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THE GAMBIA NATURAL RESOURCE MANAGEMENT ACTION PLAN

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GAMBIA DRAFT NATURAL RESOURCES MANAGEMENT ACTION PLAN

Table of Contents

	GLOSSARY	1
1.	INTRODUCTION	1
	1.1 Background	1
	1.2 Purpose of the Natural Resources Management Plan	2
2.	SUMMARY CDSS ANALYSIS	4
	2.1 NRMS Target Funding Level	4
	2.2 USAID/The Gambia's NRM Funding Level	4
	2.3 Project Opportunities - Existing Portfolio	5
	2.4 New Initiatives	6
3.	THE PROPOSED NATURAL RESOURCES MANAGEMENT ACTION PLAN	8
	3.1 Guidelines	8
	3.2 Management Principles	8
	3.3 Objectives	8
4.	PROJECT OPPORTUNITIES: EXISTING PORTFOLIO	10
	4.1 Areas of Geographic Concentration	10
	4.2 Soil and Water Management Unit	10
	4.3 Human Resources Development Assistance Project	12
	4.4 GARD Project	13
	4.5 Peace Corps Small Project Assistance	16
	4.6 African Economic Policy Reform Program	16
	4.7 Regional Locust Control Project	17
5.	NEW INITIATIVES	18
	5.1 Agriculture and Natural Resources Management Sector Grant	18
	5.2 NGO Support - Implementing the Action Program Local Management	25
	5.3 NRMS Special Studies and Events	27
6.	POLICY DIALOGUE	29
	6.1 USAID Objectives	29
	6.2 Government of The Gambia Objectives	29
	6.3 Mission Experience	29
	6.4 Near-Term NRM Policy Dialogue	30
	6.5 Medium-Term NRM Policy Dialogue	31
7.	IMPLICATIONS FOR MISSION MANAGEMENT	33
	7.1 Mission Staffing	33
	7.2 Project Design and Evaluation	34
	7.3 Program Leadership	34

8.	PROJECTED IMPACTS AND MILESTONES	36
8.1	Types of Indicators	36
8.2	Portfolio Management	36
8.3	Short-Term Activity Indicators.	37
8.3.1	Financial Indicators	37
8.3.2	Technology Indicators	37
8.3.3	Policy Indicators	38
8.3.4	Institutional Indicators	39
8.3.5	Economic Indicators	39
8.4	Longer Term Indicators of Impact on the Natural Resource Base	40
9.	BIODIVERSITY CONCERNS	42
9.1	Legislative and institutional structures	42
9.2	Status and management of protected areas	43
9.3	Status and protection of endangered species	43
9.4	Conservation outside of protected areas	44
9.5	Conservation of economically important species and germ plasm	45
9.6	Major issues in biological diversity and forest conservation	45
9.7	Recommendations and proposed actions	46
10.	ENVIRONMENTAL REVIEW REGULATIONS	48
10.1	Environmental Review	48
10.2	Overview of NRMS	48
10.3	Anticipated Impacts	49
10.4	Regulation Review Degree Categories	49
10.5	Classification of Interventions According to Review Requirements	52
10.6	Current and Future NRM Interventions	53
10.7	Negative Impacts and Mitigating Measures	53
	ANNEXES	55
1.	AF/TR/ANR NATURAL RESOURCE MANAGEMENT INDICATORS	55
2.	ENVIRONMENTAL EXAMINATION CATEGORIES FOR NRMS ACTIVITIES	56

GLOSSARY

AAPL	Approved Assistance Planning Level
ADB	African Development Bank
AEPRP	African Economic Policy Reform Project
AFSI	US Peace Corps African Food Systems Initiatives
AID	Agency for International Development
AJAC	Association des Jeunes Agriculteurs de la Casamance (Senegal)
ANRSG	Agriculture and Natural Resources Sector Grant
ANR	Agriculture and Natural Resources
CARE	Care and Relief Everywhere (USA)
CILSS	Permanent Inter-State Committee for Drought Control
CDA	Community Development Assistant, Ministry of Local Government and Lands
CDSS	Country Development Strategy Statement
CRSP	Collaborative Research Support Project
DFA	Development Fund for Africa
EEC	European Economic Community
FAO	United Nations Food and Agriculture Organization
FFHC	Freedom From Hunger Campaign
FLUP	Forestry and Land Use Project (Niger)
FRG	Federal Republic of Germany
GARD	Gambian Agricultural Research and Diversification Project
GGFP	German Gambian Forestry Project
GOTG	Government of the Republic of The Gambia
GTZ	German Technical Assistance (FRG)
HRDA	Human Resource Development Assistance
IBRD	International Bank for Reconstruction and Development (World Bank Group)
ICRAF	International Council for Research in Agro-Forestry
ICRISAT	International Center for Research in the Semi-Arid Tropics
IITA	International Institute of Tropical Agriculture
ILCA	International Livestock Center for Africa
IPDC	Indicative Plan for Desertification Control
IRR	Internal Rate of Return
ITC	International Trypanotolerance Center
IUCN	International Union for the Conservation of Nature
LMS	Local Natural Resources Management Strategy
LRD	Lower River Division of The Gambia
LRD-ODA	Land Resources Division, British Ministry of Overseas Development
MDI	Management Development Institute, The Gambia
MFP	USAID Mixed Farming Project
MID	McCarthy Island Division of The Gambia
NBD	North Bank Division of The Gambia
NCBA	National Cooperative Business Association (CLUSA)
NGO	Non-Governmental Organization
NPV	Net Present Value
NRM	natural resources management

NRMS	Africa Bureau's Natural Resources Management Support Project
OAU	Organization of African Unity
ORSTOM	Office de Recherche Scientifique et Technique Outre-Mer (France)
PCV	Peace Corps Volunteers
PNRM	Africa Bureau's Plan for Supporting Natural Resources Management in Sub-Saharan Africa
PPMU	Project Planning and Monitoring Unit
PVO	Private Voluntary Organization
FRG	Federal Republic of Germany
SSRA	Sahel Sub-Regional Natural Resources Management Assessment
STC	Save the Children, U.S.A.
SWMU	Soil and Water Management Unit
TANGO	The Association of Non-governmental Organizations
UNDP	United Nations Development Program
UNEP	United Nations Environmental Program
UNSO	United Nations Sahelian Office
URD	Upper River Division of The Gambia
USAID	U.S. Agency for International Development
VEW	Village Extension Worker, Ministry of Agriculture
VRP	Village Reforestation Project (Mali)
WARDA	West African Rice Development Association
WD	Western Division of The Gambia
WWF	World Wildlife Fund

1. INTRODUCTION

1.1 Background

This report contains the proposed USAID Natural Resources Management Action Plan for The Gambia (Action Plan). The proposed Action Plan is an important step in the execution of USAID's overall Plan for Natural Resources Management in Sub-Saharan Africa (PNRM). It is intended to help focus AID efforts in natural resource management based on the areas of expertise of the U.S., from both prior African and domestic experience. The PNRM defines Action Plans as the Mission's delineation of their CDSS planning period actions in support of USAID's 15 to 20-year goals of balanced protection, restoration, and enhanced use of the soil, water, vegetation, and genetic components of the resource base of the major ecological zones of Africa, i.e. sustainable natural resource management. The proposed longer term strategy for The Gambia, the Gambia Action Program, was written at the same time as this document. The Gambia Action Program was developed using the technical criteria of the PNRM and follows the PNRM directive to develop natural resource strategies without regard to budgets available to AID. It should be read as background to this proposed Action Plan.

The Gambia is a Group I country as defined in PNRM. This is because of the large proportion of its surface area occupied by the "sub-humid zone," one of the two first priority agro-ecological zones in Africa due to the degree of environmental degradation. Group I country Missions are required to perform natural resource management assessments before elaborating Natural Resources Management Action Programs and Action Plans.

The Sahel Sub-Regional Resource Assessment (SSRA) was performed in late 1987. The SSRA concentrated its efforts in Senegal, The Gambia, Mali, and Niger on the arid/semi-arid and the sub-humid agro-ecological zones. In addition, the SSRA examined the special environments surrounding the major regional rivers. The Sahel Sub-Regional Assessment inventoried NRM success stories and the biodiversity status of the four countries. On this basis, the team detailed criteria and priorities for sustainable natural resource actions in the Sahel. Successes included public and private technical, socioeconomic, and legislative (i.e., policy) initiatives which have led to incremental improvements in NRM in specific localities.

Since the Sahel Sub-Regional Assessment, NRMS funds have been used to assist the Gambia Mission to assess the natural resource management components of the mission project portfolio for the CDSS, and to elaborate and refine the results of the Sahel Sub-Regional Assessment, to test its analytic approach against the anti-desertification plans of The Gambian government, and to draft an Action Program strategy based on the SSRA successes. Possible future NRMS project activities are identified in Chapter 5.

1.2 Purpose of the Natural Resources Management Plan

The Action Plan is intended to be used as a sub-component of the mission's CDSS, or its annual update. The Action Plan defines the linkage between the Action Program and the mission's current portfolio and future programming, as well as identifying new initiatives made possible by the recent upgrade in Mission status from a category three to a category two Mission. The Action Plan has also been written to be consistent with

GOTG strategies for natural resource management insofar as these are consistent with the PNRM and findings of the Sahel Sub-Regional Assessment.

Key principles guiding the formulation of the NRM Action Program and Action Plan for The Gambia are:

- o that lessons learned from the Sahel Sub-Regional Assessment be used in the development of local resource management strategy components adopted from Government of The Gambia plans, current donor programs, and future program and policy design;
- o that an action orientation be maintained. The Action Program builds on specific menus of natural resource actions and changes needed in the implementation environment to enable them to succeed;
- o that the Action Program identify pathways to implementation by examining the environmental, institutional, policy, organizational, human resources, and financial conditions needed to sustain changes;
- o that the Program be iterative over time. Adjustments will be needed as the Sahel Sub-Regional Assessment did not inventory all major resource use categories: no pastoral and few fisheries interventions were included;
- o that the Program identify several strategies for the sub-humid zone and two special cases, a Biodiversity Strategy, and a Range Management Strategy; and
- o that the Program should permit the identification of an Action Plan by defining which mission activities, both current and planned, intersect with Program strategies.

The sections that follow present proposed Natural Resources Management Action Plan for USAID-Banjul over the 1990-1995 CDSS period and beyond.

2. SUMMARY CDSS ANALYSIS

2.1 NRMS Target Funding Level

The Congressional mandate for increased USAID attention to sustained natural resource management in the Sahel is currently interpreted by the Africa Bureau as representing a target for Missions of 10 percent of portfolio allocations to NRM activities.

2.2 USAID/The Gambia's NRM Funding Level

The NRMS team's analysis of the Mission's current portfolio to 1991-1992 indicates the Mission is on-target in terms of its level of commitment. The Soil and Water Management Unit Life of Project (LOP) allocation alone accounts for 11.2 percent of the Mission's current portfolio of projects (See Figure 2.1).

The NRM percentage of the Mission portfolio should be maintained in the next round of Mission projects, i.e, obligations generally to begin after January 1, 1992 when the Mission's annual budget allocation will have risen to five or five and one-half million dollars. Diversification of soil, water, vegetation, and wildlife management activities is the appropriate means to achieve this goal. New activities should be combined with the extension of some soil fertility, crop and forage management, and agroforestry activities initiated by the Mixed Farming and GARD projects, at an illustrative funding level of some twenty percent of current GARD funding levels (\$3,600,000). The Mission's NRM allocation could then be maintained in percentage terms. If, in addition, certain grants to be made through the next phases of the African Economic Policy Reform Program (AEPRP) are tied to the implementation of proposals for community forestry, forage land, and parks management as outlined in Chapter Six, the percentage of the mission's project

portfolio going directly and indirectly to support improved natural resources management in the Gambia could climb to above 15 percent. Insofar as improved resource management is the prerequisite for sustainable agricultural development, and successful economic growth in the Gambia, emphasizing NRM interventions is programmatically sound.

2.3 Project Opportunities - Existing Portfolio

Prior to PACD of projects ending in 1991-1992, the team recommends a number of activities consistent with the spirit of the Sahel Sub-Regional Assessment. These activities include:

- 1) Elaboration upon Mixed Farming and GARD project findings in the areas of livestock production, especially forage production and pasture management extension, especially in the MID and URD;
- 2) Soil and Water Management Unit and GARD project themes devoted to applied research and extension of soil and water conservation practices, agroforestry and soil fertility and range lands management;
- 3) African Economic Policy Reform Program (AEPRP) policy dialogue on community forestry and forestry products price, licensing, revenue sharing, and taxation policies, as well as national parks conservation and development;
- 4) Increased emphasis on NRM training utilizing supplementary Human Resources Development Assistance (HRDA) project funds, with annual allocations on the order of \$25,000 (short- and long-term training combined); funding of the Commonwealth Conference on Anti-Desertification should be considered;
- 5) African Regional Grasshopper and Locust Control activities devoted to monitoring and evaluation of pesticide use;
- 6) Use of Program Development & Support (PD & S) funds to finance:
a) studies on weaver bird control, especially on the NBD; b) surveys of wildlife conservation potential of the Kiang West Park; c) surveys of potential tourist demand for parks; and d) assessment of attitudes towards wildlife and conservation in areas adjacent to the National Parks.

2.4 New Initiatives

The level of commitment of Mission Development Fund for Africa (DFA) funds after 1991 is low, which facilitates undertaking major new initiatives in the Mission's priority sectors -- Agriculture and Natural Resources; Economic Policy Reform and Private Sector Promotion. The team recommends that the Mission provide funding to implement the Biodiversity Protection and Mixed Farming Strategies detailed in the Action Program by continuing support to agricultural research and the SWMU and by providing new technical and financial support to the Gambian Forestry and Wildlife Conservation Departments.

If these suggestions are followed, the USAID/The Gambia's portfolio will exceed the letter and spirit of the ten percent target suggested by Congress. More detailed recommendations follow.

Projects in USAID/The Gambia Portfolio with Direct NRMS Impacts

Total LOP Funds: 46,107

Number	Title	(LOP) Planned Expenditures (\$US thousands)	Percentage
635-0202	Soil and Water Management	5,170	11.2

Projects in USAID/The Gambia Portfolio with Potential NRMS Impacts

635-0219	Gambia Agricultural Research and Diversification	18,000
635-0228	African Economic Policy Reform Program	6,000
635-0510	Program Development & Support	3,200

Regional USAID Project Buy-Ins with Direct NRMS Impacts

698-0517	Africa Regional Grasshopper and Locust Control	50

Regional USAID Project By-Ins with Indirect NRMS Impacts

Number	Title	Cumulative Budget Obligations (US\$ thousands)
625-0977.35	Sahel Human Resources Development III	970
625-0463.35	Human Resource Development	220

3. THE PROPOSED NATURAL RESOURCES MANAGEMENT ACTION PLAN

3.1 Guidelines

The Action Plan for Improved Natural Resources Management in The Gambia should be shaped by the guidelines identified in the Sahel Sub-Regional Assessment and The Gambia's Indicative Programme for Desertification Control. The Action Plan has three guiding points:

- 1) Put a high priority on activities to end the decline in the natural resource base over a generational time frame through an implicit contract between Sahelian populations, local governments, NGOs, and USAID. In short, share the costs as well as the risks on NRM interventions.
- 2) Put a high priority on activities which extend existing technologies whose positive impacts and financial attractiveness to local populations have been demonstrated and which contribute to long-term resource sustainability.
- 3) Put a high priority on activities which reduce the risks and augment the productivity of available innovations and germplasm resources.

3.2 Management Principles

Improved natural resource practices on the scale required to halt environmental degradation in The Gambia requires a commitment to two management principles:

- 1) Maintaining a stable level of program and project commitment of human and financial resources to improved resources management strategies - ideally over a 15 to 20 year time horizon; and
- 2) Integrated and continuing actions to establish the policy conditions for sustainable development as well as delivery of technical packages are required - management should identify projects and programs which can be used as a base for other components of the local management strategies outlined in the Action Program.

3.3 Objectives

Consistent with The Gambia's Indicative Programme for Desertification Control, USAID/The Gambia's Natural Resources Management Action Plan should favor three medium- and long-term objectives:

- 1) Identify and extend resource management techniques which shelter natural resources and support the needs of the rural economy;
- 2) Identify and extend income generating opportunities through sound natural resource management practices and investments and/or changes in the socioeconomic context which create new opportunities for natural resource management;
- 3) Identify and implement those institutional changes which are necessary to induce widespread adoption of resource regenerating and improving techniques in the short-, medium-, and long-term.

4. PROJECT OPPORTUNITIES: EXISTING PORTFOLIO

4.1 Areas of Geographic Concentration

Results of the Sahel Sub-Regional Assessment indicate that the greatest impacts come when long-term, concentrated effort is deployed in a given location. Because of prior Mission experience, USAID/The Gambia's strategy should concentrate project support in the MacCarthy Island MID), Lower River (LRD), and North Bank Divisions (NBD) of The Gambia. Most technologies, delivery mechanisms, and policy reforms successful in these zones will be applicable to the Upper River and Western Divisions.

4.2 Soil and Water Management Unit

A decentralized Soil and Water Management Unit will be better able to respond successfully to the large number of requests for assistance it has received from all over the Gambia. However, the project must resist the tendency to diffuse its limited resources

over too large an area. Establishment of a sub-station at Sapu (MID) is encouraged while a decision to establish tertiary bases should be deferred.

Reinforcing the uplands agro-forestry and agronomy extension program in areas where SWMU has already worked is essential to long-term sustainability of the soil and water conservation works. This program should be encouraged. The unit needs to emphasize agronomic practices which will enhance the long term sustainability of its conservation structures. The two principal problems lie in maximizing the water and soil fertility management benefits and agroforestry potential of interventions made on the upper slopes of the managed watersheds.

Given the popular demand for services, the unit should reorient its activities towards a three-step (multi-annual) extension program. The idea here is that rice land reclamation sells itself and can be used as leverage to mobilize village groups to carry out less obviously important upslope management tasks. Work begins with a management plan that emphasizes the upper slopes of the watershed where contour bunds, vegetative bands, windbreaks and the like should be established. Then if progress is satisfactory, Management Unit activities move downslope to the areas slated for rice lands reclamation. Finally, management refocuses on the uplands for improvement and fine tuning. Also, the SWMU should put more emphasis on conservation practices that can be built and maintained by farmers with less technical input.

SWMU should work with the GARD project to develop recommendations for improved cropping practices and crop rotation techniques for selected soil and water conservation districts. Further, the SWMU should develop its relationships with successful NGO/PVOs operating in its key target areas because many of the SWMU conservation

practices will be implemented by NGOs and PVOs in the Natural Resource and Agriculture Sector Grants.

A follow up to the soil surveys is a good investment given the widespread use of the Land Resources Division and Soil and Water Management Unit maps in donor and NGO/PVO planning activities. The recommended lands surveys should focus on both physical and socio-economic indicators, such as: 1) human and animal pressure on land, water and forestry resources; 2) changing nature of soil fertility management regimes, including fallow practices; 3) identification of zones of highest risk of environmental degradation; 4) appropriate mitigation measures; and 5) simple monitoring and evaluation criteria.

The Sahel Sub-Regional Assessment and NRM Action Program/Plan teams have been impressed by the technical expertise of the Gambian cadre trained through the SWMU project. The NRMS Action Plan team is of the opinion that the unit needs technical assistance in the areas of extension and community development more than in engineering and conservation technology. The new German (FRG) assistance to be provided may help to fill this need, but the GTZ project itself has a technical orientation with a timid program of popular participation. Therefore, the NRMS team believes it would be worthwhile for the Mission to consider funding an extension/community development consultant on a TDY or long-term basis.

4.3 Human Resources Development Assistance Project

The HRDA Project can address the problem of institutional capacity for natural resource management in both the short- and long-term. There is a precedent for this since the Sahel Manpower Development Project II was used to train participants in improved Natural Resource Management techniques. Discussions with the Soil and Water Management Unit, and the German-Gambian Forestry Project indicated a high level of interest for in-country and short-term training programs. The PACD for the current phase of HRDA Project is September 30, 1995.

A USAID HRDA officer from Washington discussed some priorities for NRM training with the Action Program/Plan team. The USAID/The Gambia HRDA officer should work with the ADO, the Soil and Water Management Unit and GARD teams, the Agriculture and Natural Resources Sector Grant PP teams and the Ministry of Water Resources and Environment to identify candidates for long-term training. Project officers and implementing personnel should work together in FY 1989 and subsequent years to develop short-term participant training plans.

Between now and the start-up of the new Natural Resources and Agriculture Sector grant sometime in 1992, HRDA funds should be used to support long-term M.Sc. level training of someone in agroforestry; and three short-term non-degree trainees in ecology and range management, wildlife ecology or parks management and social forestry. In addition, some HRDA funds should be used to support the Commonwealth Consultation on Conservation Policy issues between Anglophone and Francophone Countries of the Sudano-Sahelian Region (May 1989).

4.4 GARD Project

The GARD project conducts applied research and strengthens the research capacity of the Ministry of Agriculture on a broad range of topics. The natural resource related research areas that the GARD project should sustain include:

- o trials and selection on awned (hairy) millet;
- o multiplication of short cycle maize, rice, sesame and cowpeas in collaboration with PVO/NGOs;
- o studies of bush fire practices and control strategies;
- o integrated forage crop production and pasture management
- o effects of alternate soil and water management techniques

USAID/The Gambia should work with the GARD project to reinforce its commitment to NRM issues in ongoing applied research programs. This is consistent with AID's agricultural research strategy for Africa which emphasizes technology adaptation rather than basic research. The focus should be to speed up delivery of extendable themes through:

- o off-station farming systems research;
- o improvements in current farmer practices;
- o pasture, forage crop, and range improvement research;
- o field days for extension agencies and farmers, and
- o applied cropping systems and socio-economic studies.

It is recommended that the GARD project draw more from the experiences of other farming systems research and extension projects in neighboring countries such as AGRES II in Mauritania, and the USAID and Dutch-funded projects in Mali. A more comprehensive review of research conducted in Senegal, and similar agro-ecological zones in neighboring countries by ORSTOM, ICRISAT, and the national programs, is also recommended.

Agro-forestry research issues which USAID/The Gambia and the Natural Resources and Agriculture Sector Program design team should consider in project activities include:

- o improving reliability of seedling production, transplanting, and management of indigenous field trees such as Acacia albida, Parkia biglobosa, etc.
- o improving the productivity of multi-purpose field trees such as: Anacardeum spp., Mangifera indica, Azadirachta indica, Acacia albida, A. senegalensis, etc. for erosion control, improved fallow, forage, and fuel;
- o improving productivity of grasses for vegetative bunds: optimum species composition (grass and ligneous species mix including fruit trees) and spacing for in-field anti-erosion vegetation bands and riparian zone vegetation filter strips;
- o agronomy of multi-benefit field trees such as Anacardium Spp., Acacia albida, Adansonia digitata, Parkinsonia aculata, etc. and fruit trees, including grafted mangos and cola.
- o alternative multi-purpose wind-break species and composition, including Cajanus cajan, Prosopis chilensis, Acacia albida, A. senegalensis, Azadirachta indicus, Eucaplyptus spp., Leucaena leucocephala, Sesbania spp., etc.

Involvement of the University of Wisconsin Land Tenure Center (LTC) in the GARD project offers an opportunity for the mission to generate cultural ecology data which may be fed directly into both policy dialogue, training, and extension. Cultural ecology research themes which the Land Tenure Center should pursue include:

- o processes of resource tenure allocation and conflict resolution within and between local resource user groups;
- o risk management and decision-making as related to the diffusion of agricultural and natural resources management innovations;
- o comparing local organizational structures for natural resource management activities;
- o comparing successful extension and delivery techniques (Save the Children, Action-Aid, Catholic Relief Services);
- o long term socio-economic impact of land reclamation activities on intra- and inter-household organization;

USAID/The Gambia should direct the GARD project to strengthen collaborative applied research and extension activities in the LRD, MID, and NBD divisions in collaboration with Save the Children, Action-Aid, Catholic Relief Services, and other NGO/PVOs. Improvements in delivery of veterinary services through Livestock Department and International Trypanotolerance Center (ITC) activities without substantial improvements in the management of forage resources and grazing rights may result in over-exploitation of the existing natural resource base. Therefore, increased emphasis on forage and range management research and extension activities through collaboration with ITC is recommended.

4.5 Peace Corps Small Project Assistance

The Peace Corps should be encouraged to implement small scale natural resources initiatives in areas where volunteers are already active. The small projects identified in the Sahel Sub-Regional Assessment, Action Program, GTZ forestry project, as well as experiences with the Chimp Rehabilitation Project, and Abuko Nature Reserve provide guidance to PCVs in setting up small project activities. Specific examples include:

- o environmental education, especially in National Parks boundary zones;
- o small biodiversity preserve development;
- o private nursery development to serve local demand; and
- o community forest park management.

USAID/The Gambia and Peace Corps should use AFSI volunteers to develop the National Parks buffer zone strategy, with the twin goals of conservation and protection of the parks, and improving the income of people living adjacent to the park (see the Biodiversity Protection Strategy in the Action Program).

4.6 African Economic Policy Reform Program

The AEPRP provides short-term financial support to cushion the effects of tax and regulatory reform measures and can be used in the revision of the fiscal aspects of the forestry and land use codes to: 1) create a National Forestry Fund from royalties and taxes on forest products; 2) increase licenses, permits, and prices through local resource co-management relationships between the Forest Department and the Village Development Committees or Local Area Councils; 3) enforce protection of the Kiang West Park, and a proposed coastal aviary reserve; 4) reinforce the credit management abilities and credit worthiness of the Local Area Councils or some other decentralized authority (to temporarily makeup for input supply role being abandoned by other agents of the government) through project supported training at Management Development Institute.

4.7 Regional Locust Control Project

USAID/The Gambia should take on monitoring activities in the areas of compliance with recommended safety guidelines for product storage and application, as well as public health impacts of widespread pesticide use. The project could also be used to explore alternative integrated pest management strategies, including wart hogs and other animals which have increasingly become pests with the deterioration of the resource base.

5. NEW INITIATIVES

5.1 Agriculture and Natural Resources Management Sector Grant

With GARD and Soil and Water Management projects due to expire in 1992, and 1991, respectively, the Mission sees a sector grant in agriculture and natural resources as the natural outgrowth of current projects. The primary purpose of shifting to a sector grant approach is to broaden the policy dialogue in agriculture and natural resources. This is necessary because USAID/Banjul's activities in agriculture have not yet produced the kind of coordinated and focused policies that are needed to create and sustain growth in The Gambia.

The programmatic focus on NRM and agriculture is consistent with AID legislative mandates. A sector program would accomplish this effectively within a broad policy framework that supports sustained agriculture, natural resources and biological diversity much more comprehensively than has been the case under individual projects. Finally, a combined approach would limit additional Mission management requirements.

The grant would include an element of dollar grants that would be disbursed against legislative and policy performance targets. It would include a technical assistance grant element, a training element and local currency programs.

Policy performance targets that would trigger dollar disbursements can be identified by means of assessments of the agriculture and natural resource management sectors, as for example in Chapter 6 of this Draft Action Plan. When these adjustments or amendments are in place, a disbursement would be forthcoming. Thereafter, benchmarks could be made for actual implementation of a strategy, such as those contained in the Action Program. Achievement of conservation targets such as gazettement of a coastal aviary, establishing a community forest park or park buffer, establishing revenue sharing arrangements for hotel taxes or park revenues, or successful control of bush fires might trigger additional disbursements. When dollars are disbursed, there would be equivalent dalasis deposited in special accounts to be used for agreed upon agriculture/natural resource management purposes. These funds might then be used to assure the timely provision of inputs to the Forestry, Wildlife, or Extension Departments, support for extension, training, or to finance selected parks improvements or forest park activities.

Continuation of GARD and Soil and Water Management Unit applied research and extension activities should be included in the sector program under the technical assistance grant along with new long and short-term support to Extension, Forestry, and Wildlife Conservation Departments. Through support to the Project Planning and Monitoring Unit (PPMU) in the Ministry of Agriculture, the establishment of a monitoring unit in the Ministry of Water Resources, Fisheries, Forestry, the technical assistance grant would be used to assure adequate attention to policy studies, feasibility studies and

organizational/institutional studies. This technical assistance mechanism could provide for more effective coordination of technical assistance as well as simplify the Mission management burden. Short-term TA for in-country training would also be budgeted in the technical assistance component of the grant.

The sector program should include a three-tier training grant for long-term, short-term, and in-country training. A programme for NRMS related activities should incorporate the needs of agricultural research, Soil and Water Management Unit as well as Ministry of Water Resources, Fisheries, and Forestry personnel. The following table is indicative.

Table 5.1

Manpower Development -Natural Resources Management 1990-2000

Level	Number	Subject	Potential Sites	Cost \$\$
-----Two-Year Degree Programs-----				
M.Sc.	2	Forest Management	U of Idaho; No. Carolina State	122,000
M.Sc.	1	Social Forestry	Yale University	61,000
M.Sc.	1	Resource Economics		61,000
M.Sc.	2	Wildlife Mgmt.	Mbeki, Tanzania, Garoua, Cameroon	122,000
M.Sc.	2	Parks Mgmt.	Mbeki; Garoua; Kenya Nat'l Parks	122,000
M.Sc.	2	Legume Agronomy	U of California, Riverside	<u>122,000</u>
Sub-total				560,000
Four Year Degree Programs				
B.Sc.	4	Forestry	U of Idaho; U of Ibadan	200,000
B.Sc.	4	Ecology	U of Arizona; Oklahoma State	200,000
B.Sc.	2	Resource Economics		100,000
B.Sc.	2	Agr. Engineers	U of Arizona; Neb U. Tr.Sch.	100,000
B.Sc.	4	Soil Scientists	Nebraska U Trade School	<u>200,000</u>
Sub-total				800,000

Table 5.1

Manpower Development -Natural Resources Management 1990-2000
(continued)

Two-Year Non-Degree Programs for Advanced Certificates

10	Forestry	U of Ibadan; U of Dar Es Salaam	250,000
8	Parks Mgmt	Mbeki, Garoua, Kenya	400,000
16	Conservation Techs	Nebraska U Trade School	<u>800,000</u>
		Sub-total	1,450,000

Short-Term Training (Six to Ten Weeks)

12	various forestry, forage soil & water mgmt topics	ICRAF; IITA; Oxford	96,000
12	ten-week guided SCS District practices		96,000
8	swamp/tidal rice agronomy	WARDA, IITA	64,000
8	environmental education		<u>64,000</u>
		Sub-total	320,000

In-country Training

Seminars 30 (15 persons X weeks)	agroforestry	DCD training school, Matsukunko	
	social forestry	MDI, Banjul	two
	natural forest mgmt	" "	
	soil conservation	" "	
	water harvesting	" "	
	systems ecology	" "	
	conflict resolution	" "	
	nursery management		
	environmental educt		
	parks management, etc.		
		Sub-total	720,000
		TOTAL	3,850,000

The following schedule for long- and short-term, donor-financed training may be appropriate:

1. FY 1990-92 two long-term trainees and four short-term trainees in the U.S. or other over developed country
2. FY 1993 four long-term trainees in a developed country and four short-term trainees in a third country
3. FY 1994 two long-term trainees and four short-term trainees in the U.S. or other country
4. FY 1995 eight short-term trainees, two in the U.S.
5. FY 1996 eight short-term trainees, two in the U.S., etc.

The University of Idaho's program in forest management, and the University of Arizona's program in renewable natural resources and natural arid lands studies, and Oklahoma State's program in ecology are possible destinations for long-term U.S. trainees. The Forestry program at the Universities of Ibadan and Dar Es Salaam have fairly good reputations among third country B.Sc. training programs. Mbeki School in Tanzania is reputed to be the best training school for national parks and game management in Africa, although there is a training program at Garoua, Cameroon, as well as within the Kenyan Parks system. East Africa will be the most appropriate site for wildlife and parks management training. Other recommended destinations for short-term trainees include ICRAF in Kenya, IITA in Nigeria, and Hassan II University, Morocco.

USAID/The Gambia should fund short-term training through its agriculture and natural resources management sector grant. In-country seminars should continue to be offered at the Management Development Institute (MDI) in management and accounting. The extension curriculum of The Gambia College should emphasize soil and water conservation as taught by the U.S. Soil Conservation Service based on its extensive experience in The Gambia. The WWF/International Union for the Conservation of

Nature, based upon experiences in Youvarou, Mali and Niger, and elsewhere in Africa, is capable of teaching environmental education and wildlife management. Agro-forestry and natural forest management should be added to the extension training curricula, and agents should receive more cross-sectoral training in community development and conflict management as well.

USAID/The Gambia should also use Agriculture and Natural Resources Sector Grant money to fund visits by Gambia Department of Community Development, Agriculture and Forestry extension agents to successful model sites in neighboring countries, e.g., Niger (CARE and Guesselbodi agroforestry initiatives); and Burkina (OXFAM soil and water conservation initiatives).

5.2 NGO Support - Implementing the Action Program Local Management Strategies

The following NGOs have developed expertise in the development of extension delivery systems and/or improved natural resource management initiatives in The Gambia: Save the Children, Action Aid, Catholic Relief Services, Freedom From Hunger Campaign, and Canadian University Students Overseas.

Consistent with the priorities and objectives enunciated in the Action Program, USAID/Banjul should direct the Agriculture and Natural Resources Sector Grant design team to earmark NGO/PVO grants to implement NRM local management strategies and extension programs. Expansion of NGO rice lands reclamation/causeway construction projects in collaboration with the Soil and Water Management Unit, the seed multiplication activity in collaboration with the GARD project, the Chimp Rehabilitation Project and Action-Aid environmental education program, and village and school afforestation effort

with Forestry Department participation are ongoing activities to be generalized under the Natural Resources and Agricultural sector program. To these interventions, will be added uplands conservation, agroforestry, grain banks, sesame, beekeeping, woodlands management, etc. as well as the extension other interventions detailed in the Action Program. On-the-job training of GOTG Community Development Assistants and other extension agents in cross-sectoral extension will be made part of the NGO/PVO grants under the sector grant.

The NRM team recommends that the Sector Grant design team work in collaboration with The Association of Non-governmental Organizations (TANGO), The Gambia's recently established NGO/PVO umbrella organization, to expand their program activities to include PVO/NGO consortia or sub-contracting. NGO/PVOs offer expertise in local institutional and organizational development, but generally lack the overall strategic planning called for in the Action Program. They sometimes lack the technical, planning, and administrative skills which can be provided through partnership with USAID. The sector grant can provide an overall framework for helping to develop these skills among international and local PVO/NGOs. In the interim, Development Alternatives, Inc. and the University of Pittsburgh offer management training programs suitable for NGO participant trainees. USAID/The Gambia should encourage international NGO/PVO currently operating in The Gambia to take advantage of these training programs in anticipation of an expanded role under the Agriculture and Natural Resources Sector Grant.

5.3 NRMS Special Studies and Events

The following list provides a range of possible NRM project activities which could be undertaken in support of USAID/The Gambia's work in natural resources. Some of these might be undertaken during the current CDSS, while others might more appropriately be funded through the Agriculture and Natural Resources Sector Grant. NRMS could undertake one or more of these activities depending on Mission and AFR/TR/ANR funding and negotiation of terms of reference and approval.

- o Pesticide load monitoring study in the aftermath of the anti-locust campaign.
- o Presentation of The Gambia Action Program at the Commonwealth initiated Consultation on Conservation Policy Issues between Anglophone and Francophone Countries of the Sudano-Sahelian Region in Banjul, May 1989.
- o A more detailed biodiversity assessment of the Kiang West, and coastal aviaries.
- o A market survey of the demand for the services to be provided through development of the Kiang West Park. Such a survey would more precisely target consumer demand and types of developments needed to stimulate use of the Park.
- o Development of environmental indicators for the Mission's use based upon existing data bases.
- o Analysis of the impact of SWMU structures on local agronomic practices and on intra-village organization and economy.
- o A follow-up mission to adjust the training of trainers curriculum at the Gambia College to include cross-sectoral natural resource management techniques, local conflict resolution, and community development for GOTG cadre charged with training and extension.

6. POLICY DIALOGUE

6.1 USAID Objectives

The aim of USAID-The Gambia's approach to policy dialogue concerning natural resources and biodiversity in its CDSS for 1991-1996 should be to bring about institutional and policy change to provide greater incentives for private, as opposed to government, management of natural resources, as appropriate. However, in the specific case of biodiversity issues, the international public needs to be solicited for greater support (See Chapter 9). Rights as well as the responsibilities of government, local communities, and individuals with regard to the husbandry and use of land, water and vegetative resources as mandated in existing legislation and negotiated easements should be highlighted.

6.2 Government of The Gambia Objectives

Through legislative initiative and project participation, the GOTG has indicated its willingness to engage in resource management reforms. Progress towards implementing existing legislation and accepting the modifications outlined in the Action Programs requires that:

- 1) a balance be struck between the need for environmental protection and the need to improve private and local benefits from the management of natural resources;
- 2) GOTG receipts from natural resource policy changes and their administration can be supplemented;
- 3) donors assist the Government of The Gambia to undertake the training, provide operational support, and mount the test programs needed prior to general NRM reform.

6.3 Mission Experience

USAID/The Gambia has gained extensive experience in policy dialogue through its financial reform and private sector initiative projects. The Mission has historically undertaken two major types of policy dialogue. The first type has been through projects which support structural or macroeconomic changes by providing compensatory funding to the Government of The Gambia for specific reforms (e.g., AEPRP). The second, and more subtle, has been through sectoral projects which have negotiated changes in administration policies, such as the Soil and Water Management Unit's negotiation with the Foni Jarroll Conservation District, and GARD project's seed multiplication agreement with Save the Children and the Lamin Village Area. The proposed NRM Action Plan includes both approaches.

6.4 Near-Term NRM Policy Dialogue

Near-Term NRM policy dialogue issues for the Mission to consider are listed below by agency:

Ministry of Water Resources, Fisheries, and Forestry

Dialogue with the GOTG on inclusion of natural resource protection, evaluation, taxation, and fining policies in macroeconomic sector policy project, especially those concerned with the National Parks and Forest Reserves.

Creation of the legal precedent for the implementation of community forestry. This will involve working through the German-Gambian Forestry Project concerning institutional structure, management responsibility, permits, fines, species protection, and fire protection.

Wildlife Conservation Department

Creation of a floral and faunal, notably avian, reserve area in the coastal area between Cape St. Mary's and Sanyang. The Department of Lands in the Ministry of Local Government and Lands must also take part in this dialogue.

Negotiation of regulations establishing the principle that national park revenues should benefit both the Wildlife Department and the broader development needs of the Village Areas in which the park is located.

Negotiation to earmark a portion of the hotel tax to support parks development.

Reinforcement of the staff of the Wildlife Department.

Expansion of the River Gambia National Park to include remaining gallery forest habitats along the south bank of the River the length of the Park (but excluding village rice lands).

Modification of policy to allow mid-stream mooring rights adjacent to Island three in the River Gambia Park for observational purposes only, and for establishing a fee structure for those rights.

Modification of policy to allow villagers to guide tourists to a cliff overlooking the eastern end of Baboon Island, to conduct visitors through the gallery forest, and to allow Chimp Rehabilitation Project staff to monitor boats mooring at Island Three.

Other recommendations specific to the biodiversity issue are detailed in Chapter 9 of this Action Plan.

6.5 Medium-Term NRM Policy Dialogue

Medium-Term NRM policy dialogue issues for the Mission to consider include:

Ministry of Water Resources, Fisheries, and Forestry

Creation of the legal basis for the implementation of community forestry and range land management units.

Discuss political solutions to the problems leading to forest degradation, i.e., intentional burning.

Implementation of a national conservation strategy based upon legislation passed in 1987 and incorporating ideas from both the SWMU experiences and the goals of the Wildlife Department.

Forestry Department

Setting up management plans for community forest reserves including revenue sharing arrangements between local communities, the department, and local government.

Establishing a National Forest Fund with part of the revenues generated within the sector.

Ministry of Agriculture

Negotiation of certain land use provision easements for areas where donors support testing of innovative range management approaches.

Livestock Department

In the MID and URD areas, dialogue related to designating transit corridors (dappos), deferred grazing and contract grazing zones, and pasture belts with joint local management agreements and access rights based upon MFP and UNSO project experiences.

Ministry of Local Government and Lands

Negotiation of revenue sharing of royalties paid to the Forestry or Livestock Departments for parks, reserves, community forestry, and managed range areas.

Ministry of Tourism and Information and Ministry of Finance

Examine the feasibility of modifying the tax on lodging so as to increase revenues for the Abuko, Baboon Islands, Kiang West, and proposed coastal aviary reserve.

7. IMPLICATIONS FOR MISSION MANAGEMENT

7.1 Mission Staffing

The primary implication for mission management is to determine if increased emphasis on NRM activities in the Mission portfolio in the short term, and implementation of the proposed Natural Resources Management Action Plan in the longer term, increases the commitment of effort required of Mission staff. In the short run, suggested reorientations in USAID project activity should not affect the Mission's commitment of effort. Current Mission Program and EAPRP Project staff may be insufficient to carry out NRMS related policy dialogue activities on a regular basis. However, the timely arrival of a Mission Economist should reduce this burden. Adding to AEPRP's responsibilities, expanding extension work by the Soil and Water Management Unit, and strengthening the agro-forestry and forage research components of the GARD project may require modification of staffing patterns.

In the medium term, management of the Agriculture and Natural Resources Sector Grant (ANRSG) will fall largely to the ADO. Were the ADO to reduce its FSN staff, it would be difficult to see how the reduced staff could manage the new grant program. Administration of the ANRSG will entail a significant managerial effort to negotiate policy changes with the GOTG, to orchestrate buy-ins to the Action Program from other donors, to place and monitor technical assistance in a number of GOTG units, and to coordinate with PVO/NGOs implementing local NRM strategies. Adding new items to the policy agenda of the follow on project to AEPRP and the sector grant will require added effort to correctly define negotiating points, design implementation arrangements, and monitor compliance and impact. Expatriate technical assistance and occasional workshops on the

technical, legislative, financial, and managerial issues of interest to these actors are two solutions to USAID/The Gambia managerial costs of taking a leadership role in NRM.

If the overall Action Program is to work, attention will have to be paid to current project monitoring and evaluation programs. External assistance from NRMS could provide on NR related baseline data information needed to monitor programs.

7.2 Project Design and Evaluation

A second area where an increased NRM emphasis has an impact on Mission management is project design and evaluation. When project designs or evaluations are developed, design team terms of reference should explicitly target natural resource components. The NRMS project may be able to assist the Mission with project designs, or other centrally funded USAID projects may be used for design and evaluation expertise (Forestry Support Program or agriculture research CRSP's).

7.3 Program Leadership

Discussion with GOTG and other donors show that there is a third area of managerial significance to the Mission. A clear opportunity for USAID/The Gambia to take a leadership role in orchestrating natural resources policy dialogue and donor assistance exists. In the near-term, participation in the Consultation on Conservation Policy Issues between Anglophone and Francophone countries of the Sudano-Sahelian Region offers the opportunity to focus donor and GOTG attention on the Action Program and the general approach to NRM developed by the NRMS project. In the longer term, orchestration of buy-ins to the Action Program from other donors, and coordination with PVO/NGOs implementing local NRM strategies will ensure USAID/The Gambia leadership.

8. PROJECTED IMPACTS AND MILESTONES

8.1 Types of Indicators

Impacts of implementation of the Natural Resources Management Action Plan will be of two general types. The first will be effects on existing projects and the content of new project design. The second will be effects on the natural resource base itself over time. The impact on activities will be relatively easy to monitor as the information can be obtained from the reports required for most project and portfolio management, i.e., financial flows to natural resource management activities, number of participant trainees, extension agents trained in natural resource management techniques, data on technical interventions, policies targeted for dialogue, etc.

Establishing impact indicators for the natural resource base itself will be more difficult and costly to establish, will require long time periods to permit impacts to become detectable, and will be more difficult to measure and accurately attribute. The resource inventories conducted by the Land Resource Division, Soil and Water Management Unit, and German-Gambian Forestry Project provide an invaluable source of baseline data already used by USAID and other major donors for project planning. Updates could provide a major monitoring tool although it is not recommended that USAID/The Gambia undertake these in the upcoming CDSS period.

8.2 Portfolio Management

Portfolio management milestones are defined by the AID's Plan for Natural Resources Management for Africa. The key milestones for USAID The Gambia as Category I country are:

- 1) NRM Assessment - Satisfied in FY 88 in the Sahel Sub-Regional Assessment.
- 2) FAA 118/119 Tropical Forestry and Biological Diversity - Underway, to be completed second quarter FY 89.
- 3) NRM Action Program and Plan completed second quarter FY 89.
- 4) Annual Update of the CDSS - each year over the current CDSS period.
- 5) The fifth management milestone is currently interpreted as an approximate 10 percent allocation of USAID FX and PL-480 LC generations for natural resources activities. Currently, allocations total about 11 percent, but planned Mission activities indicate that this level will be exceeded in the period 1990-1995 and beyond.

8.3 Short-Term Activity Indicators

USAID mission allocations have already been used in projects and programs supporting natural resource management. Existing monitoring and evaluation plans permit tracking of the effect of the mission program on some important elements of USAID's Plan for Natural Resources Management. The following matrix is suggested as a first cut of indicators. It is based on the proposed indicators of AFR/TR/ANR which are appended to this report.

Category	Currently Tracked	Where Tracked
8.3.1 Financial Indicators		
Level USAID FX and PL-480 NRM allocations	Yes	CDSS/AAP
Number NRM Activities funded by AID or jointly with PVO's, PC, Other Donors	Yes	CDSS/AAP
Level of Government of The Gambia budgetary Allocation to NRM Initiatives	Partly	National Budget

8.3.2 Technology Indicators

Number of Farmers/HH who have adopted improved NRM technologies	Partly	SWMU, G-GFP
Number of Promising NRM technologies identified	Partly	SWMU, G-GFP, GARD, NGOs
Number of NRM technologies adapted and extended	Partly	SWMU, G-GFP, GARD, NGOs
Parks/reserves identified with improved management plans	Partly	Wildlife Department
Park/reserve buffer zones established	Yes	Wildlife Department

Some projects (OMVG, SWMU, GGFP) have developed relatively detailed technology activity and output indicators for NRM. Under the Agriculture and Natural Resources Sector Grant, and the expanded level of commitment of natural resources it represents, some of these indicators will become more appropriate for USAID/The Gambia reporting than the general categories listed here. The NRMS staff is hoping to develop interview techniques which would be targeted at determining rates of technology diffusion (growth in the number of respondents reporting use of NRM technologies) as a low cost add on to existing surveys.

8.3.3 Policy Indicators

The indicators of progress in NR related policy changes are: 1) identification of NRM policies needing changes, and 2) NRM related policies changed and implemented.

The German-Gambian Forestry and USAID/Banjul policy projects, and the NRM team have identified certain policies affecting natural resources which need either implementation or modification. Reporting on the implementation of the policy changes is probably best done through scheduled project reviews and evaluations because of the time required for any government to make the administrative adjustments required. Priority policies for AID attention over the near and medium term are included in this report.

8.3.4 Institutional Indicators

Institutional indicators of NRM related changes are: 1) number of Gambians trained or retrained as natural resource technical specialists, park/reserve managers, guides, rangers, and multi-sectoral extension agents; 2) number of integrated village or pasture management zones (e.g. Conservation Districts); 3) number of private/public management zones; 4) number and biodiversity status of reserves or parks.

8.3.5 Economic Indicators

Economic Indicators of crop, livestock, forestry, and fisheries productivity are collected by the Ministry of Agriculture's Project Planning and Monitoring Unit. Physical indicators are to be collected by the OMVG-financed Environmental Laboratory of the Ministry of Water Resources, Fisheries, and Forestry. The problem of attributing changes in these indicators to NRM activities is at least as great as the attribution problems of more traditional sectoral programs and projects. Stabilized and increased crop yields, changes in vegetative cover, and growth rates and harvest for tree crops over a three to five year period would probably be good indicators in any given area of the economic impact

of NRM strategies on the land resource base. But measures for livestock, forestry and fishery offtake are difficult to identify because of the swings in animal populations, the lack of growth and regeneration information on forest trees in The Gambia, and major shifts that have occurred in fish habitat.

8.4 Longer Term Indicators of Impact on the Natural Resource Base

The appended proposed indicator list from AFR/TR/ANR suggests that a number of biophysical indicators be monitored. It is the opinion of the Action Program team that it would be very difficult and expensive to establish appropriate sampling, analysis and measurement for many of the more detailed indicators proposed. Soil nutrient status, soil organic composition/structure, soil reaction, and available soil moisture require sophisticated sampling and analyses. They are both extremely costly and difficult to complete in The Gambia given the personnel and laboratory facilities available. Measures which integrate the effects of improved natural resource management on a large scale are needed. Options which are under discussion by the team include:

- Soil Erosion Sediment Load - estimates from the SWMU constructed catchments holding water in the zones of project intervention. The use of erosion rods in sites for simpler physical evaluation may be possible.
- Forest Cover and Clearing - FY 95 update of the Land Resource Division or German-Gambian Forestry Project evaluation of forest cover to monitor trends in pressure on vegetative cover.
- Species Diversity - Counts of endangered plant and animal species relying on the staff of the Abuko Reserve, the Gambian Ornithological Society, or the Kiang West National Park or International Union for the Conservation of Nature or WWF consultants.
- Ground water - Monitoring of Ministry of Water Resources, Forestry and Fisheries studies of groundwater tables in wells and water quality analysis.

The Environmental Laboratory of the Ministry of Water Resources, Fisheries, and Forestry to be funded by the OMVG will be accumulating data on these physical indicators.

While the Africa Bureau has commissioned the World Resources Institute to do a study of potential macro-environmental indicators for monitoring purposes, there is unlikely to be final consensus on indicators during FY 89. The Action Plan Team is predisposed to a recommendation which would identify incremental additions to existing project monitoring and evaluation, including biological diversity in existing and proposed national parks.

9. BIODIVERSITY CONCERNS

The Sahel Sub-Regional Assessment contains a review of the biodiversity issues mandated by AID/Washington (State 03584) which appears in volume four of Opportunities for Sustained Development. This section constitutes an up-date of that document.

9.1 Legislative and Institutional Structures

There are three basic pieces of legislation dealing with biodiversity in The Gambia, and several acts implementing this legislation. These are listed in Annex 7 of the Action Program for The Gambia. The most recent pieces of relevant legislation are :

- the Environmental Management Act, 1987 which is basically a ratification of the OAU-initiated African Convention For the conservation of Nature and natural Resources (Algeria, 1968) and which was prepared with UNEP assistance; and
- Kiang West National Park Order, 1987 which establishes a 10,000 ha National Park in the Kiang West Division that included woodland and riparian habitats.

The Gambia is not a signatory to the RAMSAR agreements. USAID/The Gambia should include signature of this agreement among conditions precedent to the Agriculture and Natural Resource Management Sector Grant.

Protection and development of the parks is the responsibility of the Wildlife Department which has a technical staff of only fourteen, including the Director Designate. This staffing level is totally inadequate to provide even minimal protection for the two major parks, River Gambia and Kiang West, let alone develop the necessary programs of environmental education and tourist promotion. In fact, there is only one agent stationed at River Gambia full time, with the rest concentrated at the Abuko Reserve and in a few other areas. The five staff members of the Chimpanzee Rehabilitation Project, a PVO project described in Volume Four of the SSRA provide oversight to the Baboon Islands in the River Gambia National Park.

9.2 Status and Management of Protected Areas

The government of The Gambia has expressed its commitment to the preservation of its fauna and floral resources on numerous occasions and has demonstrated this commitment by setting aside park areas which are quite generous in comparison to of its Sahelian neighbors. However, as noted in the SSRA, these parks are degrading as a result of bushfires and the encroachment of people and livestock. An exclusionary and protectionist philosophy has guided the Department of Wildlife until quite recently. Programs of environmental education are embryonic at best and are due to the efforts of Peace Corps and the Chimp project. The GOTG lacks the resources to embark on parks and parks boundary development programs which could benefit the populations around the parks and induce them to preserve the parks themselves.

9.3 Status and Protection of Endangered Species

The issue of endangered species was addressed in the SSRA. Both the Sitatunga antelope and the West African Manatee have been reported to exist in the Kiang West Park and it is hoped that, with regeneration of the Park, species of antelope which have recently become extinct in The Gambia can be reintroduced. The Gambia Ornithological Association published a report on sightings of rare and endangered bird species in The Gambia in 1982. This report provides further evidence of the importance of the ecosystems of The Gambia for the protection of endangered species.

9.4 Conservation Outside of Protected Areas

The Wildlife Act of 1977 enumerates protected species, and prohibits trophy hunting. The Environmental Management Act, 1987 reaffirms the GOTG's commitment to preserving biodiversity. Occasionally, illegally held animals are confiscated by the Conservation Department, as in a recent case involving two chimps confiscated in Basse. However, the Department lacks the staff to effectively enforce existing legislation. Bush fires and other "pest" control measures undertaken by the rural population continue to exert pressure on what remains of the country's once abundant and diverse fauna and flora.

Traditionally, village communities protected so-called "sacred groves" in which plant and animal species were concentrated. While ravaged by bush fires, some groves persist. One such grove included in the catchment for a SWMU water retention dam, continues to support water monitors, sun birds, monkeys, and even a crocodile. Preservation of species on the islands in the River Gambia National Park is due, in part, to beliefs about bush spirits. While these kinds of beliefs do contribute to the preservation of biological

diversity, human population pressure and bush fires continue to degrade these managed natural systems.

9.5 Conservation of Economically Important Species and Germ Plasm

There is considerable interest in preserving economically important species and germplasm. Several examples indicate the extent of this interest without exhausting the range of local efforts. With the support of the ADB, the EEC, and other donors, the International Trypanotolerance Center (ITC) has embarked on a decade long program to re-establish the local trypanosome tolerant N'dama cattle breed. Save the Children - US, in collaboration with a European scientist has conducted seed multiplication of a long-almud, bird resistant millet variety (badabobi). Action-Aid, an NGO, is helping some villagers to establish gardens with local medicinal plants and tree species. The MFP collected information on species composition and regeneration of local species in deferred grazing trials. The German-Gambian Forestry Project is undertaking natural forest regeneration in two LRD forest parks. A systematic collection of local rice cultivars (Oryza glabberiana) would be a useful addition to the effort to conserve economically important germplasm resources.

9.6 Major Issues in Biological Diversity and Forest Conservation

The major issue facing The Gambia in the very near term is finding the resources necessary to preserve threatened species and habitats so that they may become productive assets for the nation in the medium and long term. In addition, The Gambia should set aside a few other park preserves, notably along the coast to protect and encourage its varied avian fauna (see the SSRA for details), and expand the River Gambia Park to

protect its endangered tropical riparian gallery forest located on the south bank of the river. More critically, The Gambia must effectively protect, regenerate, and render productive the Parks which already exist. To do this it must:

- a) educate its population to the necessity of, and economic benefits to be derived from, preserving the nation's biodiversity heritage, and
- b) attract more donor and PVO support from beyond its borders.

9.7 Recommendations and Proposed Actions

The Natural Resource Management Action Plan Team recommends that the Mission take the following actions:

- 1) Encourage the Peace Corps to support and expand its program to develop a primary school curriculum in environmental education especially targeted at the schools and communities in the vicinity of the Parks and the Abuko Reserve.
- 2) Use the policy dialogue mechanism with leverage provided by the AEPRP to encourage the GOTG to set aside four to five 20-50 ha coastal aviary reserves.
- 3) Encourage the GOTG to add an additional five rangers to the staff of the Wildlife Department.
- 4) Use HRDA funds to provide intensive in-country training to Wildlife Department officers in wildlife and parks management and environmental education, and to finance more advance training at Mweki School, Tanzania for a participant trainee to be designated by the government.
- 5) Use PD&S monies to fund the biodiversity studies described elsewhere in the Action Plan.
- 6) Implement the Biodiversity Strategy detailed in the Action Program for the Kiang West National Park.
- 7) Encourage other donors to support development of other Parks and Reserves in The Gambia.
- 8) Encourage the Wildlife Department to support the joint Chimp Rehabilitation Project and the Action-Aid environmental education program.

- 9) Encourage the Minister of Water Resources, Fisheries, and Forestry to gazette the riparian gallery forest on the south bank of the river adjacent to the River Gambia National Park.
- 10) Allow mooring in the middle of the river channel adjacent to island three and levy fees on yachts visiting the River Gambia National Park and divide them between the Wildlife Department, Chimp Rehabilitation Project, and local villages.

10. ENVIRONMENTAL REVIEW REGULATIONS

10.1 Environmental Review

The purpose of US environmental review policy is to "ensure that the environmental consequences of AID-financed activities are identified and considered by AID and the Host Country prior to a final decision to proceed and that appropriate environmental safeguards are adopted". [22 CFR 216.1 (b)(1)] This purpose has not been fully realized as yet since the Categorical Exclusion given the NRMS project by the Initial Environmental Examination (IEE) included the provision that individual activities assisted would be subject to their own Environmental Examinations (EE's). EE's when conducted outside the US, by regulation, need to address only adverse project impacts. This section will define the level of care needed during the environmental review of a project, illuminate the areas where critical examination is necessary, and suggest appropriate environmental safeguards when needed.

10.2 Overview of NRMS

The Natural Resources Management System is a collection of strategies designed for cooperative action at the village level which are based upon successful experience. They are designed to arrest and eventually reverse the degradation caused by human agro-economic activities on the Sudano-Sahelian environment. These strategies are composed

of collections of on-farm interventions which involve coordinated village or group activities and which promise swift and increasing returns for individual effort. Each intervention has been shown to have a desirable developmental or environmental impact which, when combined with other interventions, will result in a strategy which will exhibit a synergetic effect. Over the proposed twenty-year time frame these positive environmental impacts, together with the replication of the procedures in other areas, will begin the long process of replenishing overtaxed natural resource base in The Gambia.

10.3 Anticipated Impacts

The anticipated project impact, otherwise referred to as the "significant effects" of these strategies on the environment, will be the cumulative effect of the interventions. Some interventions were identified from AID sponsored projects, and as such have already received environmental review (for projects initiated after 1975). Other interventions were taken from successful projects or successful components of projects of other donors, PVOs, NGOs, governments, and other development workers from neighboring Sahelian countries. These may not have undergone an environmental review, but they were chosen for their beneficial contribution to environmental improvement and were judged successful because they were successful and did not have significant adverse environmental effects.

10.4 Regulation Review Degree Categories

AID's environmental regulations recognize that there are actions which have varying degrees of effect on the environment. The degree of environmental review is correspondingly scaled to reflect this varying potential for adverse effect. Five categories of review exist, only three of which are normally encountered on interventions such as those proposed by the NRMS project. The highest degree of investigation, the

environmental impact statement, is not normally needed on AID-supported projects because the activities do not often have wide-ranging, adverse effects. Likewise, exemptions are not generally used for project-type work such as NRMS interventions. Investigations of actions which have an environmental effect can be included under the following general types of review categories; exemptions, categorical exclusions, environmental examinations, environmental assessments, and environmental impact statements.

1) Exemptions

Projects or activities which are eligible for exemption under the regulations include: a) international disaster assistance, b) other emergency circumstances, and c) circumstances involving exceptional foreign policy sensitivities.

2) Categorical Exclusions

Projects of a certain type are eligible for categorical exclusion under the regulations if they are based on the following specific criteria: a) they are actions not having an effect on the natural or physical environment; b) they are actions where AID doesn't have knowledge of or control over, and the objective in providing assistance doesn't require knowledge of or control over, the details of specific activities which may effect the environment; and/or c) they are research activities which may affect the environment but are of limited scope, are carefully controlled, and are effectively monitored.

3) Environmental Examination

IEE's (or in this case EE's) have to be prepared for all projects, project components, or activities which: a) are not exempted, b) are not categorically excluded, but c) will have no significant adverse environmental impact.

4) Environmental Assessment

An Environmental Assessment (EA) is required unless it is believed that the action will not have a "Significant Adverse Impact". The regulations list a class of actions which normally have a significant effect on the environment and for which an EA will be required. The list of eleven classes of actions is included here below even though some items may not have relevance to NRMS interventions:

- a. Programs of river basin development;
- b. Irrigation or water management projects, including dams and impoundments
- c. Agricultural lane leveling;
- d. Drainage projects;
- e. Large scale agricultural mechanization;
- f. New lands development;
- g. Resettlement projects;
- h. Penetration road building or road improvement projects;
- i. Power plants;
- j. Industrial plants; and
- k. Potable water and sewerage projects other than those that are small scale.

Additionally, any adverse impact not previously studied requires the preparation of an EA.

5) Environmental Impact Statement

An EIS shall be prepared when agency actions significantly affect: 1) the global environment or areas outside the jurisdiction of any nation: 2) the environment of the U.S.; or 3) other aspects of the environment at the discretion of the AID Administrator.

10.5 Classification of Interventions According to Review Requirements

The interventions have been classified according to the type of review required and are presented on three pages in Annex 2. Category I interventions are the type of activities for which a case can be made that a categorical exclusion is appropriate. Category II activities require only an environmental examination cover sheet requesting a negative determination, if such is the finding, together with the written technical rationale supporting the recommended decision. The degree of necessary expertise and the level of effort required to perform reviews of either of these preceding categories is not excessive and is well within the capability of the Mission Environmental Officer. Category III activities require more critical examination including the more extensive and thorough procedures

of an environmental assessment since the potential for adverse impact exists. A category III review should be performed by someone, such as the Regional Environmental Officer, who is thoroughly versed in the regulations and experienced in preparing this type of document.

- **This categorization is intended to serve only as a guide and is not intended to relieve the reviewer of the necessity of performing a thorough examination of the facts of each individual case.**
- **This discussion is intended to be informational only and should not be construed to be a legal interpretation of environmental regulations and law.**

10.6 Current and Future NRM Interventions

The folding of NRM strategies into current and future portfolio programs and projects necessitates the preparation of a CE, an EE, an EA, or an EIS for each individual activity proposed. The level and complexity of review necessary for the majority of the activities will not be great, however, since the track record shows that most do not have adverse impacts on the environment. Nevertheless, the paperwork requesting a categorical exclusion must be prepared as must an environmental examination proposing a negative determination and containing a proposal description when each is appropriate and warranted. An environmental assessment or even an environmental impact statement likewise must be prepared for the category III interventions which warrant these higher levels of environmental protection review.

10.7 Negative Impacts and Mitigating Measures

A list of some of the potential negative environmental impacts which may result from interventions such as those proposed by NRMS is included in this document in Annex 2. This checklist will help during the preparation of CE's and EE's by mission personnel.

Mitigating measures or alternative courses of action should always be conceived when the potential for adverse impact becomes apparent. Since most of the NRM interventions will be utilized as strategy systems, concurrent interventions may provide some of the mitigating measures or additional interventions could be chosen which serve this purpose. The overall long term goal of NRM interventions, which is to provide a positive environmental impact, can best be realized when the negative impacts of individual interventions are minimized.

INDICATORS FOR TRACKING AFR BUREAU'S PROGRESS
IN IMPLEMENTING
THE PLAN FOR SUPPORTING NATURAL RESOURCES MANAGEMENT IN SUB-SAHARAN AFRICA

Background: The Africa Bureau is currently in the process of identifying appropriate indicators for tracking its progress in implementing the Plan for Supporting Natural Resources Management in Sub-Saharan Africa (PNRM). The identification of natural resource indicators by the end of calendar year 1988 responds to one of the requirements of the Development Fund for Africa, as well as of the PNRM's evaluation plan.

Progress To Date: On February 26, 1988, AFR/TR/ARD convened a meeting of A.I.D.'s evaluation and natural resource specialists to discuss the preliminary list of indicators identified by ARD (attached). ARD's framework for identifying indicators incorporates the concept that indicators should be viewed from a multi-dimensional perspective if they are to reflect implementation progress realistically and appropriately. These dimensions are discussed briefly below:

o Geographic considerations - Different sets of indicators should be used to track progress in different groups of countries (i.e., Group I, Group II, and Group III countries, as identified in the Plan) in order to reflect the difference in levels and types of activities that A.I.D. will support in these countries.

o Temporal considerations - The current set of indicators identified by ARD are grouped into two major categories: short-term indicators and long-term indicators. Incorporating temporal considerations into the indicators framework conveys a very important message: the biophysical and socio-economic impact of natural resource interventions can only be realized over the long-term; however, other intermediate accomplishments can and should be tracked in the short- or medium-term to determine whether progress is being made in attaining the ultimate goals (i.e., biophysical and socio-economic impacts).

o Cost-effectiveness considerations - Information costs money, and the availability of funds is a major limiting factor in determining the amount, level of precision, and methodology used in collecting information. The incorporation of geographic and temporal considerations into the Africa Bureau's indicators framework is a cost-effectiveness consideration. Another cost-effectiveness consideration is the reduction of the current list of indicators to include only those that can be collected within the limits of available resources, while still providing sufficient information on implementation progress.

Next Steps:

From now until the end of calendar year 1988, the Africa Bureau will undertake the following steps in finalizing the natural resource indicators:

o Incorporate suggestions made during the February 26th meeting of A.I.D. evaluation and natural resource specialists.- During the February 26th meeting, suggestions to refine the current indicators framework were made: (a) the indicators should be reclassified under different groupings, such as "input indicators", "output indicators", and "goal level indicators"; (b) the indicators should be further classified according to whether they are institutional, policy-related, or technology-related; (c) additional indicators should be considered for inclusion, especially those that measure the level of local participation in the implementation of natural resource interventions; and (d) a cover note should precede the listing of indicators to present background information, discuss objectives and targets, and relay information on data collection/research techniques. All these suggestions will be considered as the Africa Bureau finalizes its list of natural resource indicators.

o Solicit views of NGOs/PVOs and universities. - The Africa Bureau will collaborate with outside groups such as the NGOs/PVOs and universities to further develop and refine the natural resource indicators framework.

o Continue collaboration within A.I.D. - During the process of developing the natural resource indicators framework, the views and inputs of the AFR Bureau field missions will be solicited, and the collaboration which was initiated early on with relevant offices within A.I.D./W will be continued.

o Investigate availability of information and data collection requirements and methodology. - A critical factor in determining which indicators will be included in the final list is the steady availability of information related to specific indicators and the ease and cost of collecting additional information (where data gaps for critical indicators exist). Thus, an assessment of the availability in Sub-Saharan Africa of specific information related to listed indicators will be made, as well as a determination of how additional information for the most critical indicators can be collected in the most cost-effective manner.

PROPOSED INDICATORS FOR TRACKING PROGRESS IN IMPLEMENTING
the PLAN FOR SUPPORTING NATURAL RESOURCES MANAGEMENT IN SUB-SAHARAN AFRICA

- I. SHORT-TERM INDICATORS: (1st year-onwards)
- Number of promising technologies identified (including IPM techniques)
 - Number of technologies adapted and extended (including IPM techniques)
 - Number of farmers/households who have adopted improved technologies (including IPM techniques)
 - Number of policies identified that require change
 - Number of policy changes adopted and implemented by host governments
 - Number of SSA countries with completed natural resource assessments
 - Level of USAID FX and PL-480 LC generations allocated for natural resource management activities
 - Number of natural resource activities funded by A.I.D alone, or jointly with other donors, PVOs, or the Peace Corps
 - Level of African host government budgetary allocation for natural resource initiatives
 - Number of Africans trained as natural resource technical specialists, park/reserve managers, tour guides, and extension agents
 - Number of PVOs and NGOs strengthened
 - Parks/reserves identified for intensive mgmt. & tourism
 - Number of buffer zones established

II. LONG-TERM INDICATORS: (6th Year - onwards)

A. Biophysical Indicators

Nature of Environ. Degr.	Indicators
Soil Erosion & Soil Fertility Decline	Soil nutrient status Soil organic composition/structure Sediment loading Soil reaction (pH) Level of soil loss Changes in water available for plants

Countries		
Grp.I	Grp.II	Grp.III

		Countries		
		Grp.I	Grp.II	Grp.III
Nature of Environ. Degr.	Indicators			
Veg. Loss or Degradation	Area under vegetation Vegetation density Vegetation vigor Vegetation composition/diversity			
Biological Diversity	Area protected as park or reserve Number of species on endangered status Number of viable buffer zones Level of pesticide contamination			
B. <u>Economic and Related Indicators*</u>				
<ul style="list-style-type: none"> - Increases in agricultural (crops/livestock) productivity - Reduction in crop losses - Increases in production of forest products - Increases in incomes from crop production - Increases in incomes from livestock production - Reduction in energy costs - Increases in incomes generated from tourism - Increases in non-farm incomes/employment opportunities due to rational utilization of natural resources - Improvements in nutrition levels - Increases in GDP 				

* The achievement of sustainable improvements applies to each of the indicators.

ANNEX 2
ENVIRONMENTAL EXAMINATION CATEGORIES FOR NRMS ACTIVITIES

CATEGORY I - CATEGORICALLY EXCLUDED INTERVENTIONS - NO ADVERSE IMPACT

training to village farmers
forestry education
environmental education

literacy training
nursery management training
vocation training program

forest classification
crop association research
millet research

sorghum research
vegetation inventory
soil inventory

extension to village farmers
risk avoidance through cooperative association
provision of credit to villagers

diffusion of improved wood stoves
diffusion of improved charcoal stoves
garden market development

providing private forest guards
seed storage & preservation
conflict resolution techniques

resolving land tenure issues
common resource use agreements
common property law

sacred woodlots
forest policy change: allow farmer to cut trees he planted

CATEGORY II - INTERVENTIONS NEEDING EE -
NO SIGNIFICANT ADVERSE IMPACT

vegetative bands
green belts
reforestation

enrichment planting
windbreak planting
direct seeding

alley cropping & inter-cropping
village tree plantations
tree nursery establishment

well lining
windmill use
fish culture

firebreak establishment
early controlled burning
improved bush fire control

compost pits
fallowing
natural phosphate use

providing wildlife shelter & cover
in-field planting of *Acacia albida*
live fence & living hedge planting

dune stabilization
small biogas digester use
installation of hand pumps

collective animal stabling
soil fertility improvement
manure & organic fertilizer use & field application

small collective grain storage
facility construction
forest & woodlot management

production & introduction of improved seed
support for regional forest service
seed multiplication

improved planting density for Ag crops
introduction of improved crop varieties
crop storage & preservation

rainfall harvesting micro-catchments
contour & diversion bunds (earth or rock)
trench water catchment bund

collective village nurseries
tree planting & protection from weed competition
medicinal plant cultivation

vegetable & fruit tree gardening
horticultural & silvicultural biodiversity improvement

introducing animal traction
controlled forest grazing
simultaneous crop planting to reduce bird losses

dune stabilization
small biogas digester use
installation of hand pumps

CATEGORY III - INTERVENTIONS NEEDING EA - POTENTIAL ADVERSE IMPACT

salt barrier dams
water retention dams
small check dams

large channel protection dams
channel protection structures
concrete reservoir construction

concrete holding tank construction
rural roads construction
livestock vaccination pen construction

chemical fertilizer use (except natural phosphates)
chemical pesticide, herbicide, & fungicide use
integrated pest management

industrial forestry plantation
school construction
clinic construction

warehouse construction
installation of motor pumps

IDENTIFICATION AND EVALUATION OF ENVIRONMENTAL IMPACTS IN IMPACT AREAS

A. LAND USE AND NATURAL RESOURCES

1. Changing the character of the land through:
 - a. Increasing people and animal populations
 - b. Extracting natural resources (ie. water)
 - c. Land clearing
 - d. Changing soil character
 - e. Construction
2. Altering natural defenses
3. Foreclosing important uses
4. Irreversible, inefficient commitments
5. Jeopardizing humans of their work

B. WATER QUALITY

1. Physical state of water
2. Chemical and biological states
3. Ecological balance of a water body

C. ATMOSPHERIC

1. Air additives
2. Air pollution
3. Noise pollution

D. CULTURAL

1. Altering physical symbols

E. SOCIOECONOMIC

1. Changes in economic/employment patterns
2. Changes in population
3. Changes in cultural patterns

F. HEALTH

1. Human nutrition
2. Pesticide toxicity

LEGEND: N = No environmental impact
L = Little environmental impact
M = Moderate environmental impact
H = High environmental impact
U = Unknown environmental impact
+ = Positive impact
- = Negative impact

51-