

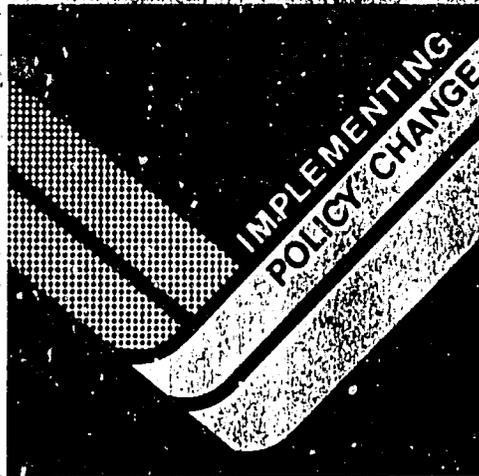
IMPLEMENTING NATURAL RESOURCES MANAGEMENT POLICY IN AFRICA

A DOCUMENT AND LITERATURE REVIEW

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EXECUTIVE SUMMARY

This study, funded through a buy-in to AID/RD/EID's Implementing Policy Change (IPC) project, was conducted for the Africa Bureau's Office of Analysis, Research and Technical Support, Division of Food, Agriculture, and Resource Analysis (AFR/ARTS/FARA). The purpose of the study is to identify and analyze the organizational and management issues and tasks involved in natural resources management (NRM) policy implementation in Africa, and based on the analysis to define a range of strategic questions dealing with NRM policy implementation. Data sources include A.I.D. funding documents, NRM reports, case studies and trip notes written for ARTS/FARA, and other published literature in the development, natural resources and management fields.

Nineteen A.I.D. project and program documents were reviewed and coded, evenly distributed among Sahelian countries, Central/Eastern Africa, and Southern Africa. Projects and programs fell into the major categories of agroforestry, sustainable agriculture, and protected areas and biodiversity. In general, NRM policy was defined broadly, and included linkages between national government decrees and behavioral change at the local level, and changes in the institutional environment under non-project assistance. Frequently included design elements of AFR's NRM projects were technical training, technical assistance, policy studies, institutional strengthening, and equipment and physical inputs. Budget support, grant awards, monitoring and evaluation, and community mobilization were less common design elements. Among the most critical management and organizational issues cited by project and program documents were: management capacity, commitment by host country officials, organizational systems (including budgeting, accounting and information systems), sustainability, community participation, and decentralization/ deconcentration. Finally, external factors affecting NRM project/program success and policy implementation included: institutional capacity, recurrent cost coverage, and the effect of other sectoral policies on NRM.

To analyze the NRM literature, the study used as its framework six conditions associated with successful policy implementation (Mazmanian and Sabatier 1989). These include the (1) clarity and consistency of NRM policy objectives, (2) identification of critical factors and linkages necessary for achieving policy objectives, (3) policy implementation arrangements, (4) management and political skills, and commitment, (5) ongoing stakeholder support, and (6) supportive and stable socioeconomic and political conditions.

In general, national-level NRM policy objectives were expressed in vague terms, often engendering conflict and stalemate among key stakeholders. Local-level policies, often technical in nature, were more detailed and less flexible. Factors cited in the literature that impede identifying NRM policy linkages included the effect of macro-conditions (poverty and population) and macroeconomic policies, host country understanding of NRM issues, and weak capacity to analyze policies. The structures, procedures and resource allocations for NRM policy implementation are a major focus of discussion in the literature. Authors addressed division of implementation responsibilities and appropriate institutional "homes" for NRM policy units, co-management arrangements between local NGOs and national entities, structuring incentives for policy implementation, and the financial aspects of various implementation arrangements.

Lack of management skills among NRM managers in Africa was identified as a severe constraint. However, few sources in the literature discussed the importance of the political skills needed by managers for NRM policy implementation. The literature indicated that among the features that make NRM policy so complex are: the number and diversity of the winners and losers involved, the strength of entrenched interests, competing policies in other sectors, and the relative newness and weakness of many NRM policy implementation agencies. Participation by national and local groups, including NGOs, is discussed, and related to incentives for policy implementors and resource users. Finally, stable socioeconomic and political conditions are often underemphasized in NRM. Sources indicate, however, that the interplay between NRM and the socioeconomic and political context is not easily investigated.

The common thread of both the A.I.D. project/program documents and the literature is the complexity and multiplicity of factors and linkages that characterize NRM. The literature review demonstrates that for each of the factors associated with successful policy implementation, their expression in the NR sector in Africa reveals significant difficulties. Several features of NRM policies stand out as particularly troublesome from an implementation perspective. These include: the underlying contradiction between sustainable NRM and the prevailing economic development paradigm, the nature of NRM costs and benefits, the negative orientation embodied in NRM regulations, and the tendency for NRM issues to generate conflict. In conclusion, the study proposes a set of strategic questions for policy implementation as a way to begin to clarify further some of the complexity.

List of Acronyms and Abbreviations

A.I.D.	Agency for International Development
AID/AFR/ARTS/FARA	A.I.D. Africa Bureau's Office of Analysis, Research and Technical Support/Division of Food, Agriculture and Resource Analysis
AID/RD/EID	A.I.D. Research and Development Bureau's Division of Economic and Institutional Development
CDIE	Center for Development Information and Evaluation
DFA	A.I.D. Development Fund for Africa
EIA	Environmental Impact Assessment
FAO	United Nations Food and Agriculture Organization
IDMC	International Development Management Center
IPC	Implementing Policy Change Project
NEAP	National Environmental Action Plan
NGO	Non-Governmental Organization
NPA	Non-Project Assistance
NRM	Natural Resources Management
NRMAA	Natural Resources Management Analytic Agenda
OPG	Operational Program Grant
PAAD	Project Assistance Authorization Document
PAIP	Project Assistance Identification Paper
PID	Project Identification Document
PP	Project Paper
PVO	Private Voluntary Organization
TFAP	Tropical Forestry Action Plan
UNDP	United Nations Development Program
USAID	USAID Country Mission
USDA	United States Department of Agriculture

Acknowledgements

This study, funded through a buy-in to AID/RD/EID's Implementing Policy Change (IPC) Project, was conducted for AFR/ARTS/FARA to investigate policy reform implementation issues in Africa. The study team consisted of: James Gage, International Development Management Center (IDMC), University of Maryland System (task manager); Derick Brinkerhoff, IDMC (IPC Research Coordinator); Jo Anne Yeager, Abt Associates; Mark Renzi, Management Systems International; Gary Costello, IDMC consultant; and Veronica Clifford, IDMC (IPC research assistant). The team wishes to acknowledge Tony Pryor, AID/AFR/ARTS/FARA, and Jeanne North and Pat Isman, AID/RD/EID, for their assistance and guidance throughout the study. Our gracious thanks also go to the many NRM collaborators that shared their documents, reports, experience, and ideas with us.

I. INTRODUCTION

The Africa Bureau's Office of Analysis, Research and Technical Support (AFR/ARTS) has responsibility for organizing and supporting research, providing technical assistance to A.I.D. field missions, and disseminating research results to the Agency and host countries. Among the targets of AFR/ARTS' research and technical assistance agenda is the achievement of sustainable increases in agricultural production through better management of natural resources, one of the strategic objectives of the Development Fund for Africa (DFA). As an organizing structure for funding, programming, monitoring, and procurement in support of this target, AFR/ARTS' Division of Food, Agriculture, and Resource Analysis (FARA) developed the Natural Resources Management Analytic Agenda (NRMAA).

The NRMAA framework is essentially a flowchart that elaborates the causal linkages among the various factors associated with achieving sustainable increases in agricultural productivity and production (see Weber 1991a and 1991b). At the lower levels of the flowchart (Levels I and II) are the institutional, sociocultural, economic, policy, and managerial actions and conditions that promote (or impede) the adoption of resource-sustaining NRM practices. This study represents one effort to identify, order, and clarify the interactions among the conditions at Levels I and II of the NRMAA (see Clarkson Systems 1991).

Scope and Methodology of the Study

The purpose of this study is to identify and analyze the organizational and management issues and tasks involved in NRM policy implementation in Africa, and based on the analysis to define a range of strategic questions dealing with NRM policy implementation (see Annex 1). The study draws entirely upon documents, supplemented by interviews with A.I.D. staff and NRM specialists currently working with ARTS/FARA on the NRMAA (see Annex 2). Documents reviewed are of several sorts: Africa Bureau funding documents describing recent and current NRM projects and programs the Agency supports; reports, case studies, analyses, and trip notes of NRMAA collaborators; reports from other A.I.D. offices and other donor agencies; and the published literature in the development, natural resources, and management fields.

As with any desk study based on secondary sources, its data base is subject to significant limitations. The study's findings, analyses, and conclusions should be seen

as suggestive rather than definitive, offering avenues for confirmation or disconfirmation through follow-up fieldwork. Given the constraints of the data used, the complexity of natural resources policy issues, and the realities of the African context, the intent of the study is to raise questions and propose areas for further investigation, not to give answers.

The documents reviewed in the study were collected in several ways. The team asked A.I.D. staff and members of the NRMAA collaborators' group to nominate those documents they considered most relevant for the purposes of the study. In addition, the team conducted a keyword search of computerized data bases at the University of Maryland, and asked A.I.D.'s Center for Development Information and Evaluation (CDIE) to conduct a search of A.I.D.'s computerized data base. For Agency funding documents, Project Identification Documents (PIDs); Project Papers (PPs); Project Assistance Identification Papers (PAIPs); and Project Assistance Authorization Documents (PAADs), the team developed a document questionnaire to elicit information on AFR's current interventions in NRM policy change and on the implementation issues and constraints involved in carrying them out. Several team members served as coders, using the questionnaire to rate the projects and programs on the various items elaborated. For the wider literature, a second survey instrument was used that guided attention to certain broad categories of both NRM and implementation issues.

The report is divided into four sections. This first section introduces the study and provides a definition of policy and policy implementation. Section II presents the results of the analysis of A.I.D.'s current portfolio of activities in the NRM sector. Section III summarizes what the wider literature says about NRM policy implementation, organized in terms of a framework that identifies the key characteristics associated with successful implementation. The fourth section briefly summarizes the nature of NR policies and their implications for implementation, and delineates a set of strategic questions for NRM policy implementation that the study's findings suggest are most important. A set of appendices and a bibliography complete the report.

Defining Policy and Policy Implementation

Drawing a definitive boundary around the concepts of policy and policy implementation is easier said than done. The widest bounds on the definition of policy extend to incorporate a government decision to institute a change plus the modified behaviors that result from response to the change. Ilchman and Uphoff's definition falls into this category (1983: 30-31): "Public policies are the use by a regime of its resources to intervene in the accustomed behavior of some citizens to

produce more or less of that behavior...." Slightly narrower conceptions focus more on the decision side, defining policies as government choices concerning rule systems, resource allocations, and delegations of authority.

In the natural resources sector, some examples of reforms being pursued in Africa illustrate that policy definitions tend toward the broader end of the conceptual spectrum. Kenyan wildlife policy aims to preserve biodiversity by changing attitudes and behaviors of communities adjacent to parks and reserves, with a focus on economic incentives for conservation. In Lesotho, rangeland policy reform involves reallocations of resources and authority between public and non-governmental sector organizations involved in rangeland management. Reforms in forestry policy in Senegal, Mali, and the Gambia target community-level behaviors in combination with changes in the mission and operating procedures of government forestry departments. Among the policy initiatives in Uganda and Madagascar is the development of an overarching planning framework for environmental action that specifies targets, indicators, timeframes, and roles and responsibilities.

Definitions of policy implementation also vary. A narrow conception views implementation as the elaboration of policy choices into legislation and statutes and their official promulgation. Broader definitions extend beyond the nominal adoption of laws and statutes to include the translation of policy prescriptions into goals and actions that address the procedures, capacities, and behaviors needed to initiate and sustain the policy's intended objectives (Mazmanian and Sabatier 1989: 20-21). The wider definitions of policy implementation share an emphasis on the successive detailing of policy from the level of intent (as expressed in laws, statutes, and/or executive orders) through structuring of action (allocation of procedural and operational responsibility) to the "street" level of generation of policy outputs and impacts. Some analysts have argued that this latter level is the definitive component in characterizing both policies and policy implementation (Lipsky 1980).

This study employs the broader definitions of policy and policy implementation for natural resources management. In terms of policy, we look at government decisions and at the behaviors of NRM target groups. Regarding NRM policy implementation, we examine the operationalization of policies into programs, projects, activities, and outputs. At these microlevels, it occasionally becomes difficult to separate what is specific to policy implementation from the more bounded concepts of program and project implementation. Because projects and programs are the major vehicles used to get from policy choice to results and impact in NRM and other development sectors, this conceptual overlap is to be expected.

II. OVERVIEW OF THE AFRICA BUREAU'S CURRENT PORTFOLIO IN NATURAL RESOURCES MANAGEMENT

The purpose of this component of the study is to provide an up-to-date picture of A.I.D.-supported NRM interventions in Africa, and to identify and analyze their implementation dimensions. Relevant projects and programs were identified through discussions with A.I.D. representatives and a document search by CDIE. The data source used to compile the portfolio overview consists of Agency design documents: concept papers, PIDs, PAIPs, PPs, and PAADs. Some projects identified as relevant are not included in this review because documents could not be obtained in time for analysis. Thus, the results of this review should be considered indicative of A.I.D. policy reform design in the NRM sector, rather than all-inclusive.

The team reviewed 19 project design and funding documents from the Africa Bureau and African Missions. The projects were evenly spread across the continent; seven projects in the Sahelian region, five in Central/Eastern African, and seven in Southern Africa. Project assistance was the major form of intervention. Only four of the activities were programs or non-project assistance (NPA). All NPA cases are accompanied by a project assistance grant to support certain elements of the program. Two Operational Program Grants and one debt-for-nature grant were included in the review. Table 1 provides a summary of the projects analyzed.

The projects and programs reviewed strongly reflect the Agency's most recent NRM initiatives in Africa. Only three of the projects date from the start of the 1980s, and three from the mid 80s. The remaining 13 have start dates of fiscal year 1989 or later. Thus, the data base contains projects and programs that incorporate the latest A.I.D. thinking in the NRM sector.

Projects fell into three major categories of policy reform: forestry and agroforestry, sustainable agriculture, and protected areas and biodiversity. A loose regional pattern of emphasis on particular categories can be discerned. Sahelian NRM projects cluster around forestry (excluding agroforestry) and sustainable agriculture. Forestry (including agroforestry) along with protected areas appear as the typical policy focus in Central/Eastern African USAID mission portfolios. Whereas, protected areas coupled with biodiversity are a central feature of A.I.D.'s Southern Africa policy initiatives. There are of course exceptions to this pattern, for example, Lesotho's Community Natural Resource Management project is a sustainable agriculture (grazing and rangeland management) project.

Table 1. Summary of Select Natural Resources Management Projects/Programs of AID

/1. Natural Resource Interest:				/2. Components Legend:							
Forest/Forestry	NR-Conservation			TT=Technical Training				BST=Budget Support		CM=Community	
Forest/Forestry	SA=Sustainable Agriculture			MT=Management Training				ME=Monitoring and Evaluation		GA=Good Governance	
Forest/Forestry	PP=Policy, Institutional, Participatory			TA=Technical Assistance				IS=Institutional Strengthening			
NR-Conservation	PP=Policy, Institutional, Participatory			QP=Equipment/Physical Inputs				ST=Studies			
PROJECT	HOST COUNTRY(IES)	YEARS (FY)	FUNDING SOURCE (US\$ millions)				POLICY FOCUS /1	OBJECTIVES	COMPONENTS /2		
			AID	HC(s)	Other	Total			major	minor	
Gambia Forestry Project 635-0205	Gambia	79-84	1.57	.23		1.80	GF	To slow and eventually reverse accelerating depletion of NRB; improve efficiency of wood production/utilization	TA MT QPI CM		
Village Reforestation 625-0937	Mali	80-84	.50			.50	GF	Continue rehabilitation of renewable resource base to improve/protect well-being of rural population	TT TA QPI BST		
Animal Productivity and Export (APEX) 688-0244	Mali	92-98	17.00	6.00		23.00	RL SA	Sustainable economic growth through improved competitiveness of livestock exports; increased incomes from producing, marketing livestock and livestock products; promote more productive use of land and dialogue on land access/rights tenure; promote better animal feeding and health	TT MT ME IS ST		
Forestry/Land-Use Planning Project (FLUP) 683-0230	Niger	80-84	3.84	1.33	.13	5.30	SF SA	Establish functional planning/managerial capability in Forest and Waters Svcs. of Ministry of Rural Development; prep. of long-term plan for rehabilitation/conservation/protection of soils, natural vegetation; establish experimental model sites	TA MT QPI GA ME IS ST	CM	
Agricultural Sector Development Grant I (ASDG I) 683-0246/0247 (w/o amendment)	Niger	84-88	32.00			32.00	SA	Promote implementation of growth-oriented ag. policies through use of market incentives/competition; support GON's efforts to stimulate ag. production, increase farmers' incomes, improve living conditions	TA ST IS GA BST		
Agricultural Sector Development Grant II (ASDG II) 683-0257/0265	Niger	90-95	25.00			25.00	SA	Establish legal/policy framework for NRM; strengthen institutions which work directly w/ rural producers; enhance the ability of rural pop. to gain control of NR they use	TT MT TA ME IS ST GA BST		

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Table 1. Summary of Select Natural Resources Management Projects/Programs of AID

1. Policy Focus Legend:				2. Components Legend:									
FF - Forestry	NR - Natural Resources			TT - Technical Training				BST - Budget Support		CR - Conservation			
TF - Forestry	SA - Sustainable Agriculture			MT - Management Training				MC - Monitoring and Evaluation		GR - Governance			
DF - Forestry	IP - Integrated Policy/Program			TA - Technical Assistance				MS - Market Based Strengthening		SR - Social Reform			
CF - Forestry	IS - Institutional Support			GF - Government/Community Support				ST - Studies					
PROJECT	HOST COUNTRY (IES)	YEARS (FY)	FUNDING SOURCE (US\$ millions)				POLICY FOCUS /1	OBJECTIVES	COMPONENTS /2				
			AID	HC(s)	Other	Total			major		minor		
Reforestation Project 685-0283	Senegal	86-93	10.00	2.77		12.77	SF	Mobilize large-scale popular particip. tree planting w/ local, private resources; Shift emphasis from planting for fuelwood to planting for more direct econ. reward and increased ag. production.	TT ST	TA CM	ME GA	MT QPI	
Park Rehabilitation and Management (PRAM) 615-0253	Kenya	90-92	1.25	.42		1.67	R/P	Strengthen the newly created Kenya Wildlife Service's (KWS) capacity to manage natl. parks & reserves and preserve its rich wildlife	MT	QPI	ST		
Conservation of Biodiverse Resource Areas (COBRA) 615-0247	Kenya	91-96	7.00	2.30		9.30	GF R/P BI	Introduction and implementation of Community Wildlife Program (CWP); increase econ. benefits to communities living adjacent to parks & reserves from conservation & management of wildlife and natural resources	MT ME	TA IS	QPI BST	ST	
Natural Resources Management (NRM) 696-0129	Rwanda	89-94	7.90	3.50		11.40	GF SA	Promote importance of NR conservation; strengthen GOR's capacity to control NR use and protect NP base; in certain areas, support soil and forestry conserv. and agroforestry activities	TT IS	TA ST	MT		
Action Program for the Environment (APE) 617-0123	Uganda	91-95	30.00	10.00	3.30	43.30	GF R/P BI BZ	Assist GOU with completion of NEAP; through policy and conservation components, assist public/private sector to manage NRB more effectively; and sustainably in selected areas	TT IS	MT BST	TA	QPI ME GA ST	
Strengthening African Agricultural Research (SAAR) of Forestry/ Fuelwood Research and Development (F/FRED) 698-0435.05	Kenya Rwanda Burundi Uganda	86-91	4.00			4.00	GF SA	To help improve sustainable ag. productivity through greater adoption of agroforestry technologies compatible w/ local land use conditions, thereby increasing nat'l. capability for food self-sufficiency	TT ST	TA QPI	IS	ME	

Treatment of Policy in NRM Projects/Programs

The projects reviewed lean toward the broader range of definitions of policy, as sketched in the section above on definitions, incorporating the linkages between formal governmental decrees and ultimate behavioral change on the part of target groups. A key distinction between the earlier and later projects is how policies are treated in terms of project design. Earlier project designs tend to treat the policy environment as an external factor, to be taken account of but not a direct target of project intervention. For example, the Gambia Forestry Project targeted improvement of village-level wood production and utilization of wood products from the perspective of behavior modification in the form of changed attitudes and forest management practices. The design took the policies affecting forest production and use, and the incentives that they created, as givens.

Similarly, the objective of Mali's reforestation project, which sought to rehabilitate the renewable resource base to improve the well-being of the rural population, concentrated directly on assisting people to do things differently at the local level. Project activities included demonstration projects, tree nurseries and improved extension services to rural communities. As in the Gambia case, the assumption was made that the government and the forestry agency could and would provide adequate policy direction, budgetary support, and coordination.

Later A.I.D. interventions, in particular NPA, directly target the policy and institutional environment as the focus of activities and resources. In this respect the NRM sector treatment of policy represents a particular example of the broader evolution of donor and host country concern toward increased attention to the setting in which development actions take place and the factors that make those actions effective and sustainable (e.g., Brinkerhoff and Goldsmith 1990). This evolution is exemplified in the multilateral donors' shift to policy-based lending, and in A.I.D.'s case to NPA (see World Bank 1988, Vondal 1989). It is important to keep this evolutionary pattern in mind because it means that policy implementation in newer projects covers a much broader range of areas than in older ones.

A look at Niger's experience illustrates the historical evolution of this broader definition of policy and policy implementation in the NRM sector. In the early 1980s, USAID/Niamey's Forestry and Land Use Planning Project (FLUP) worked with the Water and Forestry Department (Eaux et Forêts) to establish a planning unit that was charged with preparation of a long-term plan for rehabilitation and conservation of soils and natural vegetation. As part of the long-term planning strategy, FLUP pushed Eaux et Forêts to address issues in the policy setting of the plan that would affect implementation, such as local community awareness of the need for conservation, existing incentives for conservation, and possible ways of creating new incentives (e.g.,

revenue-sharing schemes). The project initiated several pilot activities, for example, the establishment of model reforestation sites, community outreach, and extension training.

The Mission's agricultural sector policy reform program (ASDG I), begun in the mid 80s, continued the policy dialogue process, though not initially focused on NRM. Amendment III to ASDG I introduced a strong NRM policy focus, targeting issues of land tenure and adoption of NRM techniques. ASDG II built upon the foundation for policy dialogue established through ASDG I and the experience of successful NRM interventions, some of which had been initiated under FLUP. The program's objectives reflect the broad definition of policy implementation in that its design includes action to assist the Nigerien government to: a) establish the conditions that increase incentives for smallholders to change their behavior with respect to managing soils and vegetation; and b) improve its institutional capacity to conceptualize, coordinate and manage a coherent portfolio of activities as a national program (USAID 1990a: 39). ASDG II also supports non-governmental organizations (NGOs) to increase local citizens' control over the land and resources they traditionally exploit.

The case of Niger clearly illustrates an evolutionary process of broadening the range of factors included under the concepts of policy and policy implementation. It is unique among Africa Mission programs in the length of time USAID/Niger and the Nigerien government have spent in policy dialogue on NRM issues. The process spans over a decade. While such depth of experience and shared ownership developed over the years has improved the quality of NPA in Niger, it is possible to structure policy dialogue to design and carry out effective NPA programs in less time (USAID 1991d).

The historical development of policy reform programs is not as extensive in other AID Missions, but they also show a similar pattern of broadening policy agendas. For example, USAID/Madagascar, after supporting several relatively narrowly focused projects to increase government awareness of environmental issues and needs, reoriented its NRM sector actions to concentrate on institutional and policy issues. Through the SAVEM Project, the USAID will support a newly-formed coordinating committee for natural resource projects. The NPA grant, KEAPEM, calls for revisions in forestry and tourism policies, with the intention of bringing the value of the resource in line with the costs associated with exploiting them. Reflecting the definition of policy that stretches from national-level legal and institutional frameworks to individual behavior patterns, both SAVEM and KEAPEM will support NGOs to develop local capacity to initiate and sustain natural resource use and conservation techniques.

A relatively recent trend shaping A.I.D.'s current treatment of NRM policy is the move on the part of increasing numbers of African countries to develop overarching, coordinating environmental strategy frameworks, such as National Environmental

Action Plans (NEAPs), and Tropical Forestry Action Plans (TFAPs). For example, in Madagascar, Rwanda, Ghana, and Uganda, NEAPs, sponsored initially in most cases by the World Bank, provide the underlying foundation for A.I.D. to work with African governments on NRM policy issues (Falloux et al 1991, World Bank 1990c and 1991a).

Design Features of Natural Resource Management Projects

While the projects/programs surveyed address a variety of natural resource issues (sustainable agriculture, wildlife management, forestry, etc.), they have similar design elements. Projects were coded on the types of project/program assistance components included in the design. Table 1 provides the breakdown of major and minor assistance components. The categories include: technical training, management training, technical assistance, equipment and physical inputs, budget support, monitoring and evaluation (information systems), institutional strengthening (organizational improvements such as restructuring, procedures development, staffing, and so on), studies, community mobilization, and grant awards.

Training was the most common design component. Seventeen of the 19 projects surveyed featured training as a major activity, with technical training appearing 12 times and management training 13 times. In two more cases management training figured as a minor activity: the Senegal Reforestation Project and Madagascar's Debt-for-Nature Swap. The former focuses on mobilizing large-scale popular participation in tree planting with local and private resources, hence management training for government agency staff is only a small part of the project. In the latter, the overwhelming focus of the project is budget support to the ministry responsible for resource conservation. Niger's ASDG I (prior to the NRM amendment) was the only project which did not incorporate formal training, either technical or management, as a design component. This can be explained in large part by the nature of ASDG I, which was the first sector grant of its type and the first to focus primarily on policy reform at the national level.

The second most frequently cited assistance component was technical assistance (TA). Either short- or long-term technical assistance was included in 17 designs. This category covers a broad range of interventions. For example, in the Community Natural Resources Management (CNRM) project in Lesotho, the TA team (comprised of consultants and Peace Corps volunteers) is to work with a national-level public agency, the Ministry of Agriculture's Range Management Division (MOA/RMD), and community-level NGOs, known as Range Management Associations (RMAs). Expert TA focuses on organization and management (e.g., preparation of RMA implementation

plans), and on technical issues, such as appropriate herd size and strategies for expanding investment opportunities in rural areas which provide alternatives to livestock for migrant workers' remittances. The Peace Corps volunteers are responsible for assisting with community organization, non-formal education, business practices and water resource development.

The Rwanda Natural Resources Management (NRM) project provides two long-term advisor positions to provide TA in management and implementation. One advisor will have responsibility, together with the Rwandan project director from the Ministry of Agriculture, for project supervision, and will help in setting objectives and monitoring progress for all five project components (Training and Research in the Marais, Integrated Fish Culture in the Marais, Agroforestry and Soil Conservation, Natural Forest Management, and Environmental Planning and Coordination). The other advisor will assist the Minister of Plan with the implementation of the environmental planning component of the project.

In the case of Kenya's Conservation of Biodiverse Resource Areas (COBRA) project, the planned TA calls for expertise in innovations in game park management; for example, the development of schemes to share park gate receipts with local communities. TA is also included to build the management capacity of the Kenyan agencies responsible for wildlife.

Studies were a component of 14 projects; a major component in 11, and a minor one in three. In most designs, studies were distinguished from TA as discrete outputs to be produced in support of specific policy or management decisions, without explicit concern for building host country analytic capacity. Other projects contain studies as a subset of TA with the intent to help host country staff develop skills in conducting applied research and analysis. An example of the former treatment of studies is the Senegal Reforestation project, where a series of policy studies, meetings and analyses is to be undertaken to develop policy recommendations for senior government decision-makers that will stimulate greater participation in tree-planting. The scope of these studies covers the Forest Code, the proper role of government in promoting private sector activity, pricing for tree products which reflects market value, and integration of local populations in the planning and management of natural resources. The Lesotho NRM project exemplifies the inclusion of studies as one part of TA. Assistance is provided to aid MOA staff with specialized studies relating to policy analysis, impact assessments, examination of technical production constraints, NRM issues, and training needs assessment.

Institutional strengthening figured as a major component in 11 of the 19 projects and programs reviewed, and as a minor one in two others. This component captures a range of activities associated with organizational improvements such as administrative reform, organizational restructuring, personnel systems, and financial procedures.

Other design components, such as training, budget support, and TA, are frequently supportive of institutional strengthening, but should not be considered synonymous with it. The distinction is that effective institutional performance is a function of the combined interplay among organizational structures and strategies, operating systems and procedures, human and financial resources, current outputs and future capacities rather than of the presence or absence of any single element (Brinkerhoff 1986, Brinkerhoff and Goldsmith 1992).

The projects and programs with major institutional strengthening components cited the link between developing appropriate policy prescriptions and the ability of the organizations responsible to carry them out as key. For example in Uganda's Action Program for the Environment (APE), the PAAD states that, "The creation of new national parks or forests parks by no means ensures added protection without well orchestrated support to the institutions responsible for the management of these protected areas. Certain institutional reforms will be necessary to ensure that the process of protected area gazettement on paper is translated into added protection on the ground" (USAID 1991a: 19). The Department of Environment within the Ugandan Ministry of Environmental Protection is relatively young and not fully prepared to carry out some of its responsibilities. Priority areas for institutional strengthening activities include curriculum development, disaster preparedness training and training in conducting environmental impact assessments. The Game Department will receive capacity-building assistance focusing on wildlife management, such as the establishment of standards and methods for wildlife inventory, conservation education, buffer zone conservation and utilization, and study tours to ongoing programs in selected African countries.

Institutional strengthening is central to many of these projects because in the NRM sector policy implementing organizations are often new, inexperienced, bureaucratically weak relative to other ministries and agencies, understaffed, and underfunded. Another recurring pattern is the assignment of new functions to existing organizations that are ill prepared to carry them out. Many of the forestry and wildlife projects, for example, call for public agencies, whose past mission has focused on policing and protecting natural resources, to shift to an emphasis on participatory community co-management of resources that blends conservation with sustainable exploitation.

Equipment and physical inputs were listed as a major component 10 times, and as a minor one twice. Physical inputs were listed most frequently in projects initiated in the early 80s and also in projects related to park management. As in the case of Kenya's Park Rehabilitation and Management (PRAM) and COBRA projects, equipment consisted of park vehicles and fencing. In the Gambia Forestry Project, improved wood processing equipment was purchased.

Budget support was a component of eight projects and programs, figuring mainly in NPA as well as the two Operational Program Grants. Budget support varied in amount from \$450,000 (Madagascar's Masoala Peninsula OPG) to the \$20-30 million range of Niger's ASDG I and II and Uganda's APE. In many cases the sector grant is supported by project assistance funds. The ratio of grant to project assistance varies. In the case of ASDG II the grant is \$20 million and the project assistance is \$5 million. APE's allocations, in contrast, are significantly different, with \$10 million in resource transfer and \$20 million in project assistance. Given the success and cumulative experience USAID/Niamey has had with NPA, it is understandable that Niger's emphasis is on the grant more than project assistance. Whereas with APE being the first initiative of its type in Uganda, the budget support component plays a much smaller role.

Grant awards as an assistance component was cited six times. These grants focus on the local level, with the emphasis on seeding, supporting, and/or coordinating community and NGO activities. For example, in Senegal's Reforestation Project, matching grants supplement the contributions of communities and eligible individuals for their local tree planting programs. The grants serve as an incentive for others to participate in tree planting. Niger's FLUP also awarded grants for innovative demonstration tree-planting activities.

The SAVEM project in Madagascar provides \$12 million for two types of grants: \$10 million to be used to award a maximum of six large Protected Area Development Grants (PADGs) to local and/or international NGOs; and \$2 million to fund approximately 100 small Conservation Action Grants (CAGs) to local NGOs, governmental units, and individuals for more limited, locally-initiated interventions in peripheral zones adjacent to Madagascar's 50 protected areas. The PADG grant recipients will develop and implement plans for the joint, interactive management of development and conservation efforts in six selected protected areas and in the communities surrounding those areas, and the CAGs will complement this work.

Monitoring and evaluation (M&E) was a major component in six projects, and a minor one in three. Not surprisingly, M&E appears most often with NPA and other recent policy reform efforts, whose terms require verification of the attainment of policy and program targets to trigger tranche disbursements. The sector grants in Niger (ASDG I and II), Uganda (APE) and Madagascar (KEAPEM) place significant emphasis on tracking information related to policy reform and program impact. ASDG II has developed a comprehensive set of indicators, both process and quantitative, which allow both the Nigerien government and A.I.D. to monitor the impact of the reforms. Similarly, under the Mali APEX project information systems and monitoring the impact of policy reforms will be critical to determining the success of the project. Similarly,

Because NRM is a sector where much remains to be learned about effective policies and donor assistance, M&E becomes central to tracking the results of experimentation and building a database for learning. Several projects include M&E to measure the results of pilot projects or innovations. Village reforestation efforts in Mali, Niger and Senegal used pilot tree lots and tree nurseries to conduct experiments and collect data to monitor the impact of efforts. In Kenya, M&E is an important component for COBRA where the effects of innovative game reserve revenue-sharing schemes will be tracked and monitored, to enable cost/benefit analyses to be calculated, and feasibility to be assessed.

Community mobilization emerged as a discrete project component in five projects. In the reforestation projects in Senegal, the Gambia and Niger, the communities surrounding the village tree lots and nurseries were integrated into the project design as the beneficiaries of the project and key agents for its success. In the case of Lesotho, community grazing associations are supported to manage rangelands at sustainable carrying capacities for livestock. Community organizing and leadership training will be pursued in order to increase member participation and success of the project.

For SADCC's NRM Project, mobilization of the communities bordering on the wildlife parks is central. The tasks of empowering rural residents by creating income-generating assets and transferring land proprietorship to local communities are shared by all countries included in this regional project (Zambia, Zimbabwe, Botswana, and Malawi).

While only these five projects were coded specifically as having a community mobilization component, in effect all natural resource projects that work at the local level are engaging in some form of community development. ASDG II works with NGOs to inform local communities of their land tenure rights. SAVEM supports field operations to develop, plan and implement joint interaction conservation management efforts. KEAPEM also develops local capacity to initiate and sustain natural resource use and conservation.

Implementation and Management Issues Cited in A.I.D. NRM Projects

The project and program documents were analyzed in terms of the implementation and management issues identified. These were coded into two categories: mentioned as a critical issue, or mentioned but not singled out as more important than other issues cited. Table 2 summarizes the findings. A look at these data provides further insights into NRM project and program designs and the issues they address.

Table 2. Implementation and Management Issues Cited in AID NRM Projects/Programs (N=19)

Issue	# of Projects/Programs for which Issue is Cited as Critical	# of Projects/Programs for which Issue is Cited	Total
Management capacity	14	4	18
Commitment/ownership by host country officials	14	4	18
Organizational systems (budgeting, accounting, information, etc.)	13	4	17
Sustainability	12	3	15
Community participation, NR co-management	11	6	17
Decentralization, deconcentration	10	4	14
Policy analytic capacity, impact assessment	9	5	14
Recurrent costs	8	6	14
Private sector capacity	8	2	10
Target-setting, sequencing, monitoring and evaluation	7	9	16
Incentives	7	7	14
Inter-organizational coordination/collaboration	7	6	13
Leadership, strategic planning and management	6	3	9
Organization/client interaction	5	5	10
Conflict resolution	4	1	5

Most of the issues cited, 11 of the 15 issue categories, deal with various dimensions of what can be considered as organizational weaknesses. These include the issues cited most frequently. Management capacity was at the top of the list, reported as a critical issue for 14 projects and programs, with a mention in four others for a total of 18 times. An example comes from Madagascar's Masoala Peninsula Conservation of Biodiversity Training Program, which works with the Direction des Eaux et Forêts (DEF), the public agency responsible for the management and protection of public lands, including all national forests, parks and reserves. The program recognizes that "any successful effort aimed at achieving sustainable conservation of local biodiversity must ... involve DEF and its regional and local offices responsible for the Masoala area" and notes that DEF's limited management capacity (lack of funds and trained personnel) is a constraint to protecting the region's biological diversity, despite DEF's recognition of the importance of such protection (USAID 1988: 5).

The next most frequently cited constraints in this issue category were weak or inappropriate organizational systems, insufficient community participation, the difficulties of sustainability, and lack of decentralization. This finding helps explain the focus on institutional strengthening at both the national and local levels found in the projects and programs reviewed. Given the frequency with which organizational failings surface as an issue, it is not surprising to find NRM project and program components targeting organization and management for intervention.

Host country commitment and ownership were cited in 18 projects, tying with management capacity as the implementation issue most frequently mentioned as critical (14 times). Surprisingly, leadership was raised as critical only six times (nine times total). Conceptually, leadership could be considered as closely associated with host country ownership of policy change and commitment to undertake reforms. Thus, this finding may be indicative of an analytic gap in project design and/or the operational problems of measuring commitment and leadership (see Heaver and Israel 1986).

The PAAD for APE cites growing political commitment from the higher levels of the Ugandan government for protecting the environment. The National Resistance Council, Uganda's legislative body, recently approved the establishment of two new national parks. Other signs of commitment to policy change noted are the recent revision of the Forest Act to place more emphasis on conservation, and the government's published policy statement to make tourism an investment priority. Another indicator of government ownership for APE's policy agenda is the contribution of \$10 million in host country funds to the program.

The Government of Kenya's ownership of and commitment to NRM reform, according to the PRAM and COBRA project documents, are demonstrated by public statements about the need for rational utilization of its natural resource base as essential to

sustained economic development and by the creation of the Kenya Wildlife Service (KWS). This new parastatal is to manage the country's national parks and reserves, set policy and provide guidance on natural resource management and utilization, and to serve as the key government agency dealing with wildlife.

A commentary on the pitfalls of measuring commitment comes from several of the A.I.D. documents. It was observed that agreements to assign personnel to project activities do not necessarily signify a real commitment by the host country government. If not specifically agreed that individuals will be released from other responsibilities to devote time and effort to the proposed project, this type of ownership often results in use of project resources to subsidize the operating budgets of the organizations where the staff are employed. This is a common problem to many donor-funded initiatives beyond the NRM sector, and relates to the larger issue of foreign assistance conditionality (see, for example, Cohen et al 1985).

Incentives were cited in 14 projects and programs, although rated critical in only half of those, which appears low given the importance accorded incentives in almost any type of development intervention. Incentives are particularly important--and complex--in NRM. Almost all project designs considered economic incentives. For example, Senegal's Reforestation Project will "shift emphasis from planting for fuelwood to planting for more direct economic reward and increased agricultural production, incentives more likely to appeal to Senegalese farmers" (USAID 1986c: 1). Many projects, for example Mali's Village Reforestation and APEX, cited secure land tenure as an incentive for spurring investments in land, and an attitude of stewardship toward trees, soil, water, and so on that will ultimately increase economic returns.

Another complicating factor relating to incentives is their potential for having conflicting effects when applied to different groups. For example in ASDG II, community control over natural resources was posited as a way to provide an incentive for local residents to view those resources as an asset rather than a liability. However, the shift to community control constituted a strong disincentive for Nigerien government forest agents, who saw it as a threat to their ability to supplement their meager salaries with bribes for overlooking tree-cutting violations (see also Thomson 1985).

A similar situation is found in Senegal where the Ministry for the Protection of Nature has converted from an enforcer role to one of a facilitator of local forest management and reforestation. With this change, forest agents will no longer be able to "earn" as much money as before, as they were entitled to ten percent of the proceeds of fines and sales of equipment or vehicles of violators of the laws to protect the environment. It is not clear what incentives forest agents will have to make the shift from enforcers to facilitators.

Conflict resolution was cited as a critical issue in only four projects, and was mentioned in just one more. Yet the wider literature and the experience of NRM specialists suggest that NRM is highly conflictual. The lack of mention of conflict resolution in the project and program documents reviewed could have several explanations. It could indicate that there is no conflict over the reforms to be implemented, or that dealing with the conflicts is not a problem; either might be the case. It could also be, however, that conflict over proposed reforms may not be apparent; opposition is not only manifest in the masses taking to the streets. Opposition to reforms can be subtle. Policy reforms may be undermined by lethargy or calculated "non-action" as well as overt resistance. Additionally, if certain groups or individuals are not considered as part of the analysis for project/program design, then possible sources of conflict will simply be overlooked.

The lack of mention of conflict resolution as an implementation issue suggests the possibility of a design oversight. This finding is supported by one of the conclusions of the Africa Bureau's review of Sahelian NRM projects, which states that, "conflict resolution is an important, under-emphasized, and under-funded aspect of NRMS" (Shaikh et al 1988: 47). It has been argued that especially in NRM, all groups need to be brought into the equation in order to assess their relative support or opposition to the reform (Gamman 1991). If institutional analysis is restricted to only those entities with direct administrative responsibility for implementation, potential areas of conflict may not be discovered until momentum for the reform has been lost.

External Factors Affecting Project/Program Success and Policy Implementation

The project and program documents in the sample were coded for the features of the larger environment in which NRM interventions are implemented. In some cases, particularly NPA, certain of these features become intervention targets. In many of the projects, however, these features represent constraints to be appreciated during the course of policy implementation. A summary of the findings is presented in Table 3.

Institutional capacity was cited in 15 cases as a critical external factor affecting project or program success and policy implementation. Mentioned by a total of 16 projects/programs, it was the top factor, which is consistent with the implementation and management issues results and the components tally (as they dealt with institutional weakness and/or strengthening).

Institutional capacity as an external factor comprises the larger institutional environment in which the NRM policy implementation unit functions. It relates to

Table 3. External Factors Affecting Project/Program Success and Policy Implementation Cited in AID NRM Documents (N=19)

External Factor	# of Projects/Programs for which Factor Cited as Critical	# of Projects/Programs for which Factor is Cited	Total
Institutional capacity	15	1	16
Recurrent cost coverage	11	3	14
Other sectoral policies	7	2	9
Legal and regulatory framework	6	4	10
Land tenure	6	2	8
Government/political legitimacy/stability	5	4	9
Macroeconomic policies	5	3	8
Cultural/ethnic factors	2	7	9

what has to be taken into consideration when creating the structures and procedures needed for policy implementation. For example, Lesotho's NRM project focuses on supporting the Range Management Associations (RMAs) to ensure sustainable grazing practices. Success hinges not simply on the RMAs' performance, but also that of the Ministry of Agriculture's Range Management Division (MOA/RMD), which is a piece of the larger public sector institutional setting. Thus, the issue of the Ministry of Agriculture's institutional capacity comes into play.

In the COBRA project, a major institutional capacity issue is the salary structure of the Kenyan civil service, which has an impact on the performance of the Kenyan Wildlife Service. The newly-created KWS will need the authority to pay higher salaries to keep well-trained staff and therefore help ensure implementation of COBRA's new wildlife policies. The salary issue has an important influence on the potential sustainability of COBRA's policy agenda, although civil service reform lies outside the confines of that agenda.

Recurrent cost coverage, cited in 11 projects and programs as a critical external factor (14 times total), relates to the sustainability of policy implementation. Niger's FLUP notes the importance of recurrent cost coverage in sustaining the activities and impacts of the planning unit, the model reforestation sites, and the tree nurseries, citing the precariousness of Niger's domestic resources, "even with future uranium receipts" (USAID 1979a: 56). ASDG I also responds to the recurrent cost issue in Niger, targeting the grant's commodity import program's local currency for agriculture and livestock activities that are "currently operating below planned levels because of shortfalls in recurrent cost financing" (USAID 1984: 61).

The Lesotho project provides another example of the importance of this factor. "To assure financial sustainability, RMA infrastructure and operational costs have been scaled back to the minimum requirements, and minimum grazing and membership fees have been calculated to insure adequate grazing associations income to cover recurrent costs. The financial analysis established that RMAs are capable of paying all their own costs at reasonable levels of fees" (USAID 1986a: 11). However, for the long-term sustainability of the RMAs; "members must understand the temporary nature of project assistance and not view government as the source of follow-on financial support" (USAID 1986a: 15).

Other sectoral policies (cited as critical in seven cases), the legal and regulatory framework, and land tenure (cited as critical six times each) were the three next most frequently cited external factors. The APE project provides examples of the influence of sectoral policies. In Uganda, tourism is the third largest foreign exchange earner, and activities in the APE project area aim to develop nature tourism to generate greater benefits for the buffer zone community. Thus commercial policies in the tourism industry, and especially the private sector's response, will have a bearing on

project success. Agricultural policies will also have an impact on APE's policy agenda through their effect on farmers' decisions regarding wood, fodder, and soil utilization and conservation.

In the regional SAAR project, the policies and actions in the agriculture and forestry sectors are key to program success. The PP states that "Agroforestry research requires structures that promote joint efforts by institutions from the agriculture and forestry sectors for integrated planning and pursuit of common goals" (USAID 1986d: 19). These joint efforts and structures are significantly shaped by the policies guiding these specific sectors.

The influence of the legal and regulatory framework on an NRM project is seen in Kenya, where the Wildlife Act gives legal ownership of wildlife to the government. There are no clear policies or guidelines that would define a process for shifting responsibility or stewardship of wildlife to private landowners or groups, as the COBRA project advocates. Regarding land tenure in Kenya, government policy currently promotes privatization of open range; this interferes with the wildlife movement as espoused by the USAID project. In Uganda, the broad scope of the APE program requires the enactment of a broad range of proposals and legislation to be effective and successful, making the legal framework an important consideration.

Senegal offers another example. The Senegalese legal and regulatory framework revealed that an overlay of traditional customary laws and formal regulations govern tree and land tenure. This overlay creates an uncertain environment for the Reforestation Project, which encourages people to make investments of time, money and labor in tree planting. The Project Papers notes that in spite of the protectionist orientation of the formal legal framework, customary law largely prevails in rural areas and project progress should not be affected by formal laws.

Southern Africa provides an example of a positive rather than a constraining legal milieu. In the Natural Resources Management Project (NRMP) of the Southern Africa Development Coordination Conference (SADCC), the legal framework is seen as conducive to the implementation process. It provides the vital components of proprietorship and authority on a decentralized basis and "the legal climate is therefore extremely favorable for the success of the project" (USAID 1989c: 85).

Government/political legitimacy and/or stability and macroeconomic policies were cited by five projects/programs as critical external factors (and a total of nine and eight times respectively). In the APE project, for example, successful implementation by the responsible public sector units will be strongly influenced by government stability and legitimacy. The Ugandan government will be responsible for major changes in the country that affect many people and that are "high profile" (to be observed by other countries and donors involved in NEAPs). Given that many of

A.I.D.'s NRM interventions include a large government role, clear legitimacy for the government is vital to successful implementation of those efforts.

Regarding macroeconomic policy, the Ugandan government has liberalized the economy in recent years, but the results have been mixed. As agriculture is a mainstay of the economy, the policies the government employs to stimulate production (the degree of which will be determined by the overall performance of the national economy) can affect APE project pace and success as well as the natural resources situation in general. Similarly in Niger, ASDG I and II both identify macroeconomic policies as a central factor in influencing the agriculture and NRM sectors.

An interesting finding is that cultural and ethnic factors were relatively rarely mentioned in the A.I.D. NRM documents, only twice being cited as critical to project/program success, and cited in only seven cases as a factor to be considered. Much of the NRM literature signals the importance of factors such as education, attitudes, gender roles, traditional practices, and religious beliefs for NRM, stressing particularly their impact on behaviors at the local level (which are included in many of the projects).

Cultural influences are mentioned in most of the forestry sector projects. The Senegal Reforestation Project, for example, reflects cultural factors in an analysis of project beneficiaries: "Men are likely to participate in the planting more fully than women, because they dominate in land ownership, local government and access to the media. Project managers and the media messages will encourage women's participation" (USAID 1986c: 12-13).

The SADCC-NRMP provides an example of where cultural factors are strong and may facilitate or impede policy implementation. The PP states that, "if wildlife is seen as an asset by rural communities rather than a liability, community members will do what is necessary to conserve it. ... the concept of local proprietorship' supplies the cornerstone of community-based resource utilization.... [This] concept contravenes a tradition of resource allocation that has prevailed in Southern Africa (the policy of King's Game') of which the consequence has been systematic alienation of wildlife from the people who coexist with it -- with the inevitable results of uncontrollable illegal use, a black market for wildlife products, and destruction of the resource" (USAID 1989c: 6).

Another example comes from the Lesotho NRM project, where national policy on grazing control involves the role of a traditional chief. As recent legislation to empower the chief did not have sufficient impact to ameliorate degraded rangelands, A.I.D. project personnel will advise chiefs on recommended stocking rates, and preparation and implementation of grazing plans.

III. NATURAL RESOURCES MANAGEMENT POLICY IMPLEMENTATION: ISSUES AND TREATMENT IN THE LITERATURE

The literature reviewed for this study cites numerous organizational and management factors and raises a wide variety of issues relating to successful NRM policy implementation. To facilitate a coherent presentation of the results of the review, we have used a simplified version of a widely accepted, empirically derived model of policy implementation as an organizing framework. This model sees policy implementation outputs as a function of three categories of variables: the problem the policy is intended to solve, implementation arrangements, and the sociopolitical and economic setting (Mazmanian and Sabatier 1989: 18-48). These variable categories order the presentation and discussion of the findings of the NRM policy implementation literature review. First, however, we turn to a brief overview of the model.

A Model of Policy Implementation

Policy outcomes derive from the interaction of three sets of variables: characteristics of the problem the policy addresses, the way implementation arrangements are structured and carried out, and key features of the setting in which policy implementation takes place. These variables can be summarized into a set of six sufficient conditions for successful policy implementation (Mazmanian and Sabatier 1989: 41-42):

1. The policy and its statute(s) contain clear and consistent objectives, or some criteria for resolving goal conflicts.
2. The policy accurately identifies the principal factors and linkages leading to, and influencing, policy outcomes, including specification of target groups and incentives.
3. Policy implementation is structured to maximize the probability of compliance from implementing agents and target groups. This includes:
 - * assignment of implementation responsibility to a capable and sympathetic agency,

- * integrated implementation structures with minimum veto points and adequate incentives for compliance,
 - * supportive decision rules (e.g., appropriate authority and procedures),
 - * adequate financial resources,
 - * access to, and participation of, supporters.
4. Leaders and top managers possess substantial strategic management and political skills, and are committed to the policy objectives.
 5. The policy receives ongoing support from constituency groups and key stakeholders within a neutral or supportive legal system.
 6. Socioeconomic and political conditions remain sufficiently supportive and stable so that the policy is not undermined by changes in priorities, conflicts, and/or radical shifts in resource availability for implementation.

This elaboration of conditions associated with effective policy implementation will serve as a guide. We now turn to the NRM literature.

1. Clarity and Consistency of NRM Policy Objectives

Our review found that the clarity and consistency of NRM policy objectives in Africa vary on two dimensions: a) the scope and level of the policy, and b) the newness of the policy (how long the policy has been in place). Regarding the first dimension, national-level NRM policy objectives with broad scopes tend to be expressed in relatively vague terms, encompassing often ill-defined attitudinal and behavioral targets. For example, among the Gambia's stated NRM policy objectives is, "to bring about the long-term sustainability of the natural resource base of the Gambia" (Gambia 1990: iii). Because of their vagueness, these national objectives exhibit a surface consistency since they are not sufficiently detailed to point up where inconsistencies might exist. Obviously, the more general the language used to express a policy objective, the easier it is for groups with diverse and conflicting interests to support it. Thus vagueness can have a well-recognized political utility for any government.

The lack of clarity in policy statements has had several important effects. First, vague national NRM policies have allowed countries, including those in Africa, to pursue resource-destroying economic development policies while simultaneously advancing NRM policies that in intent clash directly with current resource utilization. The inherent inconsistencies between NRM and development strategies are increasingly hard to ignore, however. This point is made by several of the chapters in Warford (1989), who stress the need to incorporate environmental and NR considerations into national income accounting, and to realign economic development policies to promote sustainable NRM (see also Atkinson 1991, Miller 1991, OAU 1991). At the sectoral level, these inconsistencies are a key focus of, for example, sustainable agriculture (Dejene and Olivares 1991, Davis and Schirmer 1987, Okigbo 1990, Wilson and Morren 1990, World Bank 1989); and social forestry (Gartland 1990, Gregerson et al 1989, Niamir 1990, Romm 1986).

Second, vaguely defined national-level NRM policy statements, while able to garner wide public support, frequently engender conflict and stalemate among implementors and other stakeholders. Because the policy statements leave vast areas open to (potentially inconsistent) interpretation, with few guidelines that link national-level policy to specific local-level natural resource use, implementation becomes bogged down in disagreements over intent, priorities, operational issues, and impacts. Thus NRM policies become yet another arena in which the various interest groups in implementing organizations and the larger society jockey with each other for access to, and control over resources.

Written sources and interviewees noted several outcomes of this situation. In some cases, the conflict generated leads to a collapse of the policy development process, as in Senegal where the government's effort, assisted by FAO, to develop a Tropical Forestry Action Plan (TFAP) was aborted over the inability to resolve disagreements in both content and procedure. In other cases, the outcome is a flawed policy and weakened prospects for implementation, because relevant groups were not involved since the initial policy definition did not specify their participation, such was the case in Ghana's TFAP where NGOs were left out of the planning process (Vukmanic 1989), and in Cameroon's TFAP where indigenous people were ignored (Winterbottom 1990). Another outcome, found especially at the local-level, has been to treat implementation as an experiment where inconsistencies are avoided by exempting local communities from the larger policy environment (Shaikh et al 1988: 37-38). This can create situation-specific policy clarity, but it rarely aggregates to provide increased clarity and consistency for the national-level policy.

More narrowly focused and/or local-level policy statements contain much higher degrees of both clarity and consistency. This finding reflects several factors. Technically, it is easier to be more specific when the policy intervention target is

narrowly bounded. Elements of appropriate intervention are easier to identify and describe in advance, resulting in clearer operational guidance. Inconsistencies can to some extent be controlled for since the intervention can be buffered from the larger setting, for example as noted previously, by treating it as an experiment (see Rondinelli 1983, Brinkerhoff 1991). Procedurally, narrow, local-level policy objectives have long been the target of donor-funded projects, and thus are subject to the project preparation guidelines that demand specificity of objectives and outputs. Most of the African community-level NRM projects in forestry, soil conservation, and so on demonstrate these policy features; as, for example, the case studies in Shaikh et al (1988).

Findings on the time dimension's relationship to clarity and consistency of policy objectives raised the issue of the history of African nations and of particular policies. Policies of longer standing tended to be more detailed and elaborated, some dating back to the colonial era. Interestingly, such policies have tended to become increasingly inconsistent. The Sahelian Forestry Codes, for example, were written in 1935 with the purpose of exploiting certain aspects of the forest, while protecting others. In the intervening fifty-plus years, political, social, and resource use systems have changed considerably, but these laws have remained the basis for policy implementation and interpretation. Indeed, the Sahelian countries have added a series of statutes, laws and decrees to adjust to changes, yet the codes remain intact (Elbow and Rochegude 1990, Elbow 1991, Shaikh et al 1988). In an example from Tanzania, fisheries regulations dating from the colonial period remain in force for Lake Tanganyika, despite the fact that they are at cross purposes with locally-based resource use (Cohen 1991: 48).

Newer NRM policy objectives tend to be both more detailed and more technically consistent (within the bounds of broad versus narrow scope). This finding reflects several things; one being the increased involvement of donors in NRM, and thus the application of detail-producing program and project identification, preparation, and implementation procedures. It also reflects the improved state of technical knowledge about NRM policies, their interactions with other policies and practices, and so on (see for example Blackwell et al 1991). As knowledge has increased, so has the recognition of the complexity of NRM, which directs attention to the need for more knowledge and understanding. Emphasized in conversations with technical experts and the literature is the diversity of individual countries' resources and diversity of resources within a single country, and hence the diversity of policy solutions needed for NRM. In addition, the level of detail and consistency in newer NRM policies is partly a function of the increased attention and ownership African policy-makers, local and international NGOs, and other concerned stakeholders have accorded NRM issues. This latter is a factor cited in most of the sources discussing NEAPs (see Falloux et al 1991).

Various sources note that clear and consistent policy objectives, by themselves, have not led to quantum leaps in efficiency and effectiveness of implementation. Morell and Poznanski (1985: 139) state that,

... many of the statutes, laws, and regulations in developing countries contain admirable rhetoric: strong environmental goals, relatively strict standards, actions designed to alleviate ecological damage and avoid new environmental problems. In reality, however, enforcement of these laws has been weak or non-existent, particularly in rural areas.

Since policy clarity and consistency are only one of the necessary factors associated with effective policy implementation, it is not surprising that the NRM literature finds that developing detailed policy objectives alone is not enough to promote implementation, as an example from the Gambia illustrates. The Gambian government, as an element in detailing land tenure policy to promote better NRM, proposed a State Lands Bill that would: a) convert customary land rights to 99-year leaseholds for both urban and provinces, b) change the authority to grant leases from district authorities to the Land Administration Boards at the division level, and c) change the law such that expired leases would remain state-owned land. Implementation would have a catalyzing effect on NRM on those lands, providing security of tenure and incentives for long-term development of the land by individuals, though it would provoke some conflict with traditional landholders. The policy has not passed the legislature due to the prohibitive cost of setting up the institutional arrangements to survey the land, train necessary individuals, and so on (Bruce et al 1990).

2. Identification of Critical Factors and Linkages Necessary for Achieving Policy Objectives

A common thread woven throughout the literature and project/program documents is the complexity and multiplicity of factors and linkages that characterize NRM. Both the literature and the NR experts interviewed agree that given the systemic nature of NRM, it is very difficult to identify and take into account all the factors and their interconnections with impacts on achieving NRM improvements (Cleaver 1990, Hoehn 1991, Leonard 1985, Matowanyika 1991, Stryker et al 1989, Weber 1991a). To a degree not found in most other development sectors, the factors relevant to NRM extend across local, regional, and national boundaries, even reaching the global level. Issues such as global climate change, declining biodiversity, diminishing tropical rainforest cover, desertification, deforestation, water and air pollution, soil

conservation, and so on represent challenges of daunting proportions. To the extent that identifying and coping with these factors is critical to policy success, implementation of NRM policies is highly complex and highly situation-specific.

The literature addresses complexity in a variety of spheres: physical, institutional, social, and/or economic. For example, Heermans and Minnick (1987: 4), analyzing reforestation in the Sahel, note that,

The dynamic processes related to the restoration and management of soil, water, vegetation and wildlife are complex: the understanding of a particular ecology within the traditional setting requires experience over a long period of time. New management approaches must be tried and evaluated on a small scale based on the environmental and socio-economic circumstances particular to the area.

They begin with the physical factors, but immediately arrive at the social and economic. Other perspectives on NRM complexity take economic factors as their starting point:

The situation for renewable resources [in sub-Saharan Africa] is complicated because ... optimal rates of natural resource utilization are affected by changes in demographic and economic variables. There are market imperfections and government induced distortions, causing natural resource utilization to be inefficient. Rates of natural resource utilization are affected by uncertainty in the environment broadly construed - i.e. political events, technology advances, consumer demand, and climate change (Stryker et al 1988: 56).

The literature contains a wide variety of treatments of the systemic character of NRM and the numerous linkages among the relevant factors. A few examples illustrate this variety. Population growth and poverty have obvious and critical links to NRM that no country in Africa can ignore. Population growth and the struggle for daily subsistence has changed the patterns of resource use and strained NR bases such as forests, grasslands, and water beyond their sustainable carrying capacity. One report details their devastating effects on Lake Tanganyika. The most serious problems associated with overpopulation include excessive suspended sediment input into the lake caused by basin deforestation, overfishing and pollution. One of the primary manifestations of this problem is local extinction of species (Cohen 1991: 1). Overpopulation also puts pressure on social and institutional resource bases as well, such as traditional authority systems or local economic systems.

Another example is the connection between macroeconomic policies, often in the context of donor structural adjustment programs, and NRM. Several studies focused on this linkage, with somewhat tenuous conclusions:

The ultimate effects of structural adjustment policies on resource problems are difficult to predict. In addition to the uncertainty associated with their impact on relative prices, the ways in which these relative price changes influence the use of natural resources need to be better understood (Stryker et al 1989: 53).

Several studies point out the negative impacts of this linkage, noting that African countries are forced to choose between conserving their NR, or exploiting them for short-term gains to stave off immediate socioeconomic collapse and/or pay for past failed development efforts (see Atkinson 1991, Dorosh et al 1990, Kyle 1989, Miller 1991, Ledec 1985, Nagle 1991). At the anecdotal level, one interviewee recounted how the IMF pressured the Malian government to retain its existing policy of forestry fines (versus a more progressive extension approach) because the revenues generated were a source of income the government could use to meet IMF-imposed budget targets.

Because of the multiplicity of relevant factors and the complexity of their linkages, there is a wide consensus that the appropriate type of analytic approach for NRM policy analysis and implementation is a multifaceted, multidisciplinary one. This consensus is detailed in the literature, reflected in A.I.D. project and program designs, and expressed by NRM specialists interviewed. We found little variation in the general categories of factors deemed relevant, though some differences in level of detail and relative emphasis. For example, Matowanyika (1991: 88) takes a systems approach, dividing the factors to be addressed in the following categories:

- R = the biophysical and socio-economic resource base in any society;
- Ex = exogenous factors (such as external influences on resource management, technologies, philosophies and ideologies on development);
- En = endogenous factors (e.g. sociocultural factors, indigenous production systems and technological bases);
- Po = population changes (such as quantitative and qualitative changes and changes in consumption patterns, etc.);
- PE = political and economic factors (such as power bases, equity and inequity, historical factors in society).

Other analysts go into much more detail than these aggregate groupings. From the perspective of policy implementation, the major omission in Matowanyika's classification is a separate category for institutional and management factors, something found in the approaches of the vast majority of analysts across all types of NRM (e.g. Adeyoju 1976, Gregerson et al 1989, Honadle 1990, Thomson 1985, Morell and Poznanski 1985, Sayer 1990, Talbot 1990, Zimmermann 1991).

It should be noted that the literature addressing NRM institutional and management issues varies significantly in depth and quality. Some analyses treat institutional and management factors as a residual category, in which to place everything that cannot be explained by other factors. Some deal with these factors in detail, but in a "laundry list" fashion with little understanding of linkages and interactions. Other sources reveal a sophisticated understanding of the institutional and management dimensions of NRM policies.

The literature raises a number of issues that relate to dealing with the complexity of NRM to increase the chances of attaining policy objectives. Discussed here are host country understanding of NRM, and government NRM policy analytic capacity.

Host Country Understanding of NRM

A key issue relates to who possesses the understanding and knowledge about NRM problems, options, and solutions. Both authors and interviewees observe that to implement NRM policies successfully, both resource users and host country governments must fundamentally change the way they view their resources, and each other. One aspect of this understanding relates to public education and consciousness-raising about NR and the environment. Numerous sources mentioned this (e.g., Cohen 1991, World Bank 1991a), and it is included as an activity in several of the A.I.D. projects reviewed. For example, Gambia's forestry project has a mass media campaign, and both APE and COBRA include public education for environmental awareness.

Not just local resource users and the public at large need greater NRM understanding. Many sources mentioned the need for better awareness among government decision-makers. Specifically mentioned by reports and interviewees is the tendency for policy-makers to undervalue in situ resources. Recently, economists have been working on analytic frameworks that attempt to value resources, especially those which are not traded in the market place such as watersheds, biological diversity, and parks and protected areas (See Dixon and Sherman 1990, Doolette and Magrath 1990, Costello et al 1990, and McNeeley 1988).

Two other themes relating to understanding run through much of the literature. One is a caution not to assume that nonsustainable resource use is always a function of misunderstanding or lack of knowledge. This is true at the national and local levels. National governments consciously exploit the NR base to meet immediately pressing needs, often under crisis conditions (Atkinson 1991, Leonard 1985). Locally, for the large numbers of Africans living at the margin of subsistence, the need to eat today often supercedes actions to husband resources for the future. In the absence of viable alternatives, the poor will continue to exploit and degrade the resource base to

survive. As Honadle (1990: 17) observes regarding forestry, "Without opportunities to earn a living in non-harmful or restorative ways, people will continue to damage forests even if they are aware of the dangers in doing so."

The other theme is a reminder that local people frequently possess valuable and accurate information about the NR base and NRM practices that work (Matowanyika 1991, Gregerson et al 1989). For example, Wamalwa (1990) describes how in Kenya traditional systems of land tenure and resource management, developed to cope with harsh arid and semi-arid environments, provided a model for government NRM policy formation. Another example from Sudan is presented in Atta El Moula (1990).

NRM Policy Analytic Capacity

Design and implementation of effective NRM policies are dependent on accurate assessment and monitoring of NRM situations, conditions, and actions. The literature stresses that African governments and international donors require adequate data if they are to make reasonable decisions on how best to protect and manage natural resources (e.g., World Bank 1991a). Most of the A.I.D. projects and all the NPA include monitoring and evaluation components in recognition of this need.

Environmental Impact Assessments (EIAs) have been used since the early 1980s, often initiated by international project development requirements (Atkinson 1991). Some African countries, including Nigeria and Kenya, have sought to include EIAs as an integral part of their national planning process, with varying degrees of success (Ayanda 1988, Hirji and Ortolano 1991). Problems cited with implementing EIAs include: no incentives for compliance with the assessment findings; lack of public concern for environmental protection; lack of clear government commitment to EIAs; and a limited number of qualified individuals to conduct, monitor and evaluate the issues raised in the assessments.

The most comprehensive NR assessment process is found in NEAPs, initiated in 18 countries. NEAPs incorporate previous studies, as well as forming new linkages to exchange information and build governments' analytic capacity. The countries involved in the NEAP process have agreed to meet annually (World Bank 1991a). Among the recommendations of the last meeting were a strengthening of the quality of the NEAP environmental assessment process through emphasis on environmental information systems, economic analysis, monitoring and evaluation, and training (see also Falloux et al 1991).

3. Policy Implementation Arrangements

The structures, procedures, and resource allocations for NRM policy implementation are a major focus of discussion in much of the literature as well as a significant component of the A.I.D. projects and programs reviewed (see Table 1). As noted in the previous section, institutional analyses vary in depth and quality, though all reach the conclusion that NRM requires a stronger and more capable set of national and local institutions to achieve desired impacts (e.g., Sayer 1990). Here we summarize the major points authors make regarding policy implementation arrangements in several crosscutting categories.

Allocation of Implementation Responsibilities

In keeping with the perspective on policy implementation that extends from the promulgation of policy directives at the national level to NR user group behaviors at the local level, the literature is in major agreement that NRM policy implementation responsibility needs to be shared across a wide number of entities, both public and private, formal and informal. The designs of donor-funded NRM initiatives reflect this agreement in practice.

Because of the common property characteristics of NR and the market failures associated with exploiting them sustainably, many analysts argue for the necessity of a strong government role in NRM on technical grounds (Bromley and Cernea 1989, Repetto 1989, Warford 1989). This argument resonates with the predispositions of most African government officials, who feel that the state should be the major player in economic development. The problem, several authors indicate, relates to the tendency to centralize all implementation responsibility in government, without regard to either capacity or technical efficiency. The extreme centralization of African governance is cited as a constraint in almost all sectors, and NRM is no exception (e.g., Morell and Poznanski 1985, Thomson 1985). Stryker et al (1989: 105) observe that, "direct management [of NRM] is often bureaucratic, cumbersome, uninformed, and not well accepted by users of the resource. In addition, the state is subjected to many political and social pressures that impede efficient management and its financial and managerial resources are severely constrained."

Thus much of the literature's focus is on analyzing ways of allocating implementation responsibility and defining appropriate roles that can effectively integrate the public sector, NGOs, and the private sector (less on this latter) at the national and local levels. The following quote aptly summarizes the general features of the implementation arrangement much of the literature favors:

The state ... might be responsible for establishing a general legal and administrative framework within which natural resource management takes place. It might also provide incentives through taxes, subsidies, regulated prices, and other indirect policy instruments. Finally it might support research activity designed to find solutions to resource management problems. Where externalities are not too widespread, however, direct regulation and management of natural resources should probably be left to the local community, which is better informed, already has a customary system for enforcement and litigation, and is more likely to command the respect and obedience of its local constituents (Stryker et al 1989: 105-106).

Zimmermann (1991) advances the caveat that among the difficulties in undertaking analysis and experimentation with institutional arrangements is the length of time between intervention and impact. For example, many countries, with donor assistance, have recently created new NRM apex entities--public, parastatal, and/or NGO--to serve as nodes of responsibility for NRM policies, programs, and projects. However, empirical evidence is not yet available to determine their success or failure.

The range of possibilities for institutional "homes" for NRM entities contains an array of pluses and minuses. Atkinson (1991) illuminates some of the trade-offs. By being situated outside the regular ministerial system, NRM units can often carry out regulatory and consciousness-raising functions more effectively. However, because of their lack of integration into agencies with line responsibility for resource allocation and field activities, and their lack of access to technical expertise, these units frequently lack capacity to make meaningful impact on the development process.

A further complicating factor for institutional placement is that NRM policy cuts across the functional and sectoral division of responsibilities characteristic of most African ministry systems. As Falloux and Rochegude (1988) recount in their discussion of land tenure policy in the Sahel, numerous ministries and departments share, and compete for, responsibility and authority for land tenure/use policy. The result is duplication of effort, bureaucratic infighting, insufficient technical expertise in any single agency, and overburdening of clients trying to gain access to services. In NRM policies, there is no such thing as a single institutional "home" for implementation.

The predominant NRM implementation arrangement, both advocated in the literature and found in practice, in Africa is a co-management model. For instance, co-management is advocated by the World Bank as an organizing principle for forestry policy (1990). A variety of analyses concentrate on ways to structure NRM policy implementation that capitalize upon the strengths of existing institutional arrangements. A strong focus here is on the role of NGOs as mediating structures between central government agencies and local NR users (Mallya and Talbott 1990,

Talbott 1988, Ross and Getahun 1987). For example, Gregerson et al (1989: 180-184) distinguish six potential advantages of NGOs for social forestry: 1) in-depth, long-term knowledge of local people's problems, needs, preferences, livelihood strategies, and capacities; 2) relationships of trust with local people, helpful in gaining local support for new initiatives; 3) administrative flexibility and greater leeway in policy-making; 4) autonomy, which gives them the ability to engage more easily in experimentation and trial-and-error approaches; 5) agricultural extension experience, which gives NGOs a technical base to build on; and 6) effectiveness at coordinating the activities of community groups and NGO networks.

Various other sources in the NRM literature present country case studies of NGOs that illustrate these advantages; for example, community self-help organizations ("mobisquads") in Ghana working on agroforestry (Dorm-Adzobu et al 1991), a self-help water project in Kenya (Thompson 1991), and the community cooperatives active in Niger's Guesselbodi Forest (Heermans and Minnick 1987). Most of the A.I.D. NRM projects and programs reviewed contain components where NGO participation and actions are called for.

Another stream of analysis takes a concentrated look at traditional institutional structures (village chiefs, councils, moot courts, tenure arrangements, and so on) in terms of their potential to support NRM policy change at the community level (Anderson and Grove 1987, McLain 1991, Thomson 1990 and 1985). Some of these traditional structures have been weakened by social, economic, and environmental stress, but in many situations they retain a certain amount of power and authority (Gambia 1991, Lawry 1991 and 1990, Shaikh et al 1988, Wamalwa 1990). As discussed in more detail below, some African countries, with donor support, are experimenting with ways to use these traditional structures to reinforce incentives for improved NRM.

The bulk of the literature contains little in-depth treatment of how governments can manage a co-management policy implementation strategy, concentrating rather on organizational issues within each of the NRM partner entities. The systems approach presented by Wilson and Morren (1990) is one exception. Another is found in Talbott and Furst (1991), where they present a detailed monitoring and evaluation schema for NEAPs. The lists and diagrams of activities, responsibilities and timeframes for NEAP implementation begin to approach this participatory planning process from a strategic perspective.

Structuring Incentives for Policy Implementation

An important but difficult element of the co-management approach relates to incentives. As many authors have shown, short-term economic incentives have led to the degradation and exploitation of natural resources, and unless changed will continue to severely constrain the implementation of long-term, sustainable NRM policies (e.g., Bruce and Fortmann 1989, Repetto 1989). Incentives are often not sufficient enough to stimulate collective action given the common property nature of NR, thus the economic return for collective action is marginal (Counsell 1990, Lawry 1990). This feature of NR constitutes the basis for the strong regulatory flavor of most NRM policies, and for the predominant role of government in structuring incentives. Yet as Warford (1989: 17) recognizes, managing policies demands resources:

... incentive systems are not costless because to a greater or lesser degree they involve monitoring, policing, and regulation. A system of stumpage fees, for example, may require extensive monitoring; irrigation water charges may need metering. The bureaucratic and legal costs of administering land reform schemes may be overwhelming.

The recognition of the costs of managing incentive systems is reflected in one of the debates in the literature. The discussion concerns the trade-offs of using traditional incentive systems in the service of NRM policy reforms versus those associated with formal legally-mandated ones. A variety of cases argue for the benefits of allowing traditional local systems of resource use and adjudication to structure NRM incentives. Two rationales are generally advanced. The first cites the inherent superiority and efficiency of traditional incentive systems: better fit with local needs, preferences and capacities; reduced need for government intervention; increased empowerment.

The second looks at government capacity to enforce a comprehensive set of laws and regulations that would provide an internally consistent set of incentives to NR users, and concludes that African countries are, and will remain, unable to effectively manage such a set. This kind of formal incentives framework is too costly and demands an institutional and human resources infrastructure beyond what African nations can create in the near term. The persistence of African governments to try to do "everything," despite evidence of their incapacity to do so, opens the door to selective enforcement of NRM regulations. The result, as Morrell and Poznanski state (1985: 165), is that, "... corruption provides the prevalent mechanism for nonenforcement of applicable laws, standards, and regulations... The prevalence of corruption in so many developing countries constrains the choice of effective approaches to environmental [and NRM policy] implementation."

Sources also discuss the role of international donor agencies in providing incentives, compensating African nations and certain local populations (for example, residents of wildlife buffer zones) for the preservation of certain resources. Just as governments need to provide incentives to users of resources that are valued differently by individuals than by the state, so the international community must provide economic incentives to guide the consumption of NR that the global community values more than do individual governments (Stryker et al 1989). This is the rationale for debt-for-nature programs (Peucker 1990, USAID 1987b).

Financial Aspects of Policy Implementation

Developing country governments' problems with revenue generation, recurrent cost coverage, and sustainability of development investments are well recognized (e.g., Brinkerhoff and Goldsmith 1990). These problems are especially acute in Africa, and strongly constrain host country capacity to respond to NR degradation on a scale that will have widespread impact. As Table 3 shows, most of the A.I.D. project and program documents cited problems with recurrent costs as a critical issue. Sources in the literature also address the financial dimensions of implementing NRM policies, noting a host of weaknesses in government accounting, budgeting, and financial oversight functions (Zimmermann 1991).

One aspect of the co-management model is that each actor involved in implementation contributes resources. For example, in Niger's Guesselbodi project, Heermans and Minnick (1987: 125) discuss the mix of central and local resources that combine to cover the costs of the project:

... recurrent costs are ... divided into those paid by the government (forest manager's salary, vehicle, fuel) and costs paid by forest revenues which are essential for continued management of the site (forest guards, stocking center, maintenance).... The twenty-year time frame can be divided into three periods: an initial start-up (infrastructure and studies), first rotation (restoration and management) and second rotation (maintenance and management)....

Centralization emerges as a financial constraint on co-management. Most African public revenue systems return all locally generated revenues to the center, where decisions are made on priorities and allocations. These systems are characterized by "leaks" in the public revenue pipeline. These occur at the local level where, for example, forestry agents pocket bribes instead of collecting fines, or gamepark personnel overlook poaching in exchange for a payoff (Zimmermann 1990, Thomson 1985, USAID 1990c). And they take place at the central level as well, where various

combinations of inefficiency and corruption lead to more or less significant draining away of funds.

To cope with budgetary overcentralization, a number of NRM programs are experimenting with policies that return some revenues to their point of collection, to be used to maintain NRM systems by providing recurrent cost coverage and incentives to local people. Heermans and Minnick (1987) recount the example of the Guessebodi forestry project. Another forestry example comes from Cameroon where the government is employing a taxation system that divides taxes collected among the central government, local councils, and a fund for forest development and regeneration. Tax rates are fixed annually as part of the government's national budget preparation (Fultang 1990). The case studies in Shaikh et al (1988) present additional "success stories" in channeling fees and taxes back to local cooperatives and village groups to cover recurrent costs.

Given the current state of NR in Africa, sources in the literature stress that external assistance is critical to help host countries with the startup and restoration costs involved in NRM policy implementation. At the national level, host country governments will require long-term funding for institutional strengthening and support. Most of the participants at the first NEAP workshop agreed that continued donor support would be critical to the implementation of the NEAPs (World Bank 1990c).

Other resource provision roles are cited for international NGOs. Development NGOs (CARE, Catholic Relief Services, Save the Children, and so on) can assist with organizational training, and environmental NGOs (World Resources Institute, World Wildlife Fund, and so on) will be invaluable as technical resources. One interviewee stated that an appropriate mix to assist African countries with NRM policy implementation would combine development and environmental NGOs, with international donors acting as facilitators and financiers. For NRM the co-management model also applies internationally, bringing together a partnership of host country agencies and indigenous NGOs, donor agencies, international NGOs, as well as the private sector. For example, the "Club of Dublin" is using this international version of the co-management model to implement national environmental action plans throughout Africa; meeting yearly, they exchange information on their successes and failures in implementing NRM policies (World Bank 1991a).

4. Management and Political Skills, and Commitment

As the analysis in Section II illustrates, the A.I.D. project and program documents emphasized as critical issues increased management capacity, of which management

skills is a component, plus commitment/ownership by host country officials. The literature stresses these factors as well. The following assessment is echoed by many of the sources reviewed: "Management of natural resources ... in Africa ... is very much constrained by a number of factors. Most important is the severe shortage of management skills, especially in many of the countries that face the severest resource problems" (Stryker et al 1989: 65). The treatment of skills and commitment can be classed in terms of what kinds of skills and commitment are required, who does or does not have them, and who needs them.

Management Skills

The sources reviewed were practically unanimous that management skills are a key constraint on NRM (Adeyoju 1976, Horberry and le Merchant 1991, Ledec and Goodland 1988, Morell and Poznanski 1985, Nagle 1991, Falloux and Mukendi 1988, Zimmermann 1991). However, we found relatively wide variety in the literature in terms of specifying more precisely what kinds of management skills are needed. A common pattern was major detail on the skills needed for the technical aspects of NRM, with an undifferentiated management skills category added at the end. For example, a United Nations report notes that modern forestry management needs an appropriate management system; but the skill elements elaborated focus on training in assessment of ecological and physical factors, social implications, and the effects of economics and technological innovations (UN 1988).

The literature on forestry is among the relatively more detailed regarding management skills specifically. Authors frequently pointed out that existing management skills relate to policing and enforcement functions; in the case of forestry departments of Sahelian countries, for instance, to enforce the provisions of the 1935 Forest Codes (Elbow and Rochegude 1990, Gregerson et al 1989, Honadle 1990, Shaikh et al 1988, Sayer 1990, Thomson 1985). Forestry agent management behaviors revolve around imposing and collecting fines from the villagers; these actions are supported at the national level because fines represent a source of revenue. Similarly, the enforcement of buffer zone policies for game and forest reserves in Uganda has led to eviction orders and imprisonment to settlers on an irregular basis over the last twenty years (Aluma et al 1989).

The NRM policies currently being pursued by many African governments, however, require the reorientation of implementing agencies toward community co-management of NR. This participatory implementation strategy is a key feature of new policies in forestry, rangelands management, wildlife conservation, nature tourism, and sustainable agriculture. In terms of management skills, this shift means that, as many authors observe, the current skill mix is ill-suited to these new policy objectives.

Efforts to develop more appropriate skills are illustrated by the case of Niger. In support of new forestry policy, the Cooperative League of the United States of America (CLUSA) introduced cooperatives and worked with forestry agents and villagers to improve management skills (Heermans and Minnick 1987; Shaikh et al 1988). CLUSA trained forestry agents in new management and organization techniques, and supported them as the cooperative structure was introduced, discussed, and finally accepted by the villages involved. A contract was created between the cooperative and the government of Niger, giving them exclusive cutting rights over the forest resources if provisions were followed. Thus the cooperatives formalized the co-management implementation strategy. The effort has concentrated on addressing the endemic problems of the Forestry Code and local attitudes, and has drawn technical and financial support from a host of donors and PVOs.

Another category of skills noted as weak relates to basic government functions and organizational maintenance. This category appears frequently in analyses of experience with NPA and with NEAPs, where successful policy change depends to a significant extent on governments' capacity to perform such tasks as drafting legislation, planning, developing and implementing procedures, budgeting and financial tracking, performance monitoring, and so on (e.g. Stryker et al 1989, Talbot 1990, Weber 1991b, Zimmermann 1991). Authors attribute some of the weak capacity to fulfill these basic government functions to inadequate skills. For example, Slade and Weitz (1991) make this point in their analysis of the extreme case of Uganda, where the tumultuous events of the past 20 years have severely degraded public sector capacity to carry out the most basic of government functions.

An interesting point made by several sources and interviewees relates the skills gap to African government choices about who should be involved in NRM policy implementation. The presumption, common in many African governments, that the state is the primary actor in socioeconomic development has to a significant extent created a management bottleneck (Stryker et al 1989). If NRM is seen as the exclusive purview of central administrations, then policy implementation will be strongly dependent upon the skills and capacities of public officials and agents. Thomson's studies of NRM policy in Niger (1985) and Mali (1991) convincingly illustrate the pitfalls of this point of view.

The mainstream of analysis supports the perspective that NRM requires broad participation; discussing the state of, and the need for, management skills in the NGO and private sectors as key to NRM policy success. In addition, this viewpoint is operationalized in the assistance components of many of the A.I.D. projects and programs discussed above (see Table 1). Many of the Sahelian case studies in Shaikh et al (1988) illustrate the benefits of local management capacity to effective NRM interventions (see also Elbow 1991, Falloux and Mukendi 1988). Several sources

focus in particular on NGO management skills in the NR sector (see Ross and Getahun 1987, Talbott 1988).

Political Skills

Few of the sources in the literature reviewed mentioned the political skills associated with NRM. This appears to be an analytic gap in NRM policy implementation. In any sector, policy implementation requires actions in several bureaucratic and public settings, where managers can exercise little if any direct control (Brinkerhoff 1991). Part of the complexity of NRM policy implementation derives from the broad array of actors involved, all of whom have a role to play in improving NRM. As Honadle and Cooper (1989) argue, much of what needs to be done to achieve NRM implementation success hinges upon implementors' skills in thinking and acting politically. This means engaging in bargaining, networking, and negotiation with groups both inside and outside government to influence resource allocations, actions, and attitudes. Gamman (1991) and Wilson and Morren (1990) also stress the need for these kinds of skills.

Commitment

The link between commitment to NRM policies and prospects for implementation was widely recognized in the A.I.D. project and program documents (see Table 2). This recognition is also reflected throughout the literature. Authors addressed commitment among implementors to undertake the administrative and technical actions necessary to implement NRM policy, and among resource users to engage in the changed behaviors that will result in improved NRM. Sources also noted the close relationship between the presence and absence of commitment, and patterns of incentives.

Top-level commitment is mentioned as a requisite for initial decisions to pursue new NRM policies, and as a condition to see policies through to implementation. Several of the NEAPs have been carried out under the direct sponsorship of the head of state; including Rwanda, Lesotho, and Madagascar (Falloux et al 1991). As a mechanism to build commitment within the agencies charged with policy implementation, the Gambia's Multisector Task Force arranged for their report and recommendations to be promulgated as a cabinet paper by the Minister of Agriculture (Gambia 1990). Commitment is not irreversible and can derail policy reform, as an interviewee example from Senegal shows. In November 1991 the President of Senegal, under political pressure from Mouride religious groups to increase availability of agricultural lands, cancelled an executive order that had designated 40,000 hectares of virgin timber as protected forests.

This example illustrates another concern voiced in the literature regarding the source of initiative for NRM policies and its relationship to commitment. Some NRM policies arise mainly at the initiative of, and pressure from, international donors (Atkinson 1991, Turnham 1991). For example, biodiversity was mentioned as falling in this category. Analysts raised questions about how committed developing country governments really are to implementing NRM policies. As has been observed regarding development assistance in general, in some cases host country governments acquiesce to policy targets and programs out of a desire to gain access to needed resources rather than out of "true" commitment to those policies and programs (Brinkerhoff 1986, Cohen et al 1985, White 1990).

Commitment among staff of implementing agencies is mentioned in numerous sources. Again the literature on forestry in the Sahel addresses this issue, noting in particular the problems of generating commitment to participatory NRM practices in "old school" foresters used to enforcing regulations, fining violators, and pocketing side-payments (Elbow and Rochegude 1990, Gregerson et al 1989, Honadle 1990, Shaikh et al 1988, Sayer 1990, Thomson 1985). Community wildlife programs face similar problems (Ledec and Goodland 1988, Munasinghe and Wells 1990, USAID 1990c).

The literature also addresses commitment issues among resource users. Many authors cite the centrality of local commitment to NRM policies (Heermans and Minnick 1987, Talbott 1990, Mallya and Talbott 1990). The commitment-incentives link is key here; local resource users' commitment to NRM policy implementation is constrained by their need to survive, and the absence of economically viable incentives for nondestructive NRM (Costello et al 1990, Thomson 1991). The literature on insecurity of land tenure and its impact on incentives directly addresses the commitment issue from the resource users' viewpoint (Barrows and Roth 1989, Bruce and Fortmann 1989, Bruce et al 1990, Lawry 1991, Ledec 1985, LTC 1991, Stienbarger 1990).

A few sources specifically targeted private sector (for-profit as opposed to NGO/PVO) commitment to NRM, emphasizing the weak incentives for conservation and the consequent low commitment to sustainable economic development. Elbow (1991), writing about Niger, notes that non-local, private wood merchants will clear forests if restrictions and fines are not harsh; they seek short-term economic gain, do not live in the area, and see no personal stake in the preservation of the resource. A more sanguine perspective comes from a case study of the Cameroonian timber industry, which argues that if loggers have the responsibility for their future resources, they will be more committed to operating in an ecologically responsible way (Gartlan 1990, see also Maddy 1986). Other analyses approach private sector commitment to NRM from the perspective of common property and incentives to consume or conserve (see, for example, Bromley and Cernea 1989).

5. Ongoing Stakeholder Support

Almost all of the NRM literature we reviewed recognized that support from key stakeholders is associated with successful policy implementation. Repeatedly mentioned are the need to accurately identify stakeholders, including winners and losers (Chopra 1989, Gamman 1991, Honadle and Cooper 1989, Thomson 1985); to facilitate participation of stakeholders in the policy decision-making and implementation process (Blackwell et al 1991, Catterson 1988, Dorm-Adzobu et al 1991, Elbow 1991, Gregerson et al 1989, Mallya and Talbott 1990, Opsal and Talbott 1990, Shaikh et al 1988, Talbott 1990, Warsame 1990); and to recognize and address the incentives and disincentives for improved NRM, policy reform, and organizational change (Honadle 1990, Lawry 1990, Ledec 1985, Morell and Poznanski 1985, Weiss 1991).

Identifying Stakeholders

Sources pointed out that among the features contributing to the complexity of NRM is the number and diversity of stakeholders involved. Illustrative of this complexity is Elbow's (1991) analysis of NRM in Niger's Baban Rafi forest, which discusses the numerous user groups and assesses winners and losers. He identifies: 1) farmers, who are potential losers if forests are preserved rather than cleared; 2) transhumant herders, for whom the preservation of forest and pastures is important, but their desire to maximize animal populations creates an unsustainable NRM situation; 3) local woodcutters, who have a minimal stake in the process because of having diversified their economic activities, but would like to harvest wood for profit as one component of their livelihood strategies; 4) commercial woodcutters, whose major interests are profit generation and employment, and, having no stake in the local environment, will cut wood until it is gone or until someone prevents them from doing so; 5) women, for whom reduced availability of fuelwood means increased gathering time, and thus a higher aggregate workload; 6) traditional healers and others with special niches (e.g., sculptors) whose interests support the maintenance of biodiversity of herbs and trees. Elbow goes on to analyze the patterns of interaction among these groups, the formal and informal systems of NR rights, allocation mechanisms, and exploitation modes, and incentives for and against sustainable NR use.

Most analysts focus their attention on user groups at the local level that are the target of NRM policies. Several sources, however, note the need to extend the stakeholder analysis perspective "beyond community-level human organizations to include more

formal organizations... (Fleuret 1988: 71)." The stakeholders in this broader arena are particularly important because they include the implementors of NRM policies, whose interests and behaviors have a direct impact on how effectively policy directives are translated into action. For example, Thomson (1985) includes government officials in his assessment of winners and losers in Niger. Among the winners he identifies in this group are forestry agents who take bribes instead of collecting fines, and livestock agency staff who sell water illegally to herders. Other writings on Sahelian forestry policy also focus attention on forestry agents as major stakeholders in the process (e.g., Elbow and Rochgude 1990, McLain 1991).

Policy implementation in any sector depends upon the actions of a broad array of agencies and groups (Brinkerhoff 1991). Thus the number of stakeholders falling in the category of implementors can be large, sometimes larger than the number of beneficiary target groups. Honadle and Cooper (1989), for example, report on stakeholder analyses of implementor groups for social forestry policy in Malawi and Zimbabwe where as many as 20 different entities were identified as having roles to play. Similarly, the NEAP process has involved significant numbers of actors (Talbot 1990). This feature of NRM policy implementation significantly adds to the challenge of successfully translating policy intent into action and impact. As one of the classic studies of policy implementation demonstrated, implementation delays increase exponentially as the number of stakeholders with veto power of one sort or another rises (Pressman and Wildavsky 1973).

An issue raised by several sources as important for charting NRM winners and losers is the time factor. Those who are consistent winners become stronger and more entrenched over time, and perennial losers become weaker and more vulnerable. Among NR users, winner groups develop increasingly powerful access to resources and patterns of resource use that are hard to modify. Chopra (1989: 343) makes the point about India, but equally applicable to Africa, that, "over a period of years, the 'gainers' [industry and agriculture] have consolidated themselves into powerful interest groups making it difficult to introduce change that alters the direction of [NR] management. This may pose a threat to implementing optimal resource utilization [policies]." Thomson's case study of Niger illustrates how the dynamics of this process over time decrease the possibilities for improved NRM. Increasingly at-risk rural groups, as part of their survival strategies, seek to,

... create and strengthen patron-client alliances. Poor peasants and herders seek patrons for protection. They are thereby removed from the pool of potentially mobilizable individuals who might engage in pro-environmental political action at some future point: patrons do not want to reduce their leverage by stemming the environmental degradation which has driven clients to them in the first place (1985: 241).

A further effect of the time dimension is the uncertainty it introduces into making future assessments about winners and losers from NRM policies. The complexities and gaps in knowledge of NRM limit policy-makers' and implementors' capacity to be predictive with high degrees of confidence. As several sources and interviewees noted, this fact highlights the need for effective policy monitoring (Hassan et al 1990, Hirji and Ortolano 1991, Weber 1991a, World Bank 1991a).

Among implementors the time factor also plays a role in influencing winners and losers. Many NRM policy planning and implementation entities are relatively new additions to the public sector of host country governments. As many of the institutional analyses in the A.I.D. documents noted, newly formed NR and environment ministries and agencies tend to be fragile and weak (e.g., USAID 1991a, 1991c, 1990b; see also Zimmermann 1991). Although they will be winners if policies are successfully implemented, they face an extremely powerful set of bureaucratic and political losers who have been in place for a relatively long period of time.

Facilitating Participation

Participation has long been recognized as instrumental for the achievement of sustainable development objectives (Brinkerhoff and Goldsmith 1990 and 1992, Cohen and Uphoff 1980, Finsterbusch and Van Wicklin 1987, Panos Institute 1987). As noted above, issues of participation occupy a prominent place in the NRM literature. For example the planning process for developing a conservation of biodiversity policy for Lake Tanganyika used a participatory "whole-basin" model, "involving authorities on fisheries development, parks and regional land use, watershed management and deforestation. [B]ringing together individuals with a range of concerns ... [built] an early consensus on those actions which are both vital and feasible, given the socioeconomic and political realities of the region" (Cohen 1991: 5). The gains in realism and implementability of NRM plans resulting from increased participation are also cited in the case of the NEAPs (Talbot 1990, Opsal and Talbot 1990).

The flip side, lack of participation, particularly by indigenous people, is the topic of several critical reviews of other planning experiences (e.g., Winterbottom 1990). This type of criticism is closely linked to discussions of the need for, and benefits of, indigenous local-level knowledge about NRM to make policy prescriptions effective (e.g., Niamir 1990, Thompson 1991). The wider development literature also advocates increased inclusion of local knowledge to increase the effectiveness of interventions in the rural development sectors (e.g., Cernea 1985, Korten and Klaus 1984).

As discussed previously in the section on policy implementation arrangements, much of the NRM literature discusses the utility and appropriateness of using NGOs to facilitate participation in policy analysis, planning, and implementation (Talbot 1988, Ross and Getahun 1987, Niamir 1990, see also Paul and Israel 1991). NGOs have a well-recognized place in NRM and environment issues; playing a variety of roles: advocacy, monitoring and "watchdogging," education and awareness, direct intervention, and technical assistance. Regarding wildlife conservation, Ledec and Goodland (1988) provide a long list of national and international NGOs. Talbot (1988) inventories NGOs with NRM intervention and technical assistance capacity in West Africa.

From a policy implementation perspective, it is important to recognize that broad and sustained participation is not costless for stakeholders. Local populations, as many sources note, view involvement in NRM in terms of its relationship to their survival strategies and economic activity. With limited time, energy, and resources, local people, and especially the poor living at the margin, weigh their choices carefully (e.g., Thomson 1985). For policy managers, fostering participation means spending more time in meetings and discussions, dealing with delays in achieving targets, negotiating new roles with stakeholders, bargaining over resource commitments, lobbying for support, and coordinating joint action (Brinkerhoff 1991, Honadle and Cooper 1989). Referring to the inclusive process countries are using in the NEAPs, Talbot (1990: 45) concludes that,

Achieving participation is difficult and time-consuming. Real participation is vertical (i.e., between the rich and the poor; the formally educated at schools and universities and those educated by other means; and between the tiny percentage of people who have access or even control of national and regional decision-making processes and those who effectively do not). Governments and donor organizations, for the most part, have insufficient tools to induce authentic participation. Environmental challenges often invoke contentious issues relating to the political and economic conflicts between vested interests and the livelihood struggles of the disenfranchised.

Addressing Incentives

Incentive issues are intimately connected to stakeholders (winners and losers) and options for participation. The NRM literature looks at incentives for both resource users (the targets of policy intervention) and policy implementors, though the former group is the subject of more in-depth and detailed treatment. One common theme is the conflicting incentive frameworks that are created by inherently conflicting policies.

This theme emerges in the structural adjustment and NRM discussion (e.g. Kyle 1989, Stryker et al 1988), and the more general topic of the anti-NRM impacts of the prevailing economic development paradigm (Atkinson 1991, Miller 1991, Schramm and Warford 1989). It is highlighted, for instance, in the literature on sustainable agriculture and desertification where incentives to abuse lands to feed growing populations and achieve some degree of food security outweigh those for NR conservation (Falloux and Mukendi 1988, Okigbo 1990, OAU 1991). It also appears in the sources that examine land tenure policies and their impacts on NRM in forestry, rangelands, and agriculture (Lawry 1990 and 1991, Falloux and Roehgude 1988).

A related theme the literature addresses concerns conflicts among incentives due to differential impacts on various stakeholders. The example of Sahelian forestry co-management policy mentioned elsewhere is relevant here. Though the policy is designed to provide incentives for local people to manage trees in ways that conserve the resource, it offers few incentives for forestry agents to change their enforcement operating mode (Heermans and Minnick 1987, Elbow and Roehgude 1990). Another example comes from the Gambia, where Bruce et al (1990) note the potential incentives conflicts in the government's State Land Bill, which basically privatizes all lands with government titling. This bill, if passed, will pit traditional landholders against potential investors and entrepreneurs.

Of particular importance for examining the interplay between NRM stakeholders and incentives is the question of timeframe. Numerous authors point out that the benefits of improved NRM show up mainly in the long-term. However, in the case of the poor, the exigencies of short-term survival overwhelm any incentives for NR conservation or sustainable use (Lawry 1990, Thomson 1985). Even if people are not living on the margin, the time dimension of NRM causes problems for incentives. Because many environmental changes are gradual rather than dramatic, with diffuse rather than concentrated effects over the years, people do not see the cause-and-effect linkages between new NRM practices and outcomes. In short, people's incentives to change practices and behaviors are weak when they do not perceive that: a) there is a problem, or b) the immediate costs are worth the effort for the long-term benefits. Stryker et al (1988: 79) put the time-incentives issue in economic terms, observing that,

Poor farmers without access to capital markets have a relatively high rate of time preference, which causes them to value current much more than future consumption. This effect may be strengthened if the environment in which they operate is very risky. As a result, they are not likely to invest in soil conservation, [or trees, long-term plantings, infrastructure, and so on].

On the topic of incentives for NRM policy implementors, the treatment in the literature has somewhat less depth than that focused on NR user groups, with a few exceptions. Already noted are the sources that discuss Sahelian forestry and the incentives mismatch between local-level forestry department personnel and the new community co-management policies (e.g., Elbow and Rochegude 1991, Thomson 1985). As discussed earlier, other sources, including many of the A.I.D. NPA analyses (USAID 1990a, 1990b, 1991a), cite the negative impacts of African civil service system procedures and practices on the incentives for public employees to engage in the behaviors called for to implement new NRM policies (e.g., Schramm and Warford 1989, Stryker et al 1989, Zimmermann 1991). These include: inadequate pay scales, corruption, insecurity of job tenure, highly personalized promotion practices, lack of vehicles and other equipment, and so on.

6. Supportive and Stable Socioeconomic and Political Conditions

Supportive and stable socioeconomic and political conditions are often underemphasized in relation to economic and technical issues when development interventions are designed and implemented (Brinkerhoff 1991). Nevertheless, they can be critical for policy implementation success. Because much of the NRM literature has a strong local-level focus and a normative orientation toward discovering and applying local peoples NR knowledge, sociocultural variables are frequently mentioned as important factors (e.g., Barrows et al 1990, Thompson 1991, Wamalwa 1990). For example, Winterbottom (1990) urges the inclusion of sociocultural data and indigenous knowledge in the preparation of Cameroon's Tropical Forestry Action Plan, and notes that such information is too often overlooked. Atkinson's perspective reinforces this point (1991: 409):

traditional environmental knowledge is not only devalued by development institutions, it is likely also to be largely overlooked in the environmental management literature ... without knowledge of the culture a people possess one is unlikely to be aware of their knowledge of their environment.

The interplay between socioeconomic and political conditions and successful NRM policy implementation is not easily investigated. Sources note that it requires a long-term understanding of people's livelihood strategies and resource use patterns (e.g., Anderson and Grove 1987, Hassan et al 1990). Donors, as well as host country agencies, are often not willing to invest substantial resources on "background" information (e.g., Rondinelli 1983). Only seven of the 19 projects surveyed mention cultural/ethnic issues as a factor for the project. However, many donor projects fail to produce sustained results, due in part to the lack of information or misinformation

about social and political forces (see Brinkerhoff and Goldsmith 1990, Cernea 1985, Korten and Klauss 1984).

Several sources noted that understanding of cultural factors can assist policy makers and implementers to determine local receptivity to an NR intervention (Bruce and Fortmann 1989, Muir-Leresche 1989/90, Wamalwa 1990). For instance, Elbow (1991: 5) makes an interesting observation about the general settlement pattern in Niger and its effect on NRM:

It is significant that the area still retains many of the characteristics of a pioneer area--a region still in the process of being settled ... The point to note is that these settlers did not come with sophisticated and pre-existing resource use/access codes that could be transferred to an untamed forest. Settlement and resource exploitation sites were chosen according to natural resource preferences (e.g., sandy over clay-like soils) and supernatural beliefs, and were little subject to social restrictions.

Some groups have difficulty accepting new policies and/or organizational structures for cultural reasons: "... the Fulani, due to their historic role as herders, were not as willing to buy into the cooperative structure as the Hausa. The Fulani did not care for the meetings, or the cooperative ventures to plant trees" (Elbow 1991: 6). Other groups, because of cultural characteristics, have been identified by projects to assist in policy implementation; the Touaregs, for example, were chosen as forestry guards given their supportive cultural traditions (Shaikh et al 1988). Some projects have incorporated the cultural importance of sacred trees and areas as part of the religion to maintain areas of greenery (Elbow 1991; Do:m-Adzobu et al 1991)

One subset of the literature that deals directly with the stability of the socioeconomic and political setting discusses NRM in African countries that have experienced civil wars. For example, O'Keefe et al (1991) look at Mozambique where natural resources continue to degrade because there is no chance to reach consensus on NRM policy due to the level of societal turmoil. Mallya and Talbott (1990) cite the negative impacts of 20 years of war and economic mismanagement on the prospects for implementing NRM policy reforms in Uganda.

IV. STRATEGIC QUESTIONS FOR NATURAL RESOURCES MANAGEMENT POLICY IMPLEMENTATION IN AFRICA

This review has analyzed and summarized a large quantity of written and interview material on NRM policy implementation issues in Africa. The findings illuminate key features of NRM policies that have an impact on implementation prospects and problems. As we noted in the introduction, a "desk-top" study such as this one is limited by the secondary nature of the sources used. For this reason, we have not ended the study with a set of definitive conclusions, but rather with a list of questions. These questions address NRM policy implementation strategies and tactics. We suggest that answering them will assist African nations and A.I.D. to better design and manage policy interventions in the NR sector.

Summary of Key Features of NRM Policies and Implications for Implementation

The literature review has made clear that for each of the factors associated with successful policy implementation identified by Mazmanian and Sabatier (1989), their expression in the NR sector in Africa reveals significant complexities and difficulties. Thus it is not surprising that African countries and the donor agencies working with them on NRM policies have encountered delays, setbacks, and frustrations, as well as some successes.

Development policy implementation in Africa is a challenge in all sectors, as is well-recognized (Brinkerhoff 1991, Grindle and Thomas 1991). Several features of NRM policies, however, stand out as particularly troublesome from an implementation perspective. These include: the underlying contradiction between sustainable NRM and the prevailing economic development paradigm, the nature of NRM costs and benefits, the negative orientation embodied in NRM regulations, and the tendency for NRM issues to generate conflict (cf. Guimaraes 1991).

Implicitly, and in many cases explicitly, NRM policies call into question the national development strategies African countries pursue. In particular they challenge long-standing sectoral policies in the agriculture, industry and commerce, and irrigation sectors. Whereas actions in these sectors provide tangible goods and services to society in pursuit of positively-valued objectives; NRM policies in many situations play a "spoiler" role, highlighting the contradictions in society's economic activities with regard to NR use. NRM policy-makers and implementors have come under pressure to

recast policy content in terms of positive contribution to national development so as to generate improved attitudes and response.

From a policy implementation perspective, NRM costs and benefits are problematic in a variety of ways. The first dilemma is the quantification of costs and benefits, and assignment of value to NR. The second difficulty concerns the barriers to individualizing costs and benefits that flow from the common property characteristics of NR. Third is the uneven distribution of costs and benefits among different social groups. Fourth is the disjuncture between the time when costs are incurred and when benefit flows begin. These issues cause problems due to their strong impacts on incentives among the various stakeholders involved in NRM.

The content of most NRM policies is embodied in systems of rules and regulations that are essentially proscriptive, imposing penalties and fines for violations. The emphasis is on "don'ts" rather than "dos." In the African context, where administrative and political factors lead to selective enforcement, NRM policy implementation opens the door to distortion of incentives as users try to circumvent regulations, and to corruption as enforcers engage in rent-seeking. The results breed cynicism, perceptions of unfairness, and reduced commitment among NR users and implementors alike.

As a result of the interplay among these various features, NRM policies show a strong tendency to generate conflicts. Because access to, and exploitation of, NR cuts to the heart of "who gets what", NRM policy crystalizes the divisions and tensions that exist within individual countries. Since resources do not respect national boundaries, these schisms and pressures extend controversies regionally and even globally. NRM policies provoke conflicts along numerous, interconnected dimensions, such as: rural-urban, rich-poor/big-little, nomad-farmer, national-regional-local, public-private, North-South. African societies and public officials (including those with NRM policy responsibility) tend to avoid conflict. This raises the potential for implementation failure by setting up a cycle where: a) the more controversial the NRM policy, the more likely it is not to be fully formulated and elaborated (despite official rhetoric), b) the more ill-designed and poorly carried out the policy measures, the weaker the implementation and impacts, and thus c) the higher the degree of failure.

Strategic Questions

Given the complexities of NRM policy implementation, further investigation of implementation issues is called for to increase the utility, effectiveness, and impact of donor and host country resources allocated to addressing NR issues. The following list

compiles our assessment of the strategic implementation questions that deserve analytic and operational attention. The list is presented according to the same categories used in the literature review.

Clarity and Consistency of NRM Policy

- * How can NR policies be designed that are sufficiently clear and consistent to guide the development of needed organizational capacity and the management of resources, yet sufficiently flexible to deal with the complexity of the changing natural and institutional environments? Is there a policy matrix that could provide flexibility at the national level and specificity at the local level, address the linkages between the two, and respond to accountability concerns through monitoring and evaluation?
- * Is there a way to sequence NR policy reforms to increase clarity and consistency of policy objectives? A logical first step is to determine whether the formation and implementation of a new policy is an improvement over the status quo. A second consideration is the order in which to address underlying institutional and structural conditions and specific technical NR issues.
- * Does the presence of international donors facilitate the formation of clear policy objectives, or confuse the process with overarching global environmental issues? Some African countries have started to make decisions on how they want their policies implemented without step-by-step input of international donors.
- * What information and tools are appropriate to ensure the formation of clear and consistent NRM policies? What information source(s) are appropriate to make NR policy decisions, and can the information be verified? Will the information be presented in a way such that policy makers and implementors can understand it? Surveys, assessments, remote sensing data, and so on can be used to inform policy decisions, but each has strengths and weaknesses.

Identification of Critical Factors and Linkages Necessary for Achieving Policy Objectives

- * Given the complexity and multiplicity of factors and linkages that characterize NRM policy, how can the policy frameworks currently in use in Africa be modified to give greater emphasis to implementation? Starting points are the NRMAA framework used by A.I.D.'s Africa Bureau and the National Environmental Action Plans (NEAPs), supported by the World Bank and A.I.D.

Others may include the Tropical Forestry Action Plans (TFAP) or Environmental Impact Assessments (EIAs).

- * Are there ways to more closely link NRM policies to systemic national problems such as population growth/poverty and macroeconomic policies? Treatment of these latter issues without consideration of natural resources will further weaken the NR base.
- * What consciousness-raising and public education campaigns are appropriate for the encouragement of specific NR policy reforms, and take into account cultural and ethnic biases and constraints?
- * What value (monetary or otherwise) can be assigned to standing natural resources to encourage the sustainable use of NR? Economists can encourage cost/benefit studies and present them to policy-makers and implementors, but can policies be designed to generate immediate, short-term economic impacts that concretize the value of conserving NR (e.g., gamepark revenue-sharing, increased commitments from international donors, etc.)?
- * What local knowledge of natural resources should be "mined" by national policy-makers to feed into policy decisions and implementation? Can the linkages between national policy to local-level implementation be strengthened by better long-term information collection systems?

Policy Implementation Arrangements

- * What should the structure of an apex NR entity look like given the complexity of the tasks and the cross-cutting character of NRM? What subunits are appropriate? Some of the critical tasks that would be required by the units would be environmental research and assessment, environmental economics and resource valuation, socioeconomic and ethnic studies, outreach and public relations, donor and non-governmental coordination, and so on.
- * How should relationships be managed between a newly established NR ministry and traditional line ministries such as agriculture, planning, and/or finance? Those ministries with established bureaucracies and procedures may overwhelm and dominate natural resources, and weaken well-intentioned long-range policies. Can NRM top leadership be induced or trained to buffer the ministry from bureaucratic threats and champion NRM policies effectively?

- * What is the most appropriate role of representative bodies and court systems in NRM co-management? The legislative bodies of the Sahelian countries of Mali, Niger and Senegal play a key role in the determination of forestry resources as they struggle with the vestiges of the colonial forestry code. Likewise, courts will have to determine whether violations of natural resource laws and regulations are strictly upheld, or are influenced by sectoral concerns.
- * Which incentives encourage individual behavior modification among managers, and which ones support organizational change? Behavioral change is critical at all implementation levels and may take the form of awards, temporary cash incentives and rebates, or community recognition; organizational incentives may include those used in other sectors (training, increased professional challenge, new equipment, travel, and so on).

Management and Political Skills, and Commitment

- * Are there better ways of assessing level of commitment to NRM policy before implementation begins, and during implementation to monitor changes in commitment? How can ownership for NRM policies best be generated for host country managers?
- * How can leadership be encouraged at national and local levels for NRM policy implementation? Policy champions will be required at all levels of implementation. The differences in orientation at each level (from the politically-minded chief executive to the technically-oriented forestry or park agent) will be important to consider.
- * The use of social and political mapping is critical to NR strategic management. How can these techniques be applied to NR mapping to determine winners and losers in NR policies? This could help policy makers and implementors consider the downstream or secondary effects of NR policies.
- * With the increased involvement by donors and PVOs in assisting host country governments and local organization to set up management structures for implementing policies, how will ownership of those structures be transferred to the host country policy-makers and implementors?
- * What organizational change techniques can help NRM policy implementation agencies make the transition to new organizational missions and roles (enforcement to co-management)? What timeframe is realistic? What are the costs involved (budget and political/social)? Many of the A.I.D. NR projects are

steering away from enforcement as the primary implementation approach, but reorienting enforcement-oriented agencies has proven difficult.

- * What management tools and techniques are the most useful to support the NRM co-management policy implementation strategy? What training will be appropriate, especially for a mix of implementors with different ideas, skills, and experience? How can the strategic management skills of NR policy implementors (public, NGO and private) be improved given the complexity of the task, and typically, the lack of funds?

Ongoing Stakeholder Support

- * Should intergenerational issues be factored into NRM policy? Future generations will be impacted by the actions and policies of the present. Who should represent their interests? How?

- * Can NRM incentives be more closely targeted to different stakeholders in ways that facilitate implementation? How can stakeholders be presented the advantages of long-term NRM policies? Subtle environmental changes (negative or positive) are difficult to see, but there may be ways of communicating specific information to different stakeholder groups.

- * When a NR policy is implemented, is it clear to stakeholders and beneficiaries what they will gain from the policy? Many NR innovations are based on technical innovations where the long-term benefit may not be clear in the face of short-term costs.

- * Which stakeholders should be included in designing implementable NR policies? Should task force committees include such diverse groups as business leaders, agribusinesses, traditional village chiefs, utilities representatives, etc? Can other groups be brought along later in the process?

- * How can a multilevel incentive system be designed so as to create attractive incentives for different stakeholders? The differences may be cultural, socioeconomic, gender, age, or present occupation.

Supportive and Stable Socioeconomic and Political Conditions

- * How can socioeconomic and political data be packaged so that NRM policy-makers and implementors can factor them into policy decisions?

* Are there minimum socioeconomic and political conditions needed for successful NRM policy implementation that can be used to make "go/no go" decisions? How can these decisions be measured? Some situations are obvious (civil war), but other areas requiring NRM policy intervention may have underlying conditions making implementation impossible.

V. Annexes

ANNEX 1.

ARTICLE III - SCOPE OF WORK
(Contract No. DHR-5451-Q-00-0110-00
Delivery Order No. 7)

A. Conduct an analysis of the literature, and identify significant organization and management tasks required by African and other LDC organizations to implement particular natural resources policies. The primary data bases will be natural resources management studies and funding documents prepared for and by the African Bureau and African Missions, and key documents from S&T/RD, S&T/AGR, S&T/ENR, PPC/CDIE and PPC/PDPR. Where no such identification is explicit in this literature, then from the contractor's knowledge of public and community management particularly in Africa, instances where such tasks are to be expected will be identified.

B. Consult with the leading professional and donor agencies that are actively engaged in designing, monitoring or financing policy reform efforts in the natural resources sector in Africa. Visits will be scheduled to, among others, the World Resources Institute, the Wisconsin Land Tenure Center, Associates in Rural Development, Inc. and appropriate offices of the World Bank, UNDP and AID. Visits will be structured to gather written materials on policy change and implementation as well as to interview leading experts and practitioners. Topics to be covered will include the types and objectives of policy reform exercises, policy reform design (including ways to facilitate implementation), incentives for policy reform including non-project assistance, and issues and ways of dealing with policy reform.

The contractor will also discuss organizational issues with respect to the reform process and the implementation of natural resources management policies (e.g.: supervision, personnel management, regulations, budget, cash disbursement procedures, the planning process, delegations of authority, information systems, etc.).

C. From this analysis, the contractor will delineate a range of strategy questions for investigation for the strategic management of natural resources policy change. These may concern such issues as: a) timing and level of implementation; b) commitment, initiative and leadership and at what level and by how many organizations; c) structural incentives; d) organizational performance and competence; e) degree of change required; extent to which customary practice and thinking can be used or new concepts are required; and f) coping with externalities.

D. After discussions with AFR Bureau and Mission personnel, specific initial IPC "interventions" will be suggested in respect to specific policies in particular countries.

E. The contractor shall organize a workshop in which other regional projects and resources which support natural resources management in Africa, such as DESFIL, EPAT, ACCESS, The World Resources Institute, and the U.S. Forest Service and the IPC Project can explore and develop systematic ways for complementary work and for exchange of information. The results of the research conducted in A through C above will be reported in this workshop.

ANNEX 2.

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