Resources. (a) The President is authorized to furnish assistance under this part for developing and strengthening the capacity of less developed countries to protect and manage their environment and natural resources. Special efforts shall be made to maintain and where possible restore the land, vegetation, water, wildlife, and other resources upon which depend economic growth and human well being especially that of the poor.

"(b) In carrying out programs under this chapter, the President shall take into consideration the environmental consequences of development actions."

" See also OTHER PERTINENT ACTS. Refer to original Appropriations Act

countries to protect and manage their environment and natural resources. Special efforts shall be made to maintain and where possible to restore the land, vegetation, water, wildlife, and other resources upon which depend economic growth and human well being, especially of the poor.

(c1) The President, in implementing programs and projects under this chapter and chapter 10 of this part,<sup>72</sup> shall take fully into account the impact of such programs and projects upon the environment and natural resources of developing countries. Subject to such procedures as the President considers appropriate, the President shall require all agencies and officials responsible for programs or projects under this chapter-

(A) to prepare and take fully into account an environmental impact statement for any program or project under this chapter significantly affecting the environment of the global commons outside the jurisdiction of any country; the environment of the United States, or other aspects of the environment which the President may specify; and

(B) to prepare and take fully into account an environmental assessment of any proposed program or project under this chapter significantly affecting the environment of any foreign country.

Such agencies and officials should, where appropriate, use local technical resources in preparing environmental impact statements and environmental assessments pursuant to this subsection.

(2) The President may establish exceptions from the requirements of this subsection for emergency conditions and for cases in which compliance with those requirements would be seriously detrimental to the foreign policy interests of the United States.

**Sec. 118.<sup>73</sup> Tropical Forests.**

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

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

(2) can result in desertification and destabilization of the earth's climate.

Properly managed tropical forests provide a sustained flow of resources essential to the economic growth of developing countries, as well as genetic resources of value to developed and developing countries alike.

<sup>72</sup> Sec. 562 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1991 (Public Law 101-513; 104 Stat. 2026), added a new chapter 10 to part I of this Act, providing for long-term development in sub-Saharan Africa (see page 170), and made a conforming amendment by inserting "and chapter 10 of this part" here.

<sup>73</sup> 22 U.S.C. 2151p-1 Sec. 118 was added by sec. 301(3) of Public Law 99-529 (100 Stat. 3014). See also footnote 71.

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

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

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

(c) **ASSISTANCE TO DEVELOPING COUNTRIES.**- In providing assistance to developing countries, the President shall do the following:

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

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

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

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

(3) To the fullest extent feasible, support projects and activities-

(A) which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and

(B) which help developing countries identify and implement alternatives to colonizing forested areas.

(4) To the fullest extent feasible, support training programs, educational efforts, and the establishment or strengthening of institutions which increase the capacity of developing countries to formulate forest policies, engage in relevant land-use planning, and otherwise improve the management of their forests.

(5) To the fullest extent feasible, help end destructive slash-and-burn agriculture by supporting stable and productive farming practices in areas already cleared or degraded and on lands which inevitably will be settled, with special emphasis on demonstrating the feasibility of agroforestry and other techniques which use technologies and methods suited to the local environment and traditional agricultural techniques and feature close consultation with and involvement of local people.

(6) To the fullest extent feasible, help conserve forests which have not yet been degraded, by helping to increase production on lands already cleared or degraded through support of reforestation, fuelwood, and other sustainable forestry projects and practices, making sure that local people are involved at all stages of project design and implementation. (7) To the fullest extent feasible, support projects and other activities to conserve forested watersheds and rehabilitate those which have been deforested, making sure that local

people are involved at all stages of project design and implementation.

(8) To the fullest extent feasible, support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing, including reforestation, soil conservation, and other activities to rehabilitate degraded forest lands.

(9) To the fullest extent feasible, support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction, loss, or degradation, including research in agroforestry, sustainable management of natural forests, small-scale farms and gardens, small-scale animal husbandry, wider application of adopted traditional practices, and suitable crops and crop combinations.

(10) To the fullest extent feasible, conserve biological diversity in forest areas by-

(A) supporting and cooperating with United States Government agencies, other donors (both bilateral and multilateral), and other appropriate governmental, intergovernmental, and nongovernmental organizations in efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis;

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

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

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

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

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

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

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

(14) Deny assistance under this chapter for -

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

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

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

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

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

(C) The colonization of forest lands.

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

(d) PVOs AND OTHER NONGOVERNMENTAL ORGANIZATIONS.-

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

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

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

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

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

Sec. 119.<sup>74</sup> **Renewable and Unconventional Energy Technologies.** \* \* \* [Repealed-1980]

Sec. 119.<sup>75</sup> **Endangered Species.**- (a) <sup>75</sup> The Congress finds the survival of many animal and plant species is endangered by over-hunting, by the presence of toxic chemicals in water, air and soil, and by the destruction of habitats. The Congress further finds that the extinction of animal and plant species is an irreparable loss with potentially serious environmental and economic consequences for developing and developed countries alike. Accordingly, the preservation of animal and plant species through the regulation of the hunting and trade in endangered species, through limitations on

<sup>74</sup> Sec. 119, 1, and 2 footnotes not informative - see original FAA Act.

the pollution of natural ecosystems, and through the protection of wildlife habitats should be an important objective of the United States development assistance.

(b) <sup>76, 77</sup> In order to preserve biological diversity, the President is authorized to furnish assistance under this part, notwithstanding section 660,<sup>78</sup> to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs. Special efforts should be made to establish and maintain wildlife sanctuaries, reserves, and parks; to enact and enforce anti-poaching measures; and to identify, study, and catalog animal and plant species, especially in tropical environments.

(c) <sup>79</sup> FUNDING LEVEL.- For fiscal year 1987, not less than \$2,500,000 of the funds available to carry out this part (excluding funds made available to carry out section 104(c)(2), relating to the Child Survival Fund) shall be allocated for assistance pursuant to subsection (b) for activities which were not funded prior to fiscal year 1987. In addition, the Agency for International Development shall, to the fullest extent possible, continue and increase assistance pursuant to subsection (b) for activities for which assistance was provided in fiscal years prior to fiscal year 1987.

(d) <sup>80</sup> COUNTRY ANALYSIS REQUIREMENTS.- Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-

(1) the actions necessary in that country to conserve biological diversity, and

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

(e) <sup>81</sup> LOCAL INVOLVEMENT.- To the fullest extent possible, projects supported under this section shall include close consultation with and involvement of local people at all stages of design and implementation.

(f) <sup>82</sup> PVOS AND OTHER NONGOVERNMENTAL ORGANIZATIONS.-

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

(g) <sup>83</sup> ACTIONS BY AID.- The Administrator of the Agency for International Development shall-

(1) cooperate with appropriate international organizations, both governmental and nongovernmental;

<sup>76</sup> Sec. 532(c)(1) of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1993 (Public Law 102-391, 106 Stat. 1668) provided:

"(1) Not less than \$20,000,000 of the aggregate of the funds appropriated to carry out the provisions of sections 103 through 106 and chapter 10 of part I of the Foreign Assistance Act of 1961 shall be made available for biological diversity activities, of which \$5,000,000 shall be made available for the Parks in Peril project pursuant to the authority of section 119(b) of that Act, \$1,500,000 shall be for the National Science Foundation's international biological diversity program, \$750,000 shall be for the Neotropical Bird Conservation Initiative of the National Fish and Wildlife Foundation, and up to \$2,000,000 shall be for Project Noah.

<sup>77</sup> Section 533 (a)(4) A of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1990 (Public Law 101-267, 103 Stat. 1227), added, notwithstanding section 660, at this point.

<sup>78</sup> Pars. (c) through (h) were added by sec. 302 of Public Law 99-529 (100 Stat. 3017).

(2) look to the World Conservation Strategy as an overall guide for actions to conserve biological diversity; (3) engage in dialogues and exchanges of information with recipient countries which stress the importance of conserving biological diversity for the long-term economic benefit of those countries and which identify and focus on policies of those countries which directly or indirectly contribute to loss of biological diversity;

(4) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity;

(5) whenever possible, enter into long-term agreements in which the recipient country agrees to protect ecosystems or other wildlife habitats recommended for protection by relevant governmental or nongovernmental organizations or as a result of activities undertaken pursuant to paragraph (6), and the United States agrees to provide, subject to obtaining the necessary appropriations, additional assistance necessary for the establishment and maintenance of such protected areas;

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

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

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

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

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

(h) <sup>9</sup> ANNUAL REPORTS.- Each annual report required by section 634(a) of this Act shall include, in a separate volume, a report on implementation of this section.

## **APPENDIX B**

### **PROTECTION OF VULNERABLE GROUPS**

Chapter 10-Development Fund for Africa

Section 496(h)(2)(B)

Dated 27 October 1990

PROTECTION OF VULNERABLE GROUPS-- Assisted policy reforms shall also include provisions to protect vulnerable groups (especially poor, isolated, and female farmers, the urban poor, and children including displaced children) and long-term environmental interests from possible negative consequences of the reforms.

SOURCE: Amendment to the Foreign Assistance Act, 1990

## APPENDIX C

### Selected Notations from Zambia's National Report to UNCED

#### Section 5.4.2 Forestry

Recognizing the important role that forests play in soil, water and wildlife conservation, as well as the provision of basic needs of the people, it is necessary to undertake the following measures in the area of forestry.

##### A. Country Strategies and Recommendations

- (i) Increase forestry contribution to the country's economy through the development of honey and wax production, saw milling and the promotion of other forestry products.
- (ii) Undertaken a country forestry inventory to guide the exploitation and management of the forest estate.
- (iii) Encouragement community forestry and agroforestry practices as a means of providing fuelwood and other forest products to the people.
- (iv) Encourage the development of forest based industries to make use of forest plantations.

##### B. Strategies Requiring International Collaboration

- (i) Negotiate for the training of forestry staff at professional and technical levels.
- (ii) Negotiate for support in the strengthening of national institutions handling forestry training and other related subjects.
- (iii) Negotiate for technical assistance in conducting major forest inventories to determine the forest resource base.

#### Section 5.4.17 Conservation of Biological Diversity

Being conscious of the urgent need to safeguard and rationally use biological resources, Zambia is committed to building a strong and fair global partnership to enhance its efforts in establishing an environmentally sound and sustainable development path. To realize this, the following measures are deemed necessary in the area of biological diversity.

A. Country Strategies and Recommendations

- (i) develop legislations and statues to protect and enhance the efforts of custodians of biodiversity to recognize and incorporate individuals and communities in management systems of terrestrial, aquatic and domestic species.
- (ii) diversify breeding efforts from exotic species to include indigenous species in biotechnological research.
- (iii) encourage biodiversity through policies that give favourable weighting to all biological resource materials.
- (iv) ensure sustainable utilization of biological resources in terms of ecology, economics and culture.
- (v) promote and enhance manpower training in the area of biodiversity and strengthen institutions to facilitate implementation of biodiversity programmes.
- (vi) increase forest, wildlife sanctuaries and botanical areas to promote conservation of genetic resources.

B. Strategies Requiring International Collaboration

- (i) negotiate and support the documentation of Zambia's biological diversity.
- (ii) negotiate for the establishment and strengthening of national gene banks and herbariums to enable the collection and proper storage of genetic resources and encourage *ex situ* conservation of plants and animals.
- (iii) negotiate for assistance towards the establishment of schemes which reward people for their efforts in biodiversity conservation.
- (iv) negotiate for the transfer of relevant technologies, including biotechnologies to the custodians of the biological resource base.
- (v) negotiate for the establishment of systems for environmental monitoring at regional, sub-regional and national levels in biodiversity.

## APPENDIX D

### ORGANIZATIONS REPRESENTED IN DRAFTING THE ZAMBIAN CONTRIBUTIONS TO UNCED AND THE NEAP

#### Non-Governmental Organizations

Wildlife Conservation Society of Zambia  
Village Development Foundation  
The World Conservation Union (IUCN)  
National Centre for Environmental Education  
Zambia Educational Environmental Programme  
SNV-Zambia Netherlands Development Organisation  
WWF-Wetlands Project  
Canadian International Development Agency (CIDA)

National Steering Committee on Environment and Development  
Ministry of Water, Lands and Natural Resources (Chair)  
Department of Natural Resources  
Department of Agriculture  
Department of Commerce and Industry  
National Commission for Development Planning  
Zambia Natural Resources Data Centre  
International Union for the Conservation of Nature (IUCN)  
United Nations Development Programme (UNDP)  
United Nations Fund for Population Activities (UNFPA)

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