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**MIDTERM EVALUATION
OF THE ZAMBIA NATURAL RESOURCES MANAGEMENT PROJECT
(Project No. 690-0251.11)**

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Summary

The Zambia Natural Resources Management (NRM) Project (690-0251.11), a component of the Southern Africa Natural Resources Management Project, supports the Administrative Management Design for game management areas, ADMADE, through a grant agreement with the Republic of Zambia (\$3,000,000 for January 1990 - August 1995) and a cooperative agreement with the World Wildlife Fund -- U. S. (\$1,145,000 for May 1990 - May 1994). ADMADE is an integrated wildlife conservation and community development program established as a ministerial policy in 1987 and administered by a directorate within the Zambian National Parks and Wildlife Services. The goal of ADMADE is to conserve wildlife and increase human welfare by using revenues generated from wildlife use to pay for wildlife management and community development projects.

Within a given game management area, the program generally consists of a management unit that enforces regulations and otherwise manages wildlife, a management authority that approves development projects, and one or more subauthorities that propose and manage development projects. Except for direct contributions from donors, most revenues for ADMADE pass through a central Wildlife Conservation Revolving Fund administered by the Services. The Zambia NRM Project supports the program by funding commodities (vehicles, computers, parts), salary increases, training, and technical assistance.

We conducted a midterm evaluation of the Zambia NRM Project on 9 June - 5 July 1992, during which time we visited four game management areas and offices in Lusaka and Chilanga. Our evaluation asked: (1) Is the project meeting its objectives? and (2) Should the objectives be revised, that is, should the project be changed or expanded?

The project appears to be meeting its objectives to demonstrate that wildlife can be a profitable land use and to promote institutions for natural resource management and the distribution of its benefits. The project has made some progress towards its objectives to increase local welfare, to increase the participation of women, and to return benefits from local wildlife use to communities. The project has not yet established self-sustaining wildlife management programs or influenced government to give proprietorship of wildlife to communities. The project is unlikely to demonstrate that local communities can manage wildlife by themselves but has already begun to show that communities can manage local development projects.

The strongest positive effects of the project through ADMADE have probably been to increase local employment, to train and deploy wildlife management staff, to decrease illegal hunting in game management areas, and to convince local residents to support

wildlife conservation. This last achievement is largely attributable to the community development projects that have been completed. The major needs that the project should address are to conduct adequate wildlife monitoring and research, to increase communication within ADMADE, to improve the consistency of management and record keeping in the areas, to persuade officials and leaders at all levels to share more authority with those at lower levels, to improve financial accounting, to increase revenues, and possibly to improve vehicle maintenance.

We recommend strongly that the project continue to support ADMADE and conclude that the present structure of the project is basically sound. We suggest a small shift in objectives from local proprietorship of wildlife to joint management of wildlife by communities and national services. We suggest that objectives be added to explicitly include the conservation of wildlife and wildlife habitat and also equal local participation in decision-making. We commend the plans to expand the training program at Nyamaluma, to deploy unit bookkeepers and community facilitators, and to map and designate land uses within areas. We propose that capital and operating support be added for monitoring and research in the form of vehicles for the ADMADE wildlife biologists and an endowment for research, that community associations be encouraged to start local enterprises with financing from ADMADE community development accounts, that the rates for safari company area hunting permits be greatly increased to raise revenues, and that a trained accountant be hired to keep track of the revolving fund.

In view of the recent extension of the completion date for the regional project, we recommend that the cooperative agreement with the World Wildlife Fund, set to expire in 1994, be extended until 1999 at current levels of funding. We recommend that the grant agreement with the Republic of Zambia, set to expire in 1995, also be extended but that this extension be postponed to permit the incorporation of additional project experience. At present, we propose that the grant agreement only be amended to increase capital support for monitoring and to establish a small endowment fund for research. This fund could be considered as a test for broader use of endowments for ADMADE in the future.

Zambia has retained viable populations of most of its large wildlife species and regions of attractive natural habitat. However, this wildlife heritage has been heavily depleted during the past twenty years by hunting and is now vulnerable to loss. The ADMADE program is at present the most promising attempt to conserve wildlife in Zambia for the benefit of its people. The Zambia NRM Project represents the most important source of outside support for ADMADE and deserves to continue.

Introduction

The two purposes of this report are to provide a midterm evaluation of the Zambia Natural Resources Management (NRM) Project (690-0251.11) of the U. S. Agency for International Development (USAID) and to identify opportunities for extending and expanding the project. The project is the Zambian component of the Southern Africa Region Natural Resources Management Project and consists of support for the Administrative Management Design for game management areas, ADMADE, which is administered by the National Parks and Wildlife Services of Zambia with major technical assistance from World Wildlife Fund - U. S. ADMADE attempts to integrate conservation and development in the game management areas of Zambia by involving local residents, traditional authorities, and district government in wildlife management, and by channelling revenues earned from wildlife utilization to management and development activities.

The report asks two main questions. First, is the project meeting its objectives? Second, should the objectives be revised? The objectives of the project, as paraphrased from the project paper (USAID 1989) are: (1) to demonstrate that wildlife utilization can be a profitable and preferred land use; (2) to promote institutions and procedures for natural resource management and the distribution of its benefits; (3) to establish self-sustaining wildlife management programs; (4) to demonstrate that local communities can manage wildlife; (5) to increase the participation of women; (6) to influence government to give proprietorship of wildlife to local communities; (7) to return the benefits from local wildlife use directly to local communities; and (8) to increase local welfare, including income and access to protein.

As suggested in the scope of work for the mid-term evaluation, the success of the project in meeting these objectives should be measured by its impacts on (1) local capacity for management (most closely linked to the training and capital improvement components of the project), (2) local employment and income (financial component), (3) local participation in the making of decisions (institutional component), and (4) maintenance and recovery of wildlife (enforcement, monitoring, and research components).

We begin with a summary of the methods of our evaluation. We then review the overall ADMADE program, describe the role of the USAID component in ADMADE, discuss our central questions, and present our main conclusions. An appendix includes more detailed observations and recommendations made individually by André DeGeorges, a member of the evaluation team.

Methods

The evaluation team consisted of Dr. Peter Alpert, an American Association for the Advancement of Science Fellow in the Food, Agriculture, and Resource Analysis Division of the Office of Analysis, Research, and Technical Support at the Bureau for Africa of A.I.D. in Washington; and Mr. Paul André DeGeorges, the Environmental Advisor at the USAID Regional Office for East and Southern Africa in Nairobi (REDSO/ESA). Both members received their main formal training in ecology.

The evaluation was conducted from about 9 June to 6 July 1992, and included 13 days of field visits and 14 days of discussion and writing in Lusaka. Around Lusaka, we spoke with staff from the National Parks and Wildlife Services, the World Wildlife Fund - U. S., and the USAID missions to Zambia, Zimbabwe, and Malawi. In the field, we visited the ADMADE training center at Nyamaluma and four game management areas, Lumimba and Munyamadzi adjoining South Luangwa National Park and Mumbwa and Lunga-Lushwishi adjoining North Kafue National Park. These were selected to include, for each region, one area said to be doing well (Munyamadzi and Mumbwa) and one area said to be doing poorly (Lumimba and Lunga-Lushwishi).

At the game management areas, we examined records at the unit headquarters, looked at community development projects, and spoke to three unit leaders, four chiefs, five professional hunters, one non-hunting safari camp manager, three groups of traditional hunters, two women's groups, one missionary, one clinical officer, and a number of headmen, village scouts, regular scouts, and teachers. We visited the wildlife wardens for three of the areas in Chipata, Mpika, and Mumbwa, where we also spoke with two district executive secretaries, an assistant ranger, and a district representative for the District Development Support Program funded by the U. K. Overseas Development Administration. We attempted to but were not able to meet with the technical advisor for the Luangwa Integrated Rural Development Project.

This itinerary carried us through or by four national parks or reserves, South Luangwa, Nsefu, Luambe, and North Kafue, where we were able to informally compare wildlife populations, habitat quality, and some visitor facilities. We made one side trip to a fifth park, Blue Lagoon, to review some activities of the World Wildlife Fund - International Wetlands Project and spoke with the project extension officer. Details of our personal contacts are given at the end of the report.

ADMADE has recently been the subject of several other evaluations, which we seek to complement. In 1991, the firm of Deloitte Haskins and Sells submitted a set of reports to USAID/Zambia that reviewed the financial aspects of ADMADE, particularly budgets and accounting. USAID anticipates that a

formal audit of the Wildlife Conservation Revolving Fund will be held in August 1992. In view of these reports and as instructed by USAID/Zambia, we have not attempted to review the financial systems of ADMADE in any detail.

The World Wildlife Fund - U. S. commissioned a review of ADMADE to be completed in July 1992 that focuses on legal aspects, especially the potential for incorporation of the policies of ADMADE into law. This review and a set of reports submitted in 1992 to the National Parks and Wildlife Services by the ADMADE community development officer contain information on individual game management areas and detailed recommendations that have provided a valuable check on our own field observations.

We would like to thank the staff of USAID/Zambia and the National Parks and Wildlife Services for their logistical support, provision of information, and hospitality. For support, we are particularly indebted to Mr. Peter Downs, Mr. John Foster, Mr. Peter Khosa, and Mr. Peter Tilley. The evaluation was funded by USAID through the Zambia Natural Resources Project, USAID/Zambia, AFR/ARTS/FARA and REDSO/ESA.

Origin of ADMADE

The origin of ADMADE dates back over a decade and follows a gradual progression from research (Astle et al. 1969, Kaweche and Lewis 1985) to pilot project (Lewis, Kaweche, and Mwenya 1990, Lewis, Mwenya, and Kaweche 1990), to large-scale implementation. This history was punctuated by the establishment of a governmental funding mechanism in 1983, a 1983 workshop that helped lead from research to implementation of the pilot project (Dalal-Clayton and Lewis 1984, Lewis and Kaweche 1984), and the formal declaration of ADMADE as a policy in 1987 (Mwenya et al. 1990). ADMADE was initiated in 10 of Zambia's thirty-odd game management areas in 1988 (Lewis 1991) and now operates in 24 areas (John Foster, pers. comm.), mainly those where remaining wildlife resources appear sufficient to support the generation of revenues.

International support during this period began with relatively modest research support, including grants from Wildlife Conservation International at the New York Zoological Society and then from World Wildlife Fund - U. S. During 1988-1992, support for the implementation of ADMADE was provided through the Wildlands and Human Needs Program co-funded by the USAID Bureau of Food and Humanitarian Assistance and the World Wildlife Fund - U. S. Support through the Zambia Natural Resources Management Project began in early 1990, and the Africa Program of the World Wildlife Fund began to provide some additional support to ADMADE in 1992 (Peter Tilley, pers. comm.). Support from the Zambia NRM Project has therefore come after rather than during the formation of ADMADE.

At present (Lewis 1991), international support for administration of Zambia's game management areas comes from at least five international projects, the Wetlands Project of the World Wide Fund for Nature - International in four areas, the Luangwa Integrated Rural Development Project funded by the Norwegian donor agency NORAD in one area, the North Luangwa Conservation Project of the Frankfurt Zoological Society and the Owens Foundation in one area, the Zambia Natural Resources Management Project implemented by World Wildlife Fund - U. S. in nine areas, and the Lupande Development Project supported by the World Wildlife Fund - U. S. at the Nyamaluma Conservation Camp, the main training center for ADMADE. To add to the intricacy, these projects overlap but do not exactly match the extent of the ADMADE program; some areas managed by ADMADE receive no outside support, and some projects operate in areas that are not part of ADMADE.

It is interesting to compare the programs in the areas covered by these different projects, all of which share similar goals. Our main impression is of a convergence among projects. Compared to the Zambia NRM Project, the Wetlands Project seems to have a relative emphasis on community education (Fanwell Moonga, pers. comm.). The Luangwa Integrated Rural Development Project provides more autonomy to its area but possibly less participation by traditional authorities. The North Luangwa Conservation Project is said to emphasize monitoring and research.

Structure of ADMADE

The Administrative Management Design for the game management areas of Zambia was instituted by the National Parks and Wildlife Services and signed into governmental policy by the Minister of Tourism in 1987 (Mwenya et al. 1990). Game management areas, in which hunting and permanent settlement are permitted but controlled, were created in 1970 and cover about 22% of Zambia (Lungu 1990). Many are adjacent to national parks, which they serve as buffer zones. The design for their management consists of three types of management bodies and a funding system. The management bodies are the wildlife management units, authorities, and subauthorities. One of the strengths of ADMADE is the structuring of these bodies to bring together district government, local communities, and National Parks and Wildlife Services staff from both outside and within the ADMADE program. One of the problems that ADMADE faces is the degree to which participation in management is limited by inequality of resources and training, and failure to share or relinquish authority.

The wildlife management units seem at present to be mainly devoted to the enforcement of hunting regulations, but also assist with wildlife monitoring and community development. In practice, the units appear to carry out all area wildlife

management activities. Each game management area generally has a single unit, led by a unit leader and deputy leader, staffed by village and regular scouts, and supervised by the district wildlife warden. The leaders, clerical staff, and village scouts are paid through ADMADE. The village scouts are recruited locally, trained at the ADMADE training facility at Nyamaluma near South Luangwa National Park, and do not belong to the Zambia civil service. The regular scouts work in mixed patrols with the village scouts but are recruited nationally, trained at National Parks and Wildlife Services training facilities, and paid through the civil service. Each unit has a unit headquarters and several wildlife camps for scouts. We observed large differences among units in facilities, data collection, and cooperation with other parties to ADMADE; we attribute a significant part of these differences to the training and character of key individuals and to remoteness of the areas.

For each unit, there is also a district-level administrative committee, or wildlife management authority. Membership of the authority includes the traditional chiefs of the area, the unit leader, and representatives of district government, the district office of the National Parks and Wildlife Services, and safari operators. The district executive secretary chairs the authority, and the district wildlife warden serves as secretary. The authority must approve each use of ADMADE revenues for community development and in theory approves the wildlife management measures recommended by the National Parks and Wildlife Services.

For each chiefdom within a unit, there is generally one wildlife management subauthority. The traditional chief chairs the subauthority, and the unit leader serves as secretary. Other members are generally chosen from among village headmen, teachers, health officers, and agricultural officers. The primary role of the subauthority is to select and implement community development projects to be funded through ADMADE. Subauthorities have chosen to construct classrooms, houses for teachers, clinics, wells, and shelters for hammermills given by donor agencies for the grinding of maize. Their development priorities have therefore been education, health, water, and the provision of maize meal.

ADMADE relies primarily on traditional leadership at the subauthority level. This distinguishes the program from CAMPFIRE, the only other national wildlife conservation and community development program in southern Africa, which relies on formally elected or appointed bodies to guide community participation. This difference may represent a trade-off between closer contact with the rural population, through the traditional system of village chiefs and headmen, and greater guarantees of equal access to power and benefits, through formal law and policy. In practice, it may be that the degree of active local

participation is sometimes greater under one system and sometimes under the other, depending upon the individual chiefdoms or district councils involved.

In some areas, especially where there is only one subauthority under the authority, members of the subauthority questioned the necessity for the authority. They argued that they should have the ultimate authority to choose projects and that approval procedures were cumbersome and time-consuming. Members of authorities replied that there were too many examples of local mismanagement and unequal distribution of benefits to warrant complete devolution of authority. Authority members also commented that the involvement of government officials in project approval helped to improve cooperation of the government agencies that must generally grant permits and sometimes contribute resources.

Because ADMADE is based on policy and not formalized in law, legal authority over wildlife management in the game management areas has remained with the National Parks and Wildlife Services (Mwenya et al. 1990). Moreover, the Services provides strong guidance to the units from its headquarters in Chilanga near Lusaka, through a directorate that currently includes the director and deputy director of the Services. Chilanga is directly responsible for wildlife monitoring in the areas, which it has largely entrusted to five wildlife biologists posted at various district wildlife offices. Chilanga also maintains the vehicles used by the unit leaders and wardens at its vehicle workshop, has recently hired a community development officer to stimulate community involvement within the units, and controls ADMADE finances. We heard no serious suggestions that the directorate was ill-intentioned but did receive complaints that it was inconvenient to have financial and administrative procedures so concentrated in Chilanga. We were impressed by the collective training of the directorate in wildlife biology, but not convinced that it had established adequate procedures for accounting or data management.

Financing of ADMADE

The financial core of ADMADE is the Wildlife Conservation Revolving Fund, established in 1983 within the National Parks and Wildlife Services following a presidential decree that permitted governmental departments to generate and spend their own revenues (Mwenya et al. 1990). The fund supports the administration of the parks as well as of the game management areas where ADMADE operates. Within these areas, the fund is intended to serve two mutually reinforcing purposes, (1) to make wildlife use pay for wildlife management and (2) to make wildlife use pay for community development. In principle, management contributes to development because the program employs several dozen local residents as village scouts in each area. Development

facilitates management because benefits derived from wildlife encourage residents to refrain from illegal resource use and to assist unit staff. We were persuaded that both effects are taking place in ADMADE areas.

In 1991, the Wildlife Conservation Revolving Fund as a whole received a total income of Kw 118.6 million, more than twice as much in any previous year not allowing for inflation (Mwima 1992). The primary sources were license fees (39%, probably referring to fees paid by safari clients), hunting rights (24%, probably referring to fees paid by safari companies), sale of foreign exchange (19%, apparently representing money diverted from capital replacement to management), and donations from USAID (6%) and the European Economic Community (9%). Considerable donor contributions to ADMADE do not pass through the fund, and the above figures therefore underestimate the relative importance to ADMADE of the support received from donors. Such contributions include vehicles and local currency payments to individual areas by USAID/Zambia. Salary contributions to National Parks and Wildlife Services staff and the services of the World Wildlife Fund - U. S. project officer are contributed by World Wildlife Fund.

The financial statements of the Revolving Fund for 1991 show the overwhelming importance of safari hunting. Of the license fees, 94% were from safari hunting and only 6% from local hunting. Only Kw 0.07 million was earned from trophy sales, and nothing was earned from the sharing of national safari company profits.

Management expenses for 1991 totaled Kw 54.1 million (Mwima 1992), or 70% of income excluding sale of foreign exchange and donations. The major items were staff salaries, allowances, accommodation, and welfare (31%); vehicle running costs, repairs, licenses, and insurance (34%); and financial management (10%, including consulting fees for improvement of accounting). The use of hard currency for expenses that could be paid in kwacha has two potential disadvantages. First, it reduces the ability of the program to buy items, such as vehicle parts, that can only be purchased with hard currency. Second, money held over from one year to the next may be better held in hard currency because of the high rate of inflation of the kwacha. Some authorities partly overcome the second problem by placing money that is not to be spent immediately into fixed deposit accounts that earn higher interest.

The two main sources of revenue that enter the Revolving Fund and are then passed on to ADMADE are hunting safari fees generated within the game management areas and direct contributions from foreign donor agencies. Hunting safari fees are set forth in the National Parks and Wildlife (Licenses and Fees) (Amendment) (No.3) Regulations, signed in December 1991. Safari hunting companies pay two types of fee, an area fee of Kw 100,000 for the

right to operate in a given area during a given year, and a game management area hunting permit paid for each week of each safari. For a "classical safari," the permit fee is US \$150 per week; the regulations do not specify if the fee is paid per client or per group of clients. These company fees should be compared to the rates that the safari companies charge their clients, which the professional hunters to which we spoke estimated to be approximately \$1000 per client per day.

Safari hunting clients pay five types of fees. By far the largest are the game animal fees, which vary from about \$100 to \$1500 per animal, depending on species. These fees increase by 50% for the second individual of a given species. The remaining types of fees are the safari license basic fee (\$100 per client), the permit to hunt (Kw 2000 per client per area per week), the block trophy export fee (\$80 per client per safari), and the negligible individual trophy export fees (Kw 100-600 per trophy). These amounts apply to non-resident non-citizens. Resident hunters (i.e., residents of the area) and non-resident hunters (i.e., Zambian citizens that do not reside in the area) pay much smaller amounts for permits to hunt and for game animal fees.

Because of the use of different terms in different documents, it was difficult to ascertain which fees accrue to ADMADE. It appears most likely that ADMADE receives the area fee and half of the hunting area permit paid by the company, and the license, permit to hunt, and possibly the animal fees paid by the client. The company fees earned within a given game management area are apportioned to wildlife management within the area (40%, to run the management unit), to community development projects within the area (35%, administered by the sub-authorities under the supervision of the authority), to central administration of ADMADE by the National Parks and Wildlife Services (15%), and to the district council responsible for the area (10%, although this portion is not always paid out). National Parks and Wildlife Services also collects the revenues from national safari companies and trophy sales. The 10% share for the district council was due to the Zambia National Tourist Board until 1990.

The client fees earned within an area are split between wildlife management within the area (50%) and capital replacement (50%, for spare parts, equipment, and in theory for vehicles). In some areas, community development and wildlife management accounts have earned small amounts from internal revenue-generating activities such as culling programs and running of mills to grind maize.

For the local communities, the direct income from ADMADE apparently consists mainly of the 35% share of the company hunting permits. The 35% share of hunting rights apportioned to community development in 1991 was Kw 10.7 million (Mwima 1992). Seventeen game management areas received amounts varying from Kw

0.04 to 1.7 million. The proportion of fund income allocated to community development is therefore on the order of 10%.

Although we were not asked to comment in detail on the operations of the fund, we note the strong dissatisfaction with these operations expressed by several interviewees. Inability to account for income by game management area and provision of the 1991 annual report six months after it was due were two complaints. We observed small mathematical discrepancies within the annual report and between the report and the financial sheets for the fund. The report was also incomplete; for example, it failed to show expenditures by area. These shortcomings do not necessarily suggest mishandling of funds, but they lead us to agree with the suggestion that improved accounting or at least the hiring of a trained accountant for the fund be made a condition precedent for the release of future funding.

Role of the Zambia NRM Project in ADMADE

The Zambia Natural Resources Management Project assists ADMADE through two major instruments, a grant agreement with the government of Zambia and a cooperative agreement with the World Wildlife Fund - U. S. The Project Grant Agreement between the Republic of Zambia and USAID for Natural Resources Management, dated 16 January 1990, is for up to \$3,000,000 with a project completion date of 31 August 1995. The Cooperative Agreement with World Wildlife Fund obligated \$1,145,000 for the period from 15 May 1990 to 31 May 1994.

According to the amplified project description annexed to the cooperative agreement, World Wildlife Fund procures all commodities except vehicles, monitors use and upkeep of commodities and vehicles, locates training opportunities, oversees the project from Washington, provides a project officer and community development officer, and is to have rehabilitated two aircraft owned by the National Parks and Wildlife Services. The agreement anticipates that two Services staff will be trained overseas to the graduate degree level and that five staff will be trained at short courses in the region. The Services monitors wildlife populations and illegal activities through aerial and ground surveys, maintains commodities, and provides a coordinating committee for ADMADE, a project officer who makes semi-annual progress reports, and an accountant who submits quarterly financial documentation.

The USAID/Zimbabwe comprehensive pipeline report by budget allowance as of 5 May 1992 for the project showed a total obligation of \$3,000,000. Of this amount, \$2,520,801 had been committed and \$1,549,227 had been disbursed. Commodities accounted for 58% of the obligations and 75% of the disbursements. Although different commodities are grouped on individual lines on the budget sheet, it appears that vehicles

make up the greatest share. Vehicles include trucks, trailers, tractors, land cruiser-type vehicles, a bus, and a grader.

We regret that we have not had time or opportunity to catalogue the inputs and outputs of the project; we hope that the final evaluation will be planned to include such a listing. In general, we are satisfied that training goals have been met, that hiring goals will eventually be met, that very useful capital assistance has been provided in the form of vehicles, and that the enforcement of wildlife regulations has been greatly improved. We are less certain that development projects have proceeded quickly or that local self-sufficiency has been promoted as much as possible. We are disappointed that research and monitoring, particularly ground surveys, have not taken place as planned. We would like to note a general impression that ADMADE has shifted direction slightly since the start of the project in 1990, from an initial concentration on the establishment of management units more towards community involvement.

Has the project met its objectives?

Wildlife as a land use: The project has already demonstrated that the utilization of wildlife can be a profitable form of land use in those game management areas in Zambia that have retained adequate populations of species that foreign safari hunting clients wish to shoot. Several areas have earned enough revenue from safari hunting to pay for significant control of illegal hunting and also for community development projects.

Apart from safari hunting, no other use of wildlife has been shown to be profitable. The only other use which has been tested is culling. Some culling projects have apparently made small profits but others have lost money. However, these projects were designed, not only for profit, but also for the provision of meat at low prices to local residents.

The project has not demonstrated that wildlife use is preferred to other land uses because other uses do not generally compete with wildlife utilization in the project areas. Within the USAID/ADMADE game management areas, wildlife use tends not to occur where people cultivate because animal populations are too low. Areas that have retained usable wildlife populations seem to be mainly those considered unsuitable for other uses, with the exception of some places from which people have been resettled such as the western portion of Mumbwa GMA.

Institutions: The project has clearly promoted institutions and procedures for natural resource management and the distribution of its benefits. The USAID project can not be credited with the establishment of the institutions and procedures of ADMADE because these were established before project support began.

However, the project has supported these institutions and they have clearly improved management and distribution of benefits. For example, the capital support provided by the project in the form of vehicles alone has greatly improved the capacity of management units to function. This has included the deployment of patrols to control illegal hunting, the transport of people to authority and subauthority meetings, and the transport of construction materials for community development projects. The vehicle provided to a management unit by USAID may constitute its only motorized transport.

However, both distribution of benefits and local participation in management seem to be constrained in some areas by the traditional hierarchies through which ADMADE has chosen to work. The degree to which traditional authority in the areas is democratic was not obvious to us, and may vary among chiefdoms. We observed that community development projects were concentrated in the villages of the chiefs that chair the subauthorities. One explanation is that these are sometimes the largest or most central villages, but it may be that some chiefs are simply serving their own ends. We heard a complaint that a chief had hired only his relatives to run a grinding mill, but received a contrary report about the same case. We received many differing accounts of how subcommittee members and village scouts were selected. Reports variously indicated that selection was based fairly, on consensus or academic or social performance; or unfairly, on parentage or patronage.

Self-sustaining management: We cannot state with certainty whether the project has established self-sustaining wildlife management projects. Although some areas have earned enough money from safari hunting revenues to pay for the recurrent costs of management, these areas have also benefitted from capital and technical assistance from outside. It is too soon to tell whether management within the areas will pay for itself, run by itself, and successfully conserve wildlife populations by itself. We do not think that ADMADE would continue to function adequately if outside support were withdrawn at this point.

Local management: The project has not shown that local communities can manage wildlife. Because local communities do not run the management units, the project is not set up to permit local wildlife management. Through the training of village scouts, the project can perhaps be said to have increased the local capacity for control of illegal hunting and for casual collection of information on the status of wildlife. However, the project has developed and demonstrated some capacity for local management of development. Subauthorities have selected projects, hired workers, ordered materials, and completed structures. In some areas, these are said to have been the only development projects completed within several years.

Participation of women: The project has only marginally increased the participation of women in management. Women rarely sit on the subauthority or authority committees; they almost certainly constitute less than 10% of committee membership. At the level of the subauthority, this is partly a consequence of the relative exclusion of women from positions of traditional authority, such as chief or headman. Women are eligible to become village scouts but probably make up less than 5% of the scouts. Our questions suggested that scouts are often selected by chiefs, who may not choose women. One woman in Nabwalya village in Munyamadzi GMA had wished to become a scout but believed that it was not permitted. We received conflicting answers as to whether female village scouts perform all the functions that male scouts do, such as patrol.

Impetus for future participation of women in ADMADE has been provided this year by the efforts of the community development officer to form women's clubs in villages. We found that such clubs, which gather to produce salable goods such as food and clothing, had previously been formed here and there without association with ADMADE. However, none were said to have generated significant income. We spoke to members of two clubs formed as a result of the development officer's visits. Both had registered members, but neither had held a meeting. Both were waiting for further instructions from the development officer. It seems likely that ADMADE will need to provide greater assistance if these clubs are to function. The planned deployment of community facilitators could be directed towards this goal.

Local proprietorship: The project has not yet influenced the government to give proprietorship of wildlife to local communities. However, the project has financed a study commissioned by World Wildlife Fund to consider how the policies of ADMADE might be incorporated into Zambia law. We discuss this objective further in the next section.

Direct benefits: The project has helped return benefits from local wildlife use to the community, but only because the project provides general support to ADMADE, which distributes revenues to subauthorities for development. The project has not specifically increased the direct return of benefits to communities. It might reduce the number of steps between revenue earned and local returns if it encourages decentralization of accounts, but this could expose the program to even greater accounting problems.

Local welfare: The project has probably slightly increased local welfare but there is not enough information available to quantify the increase. The only increase in income has been through support of the units that employ local residents as village scouts. This must be weighed against an unknown decrease in local income due to reduction in poaching. In some areas,

culling programs have provided small but significant amounts of meat to local residents at what they consider to be low prices. This must again be weighed against reduction in access to meat from illegal hunting. The provision of grinding mills for maize has undoubtedly saved residents money and effort. The provision of school and clinical facilities has been limited but has provided income to local construction workers and must have had some positive effect on education and health.

Wildlife conservation: Although not explicitly stated as a objective of the project, the conservation of wildlife resources is a requisite of its other objectives. It was not possible to ascertain whether the project has contributed significantly to the maintenance or recovery of animal populations, partly because little information was available. We found no formal analyses of changes in animal populations or rates of poaching over the two year of project assistance to ADMADE. Unit staff generally felt that they had significantly decreased illegal hunting with guns in their areas. On the other hand, some reported an increase in the number of snares found, which they associated with the shortage of food caused by drought. We conclude that the project has not had a dramatic effect on wildlife populations over its first two years but feel that this is too short a period over which to judge this aspect of the project.

It appears that wildlife conservation may be at a critical point in Zambia. Wildlife populations in general are said to have decreased dramatically since 1970. Some animals, such as the rhinoceros, have been largely exterminated by hunting, and some wildlife habitat has been nearly depleted of all large animals. At this point, viable populations of nearly all species still exist, and certain areas, such as the Luangwa Valley, are still rich in wildlife. A consistent comment by safari hunting clients on questionnaires returned to the unit at the Munyamadzi game management area in this valley was that it provided a rare chance find good populations of wildlife in a largely natural habitat in Africa. If poaching rates prevalent in the 1980's were to continue, this attraction would probably not survive beyond the next ten years.

Monitoring and research are essential components of wildlife conservation. Progress in these areas has been disappointing. For management, the most critical need is for good estimates of animal population sizes and reproduction rates. These are required in order to set quotas for safari hunting and other wildlife uses. All parties agreed that quotas are set without enough information; some professional hunters reported being given safari hunting quotas for animals that did not occur in their hunting blocks. Virtually no data on wildlife populations had been collected by any of the units we visited. One unit leader attributed this to complete lack of basic equipment. However, it was clear to us that unit staff were not adequately

trained to collect data independently. The program has attempted to provide supervision by hiring wildlife biologists posted at wildlife command headquarters, but the biologists appear unable to function for lack of transport. One achievement in monitoring has apparently been an aerial survey, but we were not able to review the results.

Should the objectives be revised?

We suggest that some objectives of the project be revised to better reflect the nature of ADMADE, and that objectives be added to more directly address current problems. It may not be appropriate to influence government to confer proprietorship of wildlife on local communities at this time in the game management areas. Local communities would not at be able to perform such essential functions as enforcement of wildlife regulations, establishment of quotas for offtake, planning for area land-use, or financial management. Moreover, ADMADE is not structured to increase local capacity to manage wildlife. Local proprietorship of wildlife is provided for in Zimbabwe and is the second key feature that distinguishes ADMADE from CAMPFIRE. It may be a good idea for the future in Zambia as well. However, the project would overstep current capacities if it attempts to force the issue in Zambia now. We suggest that the project study whether rather than assume that it is better to have local proprietorship of wildlife.

Similarly, we suggest that the project aim to demonstrate, not that local communities can manage wildlife by themselves, but that communities can be a partner with national government to aid in wildlife management and to administer its local benefits. This objective represents a major area for expansion of the project support for ADMADE. There is need to clarify and communicate information about ADMADE and wildlife regulations, to give communities a better basis for making decisions. It is essential that both units and subauthorities maintain their own records of revenues and expenditures. We commend the planned deployment of unit bookkeepers because neither type of body has shown the capacity to keep proper records. Villagers that wish to form associations or clubs to generate revenues will generally need loans or grants to provide capital, assistance with finance and marketing, and simple encouragement to make and carry out plans. This assistance must be locally available, and we hope that on-site help from the planned community facilitators will be available soon.

It should be an explicit objective of the project to encourage equitable systems for making decisions and distributing benefits within communities. Conflicting reports and numerous complaints convince us that local participation in a national program through hereditary chiefs does not automatically ensure equal participation among the residents of an area. We have no

specific changes to propose in this area, but we hope the project will focus on this problem.

It should be an objective to conserve wildlife populations and the natural systems on which they depend. Under this objective should come provision of technical information for wildlife management. This information includes routine monitoring of population size and structure and of habitat quality, and research to increase understanding of the systems. Examples of useful research include models of population growth rates as a function of size, structure, and habitat; studies of migration between parks, game management areas, and open areas; and controlled experiments on the effects of burning regimes. Burning is currently extremely widespread and largely uncontrolled.

Conclusions and recommendations

1. The Zambia Natural Resources Management Project should continue to support ADMADE. Without exception, all those we interviewed approved of ADMADE as a program. This is a remarkable endorsement, and we recommend that support be extended through the new Southern Africa Regional Natural Resources Management Project completion date of 31 August 1999.

2. The research and monitoring functions of the project need to be strengthened. We commend Dr. Lewis for the design and distribution of standard data sheets and support his plans to use a geographical information system for data analysis and eventual land-use planning. Nevertheless, all concerned agree that wildlife quotas, the basis for revenues and for conservation, are being made on the basis of very limited information. We recommend that the wildlife biologists be provided with their own vehicles, that sufficient funds be earmarked and disbursed for research equipment, and that the position of biologist and wildlife warden not be combined because a single person cannot fill both posts. We further recommend that a small endowment be created to fund wildlife management research in game management areas.

3. Communication between the directorate, the wildlife commands, the units, the authorities, and the subauthorities needs to be improved. We commend the units that maintain regular communication with safari operators and staff, and the plans to hold workshops for traditional leaders and unit leaders at Nyamaluma. Many procedures that are proposed at one unit are being tested at another, and this experience should be shared. We recommend that clear procedural guidelines, such as those we saw for vehicle use and for issuance of game animal fees in the field, be written and distributed to units, professional hunters, and subauthorities. Clarification of the fates of the different hunting fees is especially needed. We urge that all unit

headquarters be provided with radio communication. We encourage regular visits by ADMADE staff from Chilanga to the units, particularly if travel costs can be kept down.

4. Financial accounting procedures and practices are inadequate. We recommend that the Wildlife Conservation Revolving Fund employ a trained accountant and that all authorities, subauthorities, and units maintain their own books.

5. Local residents tend to approve of ADMADE when it is explained to them. We commend the efforts to publicize ADMADE through the ADMADE policy booklet (Mwerya et al. 1990), the *Zambian Wildlands and Human Needs Newsletter*, a video, local meetings, and the visits of the community development officer. We recommend that additional meetings be held in villages, that radio broadcasts be given, and that simple articles in local languages be placed in local newspapers.

6. The project should increase revenues for ADMADE from safari hunting. As detailed in the appendix, we estimate that only 1-3% of the money earned from safari clients in Game Management Areas is currently made available for community development. We recommend that the project consider mechanisms for competitive bidding for safari concessions, large increases in the game management area hunting permit charges, and direct contracts with professional hunters instead of contracts with companies that then hire or subcontract to hunters.

7. The project could increase the involvement of safari operators, traditional hunters, local cooperatives, and women in ADMADE. We realize that professional and commercial hunters have the own interests, but feel that these can to a greater extent be harmonized with those of ADMADE. Local groups should be encouraged to request small loans or grants from the community development accounts to start enterprises. We recommend that the proposed community facilitators help such clubs or associations to apply for and account for loans.

8. The project should consider an endowment fund as a mechanism for financing some aspects of ADMADE. We recommend that a small fund be established on an experimental basis for research, provided that a promising proposal for organization of the fund is received.

9. We see no evidence that local communities can fulfill all the functions of a national wildlife service. As in higher-income countries, it is likely that a national body will be needed to make many technical decisions concerning wildlife management, to coordinate policy at the district and national levels, and to guard against abuse of authority.

10. We hope that improvement and expansion will not come at the

expense of local participation. It may be less important that the program proceed at maximal efficiency and pace than that appropriate local activities be truly managed by local residents. For example, we were initially critical of the general failure of subauthorities to spend all of their development money and to restrict themselves to education and health construction projects. We now agree that residents may have been wise to go slowly and to complete one or two tangible projects from ADMADE that all in the community are likely to consider of value.

Principal Contacts (Does not include all headmen, scouts, traditional hunters, teachers, women's club members, or other villagers)

Lusaka and Chilanga (9-12 June, 22 June, 26 June - 3 July)

Mr. John Foster, ADO, USAID/Zambia
Mr. Peter Downs, PDO, USAID/Zambia
Dr. Charles Cutshall, regional NRM project officer,
USAID/Zimbabwe
Ms. Lynn Robinson, regional NRM environmental advisor,
USAID/Malawi
Mr. Peter Tilley, ADMADE project officer, World Wildlife Fund -
U. S.
Mr. Betlem Chonde, ADMADE community development officer, NPWS
Dr. Gilson Kaweche, deputy director, NPWS
Dr. Ackim Mwenya, director, NPWS
Mr. Henry Mwima, Wildlife Conservation Revolving Fund
coordinator, NPWS
Dr. Lewis Saiwana, ADMADE administrator, NPWS
Dr. Ackim Tembo, ADMADE directorate member in charge of research,
NPWS
Mr. Emmanuel Chidumayo, faculty member in biology, University of
Zambia

Chipata (14 June)

Mr. Grayford (aka. Graham) Zulu, Wildlife Warden

Nyamaluma (15-16 June)

Dr. Dale Lewis, Technical Advisor and Training Coordinator,
ADMADE/World Wildlife Fund - U. S.

Lumimba Game Management Area (16-18 June)

Mr. Mateo Mwanza, deputy unit leader, Chanjuzi
Mr. Dyford Zulu, principal scout, Chanjuzi
Mr. Simon Tembo, headmaster, Chitangulu Primary School
Mr. B. K. Musonda, headmaster, Lumimba Basic School
Mr. A. M. Jambunyalenda, headman
Ms. Carol Coppinger, wife of general manager, Wilderness Trails
Ltd., Chibembe Safari Lodge
Dr. Paul Smith, non-hunting safari guide, Wilderness Trails Ltd.
Mr. Stewart Findlay-Cooper, professional hunter
Mr. Guy Robinson, professional hunter
Mr. Alastair Gellatly, professional hunter
Chief Chitangulu
Father Jan van der Pol, missionary, Lumimba Parish
Mr. Andrew Wali, mission overseer, Lumimba Parish

Munyamadzi Game Management Area (18-20 June)

Mr. Ron Sparrow, professional hunter
Mr. Wayne Pocius, safari client and President, Safari Club
International
Mr. Andrew Makupa, unit leader
Chief Nabwalya
Ms. Alliness Nguni, chairlady, Natweshe Women's Club
Ms. Hellene Mwansa, secretary, Natweshe Women's Club
Mr. Joseph Mwila, chief's retainer
Mr. Frank Mukosha, headmaster, Nabwalya
Mr. Paulande Nabwalya, traditional hunter
Mr. Edward Kabuswe, traditional hunter

Mpika (20-21 June)

Mr. Andrew Mwanakulanga, district executive secretary
Mr. Isaac Longwe, acting wildlife warden and wildlife biologist
Mr. G. D. O. ("Dutch") Gibson, district representative, District
Development Support Project
Mr. John Musango, wildlife scout

Mumbwa (22 June)

Mr. Lackson Mwenya, acting wildlife warden
Mr. M. Mukumbi, assistant wildlife ranger
Mr. L. B. Shadnuka, district executive secretary

Mumbwa Game Management Area (22-24 June)

Mr. Gawa Phiri, unit leader, Nalusanga
Mr. B. Chifunda, deputy unit leader, Nalusanga
Chief Chibuluma
Chief Kabulwebulwe
Mr. Chilemba, headman and traditional hunter
Mr. Blackie Landreville, traditional hunter

Lunga-Luswishi Game Management Area (24-25 June)

Mr. Godfrey Mubita, unit leader
Mr. Yolam Chabwela, chairman of indunas
Mr. M. Katoto, headman and bricklayer
Mr. Listone Shikombwe, health worker
Mr. Takobo Kabwabka, traditional hunter
Mr. Richard Mayonde, traditional hunter
members of the women's club at Kasonso

Blue Lagoon National Park (25-26 June)

Mr. Fanwell Moonga, Project Extension Officer, Wetlands Project

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Notes for a project paper amendment to the Zambia Natural Resources Management Project.

Harare 007234 on Jun 92 states USAID/Zimbabwe will execute project-wide PACD extension until 1999

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BUDGET (in US \$)

Extension of Cooperative Agreement with World Wildlife Fund - U. S. (\$400,000 per year for Jun. 1994 - Aug. 1999, including 5% inflation)	2,300,000
Vehicles for ADMADE Wildlife Biologists (5)	150,000
Endowment fund for wildlife management research	500,000
Contingency	50,000
TOTAL	3,000,000

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CONCEPT FOR AN ENDOWMENT FOR WILDLIFE MANAGEMENT RESEARCH IN THE GAME MANAGEMENT AREAS OF ZAMBIA

Rationale: Wildlife management in the game management areas of Zambia is currently implemented largely through the Administrative Management Design, ADMADE, which is administered by the National Parks and Wildlife Services. ADMADE aims to make wildlife management self-sustaining by returning revenues from the use of wildlife to management. Revenues not required for management are used for community development. This does not provide for research in wildlife management because research is not a revenue-generating activity, and research has accordingly been the least active aspect of management under ADMADE. Because research is likely to contribute to better future management and hence future revenues, it is important to find a mechanism by which research can be supported.

Proposal: It is suggested that an endowment fund be established through a grant from the U. S. Agency for International Development to fund research in wildlife management in the game management areas of Zambia. This fund would be held in U. S. dollars by an appropriately constituted Zambian body of trustees. It would be invested through a professional investment company abroad, and only the net earnings on the investment after inflation would be withdrawn for use to fund research. Funds would be allocated through an annual grants competition judged by a review panel drawn from wildlife scientists, wildlife managers, and Agency staff located in the Lusaka area. Grants would be restricted to Zambians for research expenses for original research to be conducted in one or more game management areas and that appears likely to contribute towards improved game management.

Recommendation: It is recommended that the Agency obligate US \$500,000 through an amendment to the Zambia Natural Resources Management Project for the establishment of an endowment fund, with the condition precedent that adequate mechanisms be proposed for legal establishment of the body to hold the fund in trust, for investment of the fund to generate income as proposed, and for solicitation and award of research grants. If this condition is not met within 120 days of the obligation of funds, they will be de-obligated as required by Agency policy.

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