AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT DATA SHEET

1. TRANSACTION CODE: A (A = Add, C = Change, D = Delete) — Amendment Number: _____ — DOCUMENT CODE: 3

2. COUNTRY/ENTITY: MADAGASCAR

3. PROJECT NUMBER: 687-0112

4. BUREAU/OFFICE: AFRICA [06]

5. PROJECT TITLE (maximum 40 characters): DEBT-for-NATURE SWAP

6. PROJECT ASSISTANCE COMPLETION DATE (PACD): MM 05 DD 31 YY 92

7. ESTIMATED DATE OF OBLIGATION (Under "B." below, enter 1, 2, 3, or 4): A. Initial FY 89 B. Quarter 4 C. Final FY 89

8. COSTS ($000 OR EQUIVALENT $1 =)

A. FUNDING SOURCE	FIRST FY 89 B. FX	C. L/C	D. Total	LIFE OF PROJECT E. FX	F. L/C	G. Total
AID Appropriated Total	1,000		1,000	1,000		1,000
(Grant)	(1,000)	( )	(1,000)	(1,000)	( )	(1,000)
(Loan)	( )	( )	( )	( )	( )	( )
Other U.S. 1.						
Other U.S. 2.						
Host Country						
Other Donor(s)						
TOTALS	1,000		1,000	1,000		1,000

9. SCHEDULE OF AID FUNDING ($000)

A. APPROPRIATION	B. PRIMARY PURPOSE CODE	C. PRIMARY TECH. CODE 1. Grant	2. Loan	D. OBLIGATIONS TO DATE 1. Grant	2. Loan	E. AMOUNT APPROVED THIS ACTION 1. Grant	2. Loan	F. LIFE OF PROJECT 1. Grant	2. Loan
(1) SSA	200	098		0		1,000		1,000	
(2)									
(3)									
(4)									
TOTALS						1,000		1,000	

10. SECONDARY TECHNICAL CODES (maximum 6 codes of 3 positions each)

11. SECONDARY PURPOSE CODE

12. SPECIAL CONCERNS CODES (maximum 7 codes of 4 positions each)

A. Code	BS						
B. Amount							

13. PROJECT PURPOSE (maximum 480 characters)

Purpose: To increase the financial and technical resources available in Madagascar for the protection of natural resources and to reduce Madagascar's debt burden.

14. SCHEDULED EVALUATIONS: Interim MM 08 YY 90 / MM 08 YY 91 — Final MM YY

15. SOURCE/ORIGIN OF GOODS AND SERVICES: [X] 000 [X] 941 [ ] Local [X] Other (Specify) 935

16. AMENDMENTS/NATURE OF CHANGE PROPOSED (This is page 1 of 1 page PP Amendment.)

17. APPROVED BY — Signature: [signature] — Title: Walter G. Bollinger, Acting Assistant Administrator — Date Signed: MM 08 DD 04 YY 89

18. DATE DOCUMENT RECEIVED IN AID/W, OR FOR AID/W DOCUMENTS, DATE OF DISTRIBUTION: MM 06 DD 01 YY 89

AID 1350-4 (8-79)

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

Aug 6 8 29 AM '89

ASSISTANT
ADMINISTRATOR

ACTION MEMORANDUM FOR THE ACTING ADMINISTRATOR AUG -2 1989

THRU: AA/PPC, Richard E. Bissell

FROM: A/AA/AFR, Walter G. Bollinger

SUBJECT: Madagascar Debt-for-Nature Swap Project. Project No. 687-0112

I. Problem: Your approval is requested to authorize a grant for the World Wildlife Fund (WWF) Debt-for-Nature Project in Madagascar, involving a contribution of $1,000,000 over the three year life of the project from the FY 1989 Development Fund for Africa appropriation.

II. Discussion: The purposes of this project are to increase the technical and financial resources available in Madagascar for the protection of natural resources and to reduce Madagascar's external debt burden.

WWF will establish with the Central Bank of Madagascar a three year Debt-for-Nature project allowing, but not obligating, WWF to redeem up to $3 million in face value promissory notes. Of the $1 million requested from A.I.D., approximately $750,000 would be used over the life of project to acquire Malagasy public debt, with the remainder dedicated to foreign exchange costs of technical assistance, project administration and monitoring.

Local currency proceeds from the redemption of the promissory notes will be used by WWF to establish a conservation project comprised of the following types of activities:

1) Protected area establishment and management --

Planning, administration, protection and rural development activities in parks and reserves and their buffer zones;

2) Identification of key areas for biodiversity protection outside parks and reserves --

Research to identify key areas for biodiversity protection outside existing parks and reserves and support for proposal development for projects in these areas;

Aug 7 8 29 AM '89

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3) Institutional strengthening of the Department of Waters and Forests of the Ministry of Animal Protection, Waters and Forests --

Training of conservation professionals through the organization and implementation of in-country workshops and field courses;

Institutional support to government agencies responsible for managing Madagascar's parks, reserves, and forests.

The principal human beneficiaries will be low-income subsistence farmers living in buffer zones of the protected areas. They will benefit from material support, improved cultivation techniques and the overall improvement in natural resources utilization. The government will benefit through the institutional strengthening component, by the increased availability of financial resources provided by the project, and by the reduction in the amount of Madagascar's external debt burden.

The WWF's commitment to, and experience with, this type of project is evidenced by the fact that for the past 10 years, WWF has supported a wide variety of conservation activities in Madagascar including biological inventories, establishment and management of protected areas, development of buffer zone projects, technical assistance, and training of Malagasy conservationists. In 1986, WWF drafted An Action Plan for Conservation of Biological Diversity in Madagascar which identified the specific, highest priority projects to be undertaken over a five-year period to ensure the greatest measure of protection to Madagascar's biological diversity.

Since 1987, WWF has participated in a joint planning effort with the Government of Madagascar, the World Bank, A.I.D., the Swiss Corporation, UNDP, and UNESCO to develop a comprehensive Environmental Action Plan (EAP) for Madagascar. WWF is taking an active role in developing the first phase of the EAP -- the Environment I Project -- which focuses primarily on improving the management of the country's protected areas. Through these and other activities, WWF has established itself as the leading conservation organization devoted to the conservation of biological diversity of Madagascar.

A. Financial Summary

Life-of-project funding will be $1.0 million. The project will be fully-funded in the first year of obligation, FY 89.

The budget shows the projected use of USAID funds over 3 years for the Debt-for-Nature project. WWF is requesting $1,000,000 from USAID and will contribute a minimum of $250,000 of its own resources toward the project.

Other WWF contributions to conservation in Madagascar include e.g., the initial investment in developing a conservation plan and developing the Debt-for-Nature project.

BUDGET (in Thousands of U.S. $'s)

	Year 1	Year 2	Year 3	Total
Debt Acquisition* $	250	250	250	750
In-country Technical Advisor (salary, benefits, housing)	25	50	50	125
Vehicle purchase and upkeep	25	5	5	35
WWF Management	30	30	30	90
TOTAL	330	335	335	1,000

*Proposed allocation of debt-Swap proceeds by year shown below.

Activity	Percentage of Debt-Swap Proceeds		
	Year 1	Year 2	Year 3
1) High Priority Protected Areas	90%	80%	80%
2) Technical Advisor Support Staff, Office	5%	10%	10%
3) Support to MPAEF	5%	10%	10%

B. Committee Actions and Findings

The World Wildlife Fund (WWF) proposal was reviewed June 9, 1989 by the Africa Bureau Project Committee (PC).

The PC unanimously endorsed the project concept and design and requested additional information from WWF in order to finalize the proposal and complete the Bureau review/approval process. Additional information requested included:

1. End-of Project Status (EOPS) indicators and magnitude of the outputs.

2. Identification of the beneficiaries and potential impact of the project.

3. Local currency disbursement schedule.

4. An evaluation and monitoring plan consistent with recent A.I.D. guidance.

This additional information was provided by WWF on July 7, 1989 and circulated to the Project Committee which determined it to be responsive. With this information in hand, the Project Committee recommended approval of a grant to carry out a Debt-for-Nature Swap.

USAID/Madagascar strongly supports, and is in full concurrence with the Debt-for-Nature project.

C. Environmental Considerations

The Initial Environmental Examination, recommending a categorical exclusion, has been approved by the Acting Bureau Environmental Officer.

D. Grant Management

AID/W backstopping of the grant will be the responsibility of AFR/MDI. USAID/Madagascar will be responsible for field implementation and monitoring.

E. Gray Amendment

No significant contracting with U.S. firms is expected and opportunities for Gray Amendment firms are not anticipated.

III. Waivers: No waivers are needed.

IV. Justification to the Congress: A Congressional Notification (CN) to advise that A.I.D. intends to obligate $1,000,000 from The Development Fund for Africa in FY 1989 was sent to Congress on July 20, 1989.

4

Authority: Pursuant to Delegation of authority Nos. 1 and 300, the Acting Administrator for A.I.D. has the authority to approve projects and LOP funding levels.

VI. Recommendation: That you sign the attached authorization and thereby approve the World Wildlife Fund Debt-for-Nature Project in Madagascar, with planned obligations not to exceed $1,000,000.

Clearances:

AFR/MDI:WWeinstein	draft	date	7-27-89
AFR/TR/ANR:LJepson	draft	date	7-28-89
AFR/DP:JGovan	draft	date	7-28-89
AFR/CONT:RKing		date	
GC/AFR:JKnott		date	7/31/89
AFR/EA:ADLundberg	draft	date	7-27-89
AFR/PD/EAP:JSchlesinger		date	
AFR/PD:TBork		date	7/31/89
DAA/AFR:ELSaiers		date	
PPC/EA:ECostello	draft	date	7-27-89
DGC:JEMullen		date	8/1/89
GC/AFR:ESpriggs		date	8/1/89

AFR/PD/EAP:DMadkell:DOC#4025J

PROJECT AUTHORIZATION

Name of Country:	MADAGASCAR
Name of Project:	Debt-For-Nature Project
Number of Project	687-0112

1. Pursuant to Sections 103 and 119 of the Foreign Assistance Act of 1961, as amended, and to the provisions in the appropriations heading "Sub-Saharan Africa, Development Assistance" contained in the FY 1989 Foreign Operations, Export Financing and Related Programs Appropriations Act, I hereby authorize the World Wildlife Fund (WWF) Debt-for-Nature Project for Madagascar, involving planned obligations not to exceed $1,000,000 in grant funds. A.I.D. funding of this project shall go, subject to the availability of funds and in accordance with the A.I.D. OYB/allotment process, to assist in financing foreign exchange and local currency costs of the project. The planned life of project is approximately three years from the date of initial obligation.

2. The goal of the Debt-for-Nature Project is to protect the national resources of Madagascar. The purpose of the project is to increase the financial and technical resources available in Madagascar for the protection of natural resources and to reduce Madagascar's external debt service burden. The project will use a majority of the funds to purchase Malagasy public debt on the world market, to be redeemed by the Central Bank of Madagascar in local currency. These local currency proceeds will support planning, administration, protection and rural development activities in parks and reserves and their buffer zones; research to identify key areas for biodiversity protection outside existing parks and reserves; training of conservation professionals; and institutional support to government agencies responsible for managing parks, reserves and forests. The remainder of the A.I.D. funds will be used to cover foreign exchange and local currency costs for project administration and monitoring.

3. The grant agreement, which may be negotiated and executed by the officers to whom such authority is delegated in accordance with A.I.D. regulations and delegations of authority, shall be in accordance with the A.I.D. Debt for Development Guidelines issued February 15, 1989, subject to such modifications or exceptions as A.I.D. may otherwise agree in writing. The grant agreement shall also be subject to the following essential terms, covenants, and major conditions, together with such other terms and conditions as

A.I.D. may deem appropriate:

a. Source and Origin of Commodities, Nationality of Services. Except as A.I.D. may otherwise agree in writing,

(1) Commodities financed by A.I.D. under the technical assistance portion of the project shall have their source, origin, and nationality in A.I.D. Code 935 countries.

(2) Ocean shipping financed by A.I.D. shall be financed only on flag vessels of the United States.

b. Condition Precedent to First Disbursement. Prior to any disbursement or the issuance of any commitment documents, the World Wildlife Fund shall, except as A.I.D. may otherwise agree in writing, furnish in form and substance satisfactory to A.I.D.:

(1) a statement representing and warranting that the named persons (whose specimen signatures certified as to authenticity are included) have authority to act as the representative(s) of the World Wildlife Fund with respect to:

(a) official correspondence regarding the grant, and

(b) disbursement of local currency generated under the grant.

(2) a statement representing and warranting that none of the funds (dollars or local currency) received by the World Wildlife Fund through this Grant shall be used for training, advice, or any other support to any police, or other law enforcement forces, except as A.I.D. may otherwise agree in writing.

8/3/89
Date

Mark L. Edelman
Mark L. Edelman
Acting Administrator
Agency for International
Development

Clearances

AFR/MDI:WWeinstein	draft	date	7-27-89
AFR/TR/ANR:LJepson	draft	date	7-28-89
AFR/DP:JGovan	draft	date	7-28-89
AFR/CONT:RKing		date	
GC/AFR:JKnott		date	7/31/89
AFR/EA:ADLundberg	draft	date	7-27-89
AFR/PD/EAP:JSchlesinger		date	
AFR/PD:TBork		date	7/31/89
DAA/AFR:ELSaiers		date	
PPC/EA:ECostello		date	7-27-89
DGC:JEMullen		date	8/1/89
GC/AFR:ESpriggs		date	8/1/89

AFR/PD/EAP:DMackell:DOC#4027J

AID 1350 1
(3 87)

*PIO T

AGENCY FOR INTERNATIONAL DEVELOPMENT

PROJECT IMPLEMENTATION ORDER/TECHNICAL SERVICES

1. Cooperating Country: MADAGASCAR

Page 1 of Pages 134

2. PIO/T No.: 687-0112-3-A590202

3. [X] Original or Amendment No ___

4. Project/Activity No. and Title: Debt for Nature SWAP Project No. 687-0112

DISTRIBUTION

5. Appropriation Symbol: 72-1191014

6. Budget Plan Code: GSSA-89-21687-KG13 (914-52-687-00-69 9

7. Obligation Status: [X] Administrative Reservation [ ] Implementing Document

8. Project Assistance Completion Date (Mo., Day, Yr.): 09/30/92

9. Authorized Agent: AID/W

10. This PIO/T is in full conformance with PRO/AG No. ___ Date ___

11a. Type of Action and Governing AID Handbook: [ ] AID Contract (HB 14) [X] AID Grant or Cooperative Agreement (HB 13) [ ] PASA/RSSA (HB 12) [ ] Other

11b. Contract/Grant Cooperative Agreement/ PASA/RSSA Reference Number (If this is an Amendment)

12. Estimated Financing (A detailed budget in support of column (2) is attached as Attachment No. 1 -included in #18

Maximum AID Financing Available		(1) Previous Total	(2) Increase	(3) Decrease	(4) Total to Date
	A. Dollars		1,000,000		1,000,000
	B. U.S.-Owned Local Currency				

13. Mission References: Antanaanarivo 03485; GOM 5-19-89 letter

14A. Instructions to Authorized Agent

The contracting officer is requested to negotiate a grant agreement with World Wildlife Fund to implement a debt-for-nature swap project in Madagascar. Contact Person Kathryn S. Fuller, Pres. WWF. 202-293-4800.

The World Wildlife Fund proposal/program description, which is the basis for the negotiation of the contract, is Attachment #1, hereto. The Authorization, signed by the AA/AID is Attachment #2.

14B. Address of Voucher Paying Office

REDSO / RFMC - American Embassy/Nairobi
Washington, D.C. 20520-8900

15. Clearances—Include typed name, office symbol, telephone number and date for all clearances.

A. The Project Officer certifies that the specifications of the statement of work or program description are technically adequate. Daniel Mackell AFR/PD/EAP Joel Schlesinger	Phone No. 78287	Date 8/4/89	B. The statement of work or program description lies within the purview of the initiating office and approved agency programs. AFR/EA:ADLundberg AFR/DP:G.C.Cauvin	Date 8/4/89	
C. Warren Weinstein AFR/MDI		Date 8/4/89	D. Funds for the services requested are available		Date
E. Lance Jepson AFR/TR/ANR		Date 8/4/89	NAIROBI 22618		

16. For the Cooperating Country: The terms and conditions set forth herein are hereby agreed to

Signature _____ Date _____

Title _____

17. For the Agency for International Development

Signature Walter G. Bollinger Date 8/4/89

Title A-AA/AFR

*See HB 3, Sup A, App. C, Att B, for preparation instructions. Note: The completed form contains sensitive information whose unauthorized disclosure may subject an employee to disciplinary action.

18 Statement of work or program description for this project is described in Attachment No. 1 .

19. Special Provisions

A. [X] Language Requirements (specify) French Level FSI 3/3 .
(If marked, testing must be accomplished by AID to assure desired level of proficiency.)

B. [X] Access to classified information [ ] will [X] will not be required by technical specialists. (Indicate level) _____ .

C. [X] Duty post(s) and duration of technical specialist(s) services at post(s) (months) Madagascar (up to 3 years) .

D. [X] Dependents [X] will [ ] will not be permitted to accompany technical specialist(s)..

E. [X] Geographic code applicable to procurement under this PIO/T is [ ] 000 [ ] 899 [ ] 935 [X] 941 [ ] Other (specify) _____ .
(If other than authorized in HB 1, Sup B, Chap 5, Para 5A1d, attach waiver(s).)

F. [X] Salary approval(s) to exceed FS-1 salary ceiling are [ ] attached [ ] in process [X] N/A.

G. [X] Cooperating country acceptance of this project (applicable to AID/W projects only)
[X] has been obtained [ ] is in process [ ] is not applicable to services required by PIO/T.

H. [X] Justification for use of external resources for consulting services is [ ] attached [X] N/A.

I. [X] Clearance for procurement of ADP equipment, software, and services is [ ] attached [ ] in process [X] N/A.

J. [X] OMB approval of any report to be completed by ten or more members of the general public under the statement of work is
[ ] attached [ ] in process [X] N/A.

K. [X] Participant training [ ] is [X] is not being funded as part of this PIO/T.

L. [X] Requirement (contracts only) is recommended for [ ] small business set-aside [ ] SBA 8(a) Program [X] neither.

M. [ ] Other (specify).

20. Provisions for Logistic Support A. Specific Items *(Insert "X" in applicable column at right. If entry needs qualification, insert asterisk and explain below in C. "Comments")*	IN KIND SUPPLIED BY		FROM LOCAL CURRENCY SUPPLIED BY		TO BE PROVIDED OR ARRANGED BY SUPPLIER	N/A
	AID	COOPERATING COUNTRY	AID	COOPERATING COUNTRY		
(1) Office Space					X	
(2) Office Equipment					X	
(3) Housing and Utilities					X	
(4) Furniture					X	
(5) Household Appliances *(Stoves, Refrig., etc.)*					X	
(6) Transportation in Cooperating Country					X	
(7) Transportation To and From Country					X	
(8) Interpreter Services/Secretarial					X	
(9) Medical Facilities (Health Room)					X	
(10) Vehicles (official)					X	
(11) Travel Arrangements/Tickets					X	
(OTHER SPECIFY) (12) Nightwatchman for Living Quarters					X	
(13)						
(14)						
(15)						

20. Provisions for Logistic Support (Continued)

B. Additional Facilities Available From Other Sources NONE

☐ Diplomatic pouch ☐ PX ☐ Commissary

☐ Other (specify, e.g., duty free, entry, tax exemption)

C. Comments

21. Relationship of Contractor or Participating Agency to Cooperating Country and to AID

A. Relationships and Responsibilities

AFR/MDI and AFR/TR/ANR will provide AID/W backstopping.

B. Cooperating Country Liaison Officials

C. AID Liaison Officials

Donna Stauffer, PDO
USAID/Madagascar

22. Background information (additional information useful to authorized agent)

23. Summary of attachments that accompany the PIO/T (check applicable boxes)

☒ A. Detailed budget estimate in support of increased funding (Block 12)

☐ B. Evaluation criteria for competive procurement (Block 14A)

☒ C. Justification for procurement by other than full and open competition or noncompetitive assistance

☒ D. Statement of work or program description (Block 18)

☐ E. Waiver(s) justification(s), clearance(s), certification(s) (Block 19) (specify number _____)

A DEBT-FOR-NATURE PROGRAM FOR MADAGASCAR

A Proposal Submitted to:

U.S. Agency for International Development
Bureau for Africa

Submitted by:

World Wildlife Fund
Washington, D.C.

June 2, 1989

TABLE OF CONTENTS

APPENDIX

I. Background

World Wildlife Fund (WWF) is an independent, nonprofit organization dedicated to the worldwide conservation of endangered species and critical ecosystems. Over the past 28 years, WWF has supported nearly 1400 conservation projects in 103 countries throughout the world.

For the past 10 years, WWF has supported a wide variety of conservation activities in the country of Madagascar including biological inventories, establishment and management of protected areas, development of buffer zone projects, technical assistance, and training of Malagasy conservationists. In 1986, WWF drafted An Action Plan for Conservation of Biological Diversity in Madagascar which identified the specific, highest priority projects to be undertaken over a five-year period to ensure the greatest measure of protection to Madagascar's biological diversity. Since 1987, WWF has participated in a joint planning effort with the Government of Madagascar, the World Bank, the U.S. Agency for International Development, the Swiss Corporation, UNDP, and USESCO to develop a comprehensive Environmental Action Plan (EAP) for Madagascar. WWF is taking an active role in developing the first phase of the EAP --- the Environment I Project -- which focuses primarily on improving the management of the country's protected areas. Through these and other activities, WWF has established itself as the leading conservation organization devoted to the conservation of biological diversity of Madagascar.

WWF is also the leading conservation organization engaged in arranging debt-for-nature swaps in developing countries. Debt-for-nature swapping was first proposed in 1984 by Dr. Thomas Lovejoy, then executive vice president of WWF. The idea behind the proposal was a simple one. Most banks in the developed countries hold large amounts of debt from a group of approximately 20 Third World countries, and it appears increasingly unlikely that this debt will be repaid in full. Most of these debtor countries suffer from the dual problems of economic underdevelopment and natural resource overexploitation. Burdened by debt payments, they are hard pressed to allocate scarce funds to natural resource conservation. If some portion of their total debt burden could be cancelled in exchange for increased support of conservation, then progress could be made on multiple fronts: debt could be reduced, natural resources protected, and investment stimulated within the debtor country itself.

Over the past several years, debt-for-nature has emerged as more than a promising experiment. It has become an important means to leverage funds for protection of natural resources in developing countries. For its part, WWF has actively pursued debt-for-nature opportunities, developing debt-for-nature agreements in Ecuador and the Philippines and joining with other conservation organizations to develop an agreement in Costa Rica (see Appendix B). In April 1989, WWF transacted the largest debt-for-nature swap to date with the acquisition of $5.4 million

face amount of Ecuadorean debt. Overall, WWF has acquired $7 million face amount of debt for debt-for-nature programs. WWF is seeking next to arrange a debt-for-nature swap in Madagascar and is asking support in the amount of $1 million over three years from the U.S. Agency for International Development for a debt-for-nature program in that country.

II. Program Definition and Scope

Need to Protect Natural Resources in Madagascar

Madagascar is one of the richest and most unique countries on earth from a biological perspective. Approximately 150,000 of Madagascar's 200,000 species of plants and animals are found nowhere else in the world, and this remarkable endemism is accompanied by very high diversity in most groups. The island's endemism and high number of species, coupled with its small size, make it an extremely important global reservoir for biological diversity and thus a high priority for conservation. Madagascar has often been called the single highest conservation priority in the world, and World Wildlife Fund scientists have grouped it with six other "megadiversity" countries which deserve immediate and concerted conservation attention. These seven countries alone account for up to 60 percent of the earth's total species.

But Madagascar is also one of the world's poorest countries. Although it is the fourth largest island in the world, and overall population density is still relatively sparse (fewer than 20 inhabitants per square kilometer), per capita income in this

nation of nearly 11 million people is less than $300 per year. This places Madagascar among the very poorest of countries in Africa and Asia, and well below the poorest country in the Western Hemisphere, Haiti.

The existence of such extreme poverty -- coupled with increased efforts to promote economic development through investments in physical infrastructure, commercial agriculture and natural resource exploitation -- is placing extreme pressure on critical habitats in all of Madagascar's ecosystems. Deforestation has proceeded at very rapid rates during the past decade, and is currently estimated at close to 25,000 acres per year. In 1988, only about 20 percent of this once largely forested island remained in forest cover. Forest and habitat destruction in Madagascar exact heavy tolls -- reducing the future potential economic production of the country's natural resource base; further impoverishing poor people whose livelihood depends solely on the productivity of local soil and forest resources; and threatening extinction of a number of endemic wildlife species.

The major underlying causes of such rapid rates of forest destruction are fundamentally linked to prevailing socio-economic conditions that have promoted inappropriate, wasteful or inefficient land use patterns. These include slash and burn agriculture; extension of commercial agriculture into hilly, forested or otherwise fragile lands; uncontrolled ranging of stock; poorly regulated timber exploitation; and fuelwood

gathering and charcoal production. With population growth approaching 3 percent, all of these pressures are likely to increase in coming years.

In many areas of the country, growing fuelwood shortages, due to over-exploitation of forest resources, are posing serious economic hardships for families living at the subsistence level. The increased amount of time necessary for gathering fuelwood, particularly by women, has significantly decreased the time devoted to productive agriculture and the family. Thus, in addition to the direct ecological consequences of deforestation -- soil erosion, loss of biological resources, etc. -- the destruction of forest resources poses increased hardship and economic strains on the poorest people, directly contributing to decreased productivity and indirectly exacerabating social problems such as infant malnutrition.

Clearly, efforts to protect the unique and fragile biological resources of Madagascar cannot proceed except as part of an integrated approach toward alleviating the underlying economic strains that are promoting such a wide-ranging assault on Madagascar's natural resource base. The challenge in Madagascar is to integrate current schemes to stimulate economic development and meet human needs with long-term planning to protect biological diversity and maintain the integrity of essential ecological systems for posterity.

Institutional Capacity for Protecting Natural Resources

The Malagasy people are well aware of the urgency of their environmental situation: in a lecture last year at the Smithsonian Institution, his Excellency León Rajaobelina, Malagasy Ambassador to the United States stated,

> "Too often, environmental and conservation concerns take the back seat to more immediate and more pressing problems. Conservation is in many instances viewed as some sort of afterthought, to which one pays lip service, in order to please some powerful lobbies in faraway developed countries. This, I am glad to report, is not the case for my country... Conservation ranks high on the list of government priorities and has been made an integral part of our program of economic restructuring. We firmly believe that conservation of our natural treasures is first and foremost our own responsibility."

Despite this commitment to natural resource protection, the institutional capacity for maintaining natural resources set is severely strained at present. One sub-unit of the Ministry of Animal Production, Waters and Forests (MPAEF), the Department of Waters and Forests, is responsible for the protection of all 36 existing protected areas as well as for overseeing soil conservation and managing productive forests. Over 60 percent of this department's budget is allocated for plantation management, leaving US $1,100 (1986 figures) for material support (everything

but salaries) for protected areas. Over two-thirds of the protected areas employ a maximum of two guards, paid $600 annually. In a recent survey of the protected areas in Madagascar, WWF's technical advisors reported that all of the areas surveyed have insufficient personnel and financial support, and all of them suffer from habitat disturbance or clearance, illegal plant exploitation or poaching. Clearly, the need exists to bolster Madagascar's capacity to manage its protected areas, to expand the protected area system, and to conserve resources in forested areas outside the parks and reserves.

WWF's Proposed Debt-for-Nature Program

For 10 years, WWF has invested in conservation of Madagascar's natural resources. Including the commitments of the WWF family of national organizations, support in excess of $2.6 million has been provided for conservation in Madagascar over this period. WWF seeks to develop and implement a debt-for-nature program in Madagascar in order to increase the amount of financial support for conservation in the country as well as to help reduce Madagascar's debt burden.

WWF has secured an agreement in principle with the Central Bank of Madagascar to develop a debt-for-nature program (see Appendix A) and will finalize a spending program with the cognizant government agency (MPAEF) in Madagascar in June 1989. The following provides an overview of the financial aspects of the program and the conservation program that will be supported with the proceeds from the swap.

Financial Terms

WWF plans to establish with the Central Bank of Madagascar a 3-year debt-for-nature program with a $3 million ceiling. This ceiling allows, but does not obligate, WWF to redeem up to $3 million in face value promissory notes. Over the course of the 3 years, we expect to execute three or more fundings under the program to lessen any inflationary impact of the conversion and to facilitate the absorption of funds by ongoing projects. Of the requested $1 million from USAID, $750,000 would be used over the 3-year period to acquire debt, with the remainder dedicated to hard currency costs of technical assistance and administration and monitoring of the spending program.

The Central Bank has agreed to redeem eligible debt at 100 percent of its face value for exchange into Malagasy francs in the form of cash. The Malagasy Francs will subsequently be held in an interest-bearing account and all interest earned thereon shall be remitted to AID in accordance with the AID guidelines on debt conversions, dated February 15, 1989.

Eligible debt, based upon a draft protocol for this exchange prepared by the Central Bank (see Appendix A), is either London Club debt (certain commercial debt) or private debt, with the Central Bank of Madagascar as obligor. We will most likely source London Club debt for this conversion as there is only $40 million of private Malagasy debt outstanding (out of a total of $3 billion in external debt), and it is thinly spread throughout the financial marketplace.

Over the past six months of posted pricing, 52 cents on the dollar is the median price for eligible Malagasy debt in the secondary market. WWF hopes to source debt below the 50 cents level, so that we will, at a minimum, leverage our investment by two times. Although there is no active market in Malagasy debt (no active buying and selling of the debt among institutional holders), we have discussed the prospective swap with two U.S. money center banks, preeminent in the arena of debt/equity swaps and secondary debt markets, and they have each expressed a strong interest in acquiring the promissory notes on our behalf. One of these institutions already holds eligible debt on their own balance sheet. It is important to note that we only work with institutions that offer pro bono services. In addition, any debt sourced in the market place will be purchased at cost to ensure the lowest possible price obtainable.

Based on the same Central Bank protocol previously mentioned, the official foreign exchange rate will be used and it will be set on the date the debt conversion takes place.

Conservation Program

Local currency proceeds from a debt-for-nature swap in Madagascar would be used by WWF for a conservation program comprised of the following types of activities:

Planning, administration, protection and rural development activities in parks and reserves and their buffer zones;

o Research to identify key areas for biodiversity protection outside existing parks and reserves and support for proposal development for projects in these areas;

o Training of conservation professionals through the organization and implementation of in-country workshops and field courses;

o Institutional support to government agencies responsible for managing Madagascar's parks, reserves, and forests.

Specifically, WWF proposes that proceeds from a debt-for-nature swap in Madagascar be used for the following:

1) Protected Area Establishment and Management

Activities would include boundary demarcation, development of management plans, physical infrastructure and buffer zone projects, nature interpretation, environmental education, training, and research. High priority areas to receive local currency proceeds will be the national parks, special reserves, private reserves, and other areas important for the preservation of biological diversity in Madagascar as identified in the Revue Generale des Aires Protegees et de la Conservation a Madagascar produced by World Wildlife Fund (Nicoll and Langrand, 1989). Proposed projects for funding through the WWF debt-for-nature swap include the following:

a) Southern Madagascar Conservation Program (Andohahela Reserve and Beza-Mahafaly Special Reserve)

Southern Madagascar's spiny desert contains remnants of the once extensive forests of endemic Didieraceae and Euphorbiaceae

which harbor a variety of endemic animal and plant species. These formations and their indigenous wildlife face a wide variety of threats. Conservation activities in the region center around the Beza-Mahafaly Special Reserve, which includes 600 hectares of spiny and riverine forest, and Andohahela Reserve, a 76,000-hectare reserve which spans three vegetation zones. Since 1977, this project has been a model for conservation and an example of integrated conservation and development efforts in Madagascar. A collaborative effort of WWF, the University of Madagascar, Yale University, and Washington University-St. Louis, the project has been responsible for establishing a field station for conservation research, training Malagasy and expatriate scientists and researchers, strengthening Malagasy conservation and education institutions, protecting species and habitats inside and outside the protected areas, and involving local residents in the preservation of their environment.

b) Andringitra Reserve

Established in 1927, the Andringitra Reserve covers an area of 31,160 hectares of southeastern Madagascar rain forest. It is of great economic importance to the region as a major watershed which feeds local irrigation systems necessary for the cultivation of rice. Andringitra Reserve is included among the highest priority sites for conservation in Madagascar and a management plan for the area is currently being developed by WWF and MPAEF. This management plan includes recommendations for greater protection of the reserve to reduce the threat posed by

fires and the possible development of the Reserve's northern section for tourism as a means to generate local employment and income for management of the reserve.

c) Marojejy Reserve

The eastern wet forest is the most diverse, yet least known ecosystem in Madagascar. Overall species endemism probably exceeds 95%. The Marojejy Reserve in northeastern Madagascar has been selected by WWF as one of the top 14 reserves for the protection of biological diversity in Madagascar and has been targeted for immediate survey and conservation action. A management plan has been prepared by WWF and MPAEF which recommends conservation measures such as demarcation of reserve borders and provision of equipment and training for reserve guards.

d) Masoala Peninsula

The Masoala Peninsula, located north of Tamatave on Madagascar's east coast, contains some of the country's largest tracts of undisturbed eastern rain forest, including perhaps the only sizable stands extending down to sea level. No part of the peninsula is currently protected under Malagasy law, as the only existing reserve (Reserve No. 2 comprising 27,500 hectares) was de-gazetted in 1964. Much of the forested area this reserve contained has been severely degraded in the last 25 years by traditional slash and burn agriculture. WWF has recommended the establishment of a new protected area in this region which should contain the complete range of ecosystems present on the peninsula

and a major conservation and rural development project to be undertaken by MPAEF, the Ministry of Higher Education, and the Missouri Botanical Garden in the coming year.

e) Montagne d'Ambre Northern Reserves Complex

The Montagne d'Ambre Complex was recommended as the highest priority for long-term, large-scale conservation intervention in WWF's Revue Generale des Aires Protegees et de la Conservation a Madagascar. The area is the only source of fresh water for the city of Antsiranana and the surrounding hinterland, and the vegetation of the massif is of importance in regulating local climate and rainfall. The reserves are also among the country's most important for nature tourism, which in coming years will likely account for a substantial portion of the country's external income. WWF has spearheaded conservation at Montagne d'Ambre in collaboration with USAID, government ministeries, local development organizations, schools, and conservation organizations. Efforts to preserve the reserve network and encourage sustainable use of natural resources will be greatly augmented in coming years.

f) Proposed Ranomafana National Park

At Ranomafana, an unbroken stretch of forest extends from the high plateau down the eastern escarpment to the coastal lowlands. The floristic composition is poorly understood but probably contains many undescribed species. The area is a critical watershed which feeds a hydroelectric plant that

supplies power to Fiarantsoa, the country's second largest city, as well as a number of small towns. Initial biological inventories of the reserve, most of which is accessible only on foot, resulted in the discovery of a new bamboo lemur (Hapalemur aureaus) and the rediscovery of another (Hapalemur simus) which was believed extinct. The project to create a 50,000-hectare park at Ranomafana is a collaborative effort of WWF, Duke University, the Smithsonian Institute, MPAEF, and the Ministry of Higher Education. Since the project's inception in 1986, major strides have been made not only in the establishment of Ranomafana National Park (Madagascar's third national park), but in the formulation of a comprehensive conservation and economic development plan for the Ranomafana region.

2) Identification of Key Areas for Biodiversity Protection Outside Parks and Reserves

While much of Madagascar's biodiversity is protected in a series of parks and reserves, there remains a substantial portion of the country's high diversity forests and other habitats outside these areas, either completely unprotected or in areas termed forets classee and preserved for their future commercial value. The distribution of the forets classee is in many cases poorly known and further analysis of recent maps and remote sensing data is required to establish their current status and that of other unprotected habitat throughout Madagascar.

WWF has supported a team of protected area specialists in Madagascar for several years, and a complete review of the country's parks and reserves has been prepared, including some recommendations for protection of currently unprotected lands. Part of requested USAID funds would be used by WWF to augment this team of specialists with an individual with expertise in forest management who could work with MPAEF to identify natural habitat conservation and management priorities outside parks and reserves. This technical advisor would also administer the disbursement of local currency funds generated by the debt swap, monitor the activities supported by the swap, and develop proposals for new conservation projects in currently unprotected areas. Some local currency proceeds from the debt swap would be allocated to these activities, primarily for hiring local support staff, office rental, equipment, expendable supplies, communications, and other administrative costs.

3) Institutional Strengthening of the Department of Waters and Forests of MPAEF

The Department of Waters and Forests is responsible for protected areas, species protection, and forest management in Madagascar, and the future of biological diversity is, in many ways, linked to the capacity of this branch of the Malagasy government to effectively protect and manage the resources for which it is responsible. The importance of this department has

already been recognized by USAID, the World Bank, and other international organizations active in Madagascar. A portion of the proceeds from the proposed debt-for-nature swap would be allocated to enhancing the department's technical capacity. Support would be used for salaries, training, materials, and equipment to strengthen the management both of protected areas and forests.

Target Groups of Beneficiaries

The primary beneficiaries of the proposed program are the people of Madagascar, in particular future generations for whom environmental resources must be conserved to provide the base on which future economic activity depends. More immediately, the government of Madagascar will benefit through the institutional strengthening component of the conservation program, by the augmentation of financial resources provided by the debt swap, and by the reduction in the amount of Madagascar's debt burden. International donors with a stake in protecting Madagascar's natural resource patrimony will benefit from the debt-swap as it provides a means to significantly leverage funds for conservation and increases field resources for analyzing environmental conditions and managing resources.

Host Country and USAID Involvement

WWF began pursuing a debt-for-nature agreement in Madagascar in May 1988 by meeting with a delegation of Malagasy officials in Washington to discuss debt-swap opportunities. With 10 years of experience in conservation in Madagascar, WWF was well known to the government, and the debt-swap proposal was well received. Madagascar's Ambassador to the United States M. Leon Rajaobelina strongly endorsed the initial proposal (see Appendix A). In May 1989, WWF and the Central Bank of Madagascar agreed formally to develop a debt-for-nature program (Appendix A). In June 1989, WWF representatives will meet in Madagascar with officials from MPAEF to secure formal agreement on the conservation program (preliminary agreement has already been reached) and with the Governor of the Central Bank to finalize the protocol for the debt conversion. In June, WWF will also meet with USAID/Madagascar to review and obtain approval for the debt-for-nature program. The debt-swap program has been reviewed and approved by USAID/AFR/TR/ANR. The debt-swap arrangement has been structured to meet requirements in USAID guidelines issued February 17, 1989.

III. Program Goal, Purpose, Outputs, Inputs

The proposed program's overarching goal is to protect the natural resources of the nation of Madagascar.

Its purpose is to increase the financial and technical resources available in Madagascar for the protection of natural resources.

Outputs include:

o A debt-for-nature arrangement through which international donors can leverage resources for natural resource protection in Madagascar;

o Greater protection and better management of high priority protected areas;

o Analysis of the status of unprotected forested lands and a set of recommedations for protection of biologically important species and habitats found on these lands;

o Development of proposals for new projects to conserve biological diversity in and around parks, reserves, and forests.

o Strengthened institutional capacity of government agencies to protect and manage parks, reserves, and forests.

Inputs include:

o Funds to acquire up to $3 million face amount of debt for conversion to local currency under the debt-for-nature agreement and to support the hard currency costs of technical assistance, administration, and monitoring of the debt swap;

o Financial and legal expertise to develop the debt-for-nature program and acquire and convert debt;

o Technical assistance to undertake assessments of natural resources in order to develop broad recommendations for

protection and management and specific proposals for new conservation projects;

o Administrative and technical services to manage the overall debt-for-nature program, disburse debt-swap proceeds, and monitor the use of funds.

IV. Management and Implementation

Program Management

WWF, the implementating organization, will provide program management at two levels.

In Washington, D.C. - The program will be under the overall direction of WWF President Kathryn S. Fuller. Vice President R. Michael Wright and debt-for-nature specialist Barbara Hoskinson will develop the Madagascar debt-for-nature program, and the WWF program officer for Madagascar will be responsible for program implementation. (Resumes are included in Appendix C.) Specific management responsibilities include the following:

o Ensure that the overall program purpose is maintained and general objectives met.

o Arrange for individual fundings of the debt swap over the 3 year program period.

o Hire a WWF technical advisor in Madagascar to provide field management of the program.

o Coordinate with USAID/AFR and other international agencies with a stake in the Madagascar debt-for-nature program.

o Ensure that field staff prepare quality financial and

In Madagascar - The program will be developed by WWF representatives Olivier Langrand and Martin Nicoll. Day-to-day operations of the program will be managed by field staff to be hired, including an expatriate technical advisor and two Malagasy support staff. WWF will also ask MPAEF to assign a counterpart from the Department of Waters and Forests to work with the technical advisor on all aspects of the program. Specific responsibilities of the field staff will be to:

o Manage the disbursement of debt-swap proceeds and monitor the use of the proceeds.

o Conduct an assessment of the status of unprotected forested lands and develop a set of recommedations for protection of biologically important species and habitats found on these lands;

o Develop proposals for conservation projects in areas that are currently unprotected or underprotected.

o Coordinate the debt-for-nature program with MPAEF, USAID/Madagascar, and other Malagasy or international agencies interested in or affected by the program.

o Provide quality financial and narrative reports on time to WWF/Washington.

Program Implementation

As indicated above, debt-swap negotiations with the host country government will take place in June 1989 and are expected to result in a formal debt-swap agreement between MPAEF and WWF,

acknowledged by the Central Bank of Madagascar. This agreement will permit WWF to acquire up to $3 million face amount of eligible Malagasy debt and convert it to local currency for spending on the proposed conservation program in Madagascar.

The program will be implemented over a 3-year period and will involve a minimum of three fundings under the proposed debt-for-nature agreement. The first funding will be timed to occur subsequent to hiring of field staff in Madagascar so that in-country capacity exists to administer local currency proceeds of the swap. WWF will actively recruit field staff for the program as soon as USAID support for the debt-for-nature program is assured. Assuming this occurs by July 1989, field staff can be in place in Madagascar within 4 to 6 months, thus mitigating for a first funding of the debt-swap in late 1989 or early 1990. If USAID provides support in the amount requested, $250,000 of these funds would be used for the first funding to acquire Malagasy debt on the secondary market. Subsequent fundings are expected to occur on a yearly basis, but may occur more frequently if we find that large annual fundings cannot be absorbed quickly enough in the field. Our objective will be to provide over the 3 years a steady stream of reliable local currency support for protection and management of high priority protected areas and for institutional strengthening of MPAEF.

V. Sustainability

Support is requested from USAID for 3 years, but WWF's commitment to conservation in Madagascar is long-term. The projects proposed for funding under the debt-for-nature program form the heart of the WWF program in Madagascar and will continue to receive our support. In addition to WWF and USAID, other international conservation organizations and donor agencies also have a strong interest in natural resource conservation in Madagascar, among them the participants in the current project to develop and implement an Environmental Action Plan for Madagscar (the World Bank, the Swiss Corporation, UNDP, and USESCO). With implementation over the next several years of the first phase of the EAP, major new resources should be brought to bear on the problem of environmental degradation in Madagascar. Undoubtedly some of these resources will be applied to the high priority projects identified for funding under WWF's debt-for-nature program.

VI. Budget

The budget provided on the following pages shows the projected use of USAID funds over 3 years for the debt-for-nature program. WWF is requesting $1,000,000 from USAID and will contribute a minimum of $250,000 toward the program. Uncalculated WWF contributions to the program include the initial investment in developing a Madagascar conservation program,

supporting the program at a rate of approximately $250,000 per year, and developing the debt-for-nature program. The value of these contributions is in excess of $1,000,000.

BUDGET
(In Thousands)

	Year 1	Year 2	Year 3	Total
Debt Acquisition*	$ 250	250	250	750
In-country Technical Advisor (salary, benefits, housing)	25	50	50	125
Vehicle purchase and upkeep	25	5	5	35
WWF Management	30	30	30	90
TOTAL	$ 330	335	335	1,000

* Proposed allocation of debt-swap proceeds by year shown below.

Activity	Percentage of Debt-Swap Proceeds		
1) High Priority Protected Areas	90%	80%	80%
2) Technical Advisor Support Staff, Office	5%	10%	10%
3) Support to MPAEF	5%	10%	10%

Appendix A:

SUPPORTING DOCUMENTATION FOR PROPOSED DEBT-FOR-NATURE AGREEMENT WITH THE GOVERNMENT OF MADAGASCAR

EMBASSY OF THE DEMOCRATIC REPUBLIC OF MADAGASCAR
2374 MASSACHUSETTS AVENUE, N.W.
WASHINGTON, D.C. 20008
TELEPHONE (202) 265-5525

June 30, 1988

Mr. William K. Reilly
President
World Wildlife Fund
1250 24th St., NW
Washington, DC 20037

Dear Mr. Reilly:

I understand that World Wildlife Fund, with support from the U.S. Agency for International Development, is initiating a broad new program for conservation and development in Madagascar in cooperation with U.W. universities, Malagasy institutions and development and conservation organizations. I wish to offer my support for the prcgram, in particular your efforts to execute an innovative debt for conservation and development transaction under its proposed terms.

As you know, two problems shared by developing nations are heavy international debt burdens and declining natural resource bases. These two problems are not unrelated. Funds which are desperately needed for conservation and sustainable development in many nations must be channeled into debt payments to meet international obligations. In this regard, and as you and Mr. Randriamaholy, Governor of the Central Bank of Madagascar, discussed during your meeting last month at World Wildlife Fund, debt for nature swapping is a very appealing concept. This is particularly so since Madagascar has a sizeable debt problem, and at the same time, has established conservation as a national priority.

If there is anything I can do to further support your efforts in carrying out the proposed program for conservation and development in Madagascar, please let me know.

Sincerely yours,

Léon M. RAJAOBELINA,
Ambassador

BANQUE CENTRALE DE LA REPUBLIQUE MALGACHE
boîte postale n° 550 - adresse télégraphique (BA CE RE MA) — téléphone 217-51 — 217-52 et 247-03

Washington
Antananarivo, le 19 Mai 1989

Madame la Présidente,

Suite à nos différentes réunions ayant trait au projet de conversion de dette pour la protection et la conservation de la nature et plus particulièrement suite à celle tenue ce jour à Washington, j'ai l'honneur de vous confirmer l'intérêt que nous portons à la réalisation d'une telle opération.

Les termes et conditions de cette conversion seront établis dans un protocole d'accord entre la WWF et la Banque Centrale,

1) après que les programmes à financer aient été définis de façon précise avec le ou les département(s) ministériel(s) malgache(s) concerné(s),

2) conformément aux dispositions législatives et règlementaires en vigueur à Madagascar.

Les dettes éligibles seront identifiées et spécifiées dans le protocole d'accord.

Sur ces bases, il nous apparaît donc souhaitable que vous entrepreniez les démarches et évaluation nécessaires tant auprès des départements malgaches intéressés qu'auprès des bailleurs de fonds éventuels.

Je vous prie, Madame la Présidente, de bien vouloir agréer l'expression de toute ma considération.

Le Gouverneur,

Blandin Razafimanjato.

Madame Kathryn S. Fuller
Présidente
World Wildlife Fund-U.S

WWF

World Wildlife Fund

19 mai 1989

M. Blandin Razafimanjato
Gouverneur
Banque Centrale de Madagascar
c/o Embassy of Madagascar
2374 Massachusetts Avenue, N.W.
Washington, D.C. 20008

Monsieur le Gouverneur,

Nous accusons réception de votre lettre en date du 19 mai 1989 dans laquelle il est dit:

"Suite à nos différentes réunions ayant trait au projet de conversion de dette pour la protection et la conservation de la nature et plus particulièrement suite à celle tenue ce jour à Washington, j'ai l'honneur de vous confirmer l'intérêt que nous portons à la réalisation d'une telle opération.

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Nous marquons notre accord sur le contenu de cette lettre et soulignons par ailleurs que le World Wildlife Fund, pendant plus de dix ans, a soutenu une grande variété d'activités pour la

conservation au Madagascar comprenant l'établissement et l'administration d'aires protégées, la recherche d'espèces sauvages, l'assistance technique, les inventaires biologiques, et la formation d'gardes malgaches pour la protection de la nature. World Wildlife Fund aimerait poursuivre la conversion de dette pour la protection et la conservation de la nature dans le cadre des lois et règlements en vigueur au Madagascar, avec les départements respectifs.

Je vous prie d'agréer, Monsieur le Gouverneur, l'assurance de ma considération distinguée.

Kathryn S. Fuller

Kathryn S. Fuller
President
World Wildlife Fund, Inc.

DRAFT

P R O T O C O L E D'A C C O R D

ENTRE :

- La BANQUE CENTRALE DE MADAGASCAR représentée par Monsieur Blandin RAZAFIMANJATO, Gouverneur, ci-après dénommée la Banque Centrale,

D'UNE PART,

ET :

- WORLD WILDLIFE FUND représenté par Madame Kathryn S. FULLER, Présidente, ci-après dénommé le WWF,

D'AUTRE PART,

~~D'AUTRE PART,~~

~~APRES AVOIR PREALABLEMENT EXPOSE :~~

WORLD WILDLIFE FUND se propose

de racheter auprès de (BANQUE) une créance d'un montant de USD détenue sur Madagascar en vue de financer ses dépenses d'investissement à Madagascar.

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Etant donné que cette créance fait partie des créances réaménagées aux termes de la Convention de Refinancement du 25 Octobre 1984, amendée le 10 Décembre 1985 et le 15 Juin 1987,
le WWF devra effectuer les démarches nécessaires auprès de l'Agent, représentant les banques créancières.

IL A ETE ARRETE ET CONVENU CE QUI SUIT :

ARTICLE 1er -

Le présent Protocole a pour objet de définir le programme d'investissements de WWF et les engagements des parties.

ARTICLE 2 -

WWF se propose de racheter auprès de (BANQUE)
une partie de sa créance d'un montant USD détenue sur Madagascar en vue de financer ses dépenses d'investissements à Madagascar, à savoir :

. Budget présenté du .... .89 au .. ... .90 : Millions de FMG ;

. Projet mis en oeuvre à

..

..

..

../..

ARTICLE 3 -

le cas échéant

Le WWF et son intermédiaire s'engage[nt] à faire les démarches nécessaires tant auprès de (BANQUE) qu'auprès des Créanciers [groupés au sein du Club de Londres] pour informer l'Agent représentant les banques créancières de l'utilisation de la créance cédée pour le programme d'investissement ci-dessus.

../..

-WWF s'engage, à ne pas procéder à des transferts à l'extérieur des sommes provenant de la conversion de la créance ni à demander à transférer à l'extérieur sous quelque forme que ce soit, toute somme qui proviendrait des activités bénéficiant de la conversion de créance.

ARTICLE 4 -

Sous réserve de l'autorisation prévue à l'article 3 ci-dessus, la Banque Centrale, tant en sa qualité de débiteur substitué aux termes de la Convention de Refinancement du 25 octobre 1984 qu'en raison de son rôle d'institution financière, accepte de payer en Franc Malgache à WWF la contrevaleur en F.M.G. de la créance cédée d'un montant de USD au taux du jour de la signature du présent Protocole.

WWF devra produire et remettre à la Banque Centrale les pièces suivantes :

1. la Convention de cession de créance passée avec (BANQUE)

2. l'acte de notification de cession,

ARTICLE 5 -

Le versement du montant en francs malgaches sera effectué au profit de WWF

../..

Le versement des sommes correspondantes sera effectué dans un délai de 15 jours après l'entrée en vigueur du présent Protocole.

ARTICLE 6 -

Le présent Protocole entrera en vigueur à la date de réception par la Banque Centrale des pièces indiquées à l'article 4 alinéa 2.

Fait à Antananarivo, le

POUR WORLD WILDLIFE-US,
LA PRESIDENTE

Kathryn S. FULLER

POUR LA BANQUE CENTRALE DE MADAGASCAR
LE GOUVERNEUR

Blandin RAZAFIMANJATO.

Appendix B:

DEBT-FOR-NATURE BACKGROUND INFORMATION

Debt for Nature: An Overview

By Konrad von Moltke
World Wildlife Fund

In a 1984 op-ed piece published by the *New York Times*, Thomas Lovejoy, then vice-president of World Wildlife Fund-US, suggested a program to use debt of less-developed countries (LDCs) for conservation purposes. The proposal was met with some incredulity. The obstacles appeared insuperable at the time:

- Debtor countries needed to be convinced that such a program was not a way for creditor countries to obtain control over Third World resources–the "imperialism" issue;
- Banks needed to be convinced that such a program was in their interests;
- Governments of creditor countries needed to be convinced that debt/nature swaps were compatible with regulations governing the activities of nonprofit organizations;
- Conservation organizations needed to be convinced that debt/nature swaps were a better use of their staff and financial resources than alternate programs and that they could deal successfully with all the parties involved;
- Because conservation and banking have not traditionally been seen as interrelated, the links between the conservation community and the banks were tenuous at best. What links there were had grown out of the individual philanthropic commitment of certain people in the banking community;
- Conservation organizations' contacts in Third World countries did not generally include the kinds of people who would need to approve debt-related operations; and,
- In some creditor countries, the tax situation with regard to donations of LDC debt to conservation organizations was murky at best.

All these issues continue to need attention, but over the past months, a number of breakthroughs have made debt/nature swaps a realistic proposition. The basic idea is deceptively simple. Most major banks in the developed world currently hold large amounts of hard currency debt from some 20 Third World countries, and it appears increasingly unlikely that this debt will be repaid in full. If conservation organizations acquire title to this debt, they may be able to negotiate with the debtor countries to obtain repayment in local currency at a favorable conversion rate and use the proceeds for conservation in the country concerned. Depending on the costs of such transactions, conservation organizations may be able to realize a significant increase in the resources ultimately available for conservation in the debtor countries. However, this simple idea hides many pitfalls.

THE FIVE STEPS OF A DEBT/NATURE SWAP

In every phase of debt/nature programs, several issues exist that can be viewed as impediments to success or as factors that can be varied creatively to enhance conservation. One of the particularly interesting aspects of debt-for-nature transactions is that they establish an operative link between conservation and the financial markets, something that has long been suspected to be possible but that has not yet been made tangible.

The first step in any debt/nature swap is to obtain approval in principle from the debtor country. This can involve negotiations with three key parties: the government, the central bank, and an appropriate private conservation organization that will receive the funds and manage the agreed program. The private conservation organization in the debtor country is arguably the most important of these three parties. Conservation organizations in developed countries are caught in a double bind because they must relinquish effective control over the funds to avoid the "imperialism" issue but must also be able to vouchsafe to domestic donors and tax authorities the continuing responsible use of these funds. Only strong private conservation organizations in the debtor country can meet this double criterion. Thus, organizations that have spent many years building relations of cooperation and trust between conservation organizations in developed and LDC countries are finding just how important these relations can be.

Negotiations with the debtor country's government can cover a wide range of issues, such as the exchange rate to be applied in converting debt into local currency, the conditions of payment (or the conditions of a local currency bond that may be issued in exchange), and aspects of the program for utilization of the proceeds.

The second step involves obtaining the debt instrument. The secondary market for Third World debt will establish a base price for the debt of the country concerned. Market prices for Third World debt vary considerably, ranging from a few cents on the dollar all the way to parity. Clearly, the lower the price, the greater the leveraging potential. However, market price is also a clear indication of the risks involved.

The secondary market for LDC debt is highly imperfect. LDC debt cannot be freely sold by banks because of

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covenants that have been entered into in the course of rescheduling negotiations and that essentially ensure that none of the major creditors dispose of the debt without approval from the others. Transactions can occur only if there is reasonable prospect of obtaining approval from the debtor country (otherwise the debt cannot be converted) so that the debtor country also exerts effective control over the transactions which take place. Finally, many more potential sellers than buyers exist, limiting sellers' ability to dispose of these assets. The prices quoted on the secondary market are not openly established: rather, they represent a best current estimate. As a result, prices are subject to fluctuation and can prove to be negotiable, providing significant opportunities for conservation benefits.

The money needed for debt acquisition can be raised in many ways. For organizations this is a classic fund-raising issue so that the key considerations are whether such a program taps new sources of funds or is potentially conflicting with other fund-raising strategies. In the latter case, the opportunity cost of opting for debt/nature swaps must be taken into consideration. Ideally debt is donated outright by the creditor banks since this clearly represents a new and otherwise inaccessible source of funds. Unfortunately, numerous considerations—outlined below—make banks hesitant about outright donations. There are, however, a wide range of options short of donation, including sale at a preferential price or donation of cash for the purpose of purchase on the market. Of course, any transactions undertaken must be consonant with the tax status of all parties involved.

The third step is the transfer of title to the debt. This is a technically quite complex transaction. It is generally possible to obtain debt for many countries when necessary. Even so, each transaction requires careful individual attention. Of course, one important decision is who the actual purchaser shall be. In some instances, it may be appropriate for the conservation organization in the creditor country to acquire the debt and then donate it to its partner in the debtor country; in others, it may be possible to donate the necessary resources to permit direct acquisition of the debt by the debtor country organization. In a third version, debt may be donated directly to the LDC conservation organization, acting as an agent for the developed country organization. The factors governing the choice of actors in this situation are mainly financial and tax-related, although under certain circumstances accounting considerations may enter for the developed-country conservation organization.

The fourth step is conversion of the debt in accordance with the agreement reached with the debtor government. This can involve the issuance of local currency bonds, measures to protect certain sensitive areas—purchase, legislation or some other means—the cash payment of local currency in redemption of the debt, or any combination of these.

The final step is the execution of the agreed on conservation program. The importance of this step should not be underestimated. It is the ultimate goal of the entire program. At the same time, the reputation of the creditor country conservation organization can be at stake because it must be in a position to assure donors and tax authorities as to the appropriate use of funds it has received.

INTERESTS AT STAKE

A debt/nature swap involves numerous actors. To be successful, it requires that each of these actors have a substantive stake in its outcome. As with most other economic transactions—and, at heart, debt/nature swaps are economic transactions for conservation purposes—the best deal is one in which every actor receives some significant benefit and the balance of advantages is perceived as equitable by all. Hence, an assessment of each group's peculiar interests—and of potential problems that may jeopardize these—is essential.

One of the major advantages in debt/nature swaps is the difference in the interests of various actors that allow a range of solutions to problems which may arise. Indeed, there are relatively few issues on which significant conflicts between actors are to be anticipated.

CREDITOR COUNTRY CONSERVATION GROUPS.

The aim of creditor country conservation organizations is to achieve maximum conservation benefit with limited funds. Debt/nature swaps make sense only if they generate new funds that would be otherwise unavailable or if they increase the effectiveness of existing funds.

When debt/nature swaps attract new funds, there can be no doubt that they are in the creditor conservation organization's best interests, provided they can be effectively utilized. However, debt donations for LDC countries where no effective conservation organizations exist need to be viewed with extreme caution. New funds are clearly involved when debt is donated or when donations are received from new sources—or in significantly increased amounts from existing sources—for the specific purpose of debt/nature swaps.

The situation is much more complex when debt/nature swaps require a commitment of existing funds. Swaps which skew general program priorities must be avoided, and a careful assessment must be made of a debt/nature program as compared to other uses of funds. Such an assessment must take into account factors such as the opportunity cost of alternate investments, exchange rate fluctuations and the impact of inflation in the debtor and the creditor country. In economic terms, these issues define "additionality" for the conservation organizations—

that is, the extent to which debt/nature programs generate new benefits in the attainment of these organizations' goals.

It is important to convey to banks and debtor countries' governments the basic fact that conservation groups do not seek to conserve capital as a goal per se, but seek to give away money for conservation. Capital management must occur in the context of making full use of available resources. Many countries do not allow significant levels of capital formation in conservation and other nonprofit organizations, placing them in an advantageous position in relation to debt/nature swaps, since the threat of losing capital is not an insuperable deterrent. Consequently, conversion into local currency bonds can be acceptable even when high inflation rates may threaten the ability of the recipient organizations to conserve available capital. Of course, such a conversion is attractive only if the interest payments alone provide benefits exceeding the opportunity cost of alternate uses of funds.

The other major advantage enjoyed by conservation organizations is that they have a wide range of activities in debtor countries that require nothing but local currency. Contrary to many debt/equity swaps that may need hard currency inputs to the investment, debt/nature programs can be designed to consume virtually no hard currency resources at any time.

BANKS. The interest of creditor banks in debt/nature swaps is difficult to define. Most major banks are actively disposing of Third World debt in the secondary market. Insofar as debt/nature swaps involve the regular purchase of debt in the secondary market, banks welcome conservation organizations to that market as they would any other potential purchaser. This interest does not, however, suffice to justify giving conservation organizations special consideration, unless it becomes clear that they cannot purchase debt without some additional inducement. This is the case when the benefits of a debt/nature swap are not sufficiently superior to other uses of available funds to justify the risks involved. As a rule of thumb, this situation arises when the total benefit generated by a debt/nature program is less than double the benefit that can be derived from more traditional financial strategies. In this case, it may be in the commercial interest of banks to improve the conditions of purchase so as to keep a potentially significant customer in the market.

Beyond this essentially commercial relationship, there may, however, be other reasons that could induce banks to participate more actively in debt/nature transactions. Of course, banks may be willing to donate funds for classic philanthropic reasons, but in that case they would presumably also be willing to donate funds to other kinds of conservation programs so that the recipients would need to assess the comparative advantages of such a donation. Some banks, generally those holding only limited amounts of LDC debt are seeking to dispose of these assets because they find that the uncertainties of valuation and the complexities of future participation in renegotiation and rescheduling outweigh the residual economic benefits of holding the debts. Since LDC debts represent a small portion of their debt portfolio, these banks can dispose of them without risk to their overall financial strength. In these cases, a donation may prove the most direct and efficient method of disposal, avoiding the uncertainties of the secondary market and generating some publicity and goodwill.

The most intriguing motives may, however, relate to the long-term development of financial relations between banks and the debtor countries. Many banks are currently primarily interested in divesting their Third World exposure. For every ten banks seeking to divest, however, there may be one which anticipates further business from a given country and is consequently interested in keeping that country's debt from becoming worthless and in developing goodwill in the country.

The deterioration of Third World debt represents a real threat to long term commercial relations with debtor countries. This is the "czarist bond" issue. When a country's debts have been written down by the creditor banks, they are still not retired. Their book value to the banks has been reduced or eliminated, but they represent a full liability of the debtor country. Unless this liability is liquidated, it can cast blight on financial relations between the banks and the country concerned. Experience with the czarist bonds suggests that this blight can last for a long time indeed—particularly when exacerbated by deteriorating political conditions in the country concerned.

Quite apart from the czarist bond issue, banks intending to continue to do business with a country have an interest in generating goodwill in the country in question. For every country there are bound to be some banks in this situation. Goodwill is an intangible, and as such may not have a definable price in terms of a given bank's willingness to spend resources for such a purpose. Nevertheless, two of the attractions of debt/nature programs are their long-term nature—successful conservation aims at perpetuity—and the fact that they address communities in these countries that have growing influence but are not normally sympathetic to a banking perspective. At the same time, a carefully designed conservation program can frequently improve broad measures of economic performance by promoting a more sustainable economy.

More complex still is the question whether debt/nature swaps contribute measurably to the stabilization of LDC debt. In most countries, the total volume of debt/nature swap transactions is small relative to the principal amount of debt. Relative to annual interest payments, however, they appear more important. Many countries are

in fact making partial interest payments while the balance is in practice added to principal. Virtually no new real loans are being made. Debt/nature swaps need to be measured not against the outstanding principal, nor against annual interest payments, but against the effective annual rise in principal attributable to a country's inability to service its debt. A country's debt situation can be considered stabilized when interest payments are not causing an increase in indebtedness. Measured against this standard, debt/nature swaps can indeed make a noticeable contribution towards a more viable LDC debt situation.

Although conservation organizations have some differences from country to country, their interest in conservation is quite general. For banks, however, interests may differ quite significantly from one country to another so that it is necessary to determine each bank's specific interest in relation to each country.

CREDITOR COUNTRIES' GOVERNMENTS. Of all the actors in debt/nature swaps, the interest of creditor countries in such programs is least well defined. It is broadly philanthropic. Insofar as debt/nature programs are conducted within established guidelines for philanthropic contributions, they do not require the active approval of creditor countries' governments. In some instances, such programs may, however, explore new ground—for example, in relation to the tax valuation of donated debt. In this case, government approval can be expected only if the program can be assimilated into existing tax and accounting regulations.

Beyond the general issues of philanthropy, creditor countries' governments have an interest in any program that contributes to stabilizing of LDC debt without requiring specific government intervention. Some form of public involvement in liquidating the Third World debt problem is clearly needed, at the very least by way of tax write-offs for debt losses. Insofar as debt/nature programs achieve this end without requiring positive government action they are likely to be welcomed by these governments.

In the specific area of tropical deforestation, it has long been recognized that large-scale deforestation can contribute to regional and global environmental change and thus affect vital interests of the creditor countries. Thus far, few effective mechanisms have been discovered that allow creditor countries to contribute to more sustainable management of forest resources in LDC countries; debt/nature swaps may prove such a mechanism.

Finally, debt/nature programs can be assimilated into development aid programs, with the difference that they involve no expenditure of public funds. Much the same rationale applies to them as to other forms of private development assistance.

DEBTOR COUNTRIES. The crucial issue for debtor countries is the extent to which debt/nature swaps result in a greater net benefit than would otherwise be available. From these countries' point of view, these swaps must be compared to the activities creditor country conservation organizations are likely to undertake in the absence of a debt/nature program. There appear to be essentially two avenues to maximize the net benefit: by substituting external (hard currency) funding for expenditures they would need to make anyhow or by ensuring that a greater proportion of hard currency debt is retired by a debt/nature swap than would be the case by other means.

In the first instance, the interests of debtor countries and conservation organizations are less easily reconciled: conservation organizations can only to a limited extent justify raising funds in their country to defray expenses LDC countries would have to make anyhow. In the second instance, the interests of the debtor country and the creditor country conservation organization are congruent; they can, however, only be realized with active support from the banks.

Debtor countries must also confront the question whether debt/nature programs represent interference with their domestic priority-setting procedures. In most instances, however, debt/nature programs cover activities already approved directly or indirectly by debtor country governments but for which no funds, or inadequate funds, are available. Under these circumstances, debt/nature programs can be seen as a means of achieving debtor country goals in an area where funds have been chronically short because of the apparently more pressing needs of short-term economic development. In other words they support long-term needs that are recognized but have proven hard to meet.

If debt/nature swaps are undertaken in large amounts, a further issue for debtor countries would be to ensure that the conversion of debt into local currency does not create distortions of the money supply—i.e., contribute to inflation. This can be done in a number of ways—for example, through the issuance of local currency bonds with a term equivalent to that of the retired debt instrument rather than cash for the debt. In this instance, debt/nature swaps may have a deflationary effect, since the exchange of external for internal indebtedness reduces the inflationary pressures of a shadow hard currency economy.

Finally, the willingness of conservation organizations to transfer funds into LDC countries, even at the risk of losing a significant portion of the principal is an important symbolic act signaling a faith in the long-term resources of the country and its ability to build a sustainable economy despite its current debt problems. Part of the LDC debt problem is a vicious cycle of indebtedness that engenders loss of faith in the economy, which in turn provides an incentive to withdraw funds from that econ-

omy and to seek "investment havens," generally in hard currencies. In a real sense, conservation expenditures in LDC countries represent an expression of faith in the future of these countries.

MAJOR PROBLEMS IN THE CREDITOR COUNTRIES

Every debt/nature swap must be crafted individually. There are too many interests involved to permit generic solutions. The main constant from country to country is likely to be the creditor country conservation organization, provided it has the capacity to generate funds in the relevant creditor countries and to monitor the programs funded by the swap. All other actors are, however, liable to vary from one program to another: debtor country, recipient conservation organization, and the banks involved. Nevertheless, the major problems that must be addressed are liable to remain much the same.

For the creditor country conservation organization, the major problem other than additionality is the capacity to ensure proper use of funds. This issue is particularly tricky. Large amounts of money can create difficult relationships. A balance needs to be struck between the need to ensure the recipient's autonomy and the donor organization's obligations in terms of monitoring the program. At the same time, care must be taken not to create a situation where the recipient organization becomes dependent on a continuing flow of support from the debt/nature programs, since these cannot be assumed to continue indefinitely. These issues become magnified in LDCs as the size of the program grows. It is just as possible to destroy an organization by overfunding as by underfunding, only that the process of destruction is less apparent since it manifests itself in loss of initiative, loss of contact with local constituencies, and an insidious skewing of recipient priorities to meet the perceived needs of the donor. Even with advantageous leveraging, debt/nature swaps can involve large sums of money that need to be available in substantial blocks since it is not possible to undertake numerous small debt exchanges. This, in turn, can generate cash flow problems for the creditor country organization.

For banks, the two major problems are the absolute need to avoid even the appearance of debt forgiveness and the obligation towards stockholders to justify the use of bank resources. Banks have traditionally sought to avoid direct involvement in issues of general policy. The development of a debt/nature program will generate goodwill in the debtor country. But an important justification is based on the principle that it contributes to the long-term stability of the country. Banks may not wish to become too actively involved in a program that can be perceived as taking a stance on policy issues.

THE WAY AHEAD

Debt/nature programs represent a remarkable opportunity not only for conservation, but also for strengthening ties between developed and LDC countries at a time when these are sorely in need of strengthening. The large number of actors involved, as well as the complexity of some of the issues, imply that it will be some time before debt/nature swaps appear routine. As with many other issues, it will require the development of an international community of persons in conservation organizations, banks, and government, knowledgeable about the issues involved and sufficiently confident of mutual relationships to be able to transact many details at a distance.

Debt/nature programs respond to a specific situation that may not continue very long. If a negotiated long-term solution is not found by banks and LDCs, most debt will be written down to a level that renders it worthless for most practical purposes. On the other hand, working on debt/nature programs opens new avenues of achieving the goals of conservation, and, while debt/nature programs may not be around for long, the lessons learned from working together with the banking community may open up other unexpected avenues for financing conservation work in Third World countries. Conceivably, ways can be found to put debt that has been written down to virtually nothing to good use or to develop creative financing programs for countries whose debt is traded at or near parity.

Perhaps the long-term lesson from debt/nature will be that conservation organizations and banks need to work together more closely to ensure that the financial creativity of the banking community and the expertise of the conservation community can combine to contribute to more sustainable economies in the Third World.

OPPORTUNITIES FOR INTERNATIONAL COOPERATION

Some 20 countries are heavily indebted to commercial banks. Many more carry large bank debt burdens and are managing but could benefit from reductions in this burden. At the same time, LDC debt is quite widely held, so that most industrialized countries are affected, even though the financial situation of banks differs from one country to the next. This suggests a pattern of cooperation that is particularly interesting.

On the one hand, cooperation is necessary between conservation organizations in creditor countries so that they can approach the relevant banks and acquire debt titles. This can occur in virtually all the major industrialized countries. Over the past few years, a process of consolidation has occurred with banks exchanging debt between each other so that the approach to debt is more focused.

Despite this process, the number of banks involved is still very large and spread over many countries.

On the other hand, cooperation is necessary to ensure that relations with debtor countries' conservation organizations are not jeopardized by confusion among potential donors. It will probably be necessary to achieve a division of labor where conservation organizations take a lead role for a given country or project and act as conduit and lead agent for debt transfers to the country or program concerned.

PRINCIPLES OF ACTION

Two fundamental principles need to be kept in mind in developing debt/nature programs:

- Debt/nature programs are only possible where strong conservation institutions exist in the debtor country.

- Debt/nature programs must be fair and must be seen to be fair, that is, the interests of all parties involved must be taken into account. ■

The Bolivian Case

The first debt-for-nature swap was essentially one environmental organization's agreement with the Bolivian government to help finance and ensure the protective management of over 4 million acres (1.5 million hectares) of tropical forests and grasslands.

Conservation International, a Washington-based nonprofit organization, bought $650,000 of Bolivia's commercial bank debt, using Citibank as its agent in the secondary financial markets. The debt was purchased at approximately an 85 percent discount of its face value, that is, at 15 cents per dollar. A $100,000 grant from the Frank Weeden Foundation financed this transaction.

Under the terms of the agreement signed July 13, 1987, Conservation International would cancel Bolivia's obligation to pay the $650,000 debt. In return, the Bolivian government promised to give the maximum legal protection to the Beni Biosphere Reserve and to increase to 3.7 million acres (1.2 million hectares) the protected areas next to the reserve. The government also agreed to provide an operating fund in local currency worth $250,000 to manage the Beni Reserve and its additional buffer zones for sustainable uses.

The forests and grasslands of the Beni Biosphere Reserve in northeastern Bolivia support 13 endangered species, 500 species of birds, and the nomadic Chimane Indians. The newly protected areas will be managed to benefit all regional people, using the forest in a sustainable manner, thus protecting the soils and the watershed, while preserving the traditional Chimane way of life.

Conservation International has become a scientific and technical adviser on conservation and resource management to the Bolivian government, in accord with the agreement. To carry out the conservation programs, Conservation International agreed to designate as its representative a local institution, subject to the approval of the Ministry of Agriculture.

A national commission was formed that included local officials of the Beni region, university scientists from the Ecology Institute and the Beni Biological Station, as well as a representative of the environmental coalition LIDEMA (Liga de Defensa del Medio Ambiente). This commission is responsible for carrying out the environmental programs.

The $250,000 operating fund in local currency was created with $100,000 in pesos from the Bolivian government and $150,000 in pesos contributed by the U.S. Agency for International Development from its local currency PL 480 funds.

Administration of the operating fund rests with the Ministry of Agriculture and the Bolivian non-governmental institution designated by Conservation International.

One lesson from the Bolivian debt-for-nature experience is that misperceptions may cause a nationalistic reaction. No foreign group acquired any control over land in Bolivia, although some press reports gave this impression. In fact, the land which was already owned by the Bolivian government, remained under government control, but only a better protection and management plan was promised. ■

The Philippines Case

The Philippine government, the Haribon Foundation – the leading conservation organization in that country – and the World Wildlife Fund of the United States arranged a debt-for-nature swap that would provide cash for park improvements, training programs, and better management of environmental efforts.

In an agreement signed June 24, 1988, the World Wildlife Fund agreed to acquire up to $2 million in debt that the Philippines owes to foreign banks. In the first phase, WWF will acquire debt worth $390,000. At the time of the agreement, Philippine debt notes were being sold on the secondary market for about 55 percent of face value. The Central Bank will credit the full amount of the debt to a local currency account managed by the Haribon Foundation. But a small portion of the money is designated to pay the government's Department of Environment and Natural Resources for administrative costs associated with some of the projects. The only restrictions on the funds are that they cannot be used to pay non-Philippine consultants, and must be devoted to national projects.

Some of the first funds made available by the swap will go toward the planning, protection, and management of two parks on the remote island of Palawan. In a country of 7,100 islands, Palawan is outstanding for the sheer beauty of its scenery and its relatively unspoiled natural habitats sheltering hundreds of species. St. Paul's Subterranean River National Park includes mountain forests, coastal areas, and a navigable river that runs for five miles through spacious caverns – holding at least four species of bats still to be identified. El Nido National Marine Park, off the northwest tip of Palawan, encompasses the reefs and seagrass surrounding rugged smaller islands. Endangered species such as marine turtles and dugongs swim through this park.

The projects funded by this debt-swap include management plans, buffer zones, and infrastructure for the parks. They will also support research and environmental education activities, training for community-level resource managers, as well as fellowships for graduate-level students in conservation-related areas. The funds will help the government crack down on illegal trading and exploitation of wildlife resources, survey critical plant sites, and finalize a plan for an integrated system of protected areas.

The projects address the priorities set out in the national strategy for conservation prepared by the Department of Environment and Natural Resources and WWF. In the case of the Philippine debt-for-nature swap, there is close collaboration between the responsible government agency and the private environmental organizations. Other donors, besides World Wildlife Fund, are specifically invited to participate in this program. ■

The Ecuadoran Case

Fundacion Natura, the leading private conservation group in Ecuador, reached an agreement with the government's monetary board on October 8, 1987, enabling the Foundation to exchange up to $10 million in debt for local currency bonds. These bonds were to be used to finance the Foundation's broad range of activities in conserving and improving Ecuador's national parks.

Fundacion Natura sought the dollars to purchase this debt from local and international donations. The World Wildlife Fund-U.S. offered to purchase the first $1 million in debt in December 1987. Ecuadoran debt was sold for just over 35 cents, thus $354,000 bought $1,000,000 from commercial lenders to Ecuador.

The bonds were provided by the government at the full amount of the debt note, 100 percent of face value, and were converted into sucres at the official exchange rate. (The official exchange rate is substantially less than the floating rate.) The interest on these bonds, called Monetary Stabilization Bonds, is linked to the market rates–currently about 33 percent interest–and they mature over nine years. The principal will become an endowment for Fundacion Natura, while the interest pays for its on-going programs.

Fundacion Natura is not the exclusive beneficiary, because it will serve as a conduit for funds to support conservation efforts involving other non-governmental groups and public programs.

The programs supported by these bonds will include management plans for protected areas, development of park infrastructure, acquisition of small nature reserves, and training of park personnel, in addition to broader environmental education activities.

Ecuador holds a wide variety of ecological riches, from the Amazon rainforests up to the Andean highlands and down to the coastal savannah and mangrove forests on the Pacific side. Its best known natural treasures are found in the Galapagos Islands, home to plants and animals that exist nowhere else on earth.

Until now, since only the Galapagos Islands Park produces net income, tourism in the Galapagos alone provided the meager budget for the other 12 parks of Ecuador, which cover 11 percent of its territory.

While a $10 million program may not have much impact on the country's debt, the interest from the bonds in the first year alone is projected to double what the country now budgets for its parks. ■

The Costa Rican Case

Costa Rica created a debt exchange that permits the pooling of funds from debt donors in order to finance a multitude of programs. The government set up a $5.4 million debt-for-nature program in 1987 to establish a Natural Resources Conservation Fund using specially issued bonds that support the effort.

This $5.4 million ceiling was surpassed by donor pledges in early 1988, and a major expansion of the program is being planned.

Many donors—including one bank that gave its $254,000 in Costa Rican debt to the Nature Conservancy for Braulio Carrillo Park—are helping to provide the debt notes to be swapped. Funds to purchase debt have come from the Nature Conservancy, World Wildlife Fund (including its national organizations from the U.S., Canada, and Europe), Asociacion Ecologica La Pacifica, the Pew Charitable Trust, the MacArthur Foundation, the J.S. Noyes Foundation, the Swedish Society for the Conservation of Nature, the W. Alton Jones Foundation, the Organization for Tropical Studies, and Conservation International.

Costa Rican debt was selling for about 17 cents on the dollar in early 1988, giving the buyers more than an 80 percent discount. In exchange for its notes, Costa Rica offered bonds at 75 percent of the face value. These bonds in colones, with maturity of up to six years, carry an average of 25 percent interest. Only the interest payments are immediately available to fund environmental projects because the bonds cannot be sold. Principal on the bonds isn't paid until the second year. When more cash is needed, however, the bonds can be used as collateral for loans. The swaps are administered by the Costa Rican Cooperative Bank (BANCOOP) on behalf of the National Parks Foundation which channels the funds to projects agreed upon by the donors and the Ministry of Natural Resources.

The funds are being used to expand, manage, and protect many of Costa Rica's exemplary parks, building up the infrastructure for tourism and science. The fixed costs of the parks, already set by law, take up 90 percent of the public funds budgeted. There has been no public money available for new programs, for reforestation, or for more innovative work with the local population to prevent deforestation through environmental education.

One major effort that will benefit from the debt swap mechanism is the Guanacaste National Park Project. Completion of this park requires the purchase of land in an area located between existing parks and reserves. Only when the park is completed and fully endowed will the government assume title to it. The new park will be large enough to allow the restoration of an ecosystem that has all but disappeared—the dry tropical forest. Dr. Daniel Janzen, a biologist from the University of Pennsylvania, has worked hard to mobilize resources and shape this project.

Working with the local community, so that people can perceive the parks' value for them, is an essential part of Costa Rica's plan. Local non-governmental organizations participate actively in the debt swaps, proposing and administering the programs that are funded. ■

U.S. Taxes: A Summary

In November 1987 the U.S. Treasury Department issued Revenue Ruling 87-124, which provides a mechanism to convert a portion of the Third World debt burden into support for conservation programs by permitting lenders that donate debt to conservation organizations to obtain a deduction equal to their cost basis in the debt.

The heavy debt burden carried by developing countries has, in addition to severely straining their economies, significantly diminished their ability to implement and maintain conservation programs. At the same time, many U.S. lenders have portfolios which contain Third World loans that are bought and sold in the market at a price that is less than the lender's cost basis in the debt.

U.S. conservation organizations believe that, if they were to receive donations of Third World debt from lenders, they would be able to redeem the debt in local currencies for amounts in excess of the price at which the debt is traded in U.S. markets and then apply the local currencies to support conservation measures in the debtor nation.

Prior to the issuance of Revenue Ruling 87-124, such a program was not feasible because existing tax laws provided a disincentive to charitable giving in these circumstances. Existing tax laws limited the charitable deduction to the market value of the loan when such value was below the cost basis of the loan. In other words, the amount of the deduction for charitable contributions of property generally equaled the fair market value of the property at the time of contribution (reduced, under certain circumstances, by all or portion of the unrealized appreciation attributable to such property.) Thus, if a lender donated Third World debt with a market value below its cost basis to a charitable organization, the lender would have been unable to recover its entire basis in the debt through the charitable deduction.

This placed the lender in a worse position than if it had sold the debt and donated the proceeds of sale to charity. For example, if a lender sold debt with a cost basis of $1000 for $500 and donated the proceeds to charity, it would have been able to deduct a $500 loss on the sale and would also receive a $500 charitable deduction. If, on the other hand, it simply donated the debt to charity, it would not have been entitled to a loss and would have been limited to a $500 deduction (the assumed market value of the debt).

The purpose of Revenue Ruling 87-124 is to place the lender in the same position whether the debt is donated to charity or sold and the proceeds then donated to charity. ■

U.S. Accounting: A Summary

Debt-for-nature swaps raise new accounting issues, some very similar to the debt-equity questions, but others which are unique. There are two sides to be considered in any such transaction—the value of the debt and the value received for a conservation program in exchange.

According to accounting principles, loans used for swaps fall into a different category from the loans that banks hold until maturity. Loans held in banks' loan portfolios that are expected to be held until maturity are recorded at the full principal amount or at their cost when acquired. Conversely, trading assets are normally held at the cost or market value, whichever is lower.

The price of the debt to be traded depends on the buyer's and the seller's opinion of its value. The value of the debt, in turn, depends upon a number of factors including its likelihood of repayment and its value in any debt-equity swap. When a bank sells a debt instrument for less than its full value in a secondary market, then the market price decides what the debt is worth at that time. A loan may be sold for cash or another loan. A loss must be taken whenever a loan is sold for less than its cost.

When an asset is received in exchange for a debt, then a more complicated analysis of the value is required. The Accounting Standards Executive Committee and the Bank Committee of the American Institute of Certified Public Accountants have prepared a proposed Practice Bulletin regarding the appropriate treatment of debt-equity exchanges. To determine the "fair value," the Bulletin considers both the fair value of the debt given up as well as the assets received in return. The factors to consider include similar transactions for cash, estimated cash flows from the equity investment, the market value of similar equity investments, and any currency restrictions affecting the dividends or the sale of the investment.

It is possible that this valuation process will result in loss recoveries or even gains. For example, if the book value of the debt had already been written down to a lesser value or it had been acquired at a discount in the secondary market, then exchanging this debt for an investment in a developing country at the full face value of the debt would lead to a gain. The accountants propose, however, that the loss recovery or gain should not be recorded until the net assets of the exchange are realized and repatriated in U.S. dollars. In the case of a debt-for-nature exchange, however, there is no intention to recover dollar assets, only to invest the local currency in maintaining the natural resources of the country.

The value of the debt-for-nature exchange, will vary in accordance with the amount of local currency or bonds or property or services that are agreed upon by each country and the conservation organizations. For example, Ecuador offered marketable government bonds in local currency equal to the full face value of the debt (at the government's official exchange rate), and the bonds will be managed by Fundacion Natura to provide a steady income for projects such as the protection and expansion of parks, buffer zone activities, and environmental education.

Each bank's evaluation of the debt swap advantages will also depend to a certain extent on its own overall capital and reserve position. But the proposed Bulletin confirms that, although use of debt in a debt-equity exchange will affect the value of the debt directly involved in the exchange, it will not necessarily require the writedown of other similar debt held by the bank in its portfolio. A writedown would be required only where the exchange, together with other circumstances, clearly demonstrates the bank's *intent* to dispose of other such debt before maturity. Thus, there is no "contamination" of remaining loan portfolios if a small amount is donated for debt-for-nature swaps. ■

Third World Debt: An Analysis

By Christine A. Bogdanowicz-Bindert
Shearson Lehman Hutton, Inc.
and Richard E. Feinberg
Overseas Development Council

Since 1982, the Third World debt crisis has hung like a sword of Damocles over the International financial system, the future prospects of developing countries, and the trade of the United States. How can the United States help to rekindle investment and growth in the debtor nations without endangering the safety of the U.S. banking system?

BACKGROUND

During the 1970s and early 1980s, developing countries borrowed heavily to finance balance of payments deficits caused by a volatile external environment–high oil prices, adverse terms of trade, and surging interest rates–and to cover domestic policy errors, such as overvalued exchange rates, chronic fiscal deficits, and other incentives to overspending and capital flight.

In the 1970s, commercial banks were flush with recycled petrodollars and other loanable funds and actively competed for Third World clients. But when the global recession of the early 1980s brought plummeting commodity prices and double-digit interest rates, which sharply increased the cost of outstanding debt, banks abruptly closed their lending windows in most developing countries, effectively driving debtor nations to the brink of default.

According to the most recent World Bank debt tables, by 1986 Third World debt had soared to $1.02 billion. A total of $780 billion is long-term, guaranteed debt owed to private commercial banks and official sources such as the World Bank and the IMF. The rest is nonguaranteed long-term debt, much of it owed by commercial borrowers to private creditors, and short-term debt.

In Latin America, which owes the bulk of the debt, most of the loans come from commercial banks. By 1986 the region's long-term debt owed to official creditors was $97.5 billion while an additional $265 billion was owed to private creditors. Venezuela, for example, owed $24.4 billion of its $25.2 billion in long-term debt to private creditors. Likewise, $34.3 billion of Argentina's $40.9 billion long-term debt was owed to private creditors.

Unlike Latin America, official creditors in Africa are the chief source of funds. Sub-Saharan Africa as a region owed $76 billion in long-term debt to official creditors by 1986 and $33 billion to private creditors. While Ghana owed $196 million in long-term debt, of which $70.5 was owed to official creditors, in Zambia, $371 million of its $437 million long-term debt was owed to official creditors.

As a result of the rising total debt and debt service requirements since the 1970s, an increased proportion of the GNP of most developing countries must be devoted to interest payments rather than productive investments.

THE 1982-83 NEAR PANIC. To avert a financial panic, the U.S. government, the International Monetary Fund (IMF), and the banks collaborated to assemble rescue packages that provided for postponing the payment of principal, for new flows of capital, and for austerity programs in the debtor countries.

In the intervening five years, creditors have extended more generous rescheduling terms–longer maturities, lower spreads over their cost of funds, and elimination of upfront fees. Nevertheless, continued heavy debt service and low export revenues prevented many Latin American and Sub-Saharan African nations from resuming growth.

THE BAKER INITIATIVE. In October 1985, Secretary of the Treasury James Baker launched a renewed effort to promote closer cooperation between creditors and debtors, more lending by all creditors, and a bigger role for the World Bank. The "Baker Plan" also put a new rhetorical emphasis on a resumption of growth in developing countries. However, by 1987, it became evident that the "Baker Plan" was stalled:

Christine A. Bogdanowicz-Bindert is Senior-Vice-President at Shearson Lehman Hutton, Inc.
Richard Feinberg is Vice President at the Overseas Development Council.

■ Growth had not resumed. For Latin America, per capita production is still 5% below 1980 levels. Growth in 1987 was an estimated 2.6%, one point lower than the already sluggish rates of the previous three years. The average inflation rate (weighted by population) had risen to a shocking 180% by the end of 1987.

■ Creditors became increasingly unwilling to extend new loans. U.S. banks have continued to *reduce* their exposure in Latin America, and governments have not been willing to fill the gap. Reflecting a general loss of confidence, the value of Latin American debt in secondary markets has plummeted.

As a result, in the summer of 1987, the U.S. Treasury quietly began to promote a "menu" of options, including items that implicitly amount to debt relief in very specific situations, such as "exit bonds" bearing below-market interest rates and the conversion of loans into equity at deep discounts. Debt-equity swaps–in which a debt claim is swapped for a local investment at an advantageous price to the investor–have grown to a $5-$8 billion market in a little over two years.

However, tensions between the banks and the debtor nations are rising. Many debtors are not keeping up with their interest payments, and commercial banks are becoming increasingly reluctant to continue the old strategy of lending new money to cover interest payments owed to them. Last year major U.S. banks set aside over $10 billion in reserves against potential Third World losses, and, in an unprecedented move for a U.S. bank, the Bank of Boston wrote off 20% of its Third World portfolio.

In the case of Mexico, the government offered to exchange up to $10 billion in new bonds for outstanding bank debts at a discount. The U.S. Treasury endorsed the voluntary swap proposal by offering to sell U.S. bonds to Mexico, to be held in escrow as collateral against the new Mexican bonds.

The Mexican scheme is not applicable to many countries in its present form, as it requires the debtor nation to have large foreign exchange reserves to buy collateral. Nevertheless, it is significant because, for the first time, some banks and the U.S. Treasury acknowledge that the banks will absorb some losses and that the burden, which has been carried primarily by the debtors, will have to be shared.

■ American farmers and manufacturers have suffered. As a result of the contraction in Third World markets, U.S. exports fell from $92 billion in 1981 to $73 billion in 1985.

■ Political instability is threatening centrist, civilian governments in Argentina, Brazil, Peru, and the Philippines. Friendly nations such as Jamaica, Mexico, and Costa Rica, are struggling with severe economic and social dislocations.

■ The debt burden is a chronic sore point in diplomatic relations with the Third World. In a perversion of economics and ethics, Latin America has ceded $145 billion to foreign creditors in net financial transfers over the last six years. Seizing this opportunity, the Soviet Union has mounted a propaganda offensive on debt in Latin America.

WHAT CAN BE DONE?

MUDDLING THROUGH. There could be a continuation of frequent negotiations (and re-negotiations) of rescheduling agreements between creditors and debtors, with possible new "bells and whistles," such as those introduced over the last two years: exit bonds, debt-equity swaps, lengthening of maturities and lowering of spreads. This is the course of action that makes some U.S. money-center banks most comfortable. They argue that there is no need to change a strategy that has worked: there has not been a world financial collapse and the banks have

"bought" time to improve their balance sheets.

Critics of this perspective argue that five years of belt tightening have failed to revive the economies of many developing nations. Debt reschedulings have become more difficult, and lenders are more reluctant to extend new credit. There is a danger that desperate debtor nations could act unilaterally, and some banks could sustain losses prejudicial to their solvency. Creditor-debtor confrontations could further erode U.S. diplomatic influence in important Third World nations.

CAPITAL ADEQUACY, CASE BY CASE. With the active encouragement of the United States, the Bretton Woods agencies (the World Bank and the IMF) could calculate with each debtor nation the combination of new lending and debt relief necessary to leave enough capital in the country to permit adequate investment and growth.

- In each country case, commercial banks would individually and voluntarily decide on their form of participation. National banking authorities would coordinate and revise their procedures to give banks the necessary encouragement and flexibility and to ease the impact on banks' balance sheets.

- To participate with force, the World Bank, the IMF, and the regional development banks, such as the Inter-American Development Bank, will each need enhanced resources. The major surplus nations—Japan and West Germany—should contribute prominently. (If the United States covers 20% of a $75 billion capital increase for the World Bank, and the paid-in portion is 3%, the U.S. Congress would have to appropriate only $450 million, or $90 million annually over five years.)

- Official creditors should provide additional resources at concessional rates to the poorest nations, particularly those in Sub-Saharan Africa. In particular cases, certain categories of debt should be forgiven.

- Such financial packages would be contingent on debtor nations agreeing to continue reforms that foster economic efficiency and sustainable development.

Proponents of this approach argue that it will free debtors to concentrate on their domestic economic management and encourage their private sectors to take a longer view, which would stimulate investments and growth. Creditors would be able to put their balance sheets in order over time and absorb any losses without jeopardizing their solvency.

Critics fear that even partial debt relief could ruin debtors' future access to credit markets and threaten weaker U.S. banks.

GLOBAL DEBT RELIEF. Some analysts go further and advocate the creation of a large international fund to purchase Third World debt at substantial discounts and then readjust debt service burdens on a country-by-country basis. A comprehensive solution would have the benefit of solving the crisis and, like the second option, of enabling countries to concentrate on domestic economic management. It would also provide a longer-term framework for commercial banks and might even allow the recovery of a higher proportion of their outstanding loans than if they continued to seek full repayment.

Detractors suggest that such a grand scheme would take years to initiate, require large-scale financing from industrial-country treasuries, be complex to administer, inadvertently harm the credit ratings of even the strongest developing nations, and possibly involve serious losses for banks. If the new debt facility were tied to the World Bank or IMF, it could compromise their fundamental purposes and financial standing, and transform them into debt collection agencies. Supporters argue that this is already largely the case. ■

February 1988

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Appendix C:

RESUMES OF KEY PERSONNEL

World Wildlife Fund
The Conservation Foundation

KATHRYN S. FULLER

President
World Wildlife Fund and The Conservation Foundation

Biographical Summary

Experience:

President, World Wildlife Fund-U.S. and The Conservation Foundation, 1989 - present. With 600,000 members, World Wildlife Fund (WWF) is the largest private conservation group working worldwide to protect the earth's endangered species and their habitats. WWF's top priority is saving tropical forests in Latin America, Asia and Africa. It is the fastest growing conservation organization in the country. WWF belongs to an international network spread across five continents with 26 WWF organizations and affiliates. The Conservation Foundation (CF) is the country's leading environmental think-tank, conducting interdisciplinary policy research on emerging issues in environmental and resource management. In 1985, the two organizations formally affiliated.

Executive Vice President, World Wildlife Fund. Oversight of WWF programs and management, 1987 - 1988. Other positions held at WWF include Director of TRAFFIC (U.S.A.), Director of Public Policy, and General Counsel, 1982-1987.

Chief, Wildlife and Marine Resources Section, U.S. Department of Justice, 1981 - 1982. Supervised federal prosecution and defensive litigation involving living resources.

Attorney, Wildlife and Marine Resources Section, 1979 - 1980. Briefed and tried civil and criminal cases, assisted with legislative matters.

Attorney/Advisor, Office of Legal Counsel, Department of Justice, 1977 - 1979. Prepared Attorney General opinions and provided advice to the President and Executive agencies on constitutional and federal statutory questions.

Law clerk to Chief Judge John V. Singleton, Jr., U.S. District Court for the Southern District of Texas, 1976-1977.

Law clerkships for Dewey, Ballantine, Bushby, Palmer & Wood, New York, N.Y., Vinson & Elkins, Houston, Texas, State Attorney General, Austin, Texas, 1974-1976.

Research assistant posts at Harvard University Museum of Comparative Zoology, 1971-1973; American Chemical Society, 1970-1971; Yale University, 1968-1969.

Education: M.S. studies in Marine, Estuarine, and Environmental Science. University of Maryland, 1980 (thesis outstanding).

J.D., University of Texas School of Law, 1976. Honors graduate. Scholarship awarded 1975 as outstanding woman law student in Texas.

B.A., English and American Literature, Brown University, 1968.

Field Work: Wildebeest behavioral studies, Ngorongoro Crater, Tanzania, 1973, under Dr. R.D. Estes.

Coral reef crustacean ecology studies, West Indies Laboratory, U.S. Virgin Islands, 1981, under Dr. M.L. Reaka.

Languages: French (good), Spanish (fair), Portuguese (fair reading and comprehension).

Publications: Articles on wildlife law; debt-for-nature swaps; computer retrieval algorithms.

CURRICULUM VITAE

Russell A. Mittermeier

EXPERIENCE

1987 - present	Vice-President for Science, World Wildlife Fund
1986 - present	Vice-President for Species Conservation, World Wildlife Fund
1985 - present	Director, World Wildlife Fund Species Conservation Program (includes WWF Brazil/Guianas Program, WWF Madagascar Program, WWF Primate Program)
1985 - present	Vice-Chairman for Program Development, IUCN Species Survival Commission
1983 - present	Adjunct Associate Professor, Dept. of Anatomical Sciences, State University of New York, Stony Brook, NY 11794
1983 - present	Adjunct Professor, Dept. of Anthropology, State University of New York, Stony Brook, NY 11794
1981 - present	Member, Steering Committee, IUCN Species Survival Commission
1981 - present	Editor, Primate Conservation, the Newsletter and Journal of the IUCN/SSC Primate Specialist Group
1979 - present	Director, World Wildlife Fund-U.S. Primate Program
1977 - present	Chairman, IUCN/SSC Primate Specialist Group
1977 - 1983	Adjunct Professor, Dept. of Anatomical Sciences, State University of New York, Stony Brook, NY 11794
1977 - 1979	World Wildlife Fund Conservation Fellow in Primate Ecology, New York Zoological Society
1976 - 1977	Conservation Associate, New York Zoological Society

1972 - 1973	Teaching Fellow, Dept. of Anthropology, Harvard University (in Primate Behavior and Primate Anatomy)
1971	Teaching Assistant, Dept. of Anthropology, Dartmouth College (in Physical Anthropology)

EDUCATION

1977	Ph.D., Biological Anthropology, Harvard University (Thesis topic: Distribution, Synecology and Conservation of Surinam Primates)
1973	M.A., Biological Anthropology, Harvard University
1971	A.B., Dartmouth College (Summa Cum Laude, Phi Beta Kappa)

PERSONAL

Married in 1984 to Isabel D. Constable, formerly of Cambridge, Massachusetts. The Mittermeiers live in Stony Brook, NY and Washington, DC, and have one son, John Constable Mittermeier (born September 14, 1985)

AFFILIATIONS (Includes consultant positions, memberships on committees and editorial boards)

1987 - present	Member, The Linnean Society of London
1986 - present	Member, Scientific Advisory Board, FUNATURA, Brazil
1986 - present	Member, Scientific Advisory Board, The Digit Fund
1985 - present	Member, Scientific Council, Peruvian Conservation Foundation (FPCN)
1985 - present	Member, Foreign Board of Advisors, Belize Zoo, Belize
1985 - present	Member, Editorial Board, Revue de Zoologie Africaine, Tervuren, Belgium
1983 - present	Consultant, IUCN/SSC Crocodile Specialist Group
1983 - 1985	Member, Council on Applied Systematics, American Association of Systematic Collections

1983 - 1985	Member, Review Board, Journal of Human Evolution
1980 - present	Consulting Editor, American Journal of Primatology
1979 - present	Member, Editorial Board, Journal of Medical Primatology
1978 - present	Corresponding Member, Primate Society of Great Britain Working Party on Conservation
1977 - present	Member, International Primatological Society Conservation Committee
1977 - present	Member, American Society of Primatologists Conservation Committee
1976 - 1977	Honorary Consultant, Survival Service Commission, IUCN
1976 - 1977	Advisory Panel of Mammalogists, IUCN

HONORS AND AWARDS

1987	Gold Medal, San Diego Zoological Society
1985	Esquire Magazine, America's New Leadership Class, Men and Woman Under 40 Who are Changing the Nation (December, 1985)
1985	Diploma of Merit for Nature Protection, Government of the State of Minas Gerais, Brazil (September, 1985 - first foreign recipient in history of award)
1983	Honorary Judge, Essay Contest on Ecology, sponsored by the Fiat Automobile Co., Belo Horizonte, Brazil (March-April, 1983)
1975 - 1976	National Science Foundation Doctoral Dissertation Enrichment Grant
1972 - 1975	National Science Foundation Graduate Fellowship
1971 - 1972	National Institute of Health Predoctoral Fellowship
1967	Darthmouth Reynolds Scholar
1967	Dartmouth General Fellow
1967	Dartmouth Senior Fellow

1967 Phi Beta Kappa, Dartmouth College

LANGUAGES

Languages spoken fluently: Portuguese, Spanish, French, Sranan-tongo (Surinanese creole), German

Languages in process of learning: Bahasa Malaysian, Kiswahili, Malagasy

RODERIC B. MAST

Work Address

World Wildlife Fund - US
1255 23rd Street NW
Washington, DC 20037
(202) 293-4800

Key Skills

Program Organization and Coordination, Fluent Spanish, Biological Research (field, laboratory and library), Scientific and Popular Writing, Business Acumen

Job and Research Experience

Program Officer for the Primate, Species Conservation, Guianas, Madagascar, Brazilian Coastal Forests, and Whale Programs of World Wildlife Fund-US, Washington, DC (February, 1985 to present). Duties include development, preparation and review of grant proposals, editing of documents for publication, liaising with field personnel and cooperating institutions and individuals (both domestically and abroad), correspondence (in English and Spanish), and general Program administration.

Principal Investigator for a sea turtle research survey of Colombia's Caribbean coast, sponsored by the US National Oceanic and Atmospheric Administration (December, 1985 to February, 1986). The survey consisted predominantly of interviews with artisenal fishermen, commercial fishermen, and other individuals involved with the commercialization or conservation of Colombia's marine turtles. The results will be presented as the National Report for Colombia for the Western Atlantic Turtle Symposium II, to be held in Mayaguez, Puerto Rico in November, 1987.

Assistant to the Vice President of World Wildlife Fund-US in the Conservation Education and Training Program (formerly RARE, Inc.), Washington, DC (December, 1984 to December, 1985). WWF's Conservation Education and Training Program designs and implements projects throughout the developing world, focusing primarily in Latin America and the Caribbean. My duties included correspondence (in English and Spanish), preparation of grant proposals, editing of documents for publication, provision of technical assistance to cooperating institutions, preparation of travel schedules, fundraising, and acting as liaison with the Board of Directors and fundraising staff.

Visiting Scientist in the Division of Amphibians and Reptiles of the National Museum of Natural History, Smithsonian Institution, Washington, DC (June 1 to August 15, 1985). I assisted in a phylogenetic analysis of the genus Rhinoclemmys, a diverse group of neotropical turtles.

Coordinator of Elderhostel, an educational program for older adults, at the Experiment in International Living, Brattleboro, Vermont (February to September, 1984). My duties included: phone and mail correspondence, accounting, promotion, travel and housing arrangements, daily management and problem solving, and teaching a course entitled, "Creations Greatest Hits".

Job and Research Experience (Continued)

Technical Coordinator of the Western Atlantic Turtle Symposium, a multi-national convention addressing the issues of sea turtle management and conservation in the Wider Caribbean area, held in San Jose, Costa Rica (May to August, 1983). My duties included: collection and collation of data from 38 Caribbean nations, editing and translation of scientific documents for presentation and publication, preparation of international travel itineraries, on-site logistical management of the symposium, and transcription and editing of Symposium Proceedings.

Naturalist Guide aboard the M/V Bucanero, Galapagos Islands, Ecuador (February to May, 1982). I lectured to visitors about the natural history of the Galapagos Archipelago and guided in the field.

Research Assistant and Mechanic for the Atlantic Ridley Sea Turtle Project, Rancho Nuevo, Tamaulipas, Mexico (April to September, 1981). I assisted with tagging, translocation of eggs, maintenance of hatcheries, and the support of international efforts to relocate populations of Kemp's Ridley sea turtles to Padre Island, Texas. I participated in the production of The Heartbreak Turtle, a film documentary on the life history of the Kemp's Ridley. I Conducted research concerning scute pattern variations in Lepidochelys kempi, and studied the natural history of local herpetofauna, including detailed work with two local fresh water turtles, Trachemys scripta cataspila, and Kinosternon herrerai.

Research Assistant to the Little Cumberland Island Loggerhead Turtle Project, Little Cumberland Island, Georgia (April to August, 1979). I assisted in tagging, egg translocation and hatchery maintenance, and conducted research concerning scute pattern variations in Caretta caretta.

Marine Researcher in the North Atlantic aboard the research vessel Westward (June to August, 1978). I served as crew, participating in all phases of ship operations at sea, and conducted research on "The Vertical Migration of Mesopelagic Fish with Respect to Various Physical Factors".

Educational History

SCHOOL FOR INTERNATIONAL TRAINING, Brattleboro, Vermont. Master of international Administration (conferrence pending completion of thesis)
Coursework included: Cross-cultural Communication, Organizational Behavior, Comparative Development Policies, Project Design and Proposal Writing, Peace and Conflict Studies, Financial Management, Environmental Studies, Revolution in Central America, Esperanto.

CHARLES DARWIN RESEARCH STATION, Santa Cruz, Galapagos, Ecuador (September, 1981). Participated in the Galapagos Naturalist Guide Course, taught by the Parque Nacional Galapagos.

MICHIGAN STATE UNIVERSITY, East Lansing, Michigan (Spring Semester, 1979).
Coursework included: Morphology of Chordates, Herpetology.

ALMA COLLEGE, Alma, Michigan. Bachelor of Science degree with a major in Biology (conferred in April, 1979).

SEA EDUCATION ASSOCIATION, Woods Hole, Massachusetts (April to August, 1978).
Coursework included: Marine Science, Nautical Science, Man and the Sea.

ELMIRA COLLEGE (College Center of the Finger Lakes), San Salvador, Bahamas (April to June, 1977).
Coursework included: Marine Zoology. Intensive study of local Echinodermata.

Educational History (Continued)

FLORIDA INSTITUTE OF TECHNOLOGY (School of Marine and Environmental Technology), Jensen Beach, Florida (June to August, 1975).
Coursework included: Ocean Biology II, Introduction to Oceanography, Photography, Advanced SCUBA.

Licenses and Certifications

Airplane private pilot (single engine land), lighter than air commercial pilot (hot air balloon), Visitor's Guide Licence (National Park Galapagos), Federal Communications Commission restricted radiotelephone operators permit, SCUBA (NASDS basic and PADI advanced certifications).

Affiliations

American Society of Ichthyologists and Herpetologists, Association of Balloon and Airship Constructors, Balloon Federation of America, Beta Beta Beta Biological Honor Society, Chicago Herpetological Society, Gopher Tortoise Council, International Oceanographic Foundation, Society for the Study of Amphibians and Reptiles, Universal Esperanto Association,

Publications

Berry, Frederick H., Larry Ogren, Roderic B. Mast. et.al. 1983. United States National Report to the Western Atlantic Turtle Symposium. Proceedings of the W.A.T.S. (Univ. of Miami Press). 3:423-499.

Carr, John L., and Roderic B. Mast. 1985. Natural History Notes on Herrera's Mud Turtle, Kinosternon herrerai. in preparation.

Lenarz, Mark S., Nat B. Frazer, Mark A. Ralston, and Roderic B. Mast. 1981. Seven Nests Recorded For a Loggerhead Turtle, Caretta caretta in One Season. Herpetological Review. 12(9):14-15.

Mast, Roderic B. 1978. The Vertical Migration of Mesopelagic Fish with Respect to Various Physical Factors. W-40 Cruise Report of Scientific Activities (sea Education Association, Woods Hole, MA.).

Mast, Roderic B. 1984. Learning From the Elderhostelers. Odyssey. (Experiment in International Living Press, Brattleboro, VT.). 2(1):14.

Mast, Roderic B. 1985. Carapacial Scute Pattern Variations in the Loggerhead Sea Turtle, Caretta caretta. in preparation.

Mast, Roderic B., and Amie Brautigam. 1986. Mexico's Sea Turtles: Trade the Major Threat to Their Survival. TRAFFIC (USA) Newsletter. 6(4):14-15.

Mast, Roderic B., and John L. Carr. 1985. Carapacial Scute Pattern Variations in the Kemp's Ridley Sea Turtle, Lepidochelys kempi. Proceedings of the First International Symposium on Kemp's Ridley Sea Turtle Biology, Conservation and Management. in press.

Mast, Roderic B., and John L. Carr. 1985. Macrochelid Mites in Association with Kemp's Ridley Hatchlings. Marine Turtle Newsletter. 33:11-12

Mast, Roderic B., and John L. Carr. 1985. Trachemys scripta cataspila (Huastecan Slider): Eggs and Hatchlings. Herpetological Review. in press.

World Wildlife Fund

BACKGROUND

Barbara G. Hoskinson

Barbara Hoskinson is the Director of Corporate Relations for both World Wildlife Fund and The Conservation Foundation. In this capacity, she is responsible for fundraising from the corporate world, as well as coordinating corporate involvement with WWF/CF's program work. In addition, Ms. Hoskinson is responsible for the financial structuring of debt-for-nature swaps.

Previously, Ms. Hoskinson was a vice president at Bankers Trust Company New York working in international finance and later in domestic corporate finance.

APPENDIX D:

WWF JULY 7, 1989, LETTER PROVIDING ADDITIONAL INFORMATION TO USAID CONCERNING

-End of Project Conditions
-Expected Beneficiaries
-Monitoring and Evaluation
-Local Currency Disbursement Schedule

WWF

World Wildlife Fund

July 7, 1989

Mr. Warren Weinstein
Associate Assistant Administrator
AFR/MDI, Room 2485
U.S. Agency for International Development
320 21st Street, NW
Washington, D.C. 20523

Dear Warren:

I am writing to provide additional information concerning World Wildlife Fund's proposed debt-for-nature program in Madagascar, for which WWF has requested support from the U.S. Agency for International Development in a grant proposal dated June 2, 1989.

As planned, WWF sent a mission to Madagascar in June to finalize the scope and contents of the debt-for-nature program. The WWF team, which included debt-swap specialist Barbara Hoskinson and representatives from the WWF Secretariat in Gland, Switzerland, held substantive meetings with the Governor of the Central Bank of Madagascar and the Minister of MPAEF, and broad agreement was reached on all aspects of the proposed debt-for-nature program. The WWF team also met with representatives of the AID Madagascar Mission, Dave Gibson of REDSO, and Lee Hannah of AID/Washington to work out technical details of the proposed program, including a budget in local currency and US dollars, which is attached.

This budget shows proposed spending over 3 years for training and protected area management in Madagascar and is based on a total investment of $1,250,000 of which we are requesting that AID provide $1,000,000, with WWF contributing the remainder. As indicated in the budget, hard currency needs over the 3 years amount to $300,000; local currency proceeds from the swap are estimated to be FMG 3,493,500,000, assuming $950,000 is used to acquire debt at a price of $.45 for promissory notes with a face value of $2,111,111 (exchange rate of $1.00 = FMG 1650). The actual local currency amount generated from the swap may change, depending on the price of debt and the exchange rate, but the variance should not be great.

1250 Twenty-Fourth Street, NW Washington, DC 20037 USA 202/293-4800 Telex: 64505 PANDA

Implementation of the conservation program financed by the swap would be carried out as broadly indicated in our proposal of June 2, with in-country responsibility for disbursement of funds and monitoring of results resting with a WWF technical advisor to be hired subsequent to grant award. Funds generated from the swap will be used only for ongoing projects that have received approval from MPAEF and can readily absorb local currency. At this time, several high-priority protected area projects are set to receive PL-480 monies through AID and are therefore not candidates for receiving local currency proceeds from the swap. In consultation with the AID Madagascar Mission, we have designed a spending program that provides local currency for projects that are not slated to receive PL-480 monies, in particular Classification 1 Protected Areas Andringitra and Marjojy (see attached project descriptions), and for an extensive training program for protected area managers and guards that will improve the protection, management, and wise use of resources in virtually all the parks and reserves of Madagascar. This spending program is laid out in the attached budget. As part of our implementation plan, WWF will at the outset and at six month intervals review progress and activities with both the AID Mission and AID/Washington.

As requested by AID in its initial review of the WWF grant proposal, we are providing, in addition to the attached budget, information on the following: (1) expected end-of-project conditions; (3) expected beneficiaries; and (3) monitoring and evaluation.

End-of-Project Conditions

Training

The proposed program will by the end of three years have provided for the recruitment, training, and salary support of:

- 200 guards working in Classification 1 protected areas

- 200 guards working in Classification 2 and 3 protected areas

Protected Areas

By the end of the three years, the following should be underway or completed in each of the high priority protected areas receiving support through the program:

(1) Surveys and Needs Assessments

- Socioeconomic surveys of pilot villages in buffer zones of protected areas

- Inventories of biological resources in selected regions of protected areas

- Surveys of natural forest resources in the buffer zones of protected areas

(2) Protected Area Management

- Recruitment and training of additional protected area personnel

- Acquisition of essential field equipment such as clothing, tents, and motorcycles

- Relocation and marking of protected area boundaries

- Active patroling of all boundaries and regularly used paths

- Radio connection to MPAEF in Antananarivo

(3) Agriculture (in pilot villages)

- Introduction of intensive agricultural practices such as vegetable and fruit production

- Introduction or improvement of irrigated rice production

- Improvement of livestock management practices

- Improvement in produce and livestock marketing

(4) Forestry and Agroforestry (in selected areas)

- Establishment of tree nurseries for useful species

- Development of effective outplanting and tree maintenance plans

- Investigation of sustainable utilization of native tree species

- Investigation of forestry plantation requirements and establishment of plantation(s) as appropriate

(5) Environmental Education and Public Awareness (in pilot villages)

- Teacher training in courses dealing with environmental management and conservation

- Provision of teacher guides for courses at the primary school level

- Provision of primary level books in Malagasy for all schoolchildren attending environmental courses

- Regular meetings on conservation themes with pilot village residents, including some audiovisual presentations

Expected Beneficiaries

Principal beneficiaries of the training program will be the 400 trainees who will receive training in integrated park management and material support for the duration of the program. In addition, the program will help MPAEF develop the institutional capacity and resources to properly protect and manage the system of parks, reserves, and forests for which it has responsibility.

Principal beneficiaries at the specific sites receiving support from the program will be low-income subsistence farmers living in pilot villages in the buffer zones of the protected areas. They will benefit from material support and improved cultivation techniques and varieties, with an overall improvement in natural resource utilization. Those potentially affected negatively by the program will also be low-income subsistence farmers -- those who do not live in pilot villages or otherwise do not receive assistance from the program in developing alternative agricultural techniques. Mitigation of this impact can be achieved by extending outreach and replicating approaches in other villages and areas.

Other beneficiaries will include school teachers and their pupils in pilot villages who will be provided with adequate materials and support for school environmental education programs. In some protected areas, improved use of protected areas through controlled visitor access will also provide employment for local guides and provide foreign currency revenue for the country.

Monitoring and Evaluation

The progress of the program will be monitored by a program officer within WWF, who will be in frequent communication with the in-country technical advisor. Periodic reports on use of grant funds and accomplishments of the program will provide a means for AID to monitor progress, as will regular meetings between in-country staff and the AID Mission. A formal review of activities will be held every six months in Madagascar, with the WWF program officer attending.

A formal evaluation of the program will be carried out in two parts. First, at the beginning of the second year, an independent financial auditor will evaluate the disbursement procedures for the debt-swap proceeds to assure that the financial aspects of the program are sound. Second, at the beginning of the third year, a team of two independent evaluators working in collaboration with the program staff will evaluate the effectiveness of the training and protected area

components of the program. The evaluators will observe training courses, interview trainees and graduates, and assess the effectiveness of training materials and instructors. They will also make site visits to the protected areas receiving support under the program and document progress toward each of the end-of-project conditions indicated above, identifying particular successes and problem areas for attention in the third year of the grant. Both the financial auditor and the program evaluation team will provide written reports to AID documenting their findings.

* * * * *

I hope that the information provided here will be sufficient for AID to further evaluate our grant proposal. If you need anything in addition, please do not hesitate to let me or Barbara Hoskinson know.

We had another very productive meeting with the Malagasy Ambassador today and now expect to have a signed debt swap protocol with the Central Bank of Madagascar early in the week of July 17th.

Sincerely yours,

Natalie Waugh

Natalie Waugh
Director, Foundation and
Government Development

cc: Bill Darkins, AID/AFR
Steve Pulaski, AID/AFR
John Gaudet, AID/AFR
Lee Hannah, AID/AFR

BUDGET - MADAGASCAR DEBT-FOR-NATURE PROGRAM*

	1989/90		1990/91		1991/92		TOTAL	
	FMG (000s)	$US (000s)	FMG (000s)	$US (000s)	FMG (000s)	$US (000s)	FMG (000s)	$U (000s)
WWF TECHNICAL ASSISTANCE								
TECHNICAL ADVISOR (SALARY+BENEFITS)	0	25	0	50	0	50	0	125
NATIONAL COUNTERPART	4000	0	4000	0	4000	0	12000	0
SUPPORT STAFF (SEC'Y + DRIVER)	4000	0	4000	0	4000	0	12000	0
TRAVEL - LOCAL	1500	0	2000	0	2000	0	5500	
TRAVEL - INTERNATIONAL	0	0	0	5	0	[illegible]	0	1
ST TRAINING CONSULTANT @10,000/month)	0	10	0	15	0	20	0	4
WWF-US MANAGEMENT	0	35	0	30		30	0	9
SUBTOTAL	9500	70	10000	100	10000	105	29500	275
TRAINING (200 DEF AGENTS, 200 AP AGENTS)								
TRAINING COORDINATOR (GUARDS/TRIAGE)	6000	0	6000	0	6000	0	18000	0
LOGISTICAL COSTS (FIELD COURSES)	10000	0	30000	0	40000	0	80000	0
DEF PERSONNEL/FINANCE MGT (SHORT COURSES)	10000	0	20000	0	20000	0	50000	0
SUBTOTAL	26000	0	0 56000	0	0 66000	0	148000	0
EQUIPMENT & OPERATIONS								
VEHICLES (2 4X4s, 1 Motorcycle)	130000	0	0	0	0	0	130000	0
VEHICLE OPERATIONS (20%/YR)	8000	5	8000	5	8000	5	24000	15
OFFICE RENTAL	3000	0	3000	0	3000	0	9000	0
OFFICE EQUIPMENT/SUPPLIES	10000	5	5000	1	5000	1	20000	10
MATERIAL SUPPORT PKG (GUARDS)	40000	0	80000	0	80000	0	200000	0
SUBTOTAL	191000	13	0 96000	6	96000	6	383000	25
PERSONNEL AND FIELD COSTS								
GUARDS (Salary for total of 400)	30000	0	135000	0	240000	0	405000	
FIELD INDEMNITIES (GUARDS)	5000	0	45000	0	80000	0	130000	
FIELD INDEMNITIES (DEF)	5000	0	15000	0	20000	0	40000	
SUBTOTAL	40000	0	195000	0	0 340000	0	575000	0
TOTAL	266500	83	357000	106	512000	111	1135500	300

*Assumes WWF uses $950,000 to buy debt @ $.45 = $2,111,111 = FMG 3,483,333,000 ($1.00=FMG 1650)

BUDGET
PAGE 2

	FMG (000s)		FMG (000s)		FMG (000s)		FMG (000s)	SUS (000s)
Total (Cont'd from Page 1)	266500	83	357000	106	512000	111	1135500	300
BLOCK SUPPORT FOR PRIORITY PROTECTED AREAS								
CLASSIFICATION 1								
MAROJEJY	165000		247500		272250			
ANDRINGITRA	165000		247500		272250			
CLASSIFICATION 2	330000		330000		330000			
SUBTOTAL	660000		824000		874000		2358000	300
GRAND TOTAL	926500	83	1181000	106	1386000	111	FMG 3493500	300

PLAN D'AMENAGEMENT DE LA ZONE PRIORITAIRE

FNI 5 D'ANDRINGITRA

propose par le WWF-Int., Projet 3746 "Aménagement des Aires Protégées"

Juillet 1988.

TABLE DES MATIERES

PLAN D'AMENAGEMENT DE LA ZONE PRIORITAIRE

RNI 5 D'ANDRINGITRA

1. INTRODUCTION

La Réserve Naturelle Intégrale 5 d'Andringitra, dont le classement a été instauré en 1927 et entériné par un arrêté de classement en 1966, se situe entre 22°07' et 22°21' de Latitude Sud et 46°47' et 47°02' de Longitude Est, à 50 km au sud d'Ambalavao dans la Province de Fianarantsoa (Carte 1). Elle est comprise dans le Centre d'Endémisme de l'Est et recèle trois des quatre Domaines de végétation caractéristiques de la Région Est, le Domaine de l'Est, le Domaine du Centre et le Domaine de Hautes Montagnes.

La réserve est située au sein d'un massif cristallin constitué de gneiss et de granite. Ce massif est constitué lui-même par des plateaux granito-migmatiques qui se situent à 2050 m d'altitude et dominent les plaines de 500 m de hauteur, une série de dômes rocheux gigantesques et une chaîne de rochers aux arêtes étroites formant de nombreux pics, parmi lesquels le Pic Boby (2658 m), le Pic Bory (2630 m) et le Pic d'Ivohibe (2541 m). Le massif, divisé en trois secteurs par les deux affluents du Menarahaka, est profondément découpé par d'étroites vallées et gorges. Un système hydrologique très important prend naissance dans ce massif et génère en aval les rivières Zomandao, affluent du Mangoky, Menarahaka, Iantara, affluents du Manampatra, et Rienana. La ligne de partage des eaux entre les Régions Est et Ouest est incluse dans les limites de la réserve. Le climat est de type tropical humide sur le versant est et de type montagnard en altitude avec des température hivernales très basses, des écarts de températures journaliers très importants et des précipitations fréquentes sous forme de crachin.

L'importance en matière de biodiversité de cette réserve est liée à la grande variété de types de végétation qu'on y rencontre. Leurs localisations dépendent de facteurs climatiques et édaphiques. On compte au sein de la réserve la Forêt pluviale primaire de basse altitude de l'Est malgache, la Forêt pluviale primaire d'altitude de l'Est malgache, la Forêt schlérophylle d'altitude de l'Est malgache, le Bush éricoïde d'altitude de l'Est malgache, les formations rupicoles de l'Est malgache ainsi que les formations végétales anthropiques issue de la dégradation de ces différents types de végétation originelle. Cette grande variété de types de végétation a générée une profusion d'habitats et de microhabitats qui abritent une faune d'une grande richesse. Seuls les vertébrés ont fait l'objet d'inventaires, parmi lesquels on recense 22 espèces d'amphibiens, 7 espèces de reptiles, 75 espèces d'oiseaux et 20 espèces de mammifères. A noter que ces inventaires sont loin d'être complets en particulier au niveau de l'herpétofaune.

L'importance économique de cette région est liée aux productions agricoles constituées essentiellement par la riziculture irriguée, la

production de légumes et l'élevage bovin extensif. La réserve présente une valeur non quantifiable, pour l'ensemble d'une région à vocation agricole marquée, à travers le maintien des fonctions écologiques. En outre, la réserve elle-même présente une importance économique intrinséque certaine liée à sa valeur paysagère dans le cadre du développement d'activités touristiques.

La réserve présente une indéniable valeur historique du fait qu'elle abrite plusieurs sites qui ont une grande importance dans les traditions des peuples Betsileo et Bara.

Le plan d'aménagement développé dans ce document vise à mettre en place une structure de conservation d'écosystèmes originale alliée à un programme durable de développement rural des zones périphériques, basé sur l'utilisation rationnelle et durable des ressources naturelles. L'étude préliminaire que nous avons menée au cours de ces derniers mois nous laisse penser qu'un tel projet est rendu faisable par la volonté des populations des villages limitrophes de la réserve, d'améliorer leurs conditions de subsistance en adoptant une politique qui accorde une importance prioritaire à l'utilisation durable des ressources naturelles.

I - ENVIRONNEMENT

Au cours des quelques semaines que nous avons passées dans la RNI 5 d'Andringitra et le long de ses limites, nous avons eu l'occasion de dresser un inventaire précis des menaces qui pèsent sur cette aire protégée.

1

2.1. Description des problèmes : les problèmes environnementaux liés à la RNI 5 d'Andringitra varient considérablement dans leur aspect et leur degré en fonction de la localisation géographique. En effet, le mode de vie, les méthodes culturales et pastorales, l'utilisation des produits forestiers, adoptés par les différentes groupes ethniques qui vivent aux confins de la réserve constituent des sources différentes de problèmes liés à l'environnement. Il convient donc de ne pas généraliser les problèmes à l'ensemble de la zone considérée et de ne pas adopter une solution universelle pour tous les secteurs.

2.1.1. Déforestation : elle a plusieurs origines :

- Culture sur brûlis : cette technique destructrice est pratiquée sur la bordure orientale de la réserve. Cependant, son importance n'est pas connue dans sa globalité compte tenu de la difficulté d'accès aux différents secteurs de la limite orientale de la réserve.
- Exploitation forestière illicite : elle affecte l'ensemble de la réserve avec un degré d'intensité variable. Au nord, à l'ouest et au sud, elle revêt un caractère non commercial. Le bois est collecter pour pourvoir aux besoins domestiques de cuisson et de construction. A l'est, l'exploitation illicite est parfois pratiquée dans un but commercial. Dans

tous les cas, cette exploitation ne présente pas une grande envergure.

2.1.2. Divagation du bétail : l'intrusion du bétail bovin est constatée sur l'ensemble de la réserve. Cet état de fait est lié d'une part à la technique d'élevage extensif qui est pratiquée et qui ne contrôle pas les mouvements du bétail, et d'autre part à la recrudescence des vols de boeufs qui poussent les éleveurs à mettre leurs troupeaux à l'abri du couvert forestier. La divagation des zébus crée des axes et des motifs de pénétration pour la population et affecte beaucoup la régénération naturelle de la forêt. En outre elle endommage les formations rupicoles xérophitiques du Domaine de Hautes Montagnes qui constituent un type de végétation extrêmement menacé.

2.1.3. Incendies : ce fléau touche plus particulièrement le nord, l'ouest et le sud de la réserve. Les feux qui se propagent à l'intérieur de la réserve affectent la savane herbeuse anthropique, le bush éricoïde et les formations rupicoles xérophytiques. Ils ont pour origine les feux de pâturage non contrôlés, allumés à l'extérieur de la réserve. Ils sont également allumés volontairement par certains villageois qui voient dans la réserve une source de pâturage existante qui ne peut leur profiter ou une source future de pâturage après disparition de la couverture végétale originelle. Ces feux d'origine conflictuelle sont les plus pervers, car ils sont propagés loin à l'intérieur des limites de la réserve. Si on ajoute à cela les feux qui se déclarent naturellement à la faveur des orages fréquents et violents dans cette région, cette contrainte doit être considérée comme majeure.

2.1.4. Captage de l'eau : ce problème est assez aigu dans les parties nord et ouest de la réserve. Il revêt le plus souvent un aspect traditionnel à l'exception d'un cas où une installation a nécessité des travaux de terrassements importants (Antanifotsy). Outre l'impact écologique difficile à évaluer, ces travaux ont le défaut de créer des habitudes de visite et des axes de pénétration dans la réserve et pour les plus importants de gâcher des sites de hautes valeurs paysagères qui pourraient être mis en valeur dans le cadre d'un développement touristique.

2.1.5. Collecte de plantes alimentaires, médicinales et ornementales : cette activité a été notée sporadiquement et revêt un aspect traditionnel, aussi ne doit-elle pas être considérée comme grave. Seule l'orientation commerciale de telles pratiques transformerait son impact. Ce changement est susceptible de se présenter compte tenu de la richesse de cette réserve en plantes ornementales telles que Aloe spp., Kalanchoe spp., palmiers, orchidées ou médicinales. A noter la présence d'un Aloès localisé au massif de l'Andringitra, Aloe andringitrensis qui présente une valeur pour les collectionneurs.

2.1.6. Braconnage : il reste très limité compte tenu de l'éloignement de cette réserve des zones urbaines et de la rareté des armes et des munitions dans les villages. Le braconnage de subsistance, qui a été noté, affecte les Tenrecidae Tenrec ecaudatus et Setifer

setosus. La capture de Lemur catta en qualité d'animal de compagnie a été noté très localement et en dehors de la réserve. Il conviendrait que cet aspect du braconnage ne vienne pas à s'amplifier sous l'impulsion du développement touristique.

2.1.7. Exploitation minière illicite : cette activité illégale a été recencée très récemment dans la partie nord de la réserve à proximite du Fokontany de Namoly Est. La recherche de pierres semi-précieuses (Béryl) constituait le motif de pénétration. Ces actions illégales étaient le fait d'un prospecteur minier de Fianarantsoa, assisté par des ouvriers recrutés parmi la population villageoise limitrophe de la réserve. La destruction occasionnée par cette recherche de gemmes est localisée, mais peu rapidement devenir beaucoup plus destructrice si elle prend une tournure industrielle.

2.2. Activités de protection précédemment menées : les activités de protection développées dans la RNI 5 d'Andringitra ne comptent que les patrouilles de surveillance entreprises par les trois agents du MPAEF, dans le cadre des tâches qui leur sont assignées.

2.3. Activités de développement précédemment menées : seule la mise en place d'un bassin de captage et la construction d'un canal d'irrigation aux environs du village d'Antanifotsy, au nord de la réserve, sont considérées comme des activités en faveur du développement. Ce projet de construction du canal, encore en cours actuellement, était initialement financé par l'US-AID et finalement repris par le projet micro-réalisation du gouvernement.
Un vulgarisateur du MPARA est basé dans le Fokontany de Namoly Est et a pour tâche d'assister la population villageoise dans son effort d'amélioration des rendements agricoles. Il ne recontre pas un succès notoire auprès des villageois du fait du manque de confiance qui règne entre lui et la population locale.

2.4. Gestion de la réserve : elle est à la charge de trois agents du MPAEF, un Chef de Poste, basé à Ambalavao et deux Chefs Secteurs, l'un basé à Antanifotsy (Cantonnement Forestier d'Ambalavao) et l'autre à Antambohobe (Cantonnement Forestier d'Ivohibe). Ils disposent d'un budget de fonctionnement extrêmement modeste et d'aucun moyen de locomotion.

3. ENQUETE :

3.1. Facteurs socio-économiques : compte tenu de la variabilité des problèmes et de leur origine, comme développé précédemment dans le chapitre 2.1, il convient d'étudier chaque cas de figure séparement avec finesse. C'est pourquoi il est nécessaire avant d'entreprendre toutes actions concrètes de grande envergure sur le terrain de mener une étude socio-économique qui permette de définir les situations, d'identifier les

problèmes et d'établir des stratégies d'actions qui prennent en considération les contraintes majeures. Cette étude peut être fragmentée de façon à dégager rapidement et clairement la situation qui prévaut dans une partie de la réserve et de ses limites, afin que des actions concrètes puissent être développées. Cette étude doit être réalisée par un petit groupe d'enquêteurs attaché au projet. Ils doivent avoir un profil d'économiste rural ayant une connaissance précise de la situation qui prévaut dans le Pays Betsileo.
Le projet peut constituer, au cours de son développement, un cadre d'étude pratique pour des étudiants en sociologie ou en socio-économie nationaux qui seraient attirés par ce concept de "conservation et développement intégré" nouvellement développé à Madagascar. Cette étude permettra d'identifier la localisation et le type d'action de développement à entreprendre vis à vis de l'impact attendu sur la conservation des écosystèmes originels en tenant compte de la volonté villageoise de voir ces actions se réaliser.

3.2. Inventaires faunistique et floristique : les inventaires biologiques constituent le volet "Recherche pour la Conservation". Afin d'assurer une meilleure gestion de la RNI 5 qui est connue pour être l'une des plus importantes de Madagascar en matière de biodiversité, il est nécessaire d'entreprendre l'inventaire de la faune et de la flore. La connaissance de la plus grande partie possible du patrimoine génétique de la réserve servira à planifier sa conservation en aidant à la définition du statut et à la distribution des espèces particulièrement menacées. Ces études seront menées au cours du développement du plan d'aménagement en sollicitant les organismes de recherches en leur proposant un cadre de recherches et un appui logistique en échange de leur collaboration. Ces organismes de recherches devront être de réputation internationale pour permettre la formation d'étudiants malgaches ou la participation de chercheurs nationaux confirmés. Ces inventaires seront publiés en adjoignant, dans la mesure du possible, des informations sur l'écologie des espèces décrites afin de pouvoir utiliser ces résultats à des fins de conservation, d'éducation et de sensibilisation.

4. PLAN D'AMENAGEMENT

4.1. Conservation:

4.1.1. Mise en place de l'infrastructure : il convient de mettre en place une infrastructure permettant aux agents en place de travailler dans de bonnes conditions matérielles, afin d'augmenter leur motivation, de restaurer leur autorité vis à vis des villageois en promouvant leur situation sociale.

- Réhabilitation du bâtiment des E&F des Cantonnements Forestiers d'Ambalavao et d'Ivohibe.

- Mise en place de nouveaux Secteurs Forestiers à : Secteur Forestier à Tsiazomboro (SF 3).

Secteur Forestier d'Ampasy (SF 4).

(Carte 2)

Ce réseau de Secteurs Forestiers permettrait d'assurer une surveillance étroite et homogène sur l'ensemble de la RNI 5. SF 1 Antanifotsy pour le nord, SF 2 Antambohobe pour le sud, SF 3 Tsiazomboro pour l'ouest et SF 4 Ampasy pour l'est. En outre, ce réseau constituerait des points de chute pour les agents assurant leurs patrouilles pédestres de surveillance.

Chaque Secteur Forestier devrait être constitué par une maison d'habitation pour l'agent et sa famille, un bureau et un gîte d'étape, sur le modèle de ceux qui ont été construits à Antanifotsy et Antambohobe.
Le SF 1 Antanifotsy qui est pressenti comme celui des quatre qui va avoir le plus d'importance, compte tenu des activités touristiques qui devraient être développées dans la partie nord de la réserve, devrait être équipé d'une radio, afin de pouvoir établir un contact hertzien régulier avec la DEF. En outre, ce dispositif constituerait un moyen de maximiser l'utilisation touristique de cette partie de la réserve, tout en lui conférant un caractère de sécurité.

- Construction d'un gîte d'étape comptant un dortoir pour accueillir 12 personnes et une salle de réunion /exposition à Antanifotsy (voir chapitre 4.3.).

4.1.2. Matériel : pour travailler dans de bonnes conditions, les agents en charge de la surveillance de la réserve devraient être doté de matériel.

- Locomotion : le Chef de Poste et les Chefs Secteurs d'Antanifotsy et Antambohobe devraient être dotés de motocyclettes 125 cc, ainsi que d'un budget permettant d'assurer leur fonctionnement et leur entretien.

- Matériel de terrain : toutes les personnes travaillant dans la réserve devraient être doté d'un uniforme, du matériel nécessaire à l'établissement de camps ou de bivouacs dans la réserve, de matériel cartographique, d'orientation et d'observation.

- Matériel de bureau : une machine à écrire mécanique devrait être attribuée à chacun des Chefs Secteurs Forestiers et au Chef de Poste, ainsi que du petit matériel de bureau.

- Matériel de communication : le Secteur Forestier d'Antanifotsy devrait être équipé d'une radio BLU lui permettant de communiquer régulièrement avec la Direction des Eaux et Forêts à Antananarivo. Outre l'aspect conservation, cette liaison radio permettrait de gérer de façon optimale l'occupation de l'infrastructure touristique en la contrôlant depuis la capitale où les réservations devraient se faire. Elle constituerait aussi un facteur sécurisant pour les visiteurs.

4.1.3. Matérialisation des limites de la réserve : la RNI 5 est

délimitée par 33 bornes qui ont été mise en place dans les années soixante (Carte 2). Plusieurs d'entre elles ont été arrachées et toutes les autres n ont pas été dégagées.

- Dégagement des bornes encore en place.
- Remise en place de celles qui ont été arrachées.
- Mise en peinture de l'ensemble des bornes et mise en place de cairns pour la localisation des bornes.
- Enrichissement ou création d'un rideau d'Eucalyptus (Eucalyptus rostrata) ou de toutes autres essences se distinguant très aisément de la végétation originelle en place, destiné à souligner une limite arbitraire.
- Mise en place d'un chemin pédestre limitrophe pour pouvoir effectuer des patrouilles sur l'ensemble du périmètre de la réserve et éviter les incursions des villageois.
- Mise en place de panneaux d'information en bois aux points d'accès de la réserve et dans les villages les plus proches de la réserve.

4.1.4. Mesures de protection périphérique : comme abordé dans le chapitre 2.1.3., certains secteurs de la réserve sont sujets aux feux de brousse. Il convient donc à ces endroits particulièrement sensibles de mettre en place des panneaux d'information comme cité dans le chapitre 4.1.3. afin d'avertir la population du statut légal de ce secteur et ensuite de mettre en place des coupes-feux entretenus par la population et/ou de planifier le brûlis précoce et contrôlé des pâturages situés à la périphérie de la réserve.

4.1.5. Formation : il est primordial d'engager une action en faveur de la formation des agents des E&F en place et de ceux à mettre en place. Cette formation doit être orientée vers la gestion des parcs et des réserves et sur l'utilisation durable des ressources naturelles. A terme, pour satisfaire à la demande de développement touristique, il conviendra également de former des guides recrutés parmi la population locale afin d'apporter aux visiteurs une structure d'encadrement plus complète. Ce chapitre formation met encore l'accent sur la nécessité de trouver une structure de formation pour les agents techniques et les techniciens qui satisfasse à la demande croissante de connaissance en matière de gestion des espaces protégés.

4.2. Développement rural

Pour acquérir un caractère durable, la conservation doit être étroitement associée au développement rural. La proposition de solutions alternatives aux techniques agricoles ou pastorales destructrices doit constituer le premier objectif, suivi par l'amélioration des techniques culturales, du système d'irrigation, de l'utilisation des terres, des semences utilisées et la diversification des cultures basée sur la portance des marchés.
Les régions du nord et de l'ouest de la RNI 5 disposent de vastes plaines et d'un important réseau hydrographique qui pourraient être mis à profit. Cependant, les contraintes majeures sont la maîtrise des techniques

agricoles en particulier celles concernant la préparation des terres de cultures et les techniques de captage de l'eau.

4.2.1. Développement agricole :

4.2.1.1. Riziculture : elle constitue la production agricole la plus importante pour la région. Elle revêt à la fois un caractère vivrier et commercial. La riziculture irriguée peut être améliorée par:

- amélioration, réhabilitation et construction des canaux d'irrigation en insistant sur le partage équitable de l'eau. Plusieurs réalisations microhydrauliques ont d'ores et déjà été identifiées dans la partie nord de la réserve. Il s'agit de :

. Namoly ouest (villages de Mahasoa, Namoly Mahavelo, Antanifotsy, Andrarezo, Fivanona, Laivory sud) : construction d'un barrage de 12 m de longueur sur la rivière Zomandao. Le périmètre nouvellement irrigué n'a pas été estimé. Cet ouvrage concerne une population de 1400 hab.

. Mahasoa (Fok. Namoly ouest) : réhabilitation d'un bassin de rétention et des canaux situés en aval.

. Antanifotsy (Fok. Namoly ouest) : achèvement des travaux de construction du canal à grand gabarit à partir de la cascade Riandahy qui permettra d'irriguer une superficie supplémentaire de plusieurs centaines d'hectares. Cet ouvrage concerne une population de 1400 hab.

. Namoly est (Amabalamanankava, Ampasimbe, Ambalavaokely, Maromane, Tanambao, Amabalamarina, Ambalamanandray, Manoedromana, Soamanandrey) : construction d'un barrage communale pour le Fokontany qui compte 9 villages accueillant 1548 hab.

- amélioration de la qualité des semences et des variétés utilisées.

- amélioration des circuits de distribution à travers la réhabilitation du réseau de pistes charretières existant au nord, à l'ouest et au sud de la réserve et la fabrication de charrettes à zébus pour l'évacuation des récoltes par les producteurs eux-mêmes.

. Antanifotsy - Ambalavao, 50 km avec 10 ponts et 2 gués à réhabiliter.

. Antanifotsy - Mahasoa, 3 km avec 2 ponts à reconstruire.

. Antanifotsy - Ambalamanandray, 5 km avec 1 pont de 12 m à reconstruire.

. Antambohobe - Ivohibe, 28 km avec 2 ponts à reconstruire.

- découragement de la riziculture pluviale au profit de la riziculture irriguée par la mise en valeur de bas-fonds dans la partie est de la réserve.

4.2.1.2. Cultures maraîchères : ces productions vivrières doivent être et à

et l'initiation à de nouvelles méthodes culturales doivent envisagées. Les populations villageoises des limites nord et ouest ont montré un très vif intérêt à introduire ou accroître la culture des carottes, navets, oignons, brèdes, poireaux, choux, tomates et pommes de terre.

4.2.1.3. Arboriculture fruitière : celle-ci existe déjà, mais est très peu développée. Cependant la demande villageoise est importante. Compte tenu des contraintes climatiques, on peut envisager de développer la culture des pêchers, des pommiers, des poiriers, des orangers et des bananiers qui est déjà pratiquée et des avocatiers.

4.2.1.4. Cultures spéciales : le tabac est la principale culture spéciale pratiquée dans un but commercial de la région. L'amélioration du réseau de pistes devrait augmenter le prix versé au producteur en facilitant la venue des collecteurs ou en lui permettant de l'apporter lui-même aux collecteurs d'Ambalavao. La culture du café pourrait etre encouragée sur la limite est de la RNI 5. Il existe d'ores et déjà une pépinière de caféier du Service de l'Agriculture à Antanchobe. Il conviendrait de renforcer cette action et d'essayer de développer la culture du caféier arabica (Coffea arabica) au nord et à l'ouest de la réserve. Outre son aspect fortement rémunérateur, le café présente l'avantage d'assurer un rôle bénéfique dans la conservation des sols. Les sites potentiels d'implantation ont été identifiés à Antanifotsy, Tsiatomborona, Antambohobe. Le développement de la culture du café devrait etre étroitement associé aux actions agroforestières en promouvant l'utilisation d'essences autochtones pour l'ombrage des caféiers.

4.2.1.5. Agroforesterie : compte tenu de l'importance du cheptel bovin des villages situés à la périphérie de la RNI 5 (Fok. Namoly ouest : 1400 hab., 1280 zébus et Fok. Namoly est : 1548 hab. et 1329 zébus) et de la vocation pastorale de l'ensemble de la région, il semble judicieux de développer un programme agroforestier. Celui-ci serait destiné à dispenser une partie du fourrage des zébus sous la forme de feuillages et limiter l'érosion des sols des bassins versants des plaines rizicoles en pratiquant l'embrousaillement en Accacia dealbata ou Grevilles hankii ou en plantant des arbres comme Eucalyptus robusta ou Grevillea robusta. Ces actions ne doivent cependant pas revêtir un aspect global, mais plutôt répondre à une demande bien précise à chaque cas de figure ou à chaque souhait des communautés villageoises afin que les arbres soient présents partout et pour toutes les formes d'utilisation. Ainsi, un schéma qui pourrait être retenu serait une zonation qui comprendrait :

Riziculture dans les vallées

Cultures maraîchères et spéciales et arboriculture fruitière sur les sols alluvionnaires, comme les berges des rivières.

Arboriculture fruitière et forestière sur les plateaux et autour des villages.

Ar[illegible] sur les [illegible] et les

Une telle zonation assurerait une utilisation optimale de l'espace, une conservation des sols et une utilisation rationnelle et durable des terres de culture.

4.2.1.6. Plantations forestières et utilisation durable des ressources naturelles de la forêt originelle : pour faire face à la demande croissante en bois d'énergie et de construction, il est indispensable de développer des actions en faveur du reboisement villageois pour limiter l'impact sur la forêt naturelle, protégée ou non.

Quand la RNI 5 a été créée en 1927, le classement des 31.160 ha intégralement protégés s'est assorti de la création d'une zone tampon de 11.100 ha, afin que les villageois des zones limitrophes de la réserve puissent continuer à prétendre d'exercer leurs droits d'usage traditionnels. De ces 11.100 ha, il est difficile de savoir ce qu'il en subsiste, car la description et la localisation de ces parcelles est imprécise. Quoiqu'il en soit, la forêt naturelle recèle des produits utilisés par la population locale que les parcelles de reboisement sont dans l'incapacité de fournir. Cela concerne la totalité des plantes médicinales, de certains bois de construction ou d'utilisation très spécifique. Il convient donc de gérer l'utilisation des secteurs de forêts naturelles qui subsistent à la périphérie de la réserve. Dans ce cadre, nous suggérons :

-Localisation et estimation de la surface des secteurs de forêt naturelle situés en dehors de la réserve.

-Identification des produits forestiers pour lesquels il n'existe pas de substitut dans les parcelles de reboisement.

-Gestion conjointe et étroite de la forêt naturelle entre les Services des Eaux et Forêts et les Fokontany concernés.

-Valorisation optimale des parcelles de reboisement pour limiter la pression sur la forêt naturelle.

-Evaluation de l'évolution des besoins en produits forestiers pour la planification des actions de reboisement.

-Développement des techniques d'apiculture non destructrices.

-Utilisation optimale des parcelles de reboisement : des parcelles de reboisement existent d'ores et déjà à la périphérie de la réserve, en particulier le long des limites nord, ouest et sud. Elles ont pour origine une action du Service des Eaux et Forêts, des Fonkontany ou d'un particulier. Le besoin en bois d'énergie et de construction est une nécessité qui pousse souvent les villageois des zones périphériques de la réserve à enfreindre la loi en pénétrant à l'intérieur de l'aire protégée. C'est pour limiter ces actions qu'il convient de gérer l'utilisation des prcelles de reboisement.

Bois d'énergie : les besoins en bois d'énergie ont été évalués au cours de l'étude préliminaire pour l'ensemble de la population située à la périphérie nord et ouest de la RNI 5. Les chiffres suivants ressortent de cette étude :

Pour une population de 4.000 habitants :

-Consommation : 2,5 st/mois/foyer.
-Nbre pers./foyer : 5.
-Nbre tot. de foyers : 4000 : 5 = 800

Besoins : 2,5 st x 800 = 2000 st/mois soit 24.000 st/an.

Bois de construction : les chiffres suivants concernent le bois de construction pour la même zone d'étude, mais l'estimation a été effectuée à partir des permis de coupe délivrés par les Services des Eaux et Forets dans les deux Fokontany de Namoly ouest et Namoly est.

-Nbre moyen de Permis de Coupe délivrés par an : 20.
Volume de bois estimé : env. 120 m3/an

Si on considère les prélèvements en surnombre et les coupes illicites éventuelles, il n'est pas illusoire de doubler cette estimation, soit 240 m3/an.

Ces chiffres de consommation de bois d'énergie et de bois de construction doivent orienter les actions à mener en faveur du reboisement. Pour ce programme de reboisement, nous sommes partisans de :

-Mise en place de pépinières témoin dans les quatre Secteurs Forestiers. Ces pépinières constitueraient des sites où les villageois pourraient venir acquérir les connaissances techniques et les graines pour mettre en place leurs propres pépinières. Ces quatre Secteurs Forestiers sont : Antanifotsy, Tsiazomboro, Antambohobe et Ampasy.

-Encouragement à mettre en place des pépinières dans tous les Fokontany situés à la périphérie de la réserve qui serviraient de relais entre les pépinières témoins des Secteurs Forestiers et les particuliers. Il s'agit des Fokontany de Namoly est et Namoly ouest pour le nord, Morarano et Antananarivokely pour l'ouest, Antambohobe et Iatongo pour le sud et Ampasy à l'est.

-Mise en place de pépinières dans les écoles des Fokontany situés à la périphérie de la réserve afin que ces activités concrètes assurent une formation pratique aux élèves à qui seront dispensées des notions environnementales dans le programme scolaire. Cette action concerne les Fokontany suivants :

- Namoly ouest : SFF de Mahasoa, SFF d'Antanifotsy, Mission protestante d'Antanifotsy.
- Namoly est : Mission catholique d'Ambalamanandray.
- Morarano : SFF de Morarano, Mission religieuse de Morarano.
- Antananarivokely : les deux écoles de Tsiazomboro et d'Anarabe sont fermées depuis 1983 faute d'enseignant.

- Antambohobe : SFF d'Antambohobe.
- Anjeva : pas de données sur les structres scolaires en place.

Choix des essences de reboisement :

Bois d'énergie : Ac. la dealbata (croissance rapide associée à une bonne qualité calorifique pour l'usage domestique), Eucalyptus rostrata (bonne qualité calorifique et faculté de faire des rejets)

Bois de construction : Pinus patula, Pinus kesya croissance rapide, bois léger, malléable et peu nerveux), Eucalyptus rostrata (dureté).

4.7. Développement touristique :

La RNI 5 d'Andringitra présente une valeur paysagère exceptionnelle qui lui confère une importance touristique indéniable. La mise en place d'activités touristiques peut développer chez les villageois des zones périphériques une volonté de protection de la réserve à partir du moment où celle-ci est perçue sous l'aspect d'un site générateur de revenus. Pour cela, il est nécessaire que les populations soient parties prenantes dans les activités développées, à travers les emplois locaux qui seront créés, à savoir :

- Recrutement de guides et de porteurs.
- Recrutement de gardes pour assurer l encadrement des visiteurs.
- Personnel employé pour l'assistance logistique au gîte d'etape.

De plus, le développement du tourisme aurait pour résultat de renforcer l'autorité forestière en charge de la gestion de ces activités, d'attirer l'attention de la communauté internationale sur le tourisme de randonnée et de découverte proposé à Madagascar.

4.7.1. Aspect législatif : le statut actuel de Réserve Naturelle Intégrale interdit toute pénétration du public dans la zone considérée. Il convient donc dans un premier temps de transformer le statut de RNI en celui de Parc National qui autorise la pénétration par les visiteurs. Des 31.160 ha qui constituent l'actuelle RNI, nous proposons qu'environ 10.000 fassent l'objet d'une transformation de statut. Cette zone est constituée par la partie rocheuse de la réserve située au nord de la RNI qui comprend le Pic Boby et le Pic Bory. Il est certain qu'elle ne manquera pas d'attirer l'intérêt des randonneurs. La délimitation est reportée sur la Carte 2.
En outre, la perception d'un droit de visite devrait être institué pour couvrir les frais récurents et améliorer les infrastructures. Ceci aurait également pour but d'encourager la population riveraine dans son effort de protection. Celui-ci devrait être établi suivant deux échelles de valeur,

nationale et non nationale. les scolaires et leurs accompagnateurs étant exempté de tout droit d entrée, mais assujettis au paiement des guides.

Proposition de droits d'entrée :

Nationaux : 500 FMG/pers/jour
Non Nationaux : 3000 FMG pers/jour

4.3.2. Localisation : le nord ouest de la RNI 5 comprenant les pics Boby et Bory se prête admirablement bien au tourisme de randonnée (carte 3). Pour des raisons pratiques, le départ de toute les randonnees devrait se situer à Antenifotsy qui est desservie par une piste permanente venant d'Ambalavao (57 km/3 h). Plusieurs itinéraires ont été reconnus, proposant des visites variant d'un jour à une semaine (carte 3).

A : 1 jour : Antanifotsy - Cascades Riandahy et Riambavy A/R (5 à 7h)

B : 2 jours : Antanifotsy - Pic Boby A/R (14 h)

C : 3→4 jours : Antanifotsy - Pic Boby via Station Météo Forestière A/R (22 h).

D (C1+C2+C3+D1+D2+A) : 7 jours : Antanifotsy - Ifaniry via Pic Boby et Station Météo Forestière (25 h).

4.3.3. Personnel : un pool de guides expérimentés et de porteurs devrait être constitué par le recrutement de villageois appartenant à des villages situés à la périphérie de la réserve. Du personnel destiné à l'entretien de l'infrastructure devrait être identifié.

L'organisation de ce personnel temporaire devrait incomber au responsable de la réserve ou en son absence au Chef Secteur d'Antanifotsy.
En outre la présence d'un agent des Eaux et Forêts serait souhaitable au cours de ces randonnées. Cela lui donnerait l'occasion de patrouiller régulièrement la réserve et de contrôler l'activité des visiteurs.

4.3.4. Infrastructure :
hébergement : un gite d'étape susceptible d'accueillir 12 personnes devraient être construit à côté de l'actuel gite d'étape des Eaux et Forêts qui resterait la possibilité d'accueil pour les agents de passage et les scientifiques désirant travailler.
Des emplacements de bivouac et de camping ont été identifiés en fonction des intérêts paysagers, des possibilités d'étape et des questions de sécurité liées à la propagation d'incendies accidentels (Carte 3). La préparation de ces sites nécessite des travaux très légers destinés à matérialiser les limites d'une aire de camping autorisée dans le but d'éviter le piétinement de la végétation et la propagation d'incendies éventuels.

4.3.5. Information/education : une salle attenante au gite

d'étape devrait être prévue pour accueillir les classes de passage et présenter sommairement les différents aspects écologiques de la PNI 5.

Un site potentiel, appartenant aux Eaux et Forets a été identifié à proximité de l'actuel Secteur Forestier d'Antanifotsy.

Information : un opuscule d'information, destiné à présenter la réserve et ses possibilités touristiques, devrait être publié. Les données d'itinéraire devraient y être contenues afin d'obliger son achat par les visiteurs. Les revenus de la vente de ce livret devrait revenir partiellement à la gestion du Parc National. Il devrait en outre assurer la protection de la zone auprès des grandes agences nationales de tourisme.

4.3.6. Réglementation des activités touristiques : les écosystèmes d'altitude constituent des milieux naturels aussi intéressants que fragiles. En conséquence de quoi, tous les groupes devront satisfaire les points suivants :

-Inscription au Secteur Forestier d'Antanifotsy
-Paiement du droit touristique
-Encadrement par un ou des guides (1 pour 6 personnes)
-Définition au préalable du circuit envisagé
-Nécessité de rester strictement sur les pistes balisées
-Interdiction de collecte de quelque produit naturel que ce soit
-Limitation des bivouacs et campings aux sites sélectionnés
-Interdiction d'allumer des feux en dehors des sites sélectionnés
-Nécessité de collecter les ordures produites au cours du séjour pour incinération à Antanifotsy
-Interdiction d'utiliser des véhicules à moteur au-delà d'Antanifotsy.

4.4. Programme d'éducation et de sensibilisation du public

Ces actions doivent assurer l'application à long terme des techniques agricoles, forestières, agroforestières ou pastorales, basées sur l'utilisation durable et rationnelle de l'environnement.

4.4.1. Education : il s'agira d'appuyer le programme scolaire primaire national qui développe des notions d'éducation environnementale. Des exemples concrets relatifs à la vie quotidienne seront retenus pour mettre en valeur, auprès des élèves, l'intérêt de la conservation. Ce programme devra être développé dans toutes les écoles de tous les Fokontany de la limite nord, ouest et sud de la réserve. Il devra être défini par un organisme regroupant des professionnels de

l'enseignement et de la conservation. Il devra être appliqué par les instituteurs en poste dans ces écoles qui auront auparavant été formés au cours de séminaires du type de ceux organisés par la section Education du WWF-Int. à Madagascar. Ces enseignants seront assistés dans leur tâche par les agents des Eaux et Forêts des quatre Secteurs Forestiers.

4.4.2. Sensibilisation : les actions de sensibilisation seront définis par le même groupe de travail qui aura défini les thèmes abordés dans le cadre de l'éducation. Il devra être appliqué par toutes les personnes intervenant en qualité de formateur dans le programme de développement rural. Le rôle de l'organisme en charge du programme de sensibilisation sera donc de former les moniteurs agricoles aux problèmes environnementaux, afin que ces derniers puissent, en une seule démarche, aider à atteindre les deux buts recherchés, la conservation et le développement.

4.5. Besoin en personnel :

Coordination générale : Chef de Projet

Activités de conservation :

- 1 Chef de Poste de la RNI 5 (Ambalavao)
- 4 Chefs Secteur (Antanifotsy, Tsiatompoka, Antanichoke, Ampasy).
- Journaliers : 120 jours en Secteur Forestier.

Activités de développement rural :

- 4 Chefs pépiniéristes (Antanifotsy, Tsiatompoka, Antanichoke, Ampasy.)
- 4 Moniteurs pépiniéristes attachés aux Secteurs Forestiers et destinés à la vulgarisation dans les Fokontany et écoles concernés par les actions de reboisement.
- 8 Vulgarisateurs agricoles.
- 2 Enquêteurs socio-économistes.

Activités de développement touristique :

- 4 guides.
- 4 guides accompagnateurs.
- 8 employés d'intendance.

Ces catégories de personnel ne sont pas salariées, mais constituent un pool de personnes qualifiées pour assumer ces tâches occasionnellement.

Activités d'éducation et de sensibilisation :

- Equipe constituée par un éducateur et deux assistants.

4.c. Coordination générale

Il est nécessaire de mettre en place un Chef de Projet malgache pour la planification et la coordination générale du projet. Le WWF et le MPAEF auront pour tâche de le recruter et de le former. Les Conseillers Techniques du WWF effectueront une visite mensuelle pour suivre le développement du projet. Un représentant de la DEF effectuera aussi une visite régulière.

Le Chef de Projet sera rattaché au Service de la Protection de la Nature, payé par le MPAEF et bénéficiera de la structure logistique du WWF. Les termes de son contrat sont présentés ci-dessous.

4.c.1. Termes du contrat du Chef de Projet : le Chef de Projet est responsable vis à vis des conseillers techniques du WWF-Aires Protégées et du Chef de Service de la Protection de la Nature, pour :

- la coordination de toutes les activités du projet
- la gestion des fonds et du matériel du projet
- l'établissement d'un rapport mensuel

Dans le cadre de cette coordination, le Chef de Projet travaillera en étroite collaboration avec le Chef de Poste de la RNIS basé à Andilamena. Il sera assisté par les Conseillers Techniques du WWF.

Les tâches particulières dont il sera responsable sont :

- l'organisation des études qui seront menées dans le cadre du développement du projet
- la sélection des sites ou des espèces qui feront l'objet d'inventaires faunistiques ou floristiques ou d'étude particulière
- l'évaluation de l'extension potentielle du projet à d'autres secteurs
- l'établissement du calendrier des patrouilles et la formation des Chefs Secteurs à la surveillance de leur secteur respectif
- la coordination des autres activités de protection comme la matérialisation des limites, le tracé et l'entretien des layons, l'établissement de coupe-feux et la reconnaissance d'itinéraires touristiques
- la formation du personnel bénévole des villages pilotes à la gestion des pépinières et des actions de développement rural
- de diriger les activités de ce personnel volontaire
- d'estimer les demandes d'action en faveur du reboisement ou de l'irrigation
- d'assurer le bon fonctionnement des activités touristiques liées à la réserve
- d'assister l'équipe d'éducation et de sensibilisation
- d'apporter son soutien aux écoles pour l'application pratique des programmes d'enseignement
- de veiller à la disponibilité du matériel et des fonds

5. RNI 5 ANDRINGITRA

La Réserve Spéciale du Pic d'Ivohibe (31 500 ha) constitue la partie sud du massif de l'Andringitra. Elle devrait être considérer, dans une deuxième phase d'aménagement de ce projet, comme un pole secondaire. Sa richesse en matière de biodiversité n'est pas très différente de celle de la RNI 5 d'Andringitra, mais son inclusion dans le projet permettrait d'accroître la valeur biologique de la zone en augmentant la surface globale du bloc forestier protégé. Un état descriptif de la Réserve Spéciale du Pic d'Ivohibe est proposé en annexe .

6. INSTITUTIONS IMPLIQUEES

6.1. MEF : dans le cadre du développement de ce plan d'aménagement, le MEF devrait constituer le ministère de tutelle compte tenu du fait que l'aspect "conservation" constitue le motif profond de la mise en place de ce projet et que le ministère a la charge de la gestion de tous les écosystèmes forestiers originels. En outre, il dispose d'ores et déjà d'une solide expérience en matière de gestion des espaces protégés et d'une structure de fonctionnement sur place, modeste, mais déjà opérationnelle.

6.2. UE : il pourrait assurer l'appui technique de la partie "Conservation" en collaboration avec le MEF à travers son projet 7ème, "Aménagement des Aires Protégées", ainsi que la composante développement touristique.
Il pourrait, à travers son projet 7ACP, "Education et sensibilisation à l'environnement" assurer la partie éducation et sensibilisation, d'autant plus que ce projet gère déjà un programme sur le plan national, en collaboration avec le MINESEP, qu'il conviendrait simplement de renforcer et d'adapter aux exigences locales.

6.3. Autres intervenants : en qualité de ministère de tutelle d'un tel projet, la recherche de partenaires incomberait au MEF. Pour assurer les actions de la partie développement rural, il conviendrait d'approcher les ministères concernés, à savoir le MAEA et le MRSTD. Les aspects de la recherche pour la conservation devraient intéresser le MRSTD et le MINESEP ainsi que tous les autres organismes de recherches, étatiques ou privés, nationaux ou internationaux.

7. RAISONS DE FAIRE

Un tel projet devrait, par son concept nouveau qui allie conservation du patrimoine naturel malgache et développement économique, intéresser le Gouvernement Malgache et les grandes Agences de Coopération

[illegible] à Madagascar. Ces dernières ont récemment montré un intérêt profond pour ce nouvel aspect de la conservation défini dans la "Stratégie Mondiale de la Conservation" proposée par l'UICN/PNUE/WWF. Celui-ci prône l'utilisation durable des ressources naturelles, le maintien des fonctions écologiques et la conservation de la diversité génétique. Ce document a été redefini pour repondre aux réalités malgaches, ce qui à donné naissance en 1984 à la "Stratégie Nationale pour la Conservation". Parmi les Agences de Coopération Internationales, on note, l'USAID du Gouvernement des Etats Unis d'Amérique, la Coopération Technique Suisse, la Banque Mondiale, le PNUD et le FED.
Enfin, la réalisation d'un tel projet concrétiserait la volonté malgache de participer à l'effort mondial qui est fait pour la conservation de la forêt tropicale tout en promouvant le développement économique durable du pays.

PRIORITY PROTECTED AREAS MANAGEMENT

RESERVE NATURELLE INTEGRALE 12, MAROTEJY

RESERVE SPECIALE D'ANJANAHARIBE-SUD

MANAGEMENT PLAN

Prepared by: WWF - Aires Protégées and Service de la Protection de la Nature, MPAEF

August 15th, 1993

PRIORITY PROTECTED AREAS MANAGEMENT
P.N.I. II MAROJEJY, ANJANAHARIBE-SUD

1. INTRODUCTION

1.1 Biogeographic region and location

Marojejy Strict Nature Reserve (60,150 ha) and Anjanaharibe-Sud Special Reserve (32,100 ha) occur within the Eastern Malagasy Centre of Endemism.

Marojejy forms one of the four floristic Domains of the High mountains in this centre of endemism, all four of which cover a relatively small area with a highly localised flora with high levels of endemism. The nearby Anjanaharibe-Sud Special Reserve occurs within the floristic Central Domain of the Eastern Malagasy Regional Centre of Endemism. Because of their altitudinal ranges and proximity to the interface between the Eastern and Central floristic Domains of the east, both protected areas have a wide range of floristic communities.

Both protected areas are within the Faritany of Antsiranana (Map 1). Marojejy spans the Fivondronona of Andapa and Sambava, and Anjanaharibe-Sud is within the Fivondronona of Andapa. The western slopes of Marojejy form the eastern wall of the Cuvette d'Andapa, a flat zone of marshland spreading 18 km and surrounded by high mountains. Anjanaharibe-Sud forms the south-western boundary of the Cuvette.

1.2 Description

1.2.1 Marojejy

The reserve encompasses the crystalline gneissic Marojejy massif (Map 2) rising steeply in a series of peaks and sharp ridges from the coastal plain. The highest peak is Marojejy, 2,133 m. To the north and south, respectivly, the Androranga and Lokoho Rivers separate the massif from adjacent montane areas. The western slopes form an abrupt edge to the Cuvette d'Andapa. The northern slopes are generally the least steep. No major rivers originate from the massif, but several large tributaries of the Lokoho arise there, and numerous small streams flow down to the coastal plain, the Cuvette, and larger river vallies.

The massif exhibits considerable microclimatic variation. Annual rainfall probably exceeds 3,000 mm over much of the massif, but at Andapa to the west and Sambava to the east it is 2,043 mm and 2,178 mm, repsectively. The northern slopes have the driest climate. Clouds frequently cover the higher reaches of the massif. October and January are the driest and wettest months, repectively. Average temperatures on the

lower eastern slopes are approximately 22.3°C during the coldest month (July) and 28.9°C during the warmest month (February). Winter temperatures on the summit of Marojejy are around 1.5°C.

The massif comprises a range of eastern rain forest and moist montane vegetation types. It is close to the northern limit of the eastern rain forest belt, and some tree species exhibit deciduous behaviour on the drier northern slopes. The massif is floristically rich with more than 100 genera and 2,000 species, with a high proportion of taxa endemic to the local area. A major feature of the massif is the succession of vegetation types and floristic communities over the wide altitudinal range. Eastern lowland forest occurs on much of the lower slopes up to 800 m. In the humid microclimates within protected ravines, the understory is dense with well-represented families including Acanthaceae, Urticaceae, Graminae, and arborescent ferns. From 800-1,450 m, physiognomy is typical of Central Eastern forests, with a lower canopy, within which the tallest trees rarely exceed 20 m. Montane moss forest is dominant between at 1,850-2,000 m, but penetrates to much lower altitudes where conditions are suitable. Ericoid bush is well represented above 1,800 m, but may occur as low as 700 m in suitable localities. This formation may be only a few centimetres to over 6 m tall.

The fauna is typical of the northeastern rain forests, but again includes taxa recorded only on the massif. Notably, several chameleons are known only from Marojejy. The fauna is not well known, but the better studied groups such as the reptiles indicate that diversity is high.

1.2.2 Anjanaharibe-Sud

This special reserve (Map 3) is little known. The crystalline massif forms the southwestern boundary of the Cuvette d'Andapa, rising in a series of ridges to 2,064 m. Two major rivers, the Andramonta and the Anilaite, later joining to form the Loloho river, arise from the massif. The wide sedimentary valley of the Andramonta upstream from the cuvette lies partially within the reserve.

The climate is likely to be similar to that of Marojejy, except that the western edges of the reserve may be more influenced by western conditions and be drier. Rainfall may exceed 3,000 m on the upper slopes.

The reserve lies within the Eastern Central Domain. Given it proximity to Marojejy, and it's wide altitudinal range from 700-1,943 m, it is likely that its vegetation communities are similar to that of R.N.I. 12. The fauna is virtually unknown, but given the likely diversity in vegetation types, probably rich.

1.3 Biological importance

As one of the four High Mountain Domains, Marojejy is one of the most important Malagasy local centres of endemism, and is furthermore the only one of the four that remains intact. Anjanaharibe-Sud is likely to be equally important given its proximity and similar altitude.

The extraordinarily high plant species diversity marks Marojejy as one of Madagascar's most important conservation centres. Differences in altitude and microclimate, and proximity to the northern limit of the eastern rain forest block give rise to a wide range of floristic communities. This is likely to generate widely differing floristic and physiognomic communities structures. A number of plant species, including palms and bamboos, are also known only from the mountain's lower- and mid-altitude forests. Local endemism is highest in the peak and ridge crest ericoid formations, dominated by Philippia spp. and Agauria spp. Ascarinopsis coursii is the only Malagasy representative of the Chlorantaceae and is known only from Anjanaharibe-Sud.

Marojejy is also an important faunal refuge in supporting a high species diversity and a range of locally endemic forms. One group which is relatively well recorded, the herpetofauna, indicates high levels of both diversity and local endemism. Among the 18 recorded reptile species, for example, are four that are at least localized variants, and there are full species known only from the massif within the exceptionally rich chameleon fauna. Preliminary censuses indicate a rich avifauna, and local accounts indicate that the viverrid carnivores are diverse, although species cannot yet be reliably distinguished on the basis of descriptions. Marojejy and Anjanaharibe-Sud are at the northern range limits of the Ruffed lemur (Varecia variegata) and the Indri (Indri indri), respectively.

1.4 Economic importance

The two major rivers arising in Anjanaharibe-Sud are the principal water sources for the Cuvette d'Andapa irrigation programme. The Societé d'Andapa Manoratra (SOAMA) funded by the Fond Européan pour le Developpement currently manages 2,800 ha of irrigated rice cultivation within the cuvette, and has plans for the development for a further 2,000 ha. The rain forests on the slopes of the two protected areas where they form the walls of the cuvette play an essential role in protecting the irrigated lands from over-siltation and in assuring a stable water source. Already forest clearance for 'tavy', low- productivity destructive slash-and-burn agriculture, has led to loss of irrigated lands through increased soil erosion leading to blocked canals and paddy silting, particularly near the slopes of Anjanaharibe-Sud. This has promoted a major conservation and reafforestation programme to be incorporated into management plans for the cuvette, to be implemented by SOAMA and the Service des Eaux et Forêts.

Marojejy is also the major water catchment area for the Doany Valley to the north, the Lokoho River valley to the south and the eastern coastal plains. Production of coffee, vanilla, cloves and rice is important in these areas and requires adequate soil protection through sound forest management on surrounding slopes. The drier lands of the Doany Valley and the lower northern slopes of Marojejy are important cattle areas, but pasture is poorly managed with consequent severe soil erosion and low productivity.

2 BACKGROUND INFORMATION

We have identified a range of problems facing the two protected areas, and obtained information on previous development projects in the region, during previous surveys. The management plan is based on this information, but is likely to require modification as more detailed socio-economic surveys are carried out.

2.1 Problem description

Known environmental problems facing the two protected areas vary in relation to locality. Existing and potential cultivation practises depend on topography and water availability. Irrigated rice production is the favoured agricultural activity, but there is a lack of suitable land or necessary financial and material resources in most villages. Pastoral activities also vary with locality as does local utilisation of natural forest resources. It is therefore necessary to address problems on a local basis rather than seek global solutions that are applied to all regions around and within the two protected areas.

2.1.1 Forest clearance

Forest clearance occurs for several reasons.

Slash and burn agriculture is the most extensive reason for forest loss. Marojejy is now largely bordered by active and abandoned tavy sites, and tavy has led to forest clearance within Marojejy at many localities. The most extensive forest destruction within the reserve has occurred in the northeast in the Andilangy River valley, and in the east near the villages of Antanimalandy (Soahitra II) and Andodivohitra (see Map 2). The extent of tavy at Anjanaharibe-Sud is currently poorly known, but information from Eaux et Forets agents indicates extensive tavy on the slopes of the Anjaibe and Andramonta river vallies. Land under tavy continues to increase as population growth generates additional need for cultivateable land, and because previously established tavy sites quickly become infertile, requiring long fallow periods.

Illegal commercial forestry within Marojejy Reserve in rare, but low-level selective exploitation of valuable hardwoods does occur at least in the north. Along virtually the entire length of the boundary, forests within Marojejy Reserve are exploited to varying degrees for construction timber and fuel wood. The level of forestry practised within Anjanaharibe-Sud is unknown.

2.1.2 Fire

Fire is as yet a relatively minor problem in Marojejy, but potentially one of the most serious threats. Pasture fires are lit near the northern boundary of the reserve each dry season to encourage early grass growth. Where pastures occur up to or within the boundary, fires cause limited peripheral damage to native forests and prevent regeneration. Fires are also used to clear land for tavy, but apparently do not spread to surrounding native forest blocks.

Fire has caused major damage to high altitude forests and ericoid formations in the three other High Mountain Domains: Tsaratanana, Andringitra and Andringitra. The Marojejy ericoid formations dry out rapidly on sunny, rain-free days. They face a continual threat from fires set by villagers who regularly visit these formations to collect forest products. A single uncontrolled fire could be the greatest threat to higher altitude formations. It is likely that the higher reaches of Anjanaharibe-Sud face the same threat.

2.1.3 Collection of medicinal, ornamental and useful plants

Collection of medicinal and ornamental plants is practised within all peripheral areas of Marojejy and probably Anjanaharibe-Sud. Collection for local consumption has occurred for many years and causes little damage. Collection of ornamental species may become a problem when it is organised as a commercial enterprise. Taxa facing particularly high risk are orchids, palms, and tree ferns. Probably the most important exploitation of useful plants is the collection of sphagnum, moss and lichens in the high altitude sclerophyl forest and ericoid formations for bedding material. While they probably cause little permanent damage, collectors constitute a serious fire risk to these vulnerable communities.

2.1.4 Cattle ranging

Cattle range in small numbers within the northern sector of Marojejy. The extent of penetration within the reserve and the level of damage appears to be marginal.

2.1.5 Poaching

Poaching of birds, lemurs and some small mammals occurs widely within the peripheral areas of Marojejy, and reportedly within Anjananaharibe-Sud. Poaching is largely for local consumption only, and probably seldom causes lasting damage. The most serious damage appears to be cutting of 50-200 m-long, 5-10 m-wide swathes within forest wherein lemur traps are set. These cause a disproportionate destruction of forest for little benefit. Collection of animal species for pets appears to be limited, with only a few villagers keeping individual lemurs. There is no indication of commercial collection.

2.2 Existing management and development activities

2.2.1 Current protected areas management

Five MFAEF personnel are assigned to Marojejy.

- Mr. Randrenjasoanirina, Chef de Poste, Andapa.
- Mr. Lipo, Chef Secteur, Doany.
- Mr. Ramarojoana Philibert, Chef Secteur, Ambatoaranana.
- Mr. Ravelomanantsoa Julien, Chef Secteur, Andrahanjo.
- Mr. Roland Christophe, Chef Secteur, Mandena and Manantenina.

Each chef secteur is responsible for approximately a quarter of the reserve. Each is based at a separate office accomodation building near the boundaries of the sector. Protection activities has been limited, however, owing to a lack of transport and field materials. MFAEF has recently ordered a Honda 125 motorcycle for the Chef de Poste.

The boundaries are identified by a series of 32 numbered concrete markers. In some localities, the boundaries have been further marked by lines of exotic tree species (jackfruit and eucalyptus), or swathes cut through the forest between concrete markers. Only a few of the tree lines or swathes have been maintained.

There are no MFAEF personnel assigned uniquely to Anjanaharibe-Sud, but the Chef de Poste at Andapa is responsible for the reserve. The boundaries are identified by concrete markers, but no additional means of identification have been installed.

2.2.2 Rural development activities

SOAMA is responsible for the development of irrigated rice production within the Cuvette d'Andapa, with long-term projections to manage all flat land within the cuvette. Yields within the cuvette are 3 tonnes/ha in the wet season and 2.5 tonnes/ha at other times, higher than the national average. SOAMA also runs a coffee extension programme throughout the Five Communes of Andapa, providing some tree cover on otherwise unprotected slopes.

The Service des Eaux et Forêts installed rice irrigation projects as part of its Vallée Forestière programme. Many of these require major repairs as maintenance funds were limited.

SOAMA and the Service des Eaux et Forêts currently work together on a forest management programme to protect agricultural lands from soil erosion.

Opération Savoka established a pilot project at Andrakata (see Map 2) on the southern slopes of Marojejy in the Lokoho River valley, but this proved not to be feasible.

The proposed MFAEF/WWF programme is designed to complement the existing SOAMA/MFAEF programme operating in the vicinity of the two target protected areas. The MFAEF/WWF pilot projects will be centred on villages that are outside current SOAMA irrigation and coffee projects, but may overlap spatially with SOAMA/MFAEF reafforestation activities.

3. PROJECT MANAGEMENT

3.1 Project management

The project is designed and managed jointly by MFAEF and WWF. Overall management planning is the responsibility of the Direction des Eaux et Forets and WWF technical advisers in Antananarivo. Implementation of protected areas management and associated peripheral development activities described in this plan are the responsibility of the Chef de

Reserve de Marojejy and a Malagasy project manager appointed by WWF, both based at Andapa. The Chef de Service Provincial des Eaux et Forets in Antsiranana and the director of SOAMA will be advisers, in order to ensure that the project is complementary to their respective programmes.

Funding is the responsibility of WWF, and the implementation of the education and public awareness programme is the responsibility of Mr. Barthelemy Vaohita, Director of WWF in Madagascar.

3.2 Selection of pilot villages

The project will be based at the Cantonnement des Eaux et Forets at Andapa.

It is currently planned to restrict major development activities to selected accessible villages near the southern, western, northwestern, and southeastern limits of Marojejy during the first year. Five villages have been selected, based on their willingness to participate in project activities and their location near critical areas of Marojejy. The development activities described below have been developed during recent discussions with committees of each of these villages, which are Manantenina (southeast), Antanambao Lokoho (south), Ambavala (west), [illegible] (west) and Betsomanga (northwest) (see Map 2). Project activities will be extended as quickly as possible to neighbouring settlements. Inclusion of additional pilot villages north of Marojejy and east of Anjanaharibe-Sud during the second year will be based on surveys carried out in Year 1.

4. MANAGEMENT PLAN

4.1 Surveys and assessment

4.1.1 Socio-economic survey

A socio-economic survey of all peripheral areas of both protected areas are required as a basis for detailed management planning, particularly as human needs and land management varies considerably in the area. This survey should be carried out by students currently studying sociology at the Université de Madagascar and who have a strong interest in conservation for development planning.

The components of the survey should include demographic patterns, local agricultural practises, land availability and needs, tree product requirements and patterns of use (both exotic and native species), and medical and education services. The survey should focus initially on selected pilot villages, extending to other localities eventually to encompass all lands peripheral to the protected areas.

4.1.2 Reserve and forestry management

The project leader and Chef de Poste should carry out an assessment of management constraints and requirements in order to plan improvements for both protected areas. This will include an analysis of infrastucture, material and personnel, and activity requirements.

In Marojejy, the surveys will focus on the northern and eastern limits. Additional surveys will be carried out within the reserve. At Anjanaharibe-Sud all boundary regions and the Befalanana - Andapa footpath that traverses the reserve will be surveyed.

Surveys of Marojejy will be carried out in the first half of Year 1 as a series of three visits to the centre north from the northwest, the northeast, and the east. Surveys of the eastern limits of Anjanaharibe-Sud will also take place during the first half of Year 1. The south of the reserve and the Befalanana - Andapa track will be surveyed in the second half of Year 1, and the north and western limits examined during the first half of Year 2. Surveys of the reserves interior sectors will be carried out through this period.

Parallel surveys will be carried out to examine natural forest resources in the vicinity of the two protected areas, and how these are utilised.

In addition, biological inventories of selected regions or taxa would be most helpful in providing effective protection for critical areas, and for understanding the importance of the two reserves. These may be carried out by personnel from the Universite de Madagascar and MFAEF, and by collaborating foreign institutions such as Missouri Botanical Garden. The timing of these activities will depend on personnel availability.

4.2 Protected areas management

Protected areas management will be restricted to Marojejy in Year 1, extending to Anjanaharibe-Sud in Year 2.

4.2.1 Objectives

There are five protected areas management objectives.

- To establish clearly defined boundaries for both reserves.
- To prevent further destructive incursion within the Marojejy and Anjanaharibe-Sud protected areas.
- To safeguard existing natural plant and animal communities.
- To allow natural regeneration within damaged sectors.
- To provide management capacity within MFAEF.

4.2.2 Recruitment of additional protected areas personnel

Additional protected areas personnel will be required for Anjanaharibe-Sud. At least three additional personnel are needed, and will be provisionally located at Ambalaromba (west), Amponeamby (south), and Befalampona (east). Precise location will be based on Year 1 surveys of the reserve. These personnel will be recruited in Year 2 by MFAEF and WWF, and financed by WWF until government funds are allocated.

4.2.3 Protected areas personnel training

Training will take two forms. On-site training will be carried out by WWF personnel on site, focusing on implementing patrols, boundary

maintenance, and carrying out selected surveys of biological important or critical areas. This training will include a short course at Andapa each six months for all personnel. Basic conservation biology will be taught, followed by presentations by each participant on the problems and activities in his area of jurisdiction.

Additionally, all protected areas personnel will attend an annual field course in conservation and reserve management for rain forest regions held at Montagne d'Ambre. If funds are available for the 1988 course, training will be carried out in December, but thereafter the course will run each September. This will provide an opportunity for personnel from several rain forest reserves to compare problems and management practises.

4.2.4 Equipment and material support for protected areas personnel

All personnel will be equipped with essential field and camping equipment, including tents, sleeping bags, backpacks, cooking materials, compasses, rainwear, boots and notebooks. MPAEF have already recieved one Honda 125 trail motorcycle from WWF, but are likely to require an additional motorcycle for Anjanaharibe-Sud in Year 2. The need for additional transport and equipment will be reviewed annually.

Existing offices and accomodation for reserves personnel will be reviewed and repaired or improved as required. New MPAEF personnel for Anjanaharibe-Sud will also need office facilities and accomodation. These will be assessed and implemented according to availability of funds.

4.2.5 Reinforcing and marking of protected area boundaries

All boundaries must be clearly visible for effective action to be taken against illegal incursions within the protected areas. The limits of both protected areas are defined by numbered boundary markers, and in a few areas of Marojejy by lines of eucalyptus or jackfruit trees, or boundary paths.

All boundary markers will be relocated and repaired as necessary, with the help of local villagers. In Marojejy, boundary markers around all pilot villages will be relocated during the first half of Year 1. As additional areas are surveyed during the following six months, all remaining boundary markers will be relocated and repaired. Relocation of the boundary markers on the eastern limits of Anjanaharibe-Sud will be carried out in the second half of Year 1. The remaining reserve markers will be worked upon during the second half of Year 2.

The boundaries between markers must be identified and be clearly visible. They have already been marked in at least two areas of Marojejy. The limits near Betsomanga are marked by a 1 m wide boundary path, while those near Antanambao Lokoho are marked by a line of jackfruit trees. These two boundary marking systems will be maintained regularly by local villagers. Appropriate systems will be decided in all pilot village areas in both reserves during the two years and installed. Appropriate systems will also be decided for the entire length of both reserve's limits in Year 2, based on surveys, for later installation. A footpath should run along the entire length of the Marojejy boundary.

All marked boundaries and the Bealanana - Andapa track will be signposted. In the long-term, all boundaries will be signposted.

4.2.6 Patrols

Patrolling of all boundaries and regularly used paths within the protected areas is essential to monitor activities and control harmful incursion within the reserves, including hunting, harmful collection or cutting of plant materials, and fires in vulnerable areas. Separate patrol schedules will be drawn up with the Chef de Poste and Chefs Secteurs. The latter require schedules to regularly visit all boundaries and access paths within their jurisdiction. The Chefs Secteurs will identify boundary maintenance requirements and their patrols should limit the risk of fire in ericoid vegetation high risk areas which are visited regularly to collect sphagnum and moss for bed stuffing. The Chef de Poste patrol schedules will be designed to support the Chefs Secteurs and deal with specific problems.

4.2.7 Peripheral protection activities

Where native forest lies adjacent to pastures and traditional camp sites, fire breaks must be cut to prevent fire damaging the reserves forest. These sites will be identified during the surveys.

4.2.8 Installation of a radio communications system

It is planned to provide all priority protected areas with a radio link to MINEF in Antananarivo. This would facilitate administration and reduce problems of isolation. Eventually the radio system linking the reserve to Antananarivo could be expanded to provide a local inter-guard communications system. A single radio will be installed at Andapa, providing a link with Antananarivo, during Year 2.

4.3 Agricultural activities and livestock management

These activities are confined to the five Marojejy target villages in Year 1, extending to additional pilot villages identified in both reserves in Year 2. They may also expand to include additional settlements neighbouring existing pilot villages.

4.3.1 Agricultural and livestock objectives

During the two-year pilot period, there are 5 objectives.

- Introduction of more stable and intensive agricultural practises into the pilot village areas.
- Introduce or improve irrigated rice production where appropriate.
- Help improve the quality and quantity of locally available vegetable seeds.
- Help improve livestock and management practises.
- Help improve marketing of locally produced livestock, vegetables and crops.

4.3.2 Improving quality and quantity of locally available vegetable seeds and production

Local production of vegetables is far below maximum possible yields. The reasons include limited availability of appropriate seeds, a tradition of limited vegetable production and consumption, and product marketing difficulties.

Vegetable seeds imported from Europe and Africa and purchased in Antananarivo will be grown in trial plots and distributed to villagers to identify varieties appropriate to local conditions. The trial plots will be established by villagers who are willing to participate. Each of the pilot villages will be encouraged to establish nursery beds to ensure a self-sustaining seed supply.

Improved seed quality and availability must be supported by better cultivation techniques and marketing. These are discussed below.

4.3.3 Introduction of more stable and intensive agricutural practises

The principal form of agriculture in the pilot village areas is tavy, which is encroaching Maroojejy Reserve. The long-term viability of this project depends on establishing stable agricultural practises that allow permanent cultivation on previously cleared land. Replacing traditional tavy practises with new, more efficient agricultural systems will be largely experimental and will require clear demonstration to local villagers of the benefits of any new system.

The project manager will work with collaborators in the pilot villages to try new production methods. They will carry out trials with nitrogen-fixing fallow and forage crops, such as Crotalaria, Leucaena, Tephrosia and Cajanus, and try methods that have being developed by FOFIFA at Befurona (Toamasina Faritany) and Opération Savoka at Ranomafana (Fianarantsoa Faritany). These techniques will be associated with agroforestry techniques described below. The project manager will need to visit these sites for training.

4.3.4 Irrigated rice production

Irrigation projects have been requested in four villages.

In Antanambao Lokoho:

- 2 barrages at Maventivolo required for a total of 15 ha;
- 2 barrages at Ambatomaintina for a total of 4.5 ha.

In Manantenina:

- 1 barrage and 12 km of canals at Analamboangy to irrigate 14 ha;
- 1 barrage and 1 km of canals at Amboraloha to irrgate 8 ha;
- 1 barrage and 300 m of canals at Antsahatehesina to irrigate 4 ha;
- 1 barrage and 1 km of canals at Antafiamora to irrigate 6 ha;
- 1 barrage and 1.5 km canals at Lohan'Amboraloha to irrigate 8 ha.

In Ambolava and Antanimberite:

- 1 major barrage, 4 km primary canal, and 15 km of secondary canals at Atodumitanana to irrigate approximately 100 ha.

These irrigation projects require assessment by qualified personnel, who may be recruited from SOMA, MFAEF or PNUD. Project support will involve funding, expertise, and material and mechanical support where necessary. Labour will be provided by the villages. Their implementation will depend on feasibility and availability of funds. Additional irrigation projects will be assessed as they are proposed by villages.

4.3.5 Improving livestock and management practises

Members of all pilot villages requested assistance in livestock management. Cattle, pigs and poultry are of primary interest. Improved health care is required for all species, particularly cattle which suffer from severe parasite infections. Improvements are also needed in the supply of feedstuff (rice chaff) to pigs. Existing village fowl stocks are generally poor layers, and improved stocks and feeding regimes are required to improve quality.

Available veterinary care will be assessed and, if feasible, a routine care service will be implemented. Improved poultry varieties will be sought within Madagascar and sold at cost price to villagers. The project leader will examine appropriate rearing techniques and apply these with participating villagers. The project leader will also try to organise regular pig feed availability to those villages where it is required.

The villagers of Antanambao-Lokoho have requested a pisciculture project involving creating a barrage across a local stream for creation of fish ponds. The project leader will evaluate the site, and if pisciculture is feasible, will assist in creating fishponds and finding suitable stock species.

The Project Manager will encourage residents in all pilot villages to keep bees for honey. This requires virtually no financial outlay and only simple techniques.

4.3.6 Improvement in produce and livestock marketing

While much of the rice, vegetable and livestock production is for local consumption, surplus production is an essential source of cash income for most if not all families. Difficulties in marketing these products may be a constraint on total potential production, and reduce the amount of possible cash income.

The project leader wil assess possible improvements in transport and marketing in both years, and where possible assist in their improvement.

The residents of Antanambao Lokoho suffer a seasonal shortage of rice when their own stocks have expired. They have suggested that this problem may be eliminated in two ways: increased storage capacity within the village, and the establishment of a shop to sell rice bought by the

project. This possibility will be examined by the project leader and take necessary steps to establish the shop if feasible.

4.4 Forestry and agroforestry

Project forestry activities will focus on pilot villages only, complementing those already planned or in operation by MFAEF.

4.4.1 Objectives

There are 5 objectives.

- To establish tree nurseries for useful species, for fruit, coffee, fuelwood and forage production, and for nitrogen fixing species.
- To develop an effective outplanting and tree maintenance plan.
- To carry out field trials on tree species and planting systems involved in stabilizing agriculture.
- To investigate and implement sustainable utilization of native tree species.
- To investigate forestry plantation requirements and establish plantation as appropriate.

4.4.2 Tree nurseries

Tree nurseries will be established in all pilot villages. Production of nitrogen fixing and forage species that can be interplanted with crops in tavy plantations are a high priority in all localities. Equally, all villages require forage species for cattle, and this is especialy important in the northern village of Betsomanga, where cattle rearing is a major activity. Useful species filling either or both roles include Crotalaria, Lucaena, and Tephrosia.

Fruit trees favoured by all villages are mangoes (Diego Suarez variety) and lychees. Appropriate mango seeds are available in quantity only from MFAEF at Antsiranana, and will be collected there for planting in the pilot villages. Lychees and other useful fruit species, including soursop and coeur de boeuf will be obtained from the same source.

Coffee seeds are available from SOAMA in Andapa.

Establishment and maintenance of the nurseries will be the responsibility of individual villages, with materials and advice supplied by project personnel. In the Antsiranana area, MFAEF have established a system of individual village management committees for tree nurseries, and this practise will be established in the pilot villages.

4.4.3 Outplanting and tree management

The success of agroforestry activities depends on proper care of outplanted trees, particularly during the first few years when young plants are vulnerable to fire damage, overbrowsing and dessication. The project leader will work with villagers on outplanting site selection and provide guidance on protecting and maintaining young trees. This will be

linked with field trials on tree quality, management and harvesting techniques.

Maintenance activities will also include improvements in management practises within coffee plantations already established in pilot villages. All plantations visited during previous field missions have received little post planting management, with consequent diminished productivity. The project manager will encourage appropriate pruning and harvesting techniques.

4.4.4 Agroforestry and agricultural field trials

The project manager will visit the FOFIFA field station at Beforona, and Opération Sevoha at Ranomafana for training in agroforestry practises involved in stabilizing tavy agriculture. He will use this experience in selection of appropriate tree species and implementing interplanting systems in trial plots in the pilot villages.

4.4.5 Survey and implementation of sustainable use of native forest products

The project manager and the Chef de Poste at Andapa will investigate current use of native forest products, including fuelwood, construction materials, edible plants, medicinal products, and the use of lichen and moss at higher altitudes within the reserves.

Based on this survey, they will then develop a plan to rationalise exploitation of native products, and modify their forestry programme where appropriate to provide alternative products closer to villages.

4.4.6 Forestry plantations

Reafforestation is currently being carried out by MFHCF in this region, but none is planned in the pilot village areas. The project manager and Chef de Poste will assess the utility of reafforestation of cleared land that is not suitable for agriculture and agroforestry. Based on this assessment, they will establish appropriate plans for village-scale plantations.

4.5 Education and public awareness programme

This programme is essential in terms of ensuring long-term effective reserves protection and rural development practises, through improved environmental awareness. This programme will begin in Andapa and the pilot villages, expanding to other localities as neighbouring and additional pilot villages are attracted to the project.

4.5.1 Education

An education programme will begin in August 1988. Teacher training courses dealing with environmental management and conservation will be held in Sambava and Andapa. The teachers will be encouraged to implement appropriate courses in their own schools and in others in outlying

villages. They will receive follow up support from the WWF education and public awareness programme operating permanently in the area.

Each teacher will be provided written guides for primary level environmental education. These are designed to support courses based on primary level pupils books that will be distributed to all schoolchildren attending environmental courses. These books, written in Malagasy, are to be retained permanently by the children.

4.5.2 Public awareness

A public awareness team, equipped with a vehicle and audio-visual material, is to be recruited by WWF and implement a programme for Montagne d'Ambre and Merojejy. This team will be recruited and trained in September - October, 1988. The team has several functions. It will provide support to the schools education programme, including lectures and audio-visual demonstrations. The team will also support conservation and rural development activities centred on the pilot villages, by holding meetings and presenting conservation themes with village residents on a regular basis to explain the need for these activities. The team will carry out similar activities in other villages to help prepare their participation in project activities. It will also present demonstrations on conservation at markets.

5 PERSONNEL REQUIREMENTS

5.1 Conservation personnel

The project will require the following MEAEF personnel.

For both protected areas.
- Chef de Poste, Andapa.

For Merojejy.
- Chef Secteur, Doany.
- Chef Secteur, Ambatoarenana.
- Chef Secteur, Andrahanjo.
- Chef Secteur, Manderia and Manantenina.

For Anjanaharibe-Sud.
- Chef Secteur, Ambalaromba.
- Chef Secteur, Ampanomby.
- Chef Secteur, Beralamona.

The localities of Chefs Secteurs for Anjanaharibe-Sud are provisional. Additional personnel may be required for either reserve to ensure adequate coverage. This will be reviewed following examination of the effectiveness of current staffing levels.

Labourers will be hired as required to assist in cutting trails, firebreaks and boundary paths. However, much of this work will be carried out unpaid by residents in nearby villages.

5.2 Rural development activities

Rural development activities require the following personnel.

- 1 nursery manager for each of the five Marojejy pilot villages, and 1 for each of additional pilot villages included in the project during Year 2.
- 5 agricultural extension agents.
- 5 forestry extension agents.
- 2 sociologists for socio-economic surveys.

All but the sociologists will be unpaid members of pilot villages who will carry out these activities as they are required. The sociologists should be recruited from the Université de Madagascar, and will have expenses paid by WWF.

5.3 Education and public awareness

An education specialist and two assistants are required. These are hired directly by WWF.

5.4 General coordination

A Malagasy project leader is required for overall planning and coordination. He will be hired and trained by WWF and MPAEF. WWF technical advisers will also visit the project each month to assist project development. A representative from the Direction des Eaux et Forets will also visit regularly.

The project leader will be assigned to the Service de la Protection de la Nature, Direction des Eaux et Forets. He will be seconded to and paid by WWF. Terms of reference are presented below.

5.4.1 Project leader: Terms of reference

The project leader will be responsible to WWF - Protected Areas technical advisers and to the Chef de Service de la Protection de la Nature for coordination of all project activities, financial and materials management, and reporting on a monthly basis. He will work closely with the Chef de Poste at Andapa in this coordination role, and liaise regularly with the Director of SOAMA at Andapa to ensure complementarity of activities. He will be assisted by WWF technical advisers.

Specific duties are as follows.

The project leader will be responsible for organising surveys of the reserves and their boundaries carried out by MPAEF personnel. He will also indicate the choice of critical species or areas for faunal and floral inventories. He will coordinate required socio-economic surveys and advise on extension of the project to additional areas.

The project leader will be responsible for devising schedules and training Chefs Secteurs in patrolling and monitoring their individual sectors. He will coordinate all additional protection activities including boundary marking, trail cutting, and firebreak installation.

The project leader will visit FOFIFA and AIVF projects for training and advice.

The project leader will train all unpaid nursery and extension personnel in the pilot villages. He will be responsible for ensuring that required materials and funds are available, either locally or by requesting assistance from WWF. He will also monitor and advise on activities of these personnel, seeking additional advice where necessary. He will also evaluate requests for larger projects such as irrigation or reafforestation schemes.

The project leader will assist the education and public awareness team where required, and work with schools in developing their education teaching programmes, including visits to field sites and conservation projects.

6 PARTICIPATING ORGANISATIONS

As MFAEF is the government ministry responsible for protected areas and native forest management, it should have overall titular responsibility for this project. It is the only organisation with an infrastructure established for management of these protected areas.

WWF will advise and support MFAEF in implementing this project, in accordance with protocols established for WWF Project 3746 'Aménagement des Aires Protégées. This will include material and technical support where appropriate and feasible. WWF will also prepare necessary funding applications to other agencies at the request of MFAEF.

The WWF Project 'Education et Sensibilisation à l'environnement' will implement all education and public awareness activities included in the project. It will also implement a national environment programme. All costs are met by WWF.

Participation by additional government ministries or non-governmental organisations will be required to carry out evaluations, research and selected development activities. As the titular head of project, MFAEF has the responsibility of engaging their participation, but may draw upon the technical support of WWF in doing so.

Additional participating ministries and international agencies may include MFAFA, MRSTD, MINESEB, MINESUP, and selected UN agencies.

7 FUNDING AGENCIES

At present, WWF is the sole funding agency, and activities will be restricted to those within its financial means until additional agencies agree to participate. MPAEF is responsible for soliciting additional funding for project activities but WWF will assist in proposal preparation. It is important that activities requiring additional funding are identified as soon as possible given the time required to prepare and process applications.

Potential funding agencies include US-AID, Coopération Suisse, PNUD, UNICEF, World Bank, and the European Development Fund.

8 FUTURE ACTIVITIES

The programme described here covers a two-year pilot period only, but it is important to realise that it is planned to continue the project over a much longer period in order to ensure success.

It will be of considerable value to find funding agencies and additional expertise to increase the scope of activities in the future, particularly if funds are available for an integrated project approach and not simply for individual projects. In addition, the scope of projects is limited to relatively small projects at present, and funds for major irrigation schemes have to be sought from other funding agencies.

Future coordination of protection and conservation activities will be greatly enhanced by the installation of a radio communications system. This would aid coordination not only activities within and between the two reserves, but could be linked to a national radio communications grid covering all major protected areas.

Merojejy also offers some potential as a tourist site, particularly as this industry is becoming increasingly important in Madagascar. We will consider this possibility during the two-year pilot phase.

APPENDIX E:

INITIAL ENVIRONMENTAL EXAMINATION

INITIAL ENVIRONMENTAL EXAMINATION

OR

CATEGORICAL EXCLUSION

Project Country: Madagascar

Project Title: Debt for Nature Program (687-0112)

Funding: FY (s) 89-92 $1,000,000

IEE Prepared by: Dan Mackell

Environmental Action Recommended:

Positive Determination _____
Negative Determination _____

Categorical Exclusion:

The project will not have a harmful effect on the environment. The purpose of the program is to improve conservation through environmental natural resources management. This activity therefore meets the criteria for Categorical Exclusion in accordance with Section 216.2 (c) (1) and 216.2 (c) (2) (XIV).

Concurrence:
Bureau Environmental Officer
John J. Gaudet, AFR/TR/ANR

APPROVED ✓

DISAPPROVED _____

DATE 7/24/89

Clearance: GC/AFR JK Date 7/28/89

APPENDIX F:

A.I.D. DEBT FOR DEVELOPMENT GUIDELINES

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

February 15, 1989

A.I.D. ANNOUNCES DEBT FOR DEVELOPMENT INITIATIVE

In response to the debt crisis facing many developing countries, the U.S. Agency for International Development (A.I.D.) is initiating a new Debt for Development mechanism to finance development assistance activities of non-governmental organizations. Through this new Initiative, A.I.D. will support certain programs of nongovernmental organizations in developing countries through debt exchange transactions that will both reduce the host countries' debt burdens and obtain a favorable rate of exchange for foreign assistance funds provided to such organizations.

I. INTRODUCTION TO THE A.I.D. INITIATIVE

A. Summary

With the Debt for Development Initiative, A.I.D. will use foreign assistance funds to finance the purchase, by intermediary organizations, of debt currently owed by developing countries to foreign creditors. A.I.D. will finance the purchase of debt at the discount price at which such debt is currently bought and sold on the secondary market.

Instead of seeking to collect the full face value of debt acquired through the Debt for Development Initiative, however, A.I.D. will provide for the retirement of the debt in exchange for resources that the debtor country will provide for use in development activities. For example, debt acquired with A.I.D. funds could be retired in exchange for local currencies to be used in A.I.D.-financed health and nutrition programs in the debtor country. By converting foreign assistance dollars into local development resources (such as local currencies) through the debt exchange market, A.I.D. will be able to reduce the debt burden of developing countries while also obtaining local development resources at a favorable rate of exchange.

Resources received through Debt for Development transactions will be used for A.I.D.-financed projects of non-governmental organizations, such as private voluntary organizations (PVOs) and cooperatives. These organizations will play a central role in the Debt for Development Initiative by serving as intermediaries between A.I.D. and the current owners ("holders") of developing country debt, as well as between A.I.D. and the debtor countries, for the purpose of acquiring and retiring debt. Intermediary organizations will then be responsible for managing the use of resources acquired through the debt exchange for development activities approved by A.I.D.

B. Background on the International Debt Market

Many developing countries face serious difficulties in repaying high volumes of debt owed to foreign governments and private commercial lenders. Payments of principal and interest on debt consume a large proportion of the foreign currencies earned by developing countries. Heavy debt burdens also limit opportunities for obtaining new credit, thus impeding development efforts.

In recent years a private commercial market has developed for the debt obligations of nations ("sovereign debt"), which can be bought or sold like other commercial property. Because of the increasing risk that many heavily indebted countries will be unable to repay either all or part of their debt, debtholders have become willing to sell the debt for an amount less than the debt's face value. Debtholders may wish to sell this debt, even at a "loss" resulting from the discount price, in order to capture the debt's current value and to reduce the volume of non-performing loans in their loan portfolios.

Parties wishing to invest, conduct other forms of business, or support development activities in developing countries may find it attractive to purchase the debt of developing countries at current discount prices. After buying the debt, the new debtholders exchange or swap the debt for assets (such as local currencies or equity shares in local enterprises) provided by the debtor country. The value of the assets received in this exchange may be less than the debt's face value but greater than the debt's purchase price. Thus the buyer ultimately gains a more valuable asset in the debtor country through the mechanism of the debt exchange than through direct acquisition with dollars or use of conventional currency exchange markets.

Developing countries also benefit from debt exchange transactions, because these countries retire a certain amount of foreign debt while gaining new participants in their economies (for example, new investors in private enterprises). Debtor nations generally cannot take advantage of the discount sale price of their debt by purchasing their own loans directly, because the terms of most loan agreements bar such purchase. Therefore, most debt exchange transactions require purchase of the loan asset by a third party serving as intermediary between the lender and the borrowing country.

C. Participation by A.I.D. in the Debt Exchange Market

The new international debt market presents A.I.D. with an opportunity to achieve several objectives, consistent with the purposes of the U.S. foreign assistance program. Through the new Debt for Development Initiative, A.I.D. will participate in this market by using foreign assistance funds to finance the purchase of loans owed by developing countries to foreign creditors. Instead of collecting such loans, A.I.D. will provide for their retirement in exchange for local assets needed for foreign assistance activities of nongovernmental organizations in debtor countries.

A.I.D. will finance all debt exchange transactions through intermediary organizations, such as private voluntary agencies and cooperatives. A.I.D. will issue grants to intermediary organizations to purchase debt. Intermediaries will subsequently convert this debt into local assets, which the intermediaries will use for either newly initiated or ongoing development projects approved by A.I.D. Participation by intermediaries in Debt for Development will strengthen the development programs of these organizations while simultaneously advancing the other stated objectives of the Debt for Development Initiative.

A.I.D. will finance debt exchange transactions yielding various types of host country assets needed for development activities. For example, debt could be exchanged directly for local currencies needed to finance development activities, such as education and health programs, in the debtor country. Intermediaries could also exchange A.I.D.-financed debt for host country programs, such as commitments to conserve natural resources or protect endangered species ("debt for nature"), in a manner similar to the recent debt exchange agreement between the Government of Bolivia and a private organization (Conservation International) to protect tropical rain forest in Bolivia. A wide range of A.I.D.-financed programs of nongovernmental organizations will be eligible for financing with resources obtained through the Debt for Development Initiative.

Each activity of a nongovernmental organization financed through a Debt for Development transaction must be approved by A.I.D. in accordance with standard Agency rules and procedures applicable to funding of nongovernmental organization activities. Both new and ongoing activities of nongovernmental organizations will be eligible for financing, either in whole or in part, through A.I.D. Debt for Development transactions.

D. Illustrative Transaction

Each Debt for Development transaction will be accomplished through a series of agreements and transactions involving the debtor country, the debtholder, A.I.D., and an intermediary organization. The A.I.D. Debt for Development Guidelines, which follow in Part II, will govern these transactions. The following hypothetical transaction shows in abbreviated form the steps needed to complete a typical Debt for Development exchange.

Example: A private voluntary organization dedicated to preservation of endangered species (in this hypothetical example, the organization will be called "Preservation International") has received a commitment by A.I.D., or is preparing to submit a proposal to A.I.D., to fund a project to preserve a species of wildfowl in the Philippines. This project will require a sum of local currencies to finance a wildfowl protection plan, as well as a commitment by the Government of the Philippines to set aside a significant acreage of public land as a wildfowl refuge.

Preservation International determines that the Government of the Philippines owes a substantial quantity of debt to foreign creditors (such as banks), and that certain creditors are selling their Philippine Government debt at a substantial discount. Preservation International contacts A.I.D./Washington or the A.I.D. Mission in Manila to determine whether the acquisition of Philippine Government debt as part of a debt exchange to finance a wildfowl preservation project in the Philippines would be consistent with U.S. and multilateral economic policy and A.I.D. project priorities in the Philippines.

If A.I[redacted] responds favorably to Preservation International's enquiry, representatives of the organization (perhaps in collaboration with USAID Mission personnel) initiate a discussion with representatives of the Government of the Philippines, most likely including representatives of the Central Bank. These discussions explore the interest of the Philippine Government in supporting a wildfowl preservation project financed through the proceeds of a Debt for Development transaction financed by A.I.D. Preservation International reaches an agreement in principle with the Government on the basic terms of a Debt for Development

agreement establishing the terms, mechanism, and schedule for retirement of Philippine Government debt in exchange for local currency and Government commitments to establish a wildfowl refuge. Preservation International also confirms the availability of Philippine debt for sale on the secondary commercial market and the current price of such debt.

Preservation International then prepares a proposal for A.I.D. describing, among other things, the wildlife preservation objective of the project, the anticipated role of Philippine debt in financing the project, the availability of such debt for purchase, the proposed use of a broker or other means to acquire and process the debt certificates, the willingness of the Government of the Philippines to provide local currency and wildfowl refuge commitments in exchange for retirement of debt, and a plan for use of local currency to meet project objectives.

If A.I.D. agrees to finance the project, it enters into an agreement with Preservation International setting forth the basic terms and procedures of the Debt for Development transaction, as well as other issues normally addressed in a project agreement. With the financing for the transaction assured, Preservation International enters into a formal agreement with the Government of the Philippines setting the terms for the eventual debt exchange.

Preservation International then negotiates a favorable discount price for purchase of a volume of Philippine Government debt from a willing commercial seller. Consistent with the Debt for Development agreement between A.I.D. and Preservation International, A.I.D. provides grant funds to finance the purchase of this debt. Preservation International takes title to the debt but promptly retires it in exchange for the local currency and commitments promised by the Government of the Philippines in the Government's separate agreement with Preservation International.

Preservation International subsequently utilizes the local currency, which the Government provided in exchange for the debt retirement, for wildfowl preservation purposes. It monitors the Philippine Government's compliance with its commitment to set aside a wildfowl refuge, as provided in the debt retirement agreement, and it administers the project in a manner otherwise consistent with standard rules governing A.I.D.-financed projects.

II. A.I.D. DEBT FOR DEVELOPMENT GUIDELINES

A.I.D. has prepared the following Debt for Development Guidelines to govern administration of the Agency's Debt for Development Initiative. These Guidelines describe the role of intermediary organizations in the Initiative, the types of A.I.D. grants that will be available, and the various administrative and contractual procedures required in order to effect a Debt for Development transaction. A.I.D. expects to modify these Guidelines as it gains experience with the Debt for Development Initiative.

A. Introduction

1. Scope and Applicability: The following Debt for Development Guidelines govern the programming of funds made available to the Agency for International Development (A.I.D.) under the Economic Support Fund (ESF) and Development Assistance (DA) accounts (including the Development Fund for Africa), to the extent such funds are used to finance the purchase of debt owed by developing countries to parties other than the United States Government. All such debt acquired with A.I.D. financing will be exchanged for local currencies or other assets (such as local currencies or host country development efforts) needed to achieve one or more objectives of the ESF or DA program.

Organizations receiving foreign assistance funds from A.I.D. may not use such funds to acquire debt owed by developing countries, or engage in other transactions involving such debt, without prior approval of A.I.D. All debt acquisitions financed directly or indirectly by A.I.D. shall be undertaken in accordance with these Debt for Development Guidelines.

2. Purpose of Guidelines: These Guidelines are designed to ensure that A.I.D.-financed Debt for Development programs achieve the objectives stated in these Guidelines and operate in a manner consistent with United States laws governing the use of appropriated funds.

3. Issuing Party and Authority: A.I.D. issues these guidelines under the authority provided in the Foreign Assistance Act of 1961, as amended.

4. Modifications to Guidelines: Modifications to these Guidelines may be needed as A.I.D. gains experience with its Debt for Development program. Parties cooperating with A.I.D. in the implementation of this Initiative are encouraged to identify problems that arise in applying these Guidelines and to suggest any needed changes.

B. Objective

The objective of the A.I.D. Debt for Development Initiative is to finance foreign assistance activities of nongovernmental organizations (such as voluntary agencies and cooperatives) through debt transactions that will:

-- (1) assist in reducing the foreign debt burdens of developing countries that receive U.S. foreign assistance, consistent with the general economic development purposes of the U.S. foreign assistance program; and

-- (2) obtain a favorable rate of exchange for U.S. foreign assistance dollars that are converted into local currencies or exchanged for other assets needed for foreign assistance programs.

C. General Statement of Policy

To achieve the objectives stated above and consistent with A.I.D. rules and regulations (including the present Guidelines), A.I.D. invites non-governmental organizations, such as private voluntary organizations (PVOs) and cooperatives (which these Guidelines refer to as Debt for Development "intermediary organizations" or "intermediaries"), to develop proposals for grants and cooperative agreements with A.I.D. to implement the A.I.D. Debt for Development Initiative.

A.I.D. will review proposals by intermediary organizations to use foreign assistance funds to finance the purchase, by the intermediary organization, of debt owed by developing countries to parties other than the United States Government. Such proposals must provide for prompt retirement of such debt through an exchange of the debt for local currencies or other assets furnished by the debtor country to the intermediary for development activities. A.I.D. will receive Debt for Development proposals from intermediary organizations in a wide range of program areas, such as environmental protection, population planning and health, and microenterprise development for both new and ongoing project activities.

A.I.D. will issue a limited number of awards to assist intermediary organizations to develop proposals for Debt for Development transactions that will achieve foreign assistance purposes. Once a Debt for Development transaction has been approved, A.I.D. will closely monitor the intermediary's use of A.I.D. funds to acquire debt and, in appropriate circumstances, will provide technical advice (usually through consultants) to assist intermediaries in purchasing and exchanging debt.

D. Debt for Development Procedures

1. Role of Intermediary Organizations: A.I.D. will not directly acquire debt of a developing country for use in a Debt for Development exchange. Instead, A.I.D. will provide foreign assistance grant funds to finance the acquisition of such debt by intermediary organizations. In consultation with A.I.D. Missions, intermediaries will negotiate with the debtor country the terms of the subsequent debt retirement. Intermediaries will also arrange for the purchase of debt and will assume primary responsibility for managing the use of assets generated by the debt retirement. Intermediary organizations, therefore, will play a central and critical role in the A.I.D. Debt for Development Initiative.

2. Types of A.I.D. Awards: To assist the participation of intermediary organizations in Debt for Development transactions, A.I.D. intends to make foreign assistance funds available to support both (a) the preparation of Debt for Development proposals by intermediaries, and (b) the acquisition and retirement of the debt itself once an intermediary's proposal for a Debt for Development program has been approved by A.I.D. A.I.D. expects to allocate a larger share of foreign assistance resources to acquire the debt than to assist preparation of Debt for Development proposals.

a. Awards to support preparation of proposals: As described more fully in Part II(D)(5) of these Guidelines, A.I.D. will agree to finance debt transactions only after an intermediary organization and a debtor country have reached an agreement in principle on the purpose and terms of the eventual debt exchange, and after the intermediary has investigated the availability and price of a particular country's debt on the international commercial market. Extensive negotiations between the intermediary and debtor nation, as well as various studies and consultations regarding the availability of a country's debt for purchase, may be needed to meet these preconditions.

A.I.D. will expect most nongovernmental organizations to furnish the staff and resources needed to meet the above preconditions. However, A.I.D. will issue a limited number of awards to assist intermediary organizations in preparing Debt for Development proposals and in negotiating the terms of the debt exchange with the debtor nation. Such awards will be made only to those intermediary organizations that can demonstrate a capacity to undertake successfully the complex tasks of a debt exchange transaction, as well as to administer the development activity to be financed by the transaction.

Applications for financing to support pre-award Debt for Development activities should address the following issues: (1) the nature of the development activity or ongoing project to be financed with assets acquired through the Debt for Development transaction; (2) the information needed and steps proposed to be undertaken to develop a final proposal and to reach agreement with the debtor country on the use of assets generated through the debt transaction; (3) the opportunities for purchase and the current market price (to the extent such information is readily available) of the country debt to be acquired with A.I.D. financing; (4) the anticipated advantages of acquiring local development assets by means of debt exchange rather than through direct purchase with dollars; and (5) the projected allocation of costs and expenditure of time needed to develop a final proposal.

b. Awards to finance Debt for Development transactions: A.I.D. will also make resources available to finance Debt for Development transactions by intermediaries. The following provisions of these Guidelines set prerequisites for the award of funds by A.I.D. to finance Debt for Development transactions and establish procedures for effecting such transactions once an intermediary's proposal for a debt exchange has been approved.

3. Foreign Assistance Purpose of Each Debt Transaction: All Debt for Development transactions will advance the fundamental foreign assistance purpose of reducing a country's foreign debt burdens (see "Objectives" specified in Part II(8)). For A.I.D. to approve a Debt for Development proposal, however, the assets acquired through a Debt for Development transaction must be used for a specific development assistance activity of a nongovernmental organization. The purpose of this activity must be consistent with the objectives of the particular category of assistance from which A.I.D. makes the Debt for Development award, and it must be clearly defined in advance of the issuance of that award.

For example, Development Assistance funds made available from the Agriculture, Rural Development, and Nutrition (Foreign Assistance Act ("FAA") Section 103) account will be used only to acquire debt that is to be converted into assets needed to advance Section 103 purposes. Development Assistance funds made available from the Population and Health (FAA Section 104) account will be used only to acquire debt that is to be converted into assets needed to advance population planning and health activities. Similarly, resources from the Development Fund for Africa will be used only to acquire debt to be converted into assets needed to advance development programs in sub-Saharan Africa. Economic Support Funds, to the extent available for Debt for Development transactions, may be used more broadly to advance ESF objectives of economic or political stability.

In reviewing an application for a Debt for Development transaction, A.I.D. will consider whether the ultimate use of the asset generated through the transaction is defined with sufficient specificity and is within the purposes of an available funding source.

4. Purchase of Debt at Lowest Possible Prices from Established and Reputable Sellers; Requirement of A.I.D. Approval: A.I.D. financing may only be used to purchase debt from established and reputable debt holders, such as major commercial banks. A.I.D. will expect each intermediary to use A.I.D. financing to acquire debt from such sellers at the lowest possible price, reflecting the full discount value of such debt in private commercial markets. No intermediary may use A.I.D. financing to acquire debt without A.I.D.'s express prior approval of the proposed transaction and sale price.

5. Pre-Agreement on Purpose and Terms of Debt Purchase and Retirement: Debt for Development transactions will be used to finance intermediary organization projects approved according to the usual A.I.D. standards and rules governing projects.

In addition to standard requirements, however, before A.I.D. agrees to finance a Debt for Development transaction, the intermediary must demonstrate to the satisfaction of A.I.D. that the intermediary has: (a) identified the asset to be obtained and the program activity to be financed through the debt transaction; (b) reached at least an agreement in principle with the debtor country regarding the terms, mechanism, and schedule for conversion of the debt into the identified host country asset; and (c) developed a budget and plan for use of the host country asset to achieve project purposes. An intermediary's mere expression of intent to use assets generated from a debt exchange for a general foreign assistance purpose will not be sufficiently definite to enable A.I.D. to make a financing award; before issuing an award, A.I.D. will require careful program planning and evidence of the debtor country's prior concurrence (for example, in the form of a signed agreement or a letter from the country's central bank or ministry of finance) on significant aspects of the eventual debt exchange.

A.I.D. will also require the intermediary to demonstrate that it has: (a) investigated the availability of the host country's debt for sale, (b) identified a reputable and willing seller of such debt (as discussed in Part II(D)(4) above), (c) determined the likely market price of the debt, (d) calculated the likely transaction costs to be incurred in acquiring and exchanging such debt, and (e) analyzed the financial and other advantages of acquiring the local development assets through the mechanism of a debt exchange rather than by direct purchase with dollars.

for the agreed upon development purpose, and it shall comply with any further reporting requirements included in project agreements with A.I.D. The intermediary shall promptly transfer to A.I.D. any asset that for any reason the intermediary has become unable to use in a manner consistent with its Debt for Development agreement with A.I.D.

10. Interest Earned on Local Currencies Obtained from the Debt Exchange: Local currencies obtained by intermediaries through debt exchange transactions shall be held in interest bearing accounts. The interest earned on all such currencies before their use for final program purposes shall be remitted to A.I.D., for the account of the U.S. Treasury, in accordance with standard rules governing interest earned by A.I.D. grantees on advances.

11. Installment Payments in Exchange for Debt Retirement: The agreement between a Debt for Development intermediary and the debtor country may provide for the debtor country, in exchange for retirement of the A.I.D.-financed debt, to furnish the development asset (such as local currencies) to the intermediary in installments rather than in a single lump-sum. Any portion of such installment payments attributable to interest, or to an amount paid in lieu of interest, must be paid by the intermediary to the U.S. Treasury in accordance with the previous paragraph.

Installment payment amounts may take into account variations in the rate of exchange of units of local currency for dollars occurring during the payment term. For example, in exchange for retirement of the debt, the intermediary could receive a dollar-denominated note providing for installment obligations equal in value to a fixed sum of dollars, with installment payments to be made in local currencies in an amount calculated according to the exchange rate from dollars to local currencies applicable at the time of each payment.

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To develop a Debt for Development proposal that addresses each of the above points and that is sufficiently specific and definite, an intermediary may, if needed, request pre-agreement funding from A.I.D. (as described in Part II(D)(2)(a) above). A.I.D., however, expects to make available only a limited amount of funding for this purpose.

6. Various Agreements Required: To effect the various transactions involved in a Debt for Development plan, separate agreements among parties will be required, in the following sequence: (a) between A.I.D. and the intermediary approving the terms and conditions of the foreign assistance financing; (b) between the intermediary and the debtor country establishing the purpose and terms (as described in Part II(D)(5) above) of the planned debt exchange; and (c) between the intermediary and the debt holder effecting the initial sale of debt.

In exceptional cases it may be most efficient to combine the first two of these agreements into a single multi-party agreement among A.I.D., the intermediary and debtor country. A.I.D. will not be a party to the agreement between the seller of the debt and the intermediary organization. As discussed in Part II(D)(4) above, however, A.I.D. will require the intermediary to receive A.I.D.'s express approval of the proposed transaction and sale price before the intermediary expends A.I.D. funds to acquire debt.

7. Technical Assistance and Fees Incurred in Purchasing Debt: To assist intermediaries to purchase debt in the new international debt market, A.I.D. may make available to such intermediaries the services of financial consultants. A.I.D. funds may also be used to pay reasonable fees and transaction costs incurred by an intermediary in the purchase and exchange of debt, if such use of A.I.D financing is included in the Debt for Development agreement between A.I.D. and the intermediary.

8. Prompt Conversion of Debt into Development Asset: A.I.D. expects intermediaries to convert A.I.D.-financed debt into local currency or other development asset (as provided in the various Debt for Development agreements among the intermediary, debtor country and A.I.D.) as promptly as possible after the intermediary acquires the debt. Intermediaries may not: (a) retain title to such debt for speculative or other purposes, or (b) exchange the debt of one country for the debt of another country without prior approval of A.I.D.

9. Use of Development Asset by Intermediary: The intermediary shall promptly report to A.I.D. the nature and amount of the development asset acquired through an A.I.D.-financed Debt for Development transaction. On a quarterly basis the intermediary shall also report to A.I.D. on the use of the asset